FCC RADIO TEST REPORT

FCC ID	:	**N7NEM92**
Equipment	:	**Wireless Module**
Brand Name	:	**AirPrime**
Model Name	:	**EM9293**
Applicant	:	**Sierra Wireless, ULC** **13811 Wireless Way, Richmond, BC V6V 3A4 Canada**
Manufacturer	:	**Sierra Wireless, ULC** **13811 Wireless Way, Richmond, BC V6V 3A4 Canada**
Standard	:	**FCC 47 CFR Part 2, Part 90(R)**

The product was received on Mar. 10, 2023 and testing was performed from Apr. 06, 2023 to Jul. 19, 2023. We, Sporton International Inc. EMC & Wireless Communications Laboratory, would like to declare that the tested sample has been evaluated in accordance with the test procedures given in ANSI / TIA-603-E and has been in compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval from Sporton International Inc. EMC & Wireless Communications Laboratory, the test report shall not be reproduced except in full.

Louis Wu

Approved by: Louis Wu

Sporton International Inc. EMC & Wireless Communications Laboratory
No. 52, Huaya 1st Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C.)

Table of Contents

History of this test report **3**
Summary of Test Result **4**
1 General Description **5**
1.1 Product Feature of Equipment Under Test 5
1.2 Modification of EUT 5
1.3 Testing Location 5
1.4 Applicable Standards 6
2 Test Configuration of Equipment Under Test **7**
2.1 Test Mode 7
2.2 Connection Diagram of Test System 8
2.3 Support Unit used in test configuration and system 8
2.4 Measurement Results Explanation Example 8
2.5 Frequency List of Low/Middle/High Channels 9
3 Conducted Test Items **10**
3.1 Measuring Instruments 10
3.2 Conducted Output Power 11
3.3 Peak-to-Average Ratio 12
3.4 Occupied Bandwidth 13
3.5 Conducted Band Edge 14
3.6 Emission Mask 15
3.7 Conducted Spurious Emission 16
3.8 Frequency Stability 17
4 Radiated Test Items **18**
4.1 Measuring Instruments 18
4.2 Radiated Spurious Emission Measurement 20
5 List of Measuring Equipment **21**
6 Measurement Uncertainty **22**
Appendix A. Test Results of Conducted Test
Appendix B. Test Results of Radiated Test

History of this test report

Report No.	Version	Description	Issue Date
FG2D2006H	01	Initial issue of report	Sep. 07, 2023

Summary of Test Result

Report Clause	Ref Std. Clause	Test Items	Result (PASS/FAIL)	Remark
3.2	§2.1046	Conducted Output Power	Reporting only	-
3.3	-	Peak-to-Average Ratio	Reporting only	-
3.4	§2.1049	Occupied Bandwidth	Reporting only	-
3.5	§2.1051 §90.543 (e)(2)	Conducted Band Edge Measuremen (Band 14)	Pass	-
3.6	§2.1051 §90.210 (n)	Emission Mask (Band 14)	Pass	-
3.7	§2.1051 §90.543 (e)(3)	Conducted Spurious Emission (Band 14)	Pass	-
3.8	§2.1055 §90.539 (e)	Frequency Stability Temperature & Voltage	Pass	-
4.2	§2.1053 §90.543 (e)(3) §90.543 (f)	Radiated Spurious Emission (Band 14)	Pass	19.80 dB under the limit at 1576.00 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.

Reviewed by: Danny Lee

Report Producer: Clio Lo

1 General Description

1.1 Product Feature of Equipment Under Test

Product Feature
General Specs WCDMA/LTE/5G NR, and GNSS.

Remark:

1. The EUT's information above is declared by manufacturer. Please refer to Disclaimer in report summary.
2. The maximum allowable antenna gain is determined by the manufacturer.

1.2 Modification of EUT

No modifications made to the EUT during the testing.

1.3 Testing Location

Test Site	Sporton International Inc. EMC & Wireless Communications Laboratory
Test Site Location	No.52, Huaya 1st Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C.) TEL: +886-3-327-3456 FAX: +886-3-328-4978
Test Site No.	**Sporton Site No.**
	TH03-HY
Test Engineer	Cotty Hsu
Temperature (℃)	22.3~22.9
Relative Humidity (%)	52~54

Test Site	Sporton International Inc. Wensan Laboratory
Test Site Location	No.58, Aly. 75, Ln. 564, Wenhua 3rd, Rd., Guishan Dist., Taoyuan City 333010, Taiwan (R.O.C.) TEL: +886-3-327-0868 FAX: +886-3-327-0855
Test Site No.	**Sporton Site No.**
	03CH11-HY (TAF Code: 3786)
Test Engineer	Yuan Lee, Bank Lin and Troye Hsieh
Temperature (℃)	19.8~23.5
Relative Humidity (%)	53.1~68.1
Remark	The Radiated Spurious Emission test item subcontracted to Sporton International Inc. Wensan Laboratory.

Note: The test site complies with ANSI C63.4 2014 requirement.

FCC Designation No.: TW1190 and TW3786

1.4 Applicable Standards

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

- ANSI C63.26-2015
- ANSI / TIA-603-E
- FCC 47 CFR Part 2, Part 90(R)
- FCC KDB 971168 D01 Power Meas. License Digital Systems v03r01
- FCC KDB 412172 D01 Determining ERP and EIRP v01r01
- FCC KDB 414788 D01 Radiated Test Site v01r01.

Remark:

1. All the test items were validated and recorded in accordance with the standards without any modification during the testing.
2. The TAF code is not including all the FCC KDB listed without accreditation.

2 Test Configuration of Equipment Under Test

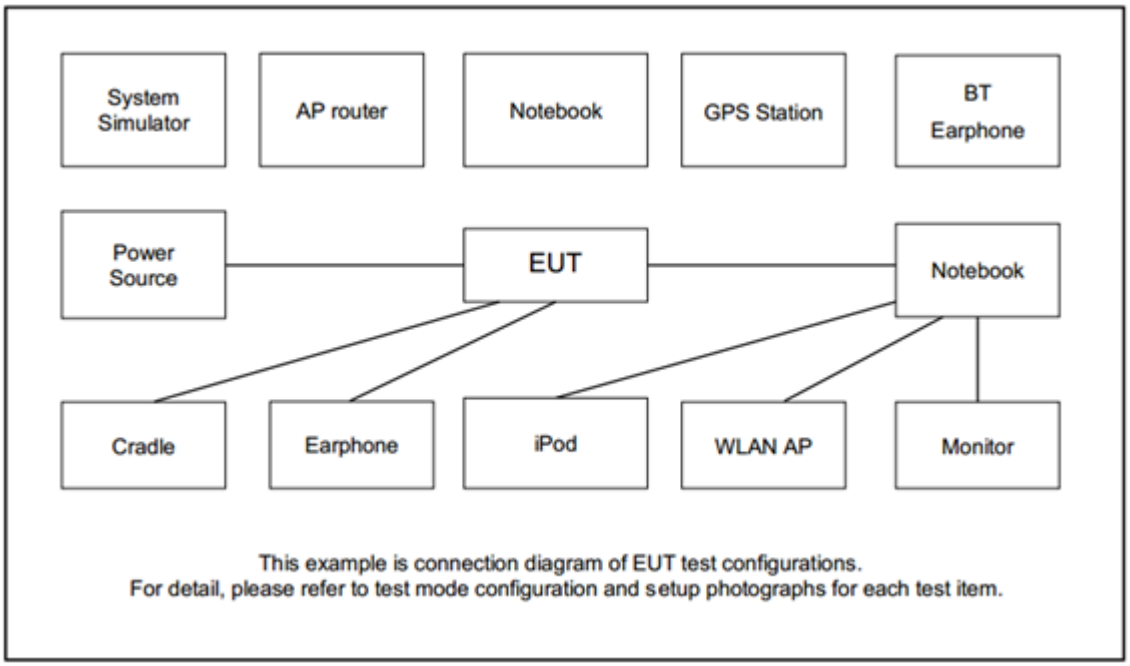
2.1 Test Mode

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.

For radiated measurement, the measured emission level of the EUT was maximized by rotating the EUT on a turntable, adjusting the orientation of the EUT and EUT antenna in two config (Ant. Horizontal and Ant. Vertical), and adjusting the measurement antenna orientation, following C63.26 exploratory test procedures and only the worst case emissions were reported in this report..

Conducted Test Cases	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	14	-	-	v	v	-	-	v	v	v	v	v	v	v	v	v	v
Peak-to-Average Ratio	14	-	-		v	-	-	v	v	v	v			v		v	
26dB and 99% Bandwidth	14	-	-	v	v	-	-	v	v	v	v			v		v	
Conducted Band Edge	14	-	-	v	v	-	-	v	v	v	v	v		v	v		v
Emission Mask	14	-	-	v	v	-	-	v	v	v	v	v		v	v	v	v
Conducted Spurious Emission	14	-	-	v	v	-	-	v				v			v	v	v
Frequency Stability	14	-	-		v	-	-	v						v		v	
Radiated Spurious Emission	14	Worst Case													v	v	v
Remark	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. One representative bandwidth is selected to perform PAR and frequency stability.																

2.2 Connection Diagram of Test System



2.3 Support Unit used in test configuration and system

Item	Equipment	Brand Name	Model No.	FCC ID	Data Cable	Power Cord
1.	System Simulator	Anritsu	MT8821C	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 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 4.2 dB and 10dB attenuator.

Example :

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

= 4.2 + 10 = 14.2 (dB)

2.5 Frequency List of Low/Middle/High Channels

LTE Band 14 Channel and Frequency List				
BW [MHz]	**Channel/Frequency(MHz)**	**Lowest**	**Middle**	**Highest**
10	Channel	-	23330	-
	Frequency	-	793	-
5	Channel	23305	23330	23355
	Frequency	790.5	793	795.5

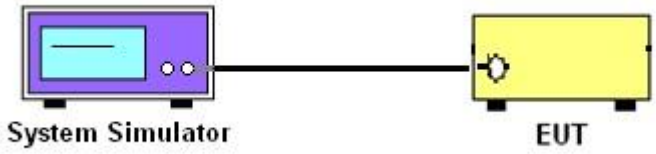
3 Conducted Test Items

3.1 Measuring Instruments

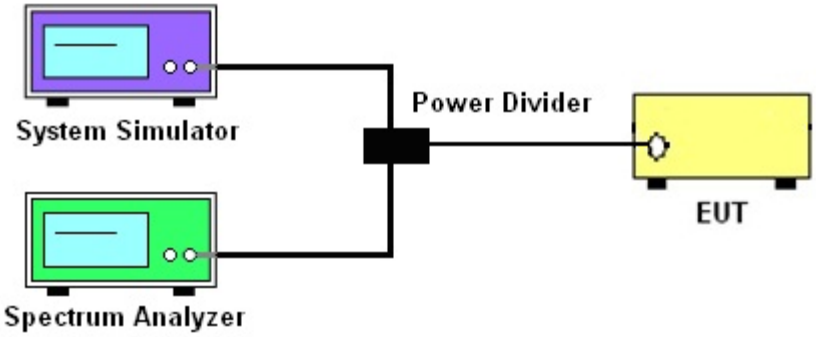
See list of measuring instruments of this test report.

3.1.1 Test Setup

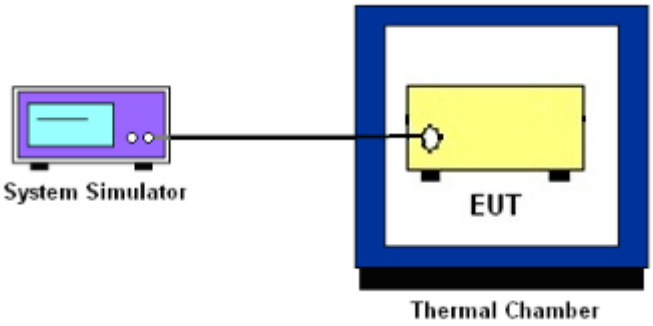
3.1.2 Conducted Output Power



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



3.1.4 Frequency Stability



3.1.5 Test Result of Conducted Test

Please refer to Appendix A.

3.2 Conducted Output Power

3.2.1 Description of the Conducted Output Power 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.

3.2.2 Test Procedures

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

3.3 Peak-to-Average Ratio

3.3.1 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.

3.3.2 Test Procedures

The testing follows ANSI C63.26-2015 Section 5.2.6

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

3.4 Occupied Bandwidth

3.4.1 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.

3.4.2 Test Procedures

The testing follows ANSI C63.26-2015 Section 5.4.3 (26dB) and Section 5.4.4 (99OB)

1. The EUT was connected to spectrum analyzer and system simulator via a power divider.
2. 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.
3. 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.
4. Set the detection mode to peak, and the trace mode to max hold.
5. 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)
6. Determine the “-26 dB down amplitude” as equal to (Reference Value – X).
7. 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.
8. Use the 99 % power bandwidth function of the spectrum analyzer and report the measured bandwidth.

3.5 Conducted Band Edge

3.5.1 Description of Conducted Band Edge Measurement

90.543(e)

(1) On all frequencies between 769-775 MHz and 799-805 MHz, by a factor not less than 76 + 10 log (P) dB in a 6.25 kHz band segment, for base and fixed stations.

(2) On all frequencies between 769-775 MHz and 799-805 MHz, by a factor not less than 65 + 10 log (P) dB in a 6.25 kHz band segment, for mobile and portable stations.

(3) On any frequency between 775-788 MHz, above 805 MHz, and below 758 MHz, by at least 43 + 10 log (P) dB.

3.5.2 Test Procedures

The testing follows FCC KDB 971168 D01 v03r01 Section 6.1.

1. The EUT was connected to spectrum analyzer and system simulator via a power divider.
2. The band edges of low and high channels for the highest RF powers were measured.
3. Set RBW >= 1% EBW in the 1MHz band immediately outside and adjacent to the band edge.
4. Beyond the 1 MHz band from the band edge, RBW=1MHz was used.
5. Set spectrum analyzer with RMS detector.
6. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
7. Checked that all the results comply with the emission limit line.
   The limit line is derived from 43 + 10log(P)dB below the transmitter power P(Watts)

3.6 Emission Mask

3.6.1 Description of Emissions Mask Measurement

For LTE Band 14

Transmitters designed must meet the emission mask comply with the emission mask provisions of FCC Part 90.210(n).

3.6.2 Test Procedures

For LTE Band 14

The testing follows FCC KDB 971168 D01 v03r01 Section 6.0.

1. The EUT was connected to spectrum analyzer and system simulator via a power divider.
2. The power of the modulated signal was measured on a spectrum analyzer using an RMS and 10 second sweep time in order to maximize the level.
3. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.

3.7 Conducted Spurious Emission

3.7.1 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 10th harmonic.

3.7.2 Test Procedures

The testing follows FCC KDB 971168 D01 v03r01 Section 6.1.

1. The EUT was connected to spectrum analyzer and system simulator via a power divider.
2. 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.
3. The conducted spurious emission for the whole frequency range was taken.
4. Make the measurement with the spectrum analyzer's RBW = 100 kHz if the authorized frequency band/block is at or below 1 GHz and 1 MHz if the authorized frequency band/block is above 1 GH, VBW = 3 * RBW.
5. Set spectrum analyzer with RMS detector.
6. Taking the record of maximum spurious emission.
7. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
8. The limit line is derived from 43 + 10log(P)dB below the transmitter power P(Watts)

3.8 Frequency Stability

3.8.1 Description of Frequency Stability Measurement

The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

3.8.2 Test Procedures for Temperature Variation

The testing follows FCC KDB 971168 D01 v03r01 Section 9.0.

1. The EUT was set up in the thermal chamber and connected with the system simulator.
2. 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.
3. 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.

3.8.3 Test Procedures for Voltage Variation

The testing follows FCC KDB 971168 D01 v03r01 Section 9.0.

1. The EUT was placed in a temperature chamber at 20±5° C and connected with the system simulator.
2. The power supply voltage to the EUT was varied from 85% to 115% of the nominal value measured at the input to the EUT.
3. The variation in frequency was measured for the worst case.

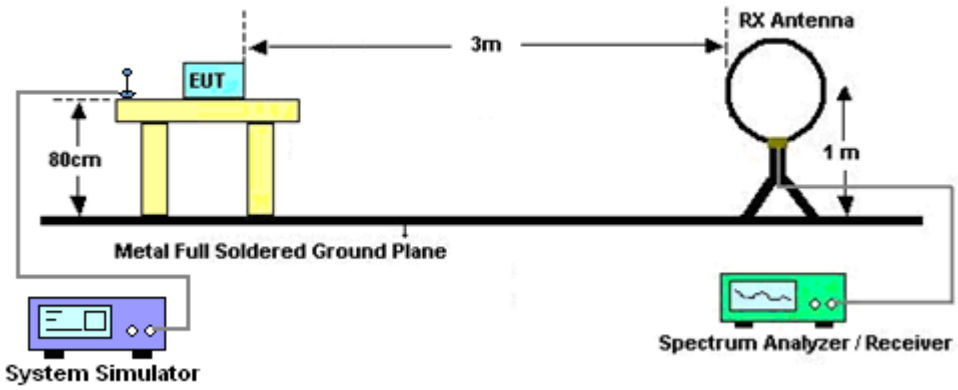
4 Radiated Test Items

4.1 Measuring Instruments

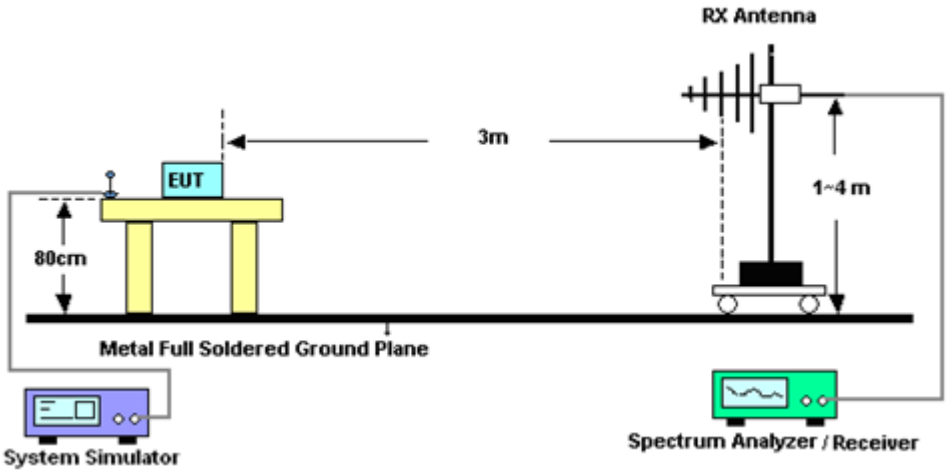
See list of measuring instruments of this test report.

4.1.1 Test Setup

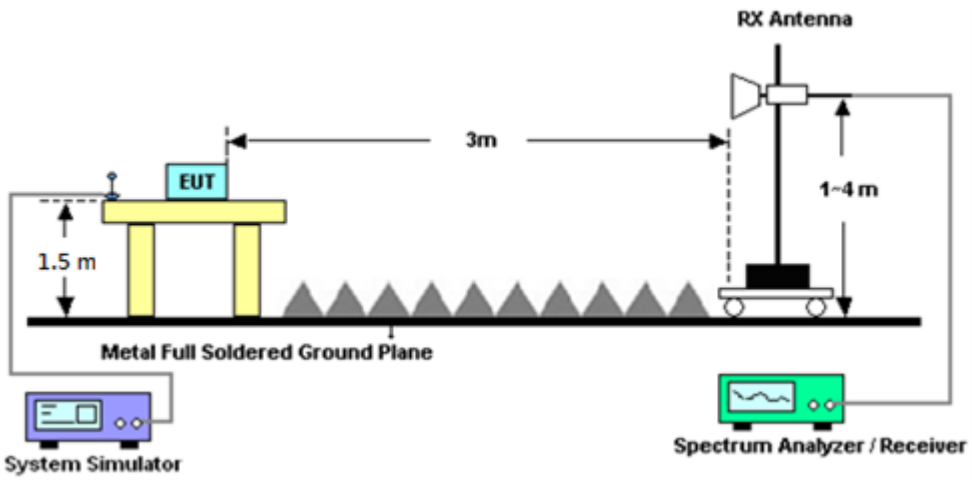
For radiated test below 30MHz



For radiated test from 30MHz to 1GHz



For radiated test above 1GHz



4.1.2 Test Result of Radiated Test

Please refer to Appendix B.

Note:

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.

There is adequate comparison measurement of both open-field test site and alternative test site - semi-Anechoic chamber according to 414788 D01 Radiated Test Site v01r01, and the result came out very similar.

4.2 Radiated Spurious Emission Measurement

4.2.1 Description of Radiated Spurious Emission Measurement

The radiated spurious emission was measured by substitution method according to ANSI / TIA-603-E. 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 14

For operations in the 758-775 MHz and 788-805 MHz bands, all emissions including harmonics 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. For the purpose of equipment authorization, a transmitter shall be tested with an antenna that is representative of the type that will be used with the equipment in normal operation.

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

4.2.2 Test Procedures

The testing follows FCC KDB 971168 D01 v03r01 Section 7 and ANSI / TIA-603-E Section 2.2.12.

1. The EUT was placed on a turntable with 0.8 meter for frequency below 1GHz and 1.5 meter for frequency above 1GHz respectively above ground.
2. The EUT was set 3 meters from the receiving antenna, which was mounted on the antenna tower.
3. The table was rotated 360 degrees to determine the position of the highest spurious emission.
4. The height of the receiving antenna is varied between one meter and four meters to search the maximum spurious emission for both horizontal and vertical polarizations.
5. Make the measurement with the spectrum analyzer's RBW = 1MHz, VBW = 3MHz, taking the record of maximum spurious emission.
6. A horn antenna was substituted in place of the EUT and was driven by a signal generator.
7. Tune the output power of signal generator to the same emission level with EUT maximum spurious emission.
8. Taking the record of output power at antenna port.
9. Repeat step 7 to step 8 for another polarization.
10. 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)

    EIRP (dBm) = S.G. Power – Tx Cable Loss + Tx Antenna Gain

    ERP (dBm) = EIRP - 2.15

5 List of Measuring Equipment

Instrument	Brand Name	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Radio Communication Analyzer	Anritsu	MT8821C	6262025353	LTE FDD/TDD LTE-2CC DLCA/ULCA	Oct. 13, 2022	Apr. 18, 2023~ Jul. 10, 2023	Oct. 12, 2023	Conducted (TH03-HY)
Thermal Chamber	ESPEC	SH-641	92013720	-40℃ ~90℃	Sep. 07, 2022	Apr. 18, 2023~ Jul. 10, 2023	Sep. 06, 2023	Conducted (TH03-HY)
DC Power Supply	GW Instek	GPP-2323	GES906037	0V~64V；0A~6A	Dec. 29, 2022	Apr. 18, 2023~ Jul. 10, 2023	Dec. 28, 2023	Conducted (TH03-HY)
Coupler	Warison	20dB 25W SMA Directional Coupler	#B	1-18GHz	Jan. 06, 2023	Apr. 18, 2023~ Jul. 10, 2023	Jan. 05, 2024	Conducted (TH03-HY)
Spectrum Analyzer	Rohde & Schwarz	FSV40	101908	10Hz~40GHz	Sep. 27, 2022	Apr. 18, 2023~ Jul. 10, 2023	Sep. 26, 2023	Conducted (TH03-HY)
LOOP Antenna	Rohde & Schwarz	HFH2-Z2	100488	9 kHz~30 MHz	Sep. 20, 2022	Apr. 06, 2023~ Jul. 19, 2023	Sep. 19, 2023	Radiation (03CH11-HY)
Bilog Antenna	TESEQ	CBL 6111D & N-6-06	35414 & AT-N0602	30MHz~1GHz	Oct. 08, 2022	Apr. 06, 2023~ Jul. 19, 2023	Oct. 07, 2023	Radiation (03CH11-HY)
Horn Antenna	SCHWARZBECK	BBHA 9120 D	9120D-01620	1GHz~18GHz	Aug. 24, 2022	Apr. 06, 2023~ Jul. 19, 2023	Aug. 23, 2023	Radiation (03CH11-HY)
Horn Antenna	SCHWARZBECK	BBHA 9120 D	9120D-1326	1GHz~18GHz	Aug. 24, 2022	Apr. 06, 2023~ Jul. 19, 2023	Aug. 23, 2023	Radiation (03CH11-HY)
Signal Generator	Rohde & Schwarz	SMF100A	101107	100kHz~40GHz	Jan. 11, 2023	Apr. 06, 2023~ Jul. 19, 2023	Jan. 10, 2024	Radiation (03CH11-HY)
Amplifier	SONOMA	310N	187312	9kHz~1GHz	Dec. 09, 2022	Apr. 06, 2023~ Jul. 19, 2023	Dec. 08, 2023	Radiation (03CH11-HY)
Preamplifier	Keysight	83017A	MY53270080	1GHz~26.5GHz	Nov. 09, 2022	Apr. 06, 2023~ Jul. 19, 2023	Nov. 08, 2023	Radiation (03CH11-HY)
Preamplifier	Jet-Power	JPA0118-55-303	1710001800055007	1GHz~18GHz	Jun. 15, 2022	Apr. 06, 2023~ Jun. 13, 2023	Jun. 14, 2023	Radiation (03CH11-HY)
Preamplifier	Jet-Power	JPA0118-55-303	1710001800055007	1GHz~18GHz	Jun. 14, 2023	Jun. 14, 2023~ Jul. 19, 2023	Jun. 13, 2024	Radiation (03CH11-HY)
Spectrum Analyzer	Keysight	N9010A	MY54200486	10Hz~44GHz	Oct. 07, 2022	Apr. 06, 2023~ Jul. 19, 2023	Oct. 06, 2023	Radiation (03CH11-HY)
Antenna Mast	EMEC	AM-BS-4500-B	N/A	1~4m	N/A	Apr. 06, 2023~ Jul. 19, 2023	N/A	Radiation (03CH11-HY)
Turn Table	EMEC	TT 2000	N/A	0~360 Degree	N/A	Apr. 06, 2023~ Jul. 19, 2023	N/A	Radiation (03CH11-HY)
Software	Audix	E3 6.2009-8-24	RK-001053	N/A	N/A	Apr. 06, 2023~ Jul. 19, 2023	N/A	Radiation (03CH11-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	MY2859/2	30MHz~40GHz	Mar. 07, 2023	Apr. 06, 2023~ Jul. 19, 2023	Mar. 06, 2024	Radiation (03CH11-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	801595/2	30MHz~40GHz	Mar. 07, 2023	Apr. 06, 2023~ Jul. 19, 2023	Mar. 06, 2024	Radiation (03CH11-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	803951/2	9K~30M	Mar. 07, 2023	Apr. 06, 2023~ Jul. 19, 2023	Mar. 06, 2024	Radiation (03CH11-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	803951/2	30M~40G	Mar. 07, 2023	Apr. 06, 2023~ Jul. 19, 2023	Mar. 06, 2024	Radiation (03CH11-HY)
Filter	Wainwright	WHKX12-2700-3000-18000-60SS	SN3	3GHz High Pass Filter	Sep. 12, 2022	Apr. 06, 2023~ Jul. 19, 2023	Sep. 11, 2023	Radiation (03CH11-HY)
Filter	Wainwright	WHKX12-900-1000-15000-60SS	SN12	1GHz High Pass Filter	Sep. 12, 2022	Apr. 06, 2023~ Jul. 19, 2023	Sep. 11, 2023	Radiation (03CH11-HY)

6 Measurement Uncertainty

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**3.22 dB**

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**3.53 dB**

Appendix A. Test Results of Conducted Test

Conducted Output Power(Average power)

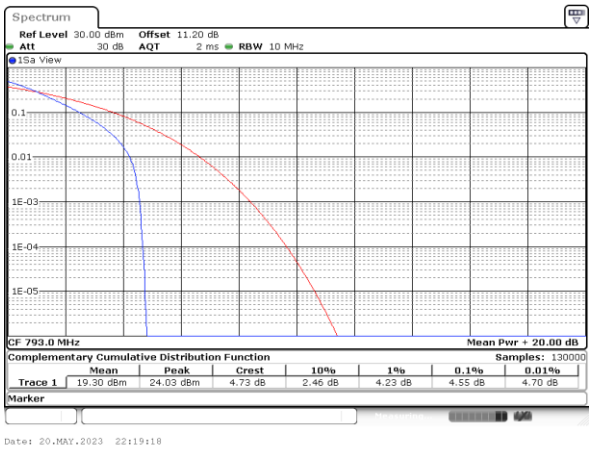
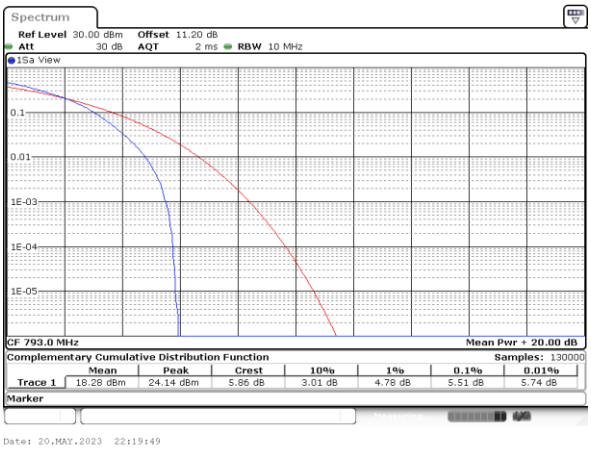
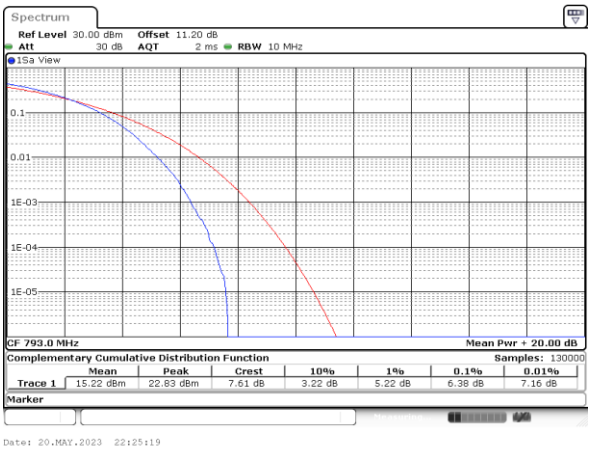
LTE Band 14 Maximum Average Power [dBm]								
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest	Maximum Output Power (dBm)	Maximum Output Power (W)
10	1	0	QPSK	-	22.40	-	22.57	0.1807
10	1	25			22.48			
10	1	49			22.57			
10	25	0			21.44			
10	25	12			21.44			
10	25	25			21.60			
10	50	0			21.53			
10	1	0	16-QAM		21.75		22.02	0.1592
10	1	25			21.79			
10	1	49			22.02			
10	25	0			20.48			
10	25	12			20.49			
10	25	25			20.61			
10	50	0			20.53			
10	1	0	64-QAM		20.66		20.78	0.1197
10	1	25			20.73			
10	1	49			20.78			
10	25	0			19.47			
10	25	12			19.48			
10	25	25			19.60			
10	50	0			19.55			
10	1	0	256-QAM		17.90		18.15	0.0653
10	1	25			18.13			
10	1	49			18.15			
10	25	0			17.86			
10	25	12			17.90			
10	25	25			17.96			
10	50	0			17.93			

LTE Band 14 Maximum Average Power [dBm]								
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest	Maximum Output Power (dBm)	Maximum Output Power (W)
5	1	0	QPSK	22.54	22.60	22.28	22.64	0.1837
5	1	12		22.44	22.58	22.50		
5	1	24		22.50	22.40	22.64		
5	12	0		21.44	21.64	21.59		
5	12	7		21.55	21.25	21.39		
5	12	13		21.41	21.44	21.59		
5	25	0		21.45	21.45	21.35		
5	1	0	16-QAM	21.69	21.70	21.69	22.11	0.1626
5	1	12		21.89	21.83	21.60		
5	1	24		21.86	22.06	22.11		
5	12	0		20.35	20.52	20.61		
5	12	7		20.30	20.54	20.39		
5	12	13		20.47	20.77	20.60		
5	25	0		20.62	20.48	20.57		
5	1	0	64-QAM	20.59	20.50	20.60	20.92	0.1236
5	1	12		20.92	20.70	20.63		
5	1	24		20.90	20.59	20.86		
5	12	0		19.48	19.47	19.33		
5	12	7		19.46	19.39	19.58		
5	12	13		19.65	19.44	19.53		
5	25	0		19.47	19.48	19.53		
5	1	0	256-QAM	17.95	17.83	17.81	18.30	0.0676
5	1	12		18.24	18.09	18.02		
5	1	24		18.09	18.30	18.01		
5	12	0		18.00	17.80	17.93		
5	12	7		18.01	17.79	17.77		
5	12	13		17.89	18.15	18.02		
5	25	0		17.95	17.82	18.10		

LTE Band 14

Peak-to-Average Ratio

Mode	LTE Band 14 / 10MHz				
Mod.	QPSK	16QAM	64QAM	256QAM	Limit: 13dB
RB Size	Full RB	Full RB	Full RB	Full RB	Result
Middle CH	4.55	5.51	6.23	6.38	PASS

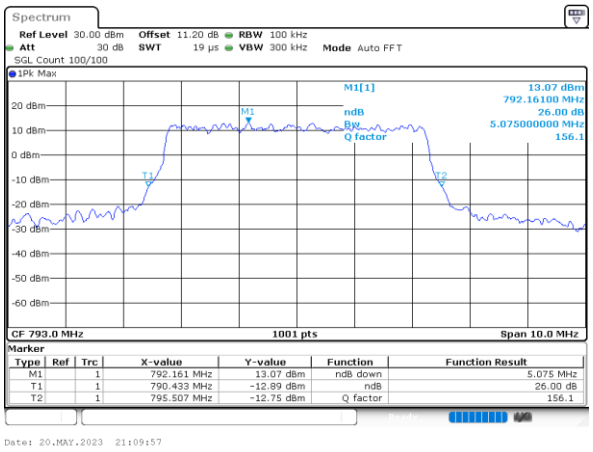
LTE Band 14 / 10MHz / QPSK	LTE Band 14 / 10MHz / 16QAM
Middle Channel / Full RB	Middle Channel / Full RB
	
LTE Band 14 / 10MHz / 64QAM	LTE Band 14 / 10MHz / 256QAM
Middle Channel / Full RB	Middle Channel / Full RB
	

26dB Bandwidth

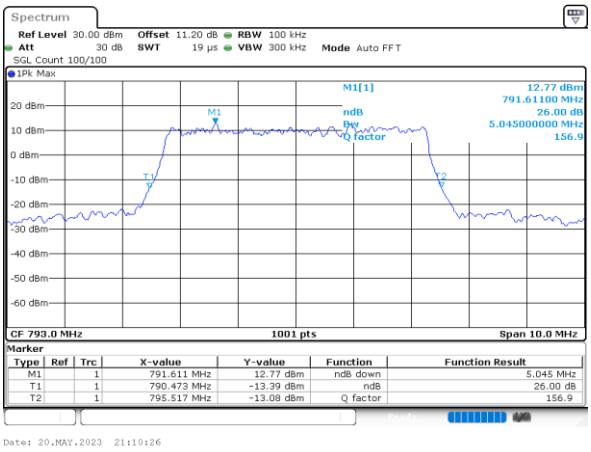
Mode	LTE Band 14 : 26dB BW(MHz)			
BW	5MHz		10MHz	
Mod.	QPSK	16QAM	QPSK	16QAM
Middle CH	5.08	5.05	9.79	10.03
Mode	LTE Band 14 : 26dB BW(MHz)			
BW	5MHz		10MHz	
Mod.	64QAM	256QAM	64QAM	256QAM
Middle CH	5.01	4.95	9.95	9.97

LTE Band 14

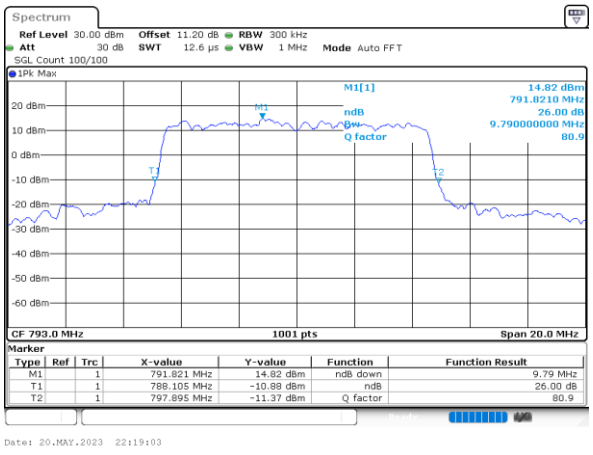
Middle Channel / 5MHz / QPSK



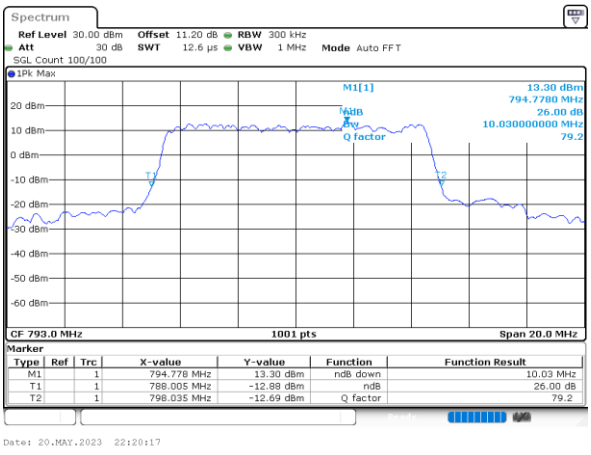
Middle Channel / 5MHz / 16QAM



Middle Channel / 10MHz / QPSK

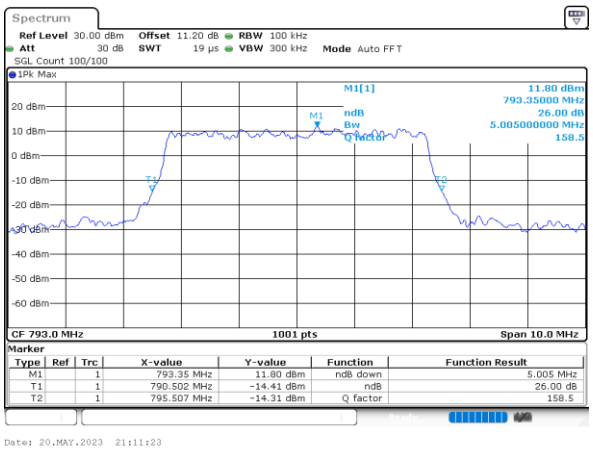


Middle Channel / 10MHz / 16QAM

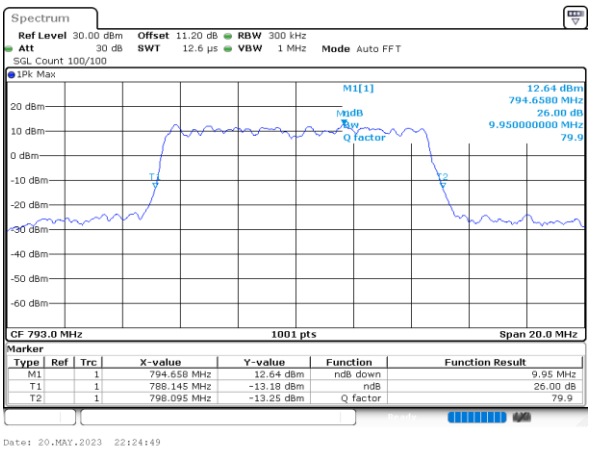


LTE Band 14

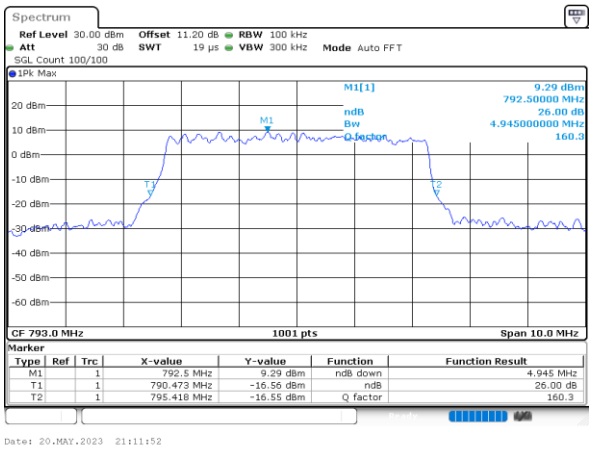
Middle Channel / 5MHz / 64QAM



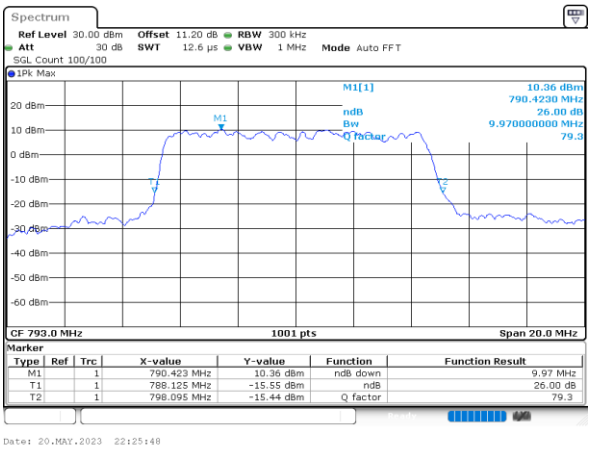
Middle Channel / 10MHz / 64QAM



Middle Channel / 5MHz / 256QAM



Middle Channel / 10MHz / 256QAM

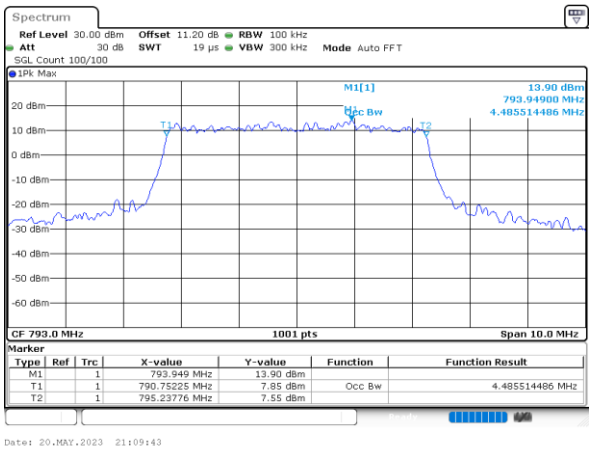


Occupied Bandwidth

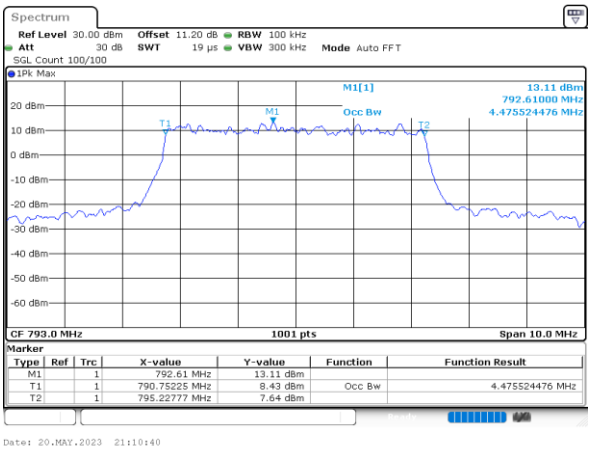
Mode	LTE Band 14 : 99%OBW(MHz)			
BW	5MHz		10MHz	
Mod.	QPSK	16QAM	QPSK	16QAM
Middle CH	4.49	4.48	9.09	9.01
Mode	LTE Band 14 : 99%OBW(MHz)			
BW	5MHz		10MHz	
Mod.	64QAM	256QAM	64QAM	256QAM
Middle CH	4.51	4.51	8.93	9.01

LTE Band 14

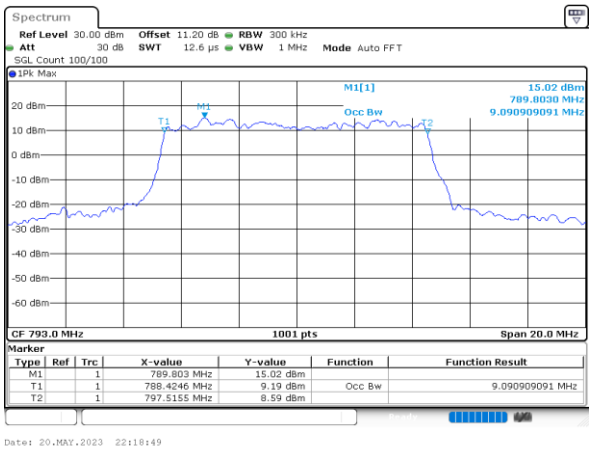
Middle Channel / 5MHz / QPSK



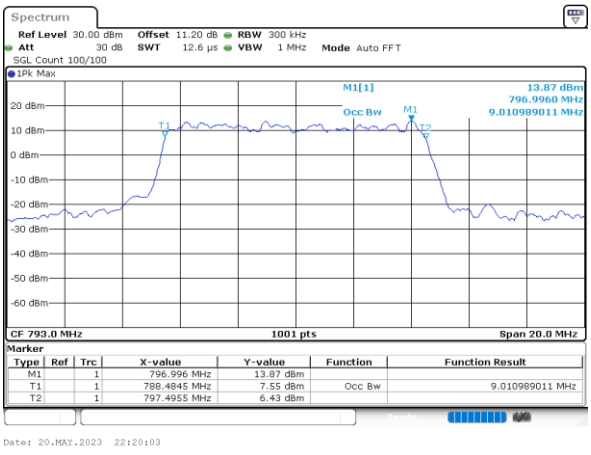
Middle Channel / 5MHz / 16QAM



Middle Channel / 10MHz / QPSK

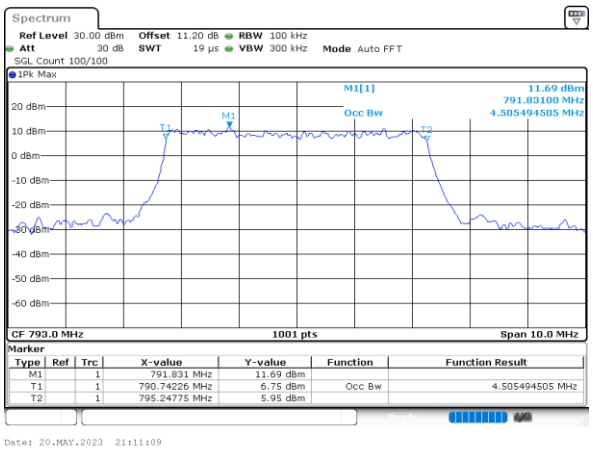


Middle Channel / 10MHz / 16QAM

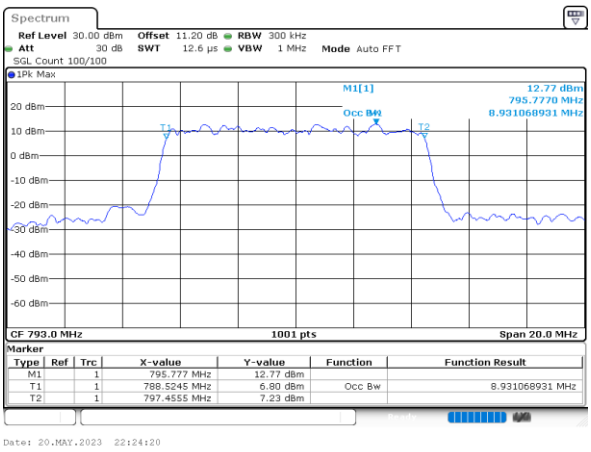


LTE Band 14

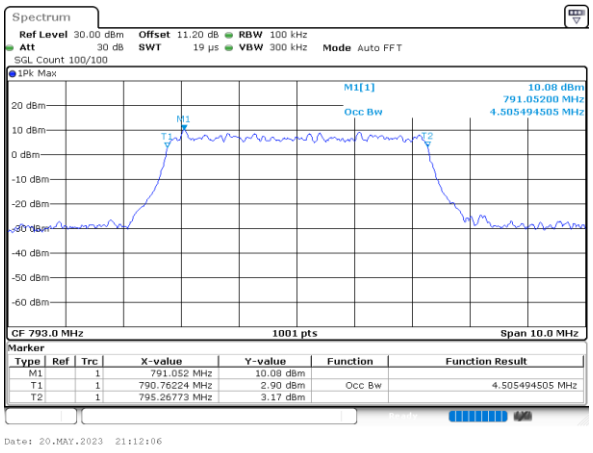
Middle Channel / 5MHz / 64QAM



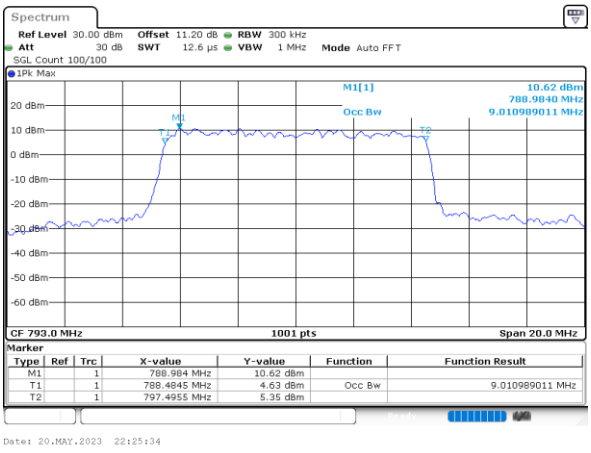
Middle Channel / 10MHz / 64QAM



Middle Channel / 5MHz / 256QAM



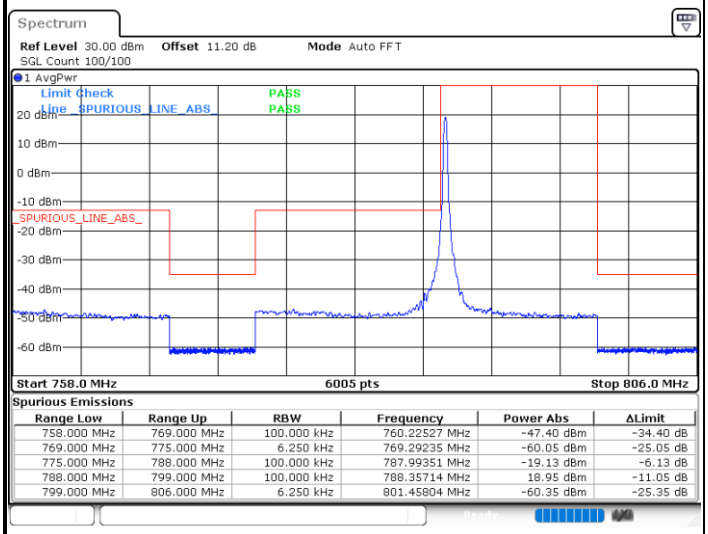
Middle Channel / 10MHz / 256QAM



Conducted Band Edge

LTE Band 14 / 5MHz / QPSK

Lowest Band Edge / 1 RB



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
758.000 MHz	769.000 MHz	100.000 kHz	760.22527 MHz	-47.40 dBm	-34.40 dB
769.000 MHz	775.000 MHz	6.250 kHz	769.29235 MHz	-60.05 dBm	-25.05 dB
775.000 MHz	788.000 MHz	100.000 kHz	787.99351 MHz	-19.13 dBm	-6.13 dB
788.000 MHz	799.000 MHz	100.000 kHz	788.35714 MHz	18.95 dBm	-11.05 dB
799.000 MHz	806.000 MHz	6.250 kHz	801.45804 MHz	-60.35 dBm	-25.35 dB

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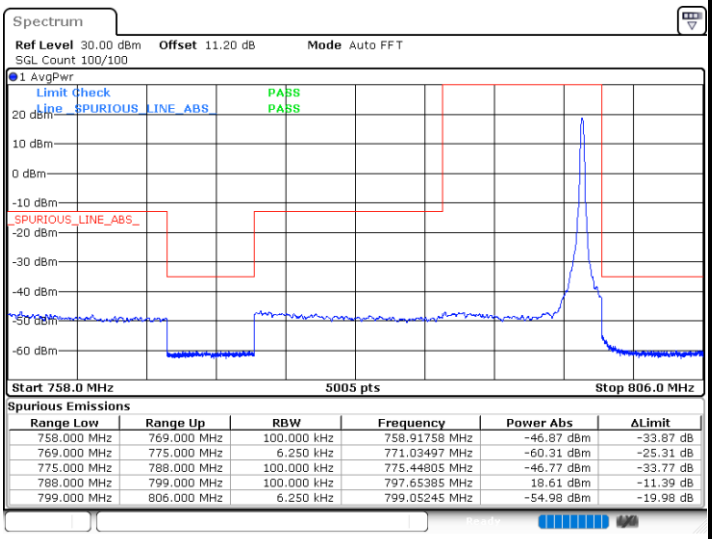
Highest Band Edge / 1 RB



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
758.000 MHz	769.000 MHz	100.000 kHz	758.91758 MHz	-46.87 dBm	-33.87 dB
769.000 MHz	775.000 MHz	6.250 kHz	771.03497 MHz	-60.31 dBm	-25.31 dB
775.000 MHz	788.000 MHz	100.000 kHz	775.44805 MHz	-46.77 dBm	-33.77 dB
788.000 MHz	799.000 MHz	100.000 kHz	797.65385 MHz	18.61 dBm	-11.39 dB
799.000 MHz	806.000 MHz	6.250 kHz	799.05245 MHz	-54.98 dBm	-19.98 dB

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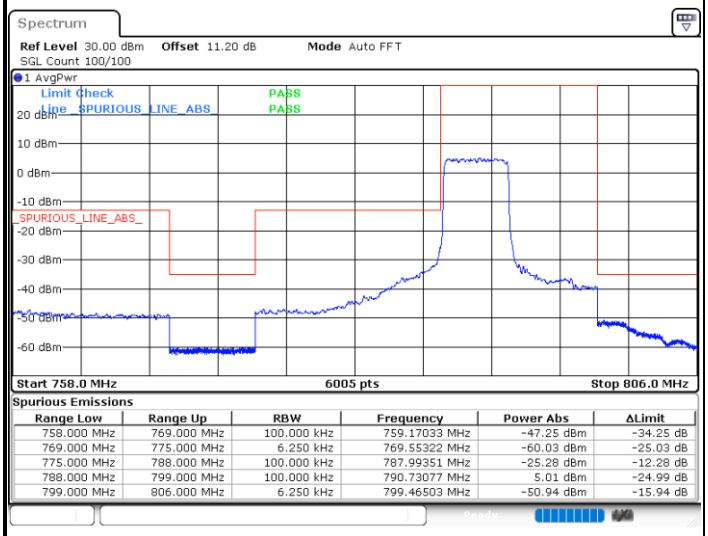
Lowest Band Edge / Full RB

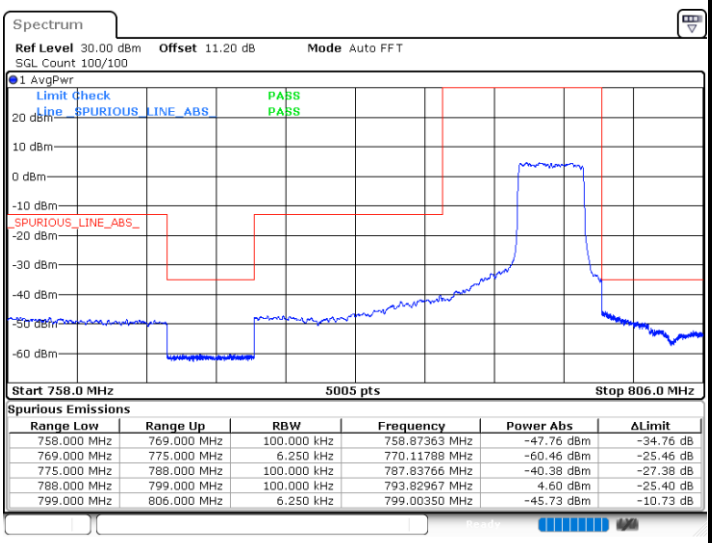


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
758.000 MHz	769.000 MHz	100.000 kHz	759.17033 MHz	-47.25 dBm	-34.25 dB
769.000 MHz	775.000 MHz	6.250 kHz	769.55322 MHz	-60.03 dBm	-25.03 dB
775.000 MHz	788.000 MHz	100.000 kHz	787.99351 MHz	-25.28 dBm	-12.28 dB
788.000 MHz	799.000 MHz	100.000 kHz	790.73077 MHz	5.01 dBm	-24.99 dB
799.000 MHz	806.000 MHz	6.250 kHz	799.46503 MHz	-50.94 dBm	-15.94 dB

Date: 20.MAY.2023 20:47:06

Highest Band Edge / Full RB



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
758.000 MHz	769.000 MHz	100.000 kHz	758.87363 MHz	-47.76 dBm	-34.76 dB
769.000 MHz	775.000 MHz	6.250 kHz	770.11788 MHz	-60.46 dBm	-25.46 dB
775.000 MHz	788.000 MHz	100.000 kHz	787.83766 MHz	-40.38 dBm	-27.38 dB
788.000 MHz	799.000 MHz	100.000 kHz	793.82967 MHz	4.60 dBm	-25.40 dB
799.000 MHz	806.000 MHz	6.250 kHz	799.00350 MHz	-45.73 dBm	-10.73 dB

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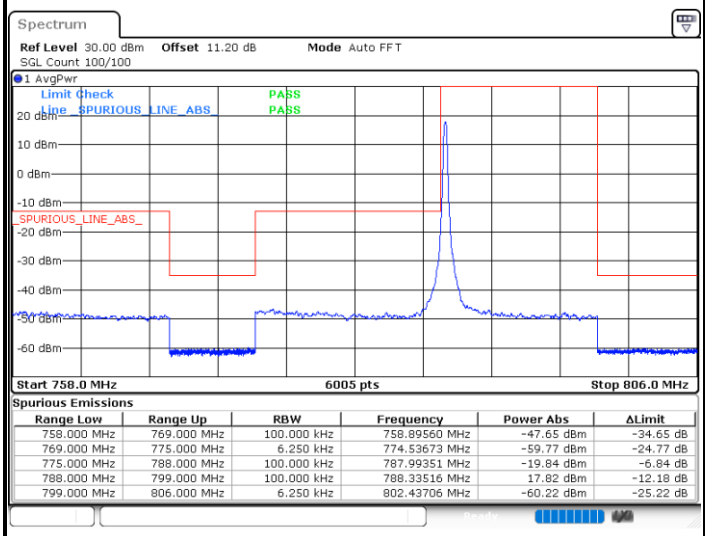
LTE Band 14 / 5MHz / 16QAM

Lowest Band Edge / 1 RB



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
758.000 MHz	769.000 MHz	100.000 kHz	758.89560 MHz	-47.65 dBm	-34.65 dB
769.000 MHz	775.000 MHz	6.250 kHz	774.53673 MHz	-59.77 dBm	-24.77 dB
775.000 MHz	788.000 MHz	100.000 kHz	787.99351 MHz	-19.84 dBm	-6.84 dB
788.000 MHz	799.000 MHz	100.000 kHz	788.33516 MHz	17.82 dBm	-12.18 dB
799.000 MHz	806.000 MHz	6.250 kHz	802.43706 MHz	-60.22 dBm	-25.22 dB

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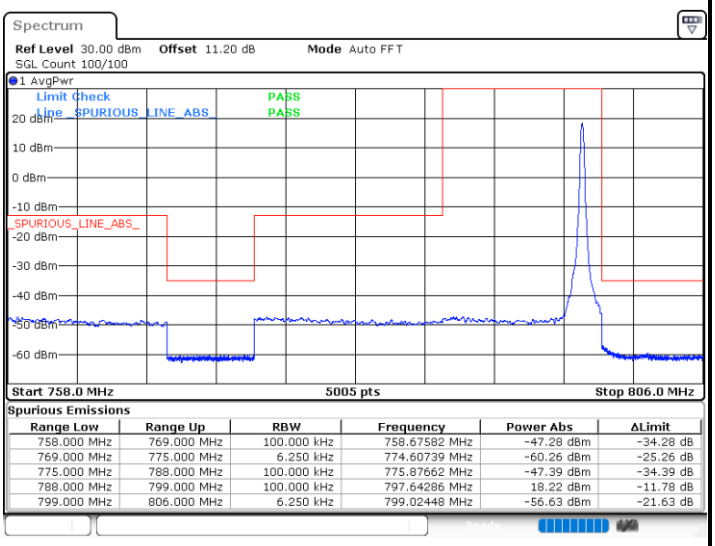
Highest Band Edge / 1 RB



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
758.000 MHz	769.000 MHz	100.000 kHz	758.67582 MHz	-47.28 dBm	-34.28 dB
769.000 MHz	775.000 MHz	6.250 kHz	774.60739 MHz	-60.26 dBm	-25.26 dB
775.000 MHz	788.000 MHz	100.000 kHz	775.87662 MHz	-47.39 dBm	-34.39 dB
788.000 MHz	799.000 MHz	100.000 kHz	797.64286 MHz	18.22 dBm	-11.78 dB
799.000 MHz	806.000 MHz	6.250 kHz	799.02448 MHz	-56.63 dBm	-21.63 dB

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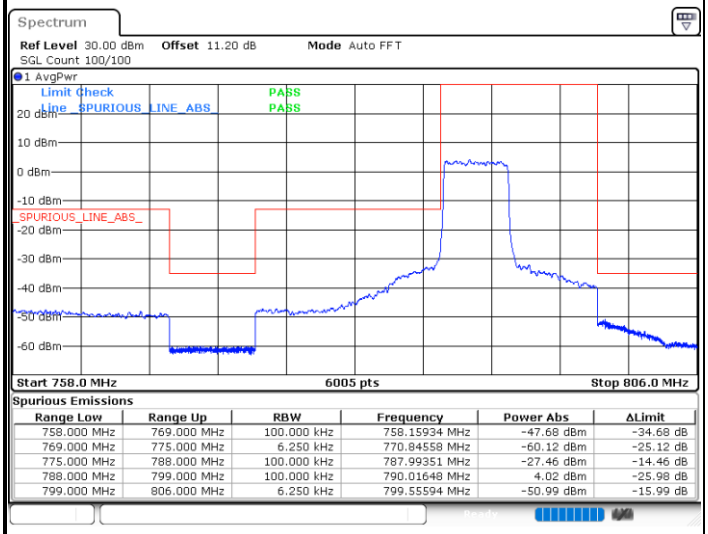
Lowest Band Edge / Full RB



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
758.000 MHz	769.000 MHz	100.000 kHz	758.15934 MHz	-47.68 dBm	-34.68 dB
769.000 MHz	775.000 MHz	6.250 kHz	770.84558 MHz	-60.12 dBm	-25.12 dB
775.000 MHz	788.000 MHz	100.000 kHz	787.99351 MHz	-27.46 dBm	-14.46 dB
788.000 MHz	799.000 MHz	100.000 kHz	790.01648 MHz	4.02 dBm	-25.98 dB
799.000 MHz	806.000 MHz	6.250 kHz	799.55594 MHz	-50.99 dBm	-15.99 dB

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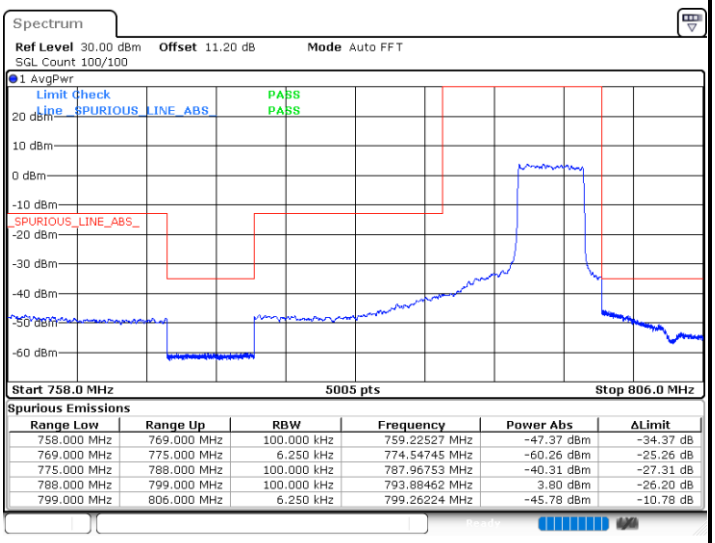
Highest Band Edge / Full RB



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
758.000 MHz	769.000 MHz	100.000 kHz	759.22527 MHz	-47.37 dBm	-34.37 dB
769.000 MHz	775.000 MHz	6.250 kHz	774.54745 MHz	-60.26 dBm	-25.26 dB
775.000 MHz	788.000 MHz	100.000 kHz	787.96753 MHz	-40.31 dBm	-27.31 dB
788.000 MHz	799.000 MHz	100.000 kHz	793.88462 MHz	3.80 dBm	-26.20 dB
799.000 MHz	806.000 MHz	6.250 kHz	799.26224 MHz	-45.78 dBm	-10.78 dB

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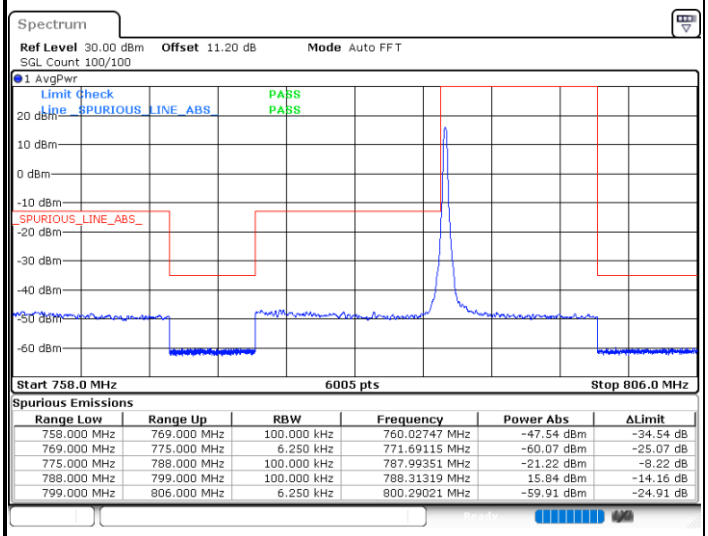
LTE Band 14 / 5MHz / 64QAM

Lowest Band Edge / 1 RB

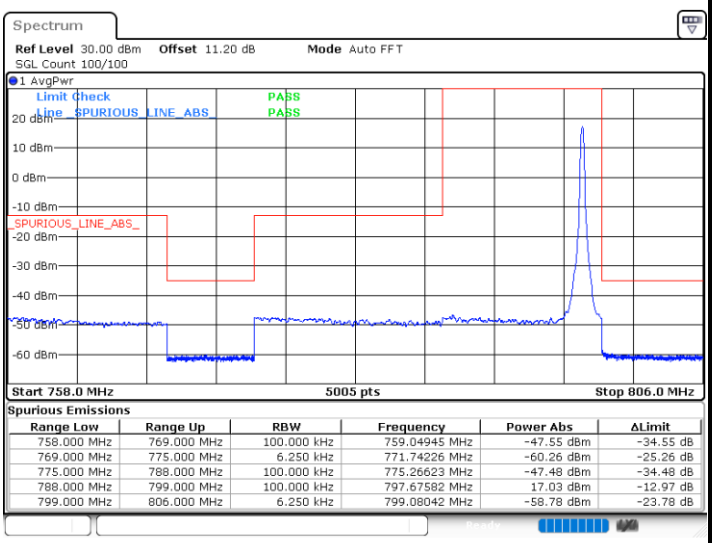


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
758.000 MHz	769.000 MHz	100.000 kHz	760.02747 MHz	-47.54 dBm	-34.54 dB
769.000 MHz	775.000 MHz	6.250 kHz	771.69115 MHz	-60.07 dBm	-25.07 dB
775.000 MHz	788.000 MHz	100.000 kHz	787.99351 MHz	-21.22 dBm	-8.22 dB
788.000 MHz	799.000 MHz	100.000 kHz	788.31319 MHz	15.84 dBm	-14.16 dB
799.000 MHz	806.000 MHz	6.250 kHz	800.29021 MHz	-59.91 dBm	-24.91 dB

Date: 20.MAY.2023 20:54:48

Highest Band Edge / 1 RB

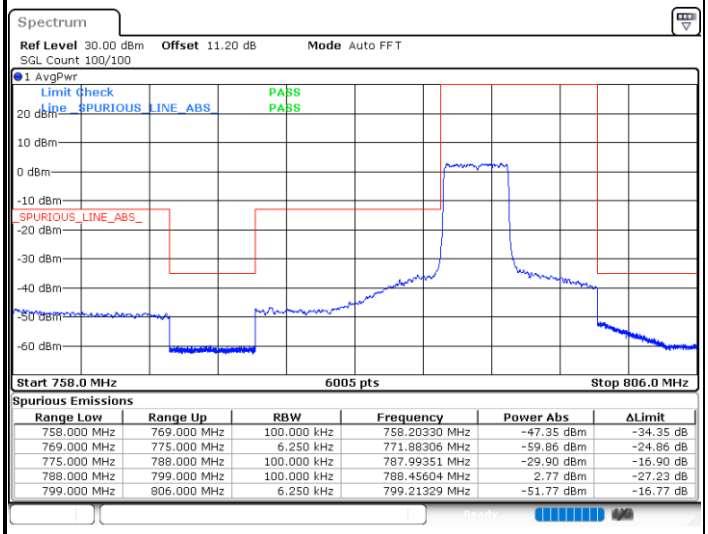


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
758.000 MHz	769.000 MHz	100.000 kHz	759.04945 MHz	-47.55 dBm	-34.55 dB
769.000 MHz	775.000 MHz	6.250 kHz	771.74226 MHz	-60.26 dBm	-25.26 dB
775.000 MHz	788.000 MHz	100.000 kHz	775.26623 MHz	-47.48 dBm	-34.48 dB
788.000 MHz	799.000 MHz	100.000 kHz	797.67582 MHz	17.03 dBm	-12.97 dB
799.000 MHz	806.000 MHz	6.250 kHz	799.08042 MHz	-58.78 dBm	-23.78 dB

Date: 20.MAY.2023 22:00:39

Lowest Band Edge / Full RB

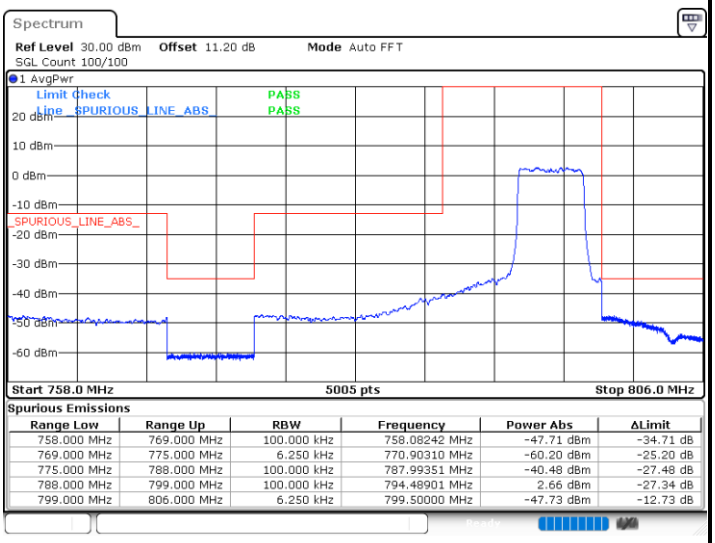


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
758.000 MHz	769.000 MHz	100.000 kHz	758.20330 MHz	-47.35 dBm	-34.35 dB
769.000 MHz	775.000 MHz	6.250 kHz	771.88306 MHz	-59.86 dBm	-24.86 dB
775.000 MHz	788.000 MHz	100.000 kHz	787.99351 MHz	-29.90 dBm	-16.90 dB
788.000 MHz	799.000 MHz	100.000 kHz	788.45604 MHz	2.77 dBm	-27.23 dB
799.000 MHz	806.000 MHz	6.250 kHz	799.21329 MHz	-51.77 dBm	-16.77 dB

Date: 20.MAY.2023 20:53:28

Highest Band Edge / Full RB



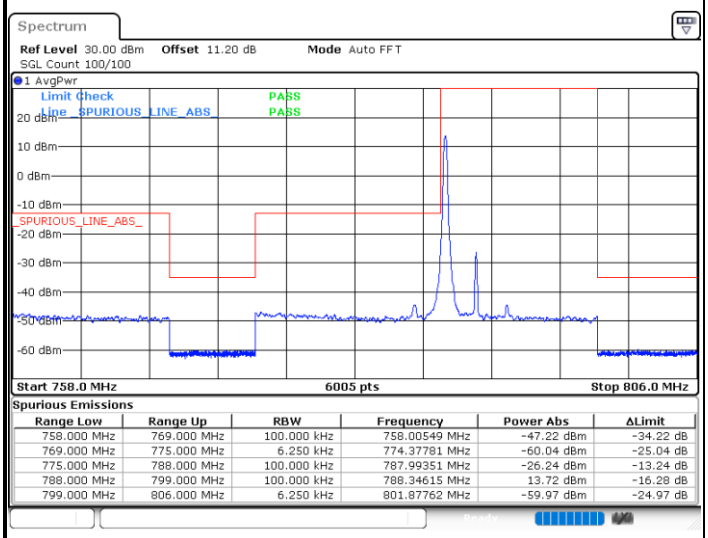
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
758.000 MHz	769.000 MHz	100.000 kHz	758.08242 MHz	-47.71 dBm	-34.71 dB
769.000 MHz	775.000 MHz	6.250 kHz	770.90310 MHz	-60.20 dBm	-25.20 dB
775.000 MHz	788.000 MHz	100.000 kHz	787.99351 MHz	-40.48 dBm	-27.48 dB
788.000 MHz	799.000 MHz	100.000 kHz	794.48901 MHz	2.66 dBm	-27.34 dB
799.000 MHz	806.000 MHz	6.250 kHz	799.50000 MHz	-47.73 dBm	-12.73 dB

Date: 20.MAY.2023 22:01:59

LTE Band 14 / 5MHz / 256QAM

Lowest Band Edge / 1 RB

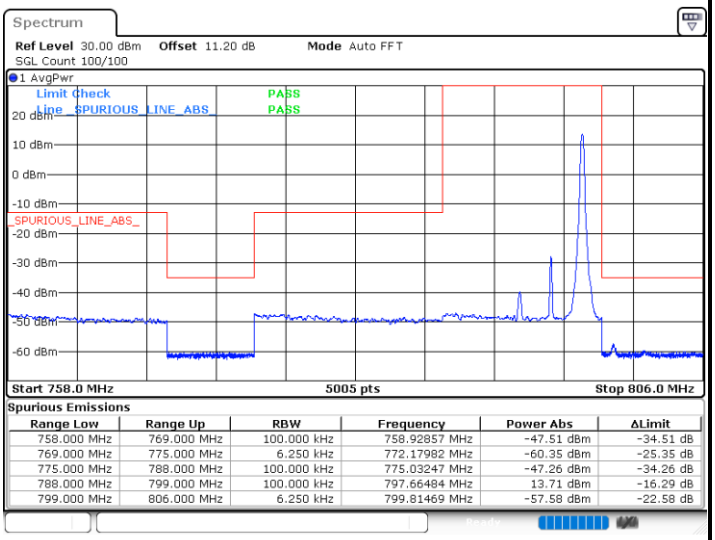


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
758.000 MHz	769.000 MHz	100.000 kHz	758.00549 MHz	-47.22 dBm	-34.22 dB
769.000 MHz	775.000 MHz	6.250 kHz	774.37781 MHz	-60.04 dBm	-25.04 dB
775.000 MHz	788.000 MHz	100.000 kHz	787.99351 MHz	-26.24 dBm	-13.24 dB
788.000 MHz	799.000 MHz	100.000 kHz	788.34615 MHz	13.72 dBm	-16.28 dB
799.000 MHz	806.000 MHz	6.250 kHz	801.87762 MHz	-59.97 dBm	-24.97 dB

Date: 20.MAY.2023 20:56:07

Highest Band Edge / 1 RB

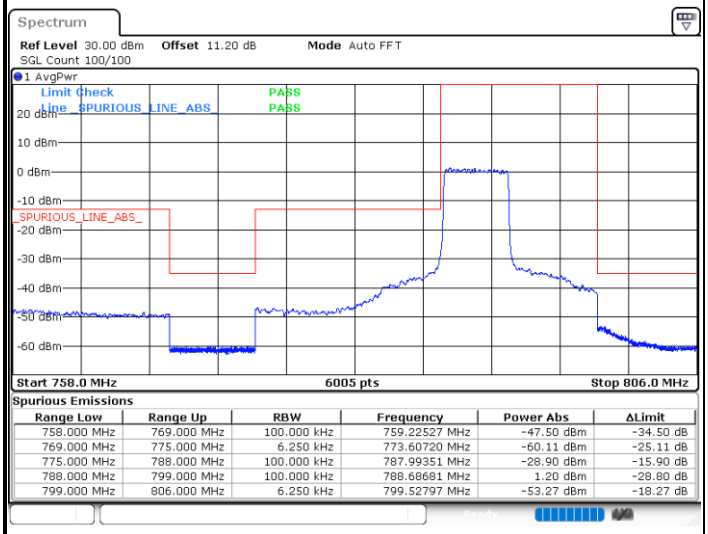


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
758.000 MHz	769.000 MHz	100.000 kHz	758.92857 MHz	-47.51 dBm	-34.51 dB
769.000 MHz	775.000 MHz	6.250 kHz	772.17982 MHz	-60.35 dBm	-25.35 dB
775.000 MHz	788.000 MHz	100.000 kHz	775.03247 MHz	-47.26 dBm	-34.26 dB
788.000 MHz	799.000 MHz	100.000 kHz	797.66484 MHz	13.71 dBm	-16.29 dB
799.000 MHz	806.000 MHz	6.250 kHz	799.81469 MHz	-57.58 dBm	-22.58 dB

Date: 20.MAY.2023 22:04:41

Lowest Band Edge / Full RB

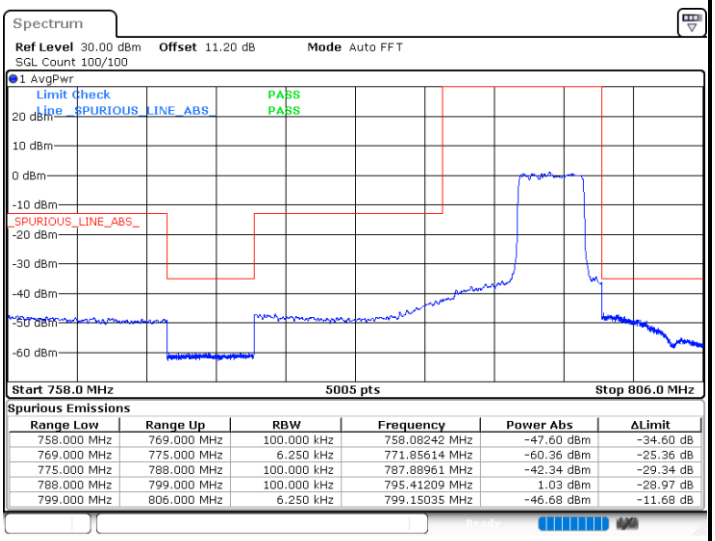


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
758.000 MHz	769.000 MHz	100.000 kHz	759.22527 MHz	-47.50 dBm	-34.50 dB
769.000 MHz	775.000 MHz	6.250 kHz	773.60720 MHz	-60.11 dBm	-25.11 dB
775.000 MHz	788.000 MHz	100.000 kHz	787.99351 MHz	-28.90 dBm	-15.90 dB
788.000 MHz	799.000 MHz	100.000 kHz	788.68681 MHz	1.20 dBm	-28.80 dB
799.000 MHz	806.000 MHz	6.250 kHz	799.52797 MHz	-53.27 dBm	-18.27 dB

Date: 20.MAY.2023 20:57:30

Highest Band Edge / Full RB



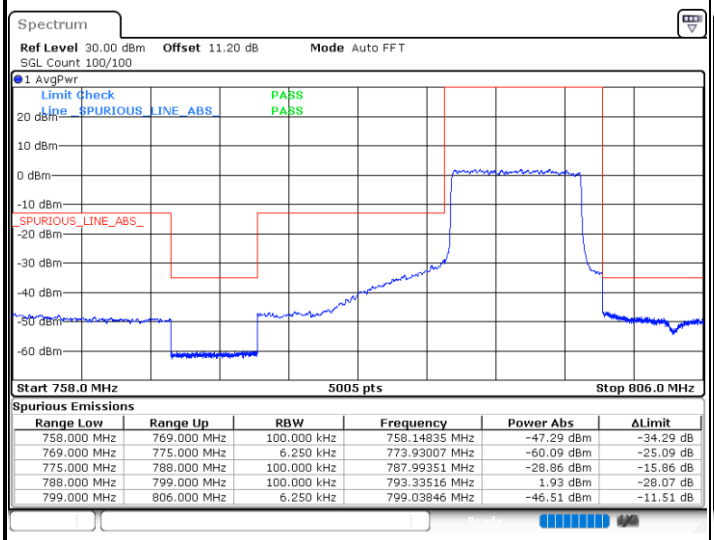
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
758.000 MHz	769.000 MHz	100.000 kHz	758.08242 MHz	-47.60 dBm	-34.60 dB
769.000 MHz	775.000 MHz	6.250 kHz	771.85614 MHz	-60.36 dBm	-25.36 dB
775.000 MHz	788.000 MHz	100.000 kHz	787.88961 MHz	-42.34 dBm	-29.34 dB
788.000 MHz	799.000 MHz	100.000 kHz	795.41209 MHz	1.03 dBm	-28.97 dB
799.000 MHz	806.000 MHz	6.250 kHz	799.15035 MHz	-46.68 dBm	-11.68 dB

Date: 20.MAY.2023 22:03:19

LTE Band 14 / 10MHz / QPSK

Band Edge / Full RB



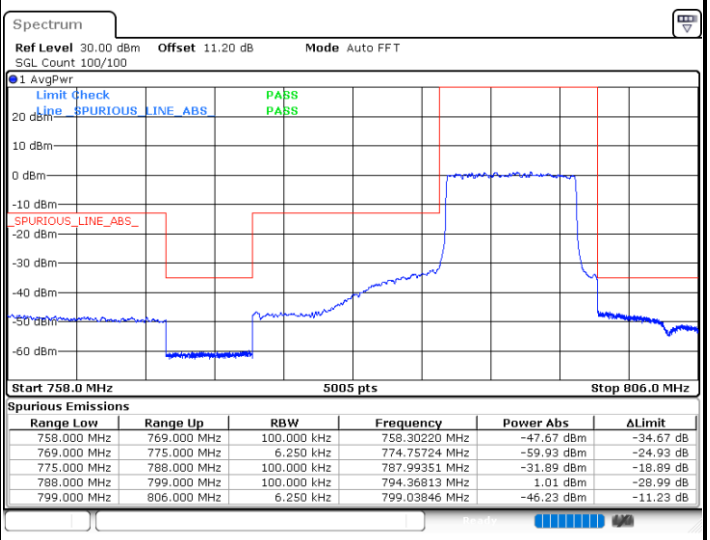
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
758.000 MHz	769.000 MHz	100.000 kHz	758.14835 MHz	-47.29 dBm	-34.29 dB
769.000 MHz	775.000 MHz	6.250 kHz	773.93007 MHz	-60.09 dBm	-25.09 dB
775.000 MHz	788.000 MHz	100.000 kHz	787.99351 MHz	-28.86 dBm	-15.86 dB
788.000 MHz	799.000 MHz	100.000 kHz	793.33516 MHz	1.93 dBm	-28.07 dB
799.000 MHz	806.000 MHz	6.250 kHz	799.03846 MHz	-46.51 dBm	-11.51 dB

Date: 20.MAY.2023 22:17:52

LTE Band 14 / 10MHz / 16QAM

Band Edge / Full RB



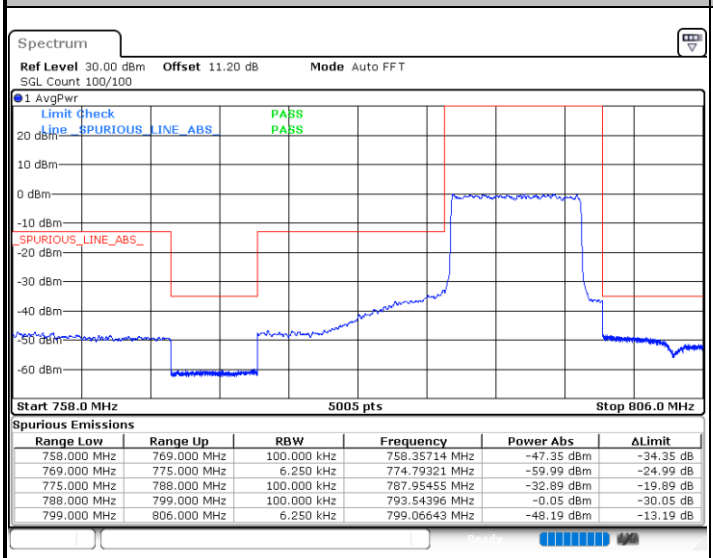
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
758.000 MHz	769.000 MHz	100.000 kHz	758.30220 MHz	-47.67 dBm	-34.67 dB
769.000 MHz	775.000 MHz	6.250 kHz	774.75724 MHz	-59.93 dBm	-24.93 dB
775.000 MHz	788.000 MHz	100.000 kHz	787.99351 MHz	-31.89 dBm	-18.89 dB
788.000 MHz	799.000 MHz	100.000 kHz	794.36813 MHz	1.01 dBm	-28.99 dB
799.000 MHz	806.000 MHz	6.250 kHz	799.03846 MHz	-46.23 dBm	-11.23 dB

Date: 20.MAY.2023 22:21:20

LTE Band 14 / 10MHz / 64QAM

Band Edge / Full RB



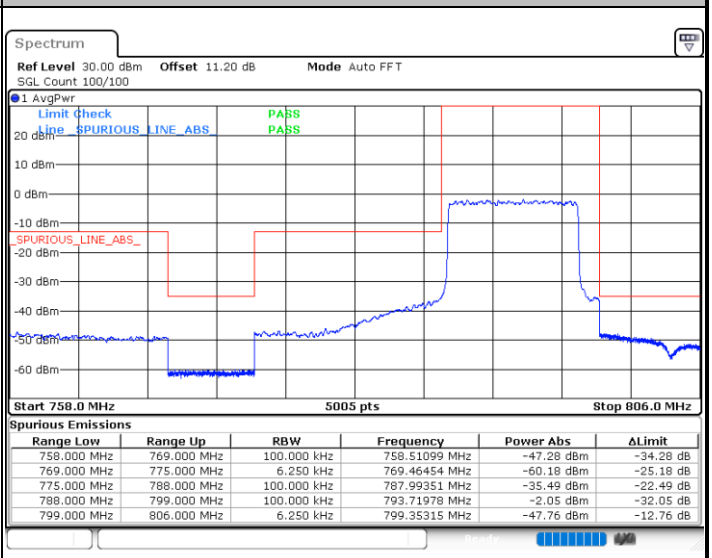
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
758.000 MHz	769.000 MHz	100.000 kHz	758.35714 MHz	-47.35 dBm	-34.35 dB
769.000 MHz	775.000 MHz	6.250 kHz	774.79321 MHz	-59.99 dBm	-24.99 dB
775.000 MHz	788.000 MHz	100.000 kHz	787.95455 MHz	-32.89 dBm	-19.89 dB
788.000 MHz	799.000 MHz	100.000 kHz	793.54396 MHz	-0.05 dBm	-30.05 dB
799.000 MHz	806.000 MHz	6.250 kHz	799.06643 MHz	-48.19 dBm	-13.19 dB

Date: 20.MAY.2023 22:24:04

LTE Band 14 / 10MHz / 256QAM

Band Edge / Full RB



Spurious Emissions

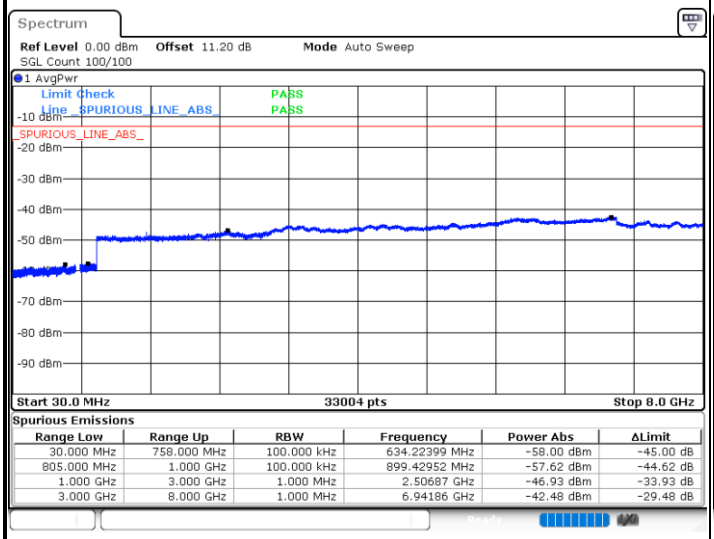
Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
758.000 MHz	769.000 MHz	100.000 kHz	758.51099 MHz	-47.28 dBm	-34.28 dB
769.000 MHz	775.000 MHz	6.250 kHz	769.46454 MHz	-60.18 dBm	-25.18 dB
775.000 MHz	788.000 MHz	100.000 kHz	787.99351 MHz	-35.49 dBm	-22.49 dB
788.000 MHz	799.000 MHz	100.000 kHz	793.71978 MHz	-2.05 dBm	-32.05 dB
799.000 MHz	806.000 MHz	6.250 kHz	799.35315 MHz	-47.76 dBm	-12.76 dB

Date: 20.MAY.2023 22:26:51

Conducted Spurious Emission

LTE Band 14 / 5MHz

Lowest Channel / QPSK

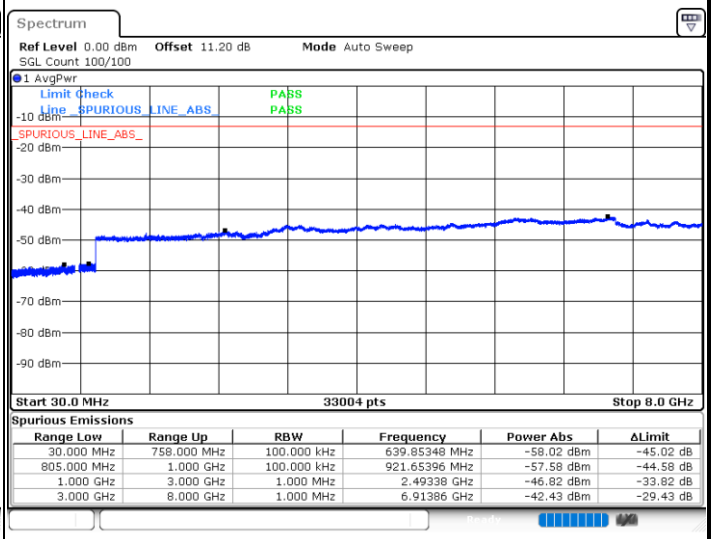


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	758.000 MHz	100.000 kHz	634.22399 MHz	-58.00 dBm	-45.00 dB
805.000 MHz	1.000 GHz	100.000 kHz	899.42952 MHz	-57.62 dBm	-44.62 dB
1.000 GHz	3.000 GHz	1.000 MHz	2.50687 GHz	-46.93 dBm	-33.93 dB
3.000 GHz	8.000 GHz	1.000 MHz	6.94186 GHz	-42.48 dBm	-29.48 dB

Date: 20.MAY.2023 20:49:30

Middle Channel / QPSK

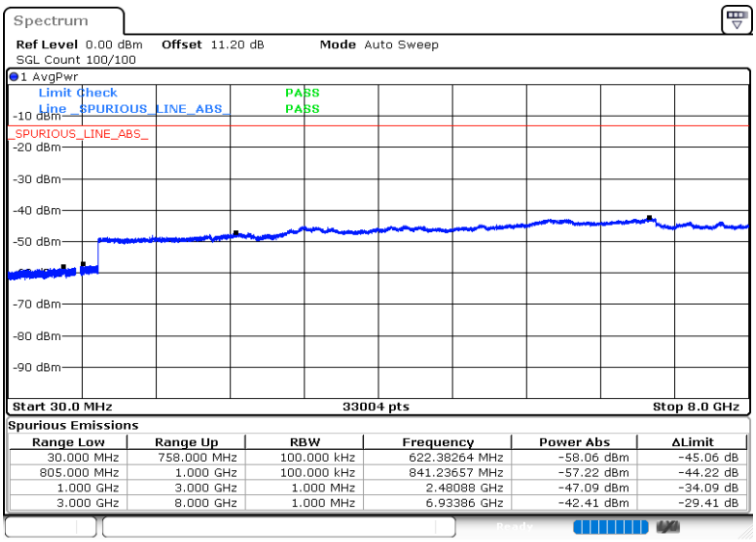


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	758.000 MHz	100.000 kHz	639.85348 MHz	-58.02 dBm	-45.02 dB
805.000 MHz	1.000 GHz	100.000 kHz	921.65396 MHz	-57.58 dBm	-44.58 dB
1.000 GHz	3.000 GHz	1.000 MHz	2.49338 GHz	-46.82 dBm	-33.82 dB
3.000 GHz	8.000 GHz	1.000 MHz	6.91386 GHz	-42.43 dBm	-29.43 dB

Date: 20.MAY.2023 21:13:24

Highest Channel / QPSK



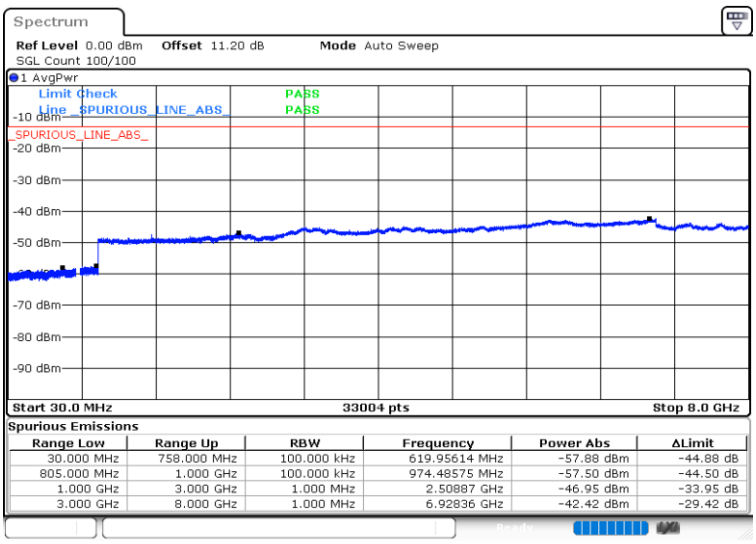
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	758.000 MHz	100.000 kHz	622.38264 MHz	-58.06 dBm	-45.06 dB
805.000 MHz	1.000 GHz	100.000 kHz	841.23657 MHz	-57.22 dBm	-44.22 dB
1.000 GHz	3.000 GHz	1.000 MHz	2.48088 GHz	-47.09 dBm	-34.09 dB
3.000 GHz	8.000 GHz	1.000 MHz	6.93386 GHz	-42.41 dBm	-29.41 dB

Date: 20.MAY.2023 21:54:01

LTE Band 14 / 10MHz

Middle Channel / QPSK



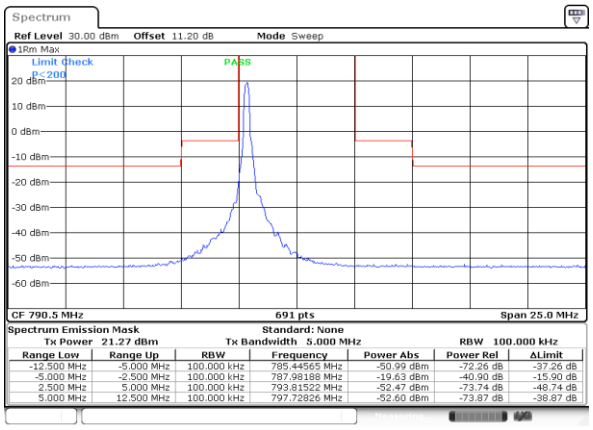
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	758.000 MHz	100.000 kHz	619.95614 MHz	-57.88 dBm	-44.88 dB
805.000 MHz	1.000 GHz	100.000 kHz	974.48575 MHz	-57.50 dBm	-44.50 dB
1.000 GHz	3.000 GHz	1.000 MHz	2.50887 GHz	-46.95 dBm	-33.95 dB
3.000 GHz	8.000 GHz	1.000 MHz	6.92836 GHz	-42.42 dBm	-29.42 dB

Mask

LTE Band 14 / 5MHz / QPSK

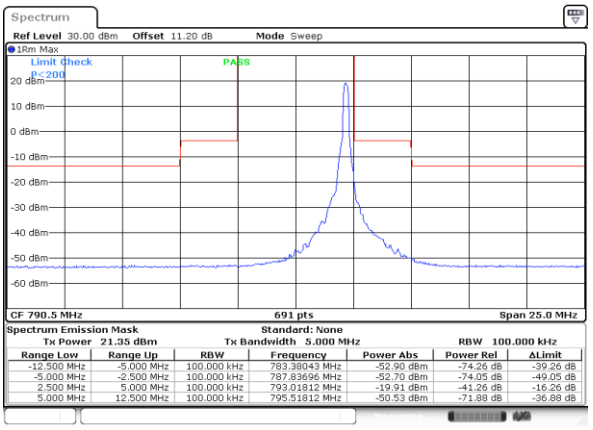
Lowest Channel / 1RB



Spectrum Emission Mask Standard: None
Tx Power 21.27 dBm Tx Bandwidth 5.000 MHz RBW 100.000 kHz

Range Low	Range Up	RBW	Frequency	Power Abs	Power Rel	ΔLimit
-12.500 MHz	-5.000 MHz	100.000 kHz	785.44565 MHz	-50.99 dBm	-72.26 dB	-37.26 dB
-5.000 MHz	-2.500 MHz	100.000 kHz	787.98188 MHz	-19.63 dBm	-40.90 dB	-15.90 dB
2.500 MHz	5.000 MHz	100.000 kHz	793.81522 MHz	-52.47 dBm	-73.74 dB	-48.74 dB
5.000 MHz	12.500 MHz	100.000 kHz	797.72826 MHz	-52.60 dBm	-73.87 dB	-38.87 dB

Date: 20.MAY.2023 20:58:31

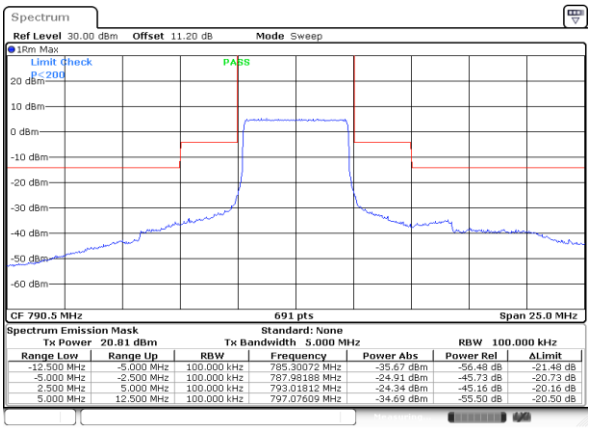


Spectrum Emission Mask Standard: None
Tx Power 21.35 dBm Tx Bandwidth 5.000 MHz RBW 100.000 kHz

Range Low	Range Up	RBW	Frequency	Power Abs	Power Rel	ΔLimit
-12.500 MHz	-5.000 MHz	100.000 kHz	783.38043 MHz	-52.90 dBm	-74.26 dB	-39.26 dB
-5.000 MHz	-2.500 MHz	100.000 kHz	787.83696 MHz	-52.70 dBm	-74.05 dB	-49.05 dB
2.500 MHz	5.000 MHz	100.000 kHz	793.01812 MHz	-19.91 dBm	-41.26 dB	-16.26 dB
5.000 MHz	12.500 MHz	100.000 kHz	795.51812 MHz	-50.53 dBm	-71.88 dB	-36.88 dB

Date: 20.MAY.2023 20:59:29

Lowest Channel / Full RB



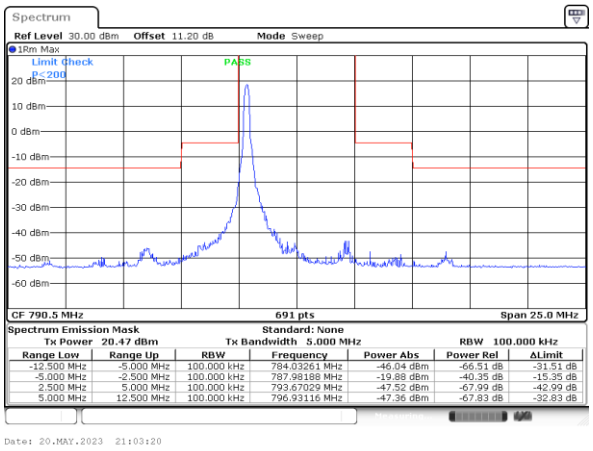
Spectrum Emission Mask Standard: None
Tx Power 20.81 dBm Tx Bandwidth 5.000 MHz RBW 100.000 kHz

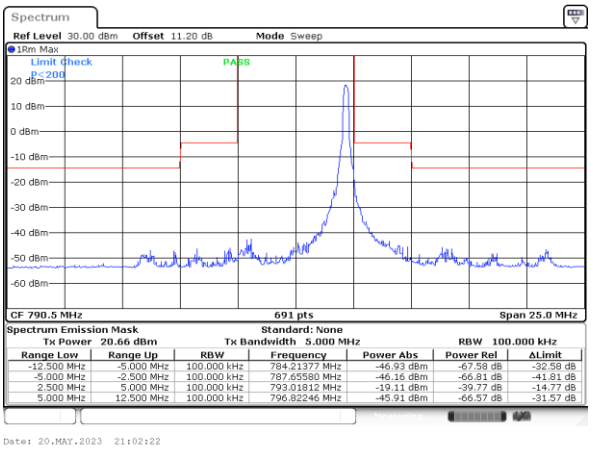
Range Low	Range Up	RBW	Frequency	Power Abs	Power Rel	ΔLimit
-12.500 MHz	-5.000 MHz	100.000 kHz	785.30072 MHz	-35.67 dBm	-56.48 dB	-21.48 dB
-5.000 MHz	-2.500 MHz	100.000 kHz	787.98188 MHz	-24.91 dBm	-45.73 dB	-20.73 dB
2.500 MHz	5.000 MHz	100.000 kHz	793.01812 MHz	-24.34 dBm	-45.16 dB	-20.16 dB
5.000 MHz	12.500 MHz	100.000 kHz	797.07609 MHz	-34.69 dBm	-55.50 dB	-20.50 dB

Date: 20.MAY.2023 21:00:27

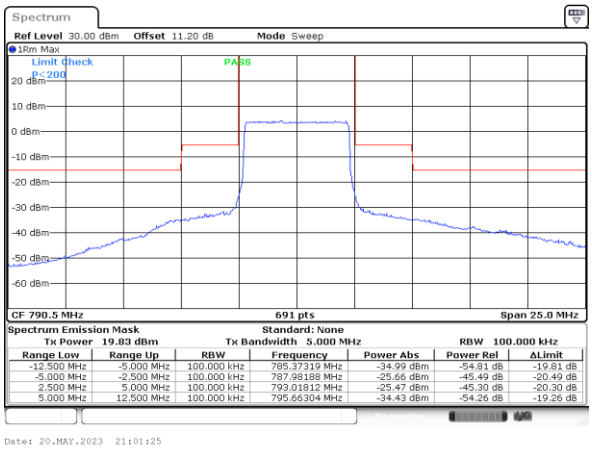
LTE Band 14 / 5MHz / 16QAM

Lowest Channel / 1RB



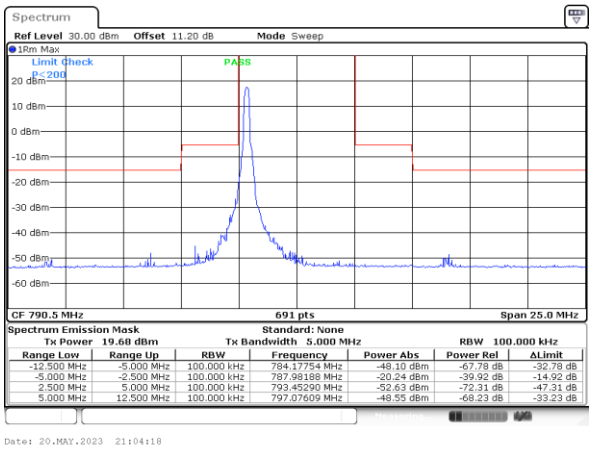


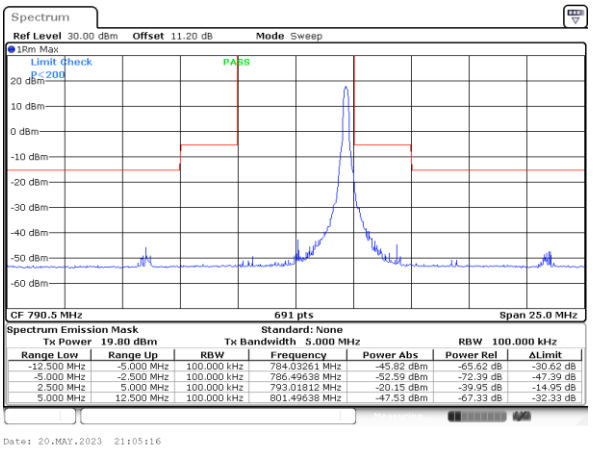
Lowest Channel / Full RB



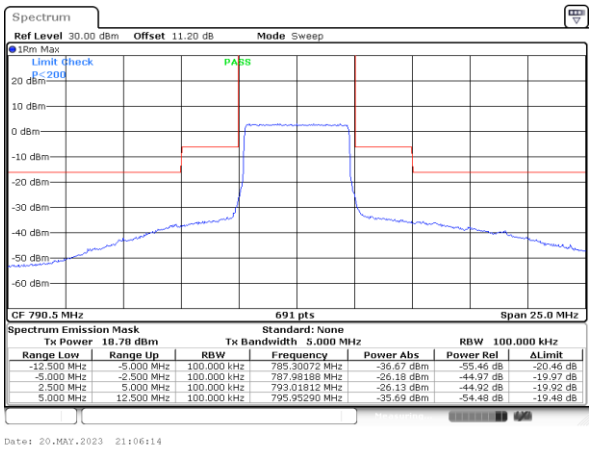
LTE Band 14 / 5MHz / 64QAM

Lowest Channel / 1RB



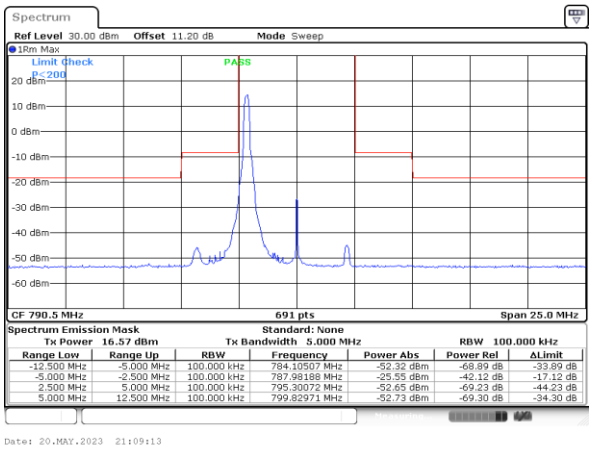


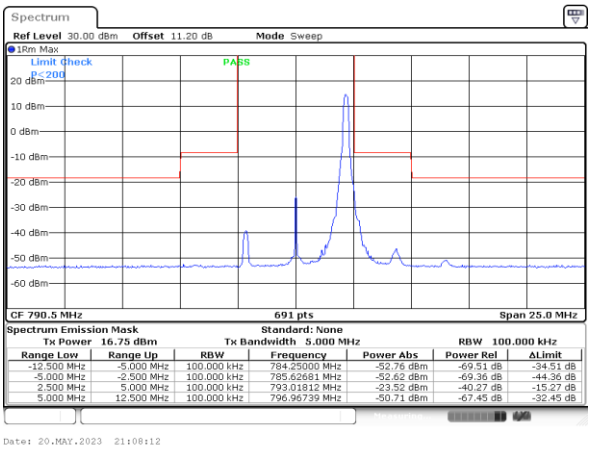
Lowest Channel / Full RB



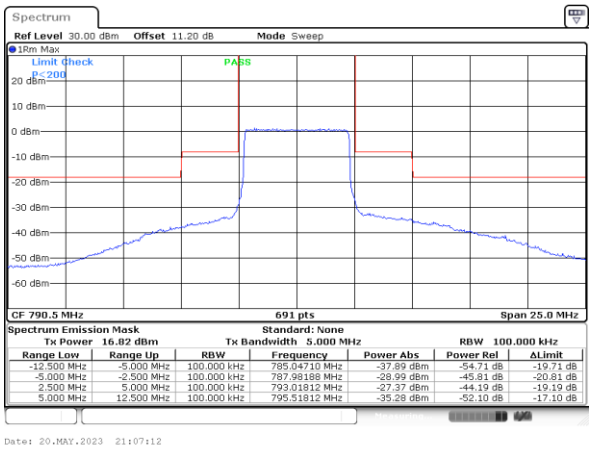
LTE Band 14 / 5MHz / 256QAM

Lowest Channel / 1RB



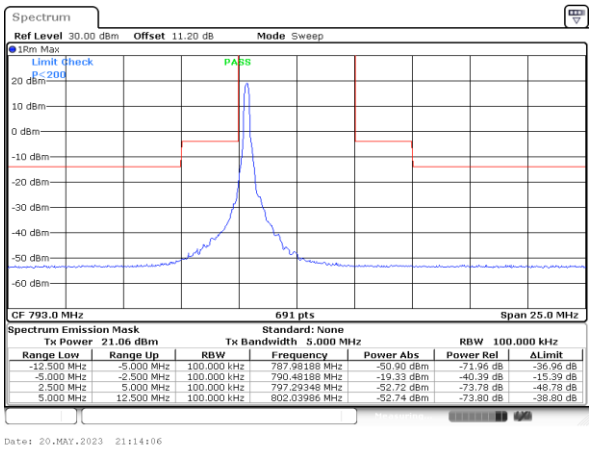


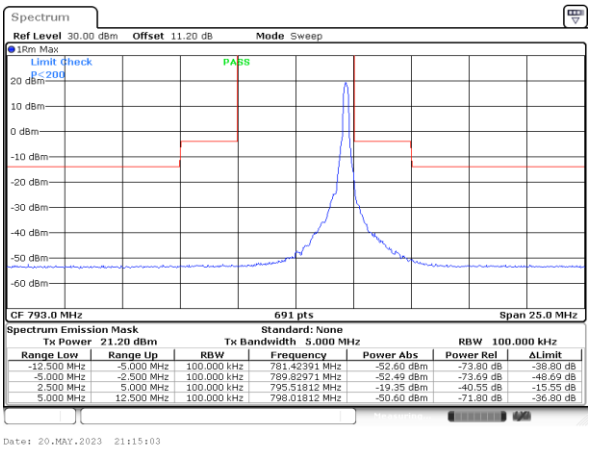
Lowest Channel / Full RB



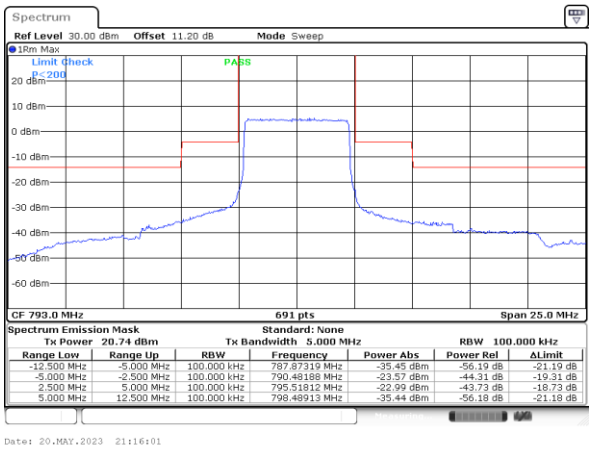
LTE Band 14 / 5MHz / QPSK

Middle Channel / 1RB



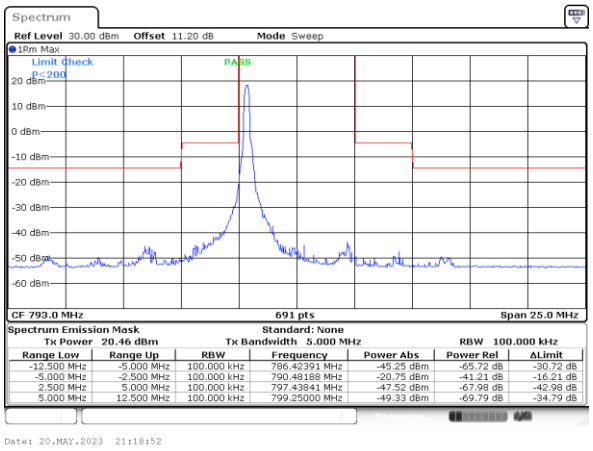


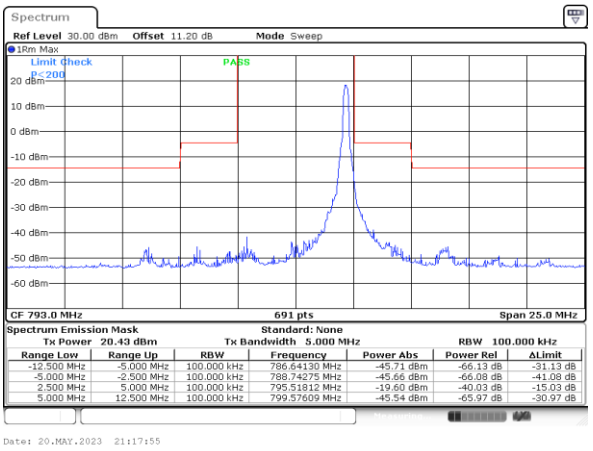
Middle Channel / Full RB



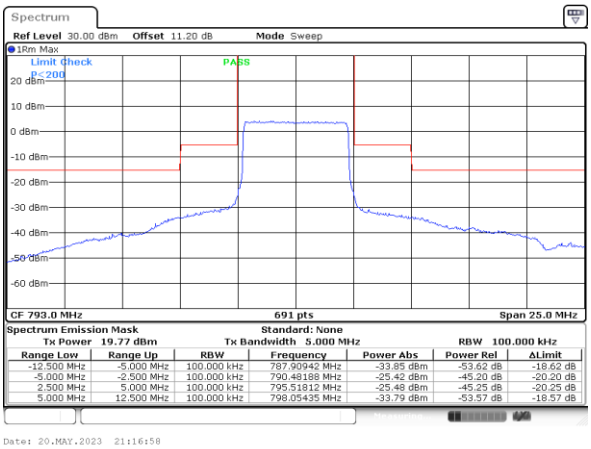
LTE Band 14 / 5MHz / 16QAM

Middle Channel / 1RB



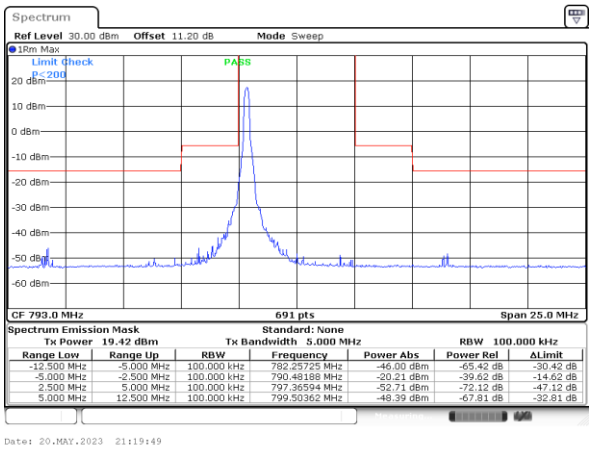


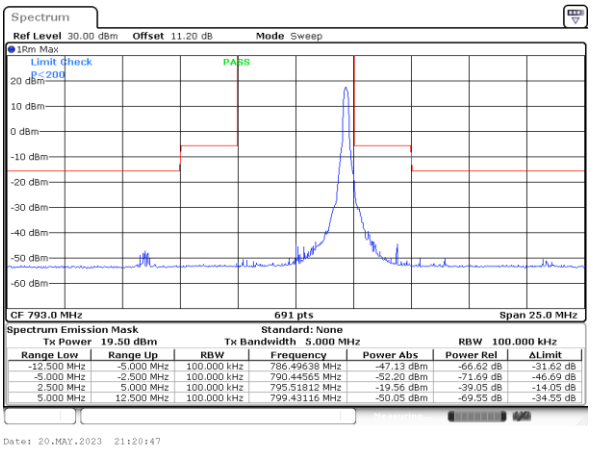
Middle Channel / Full RB



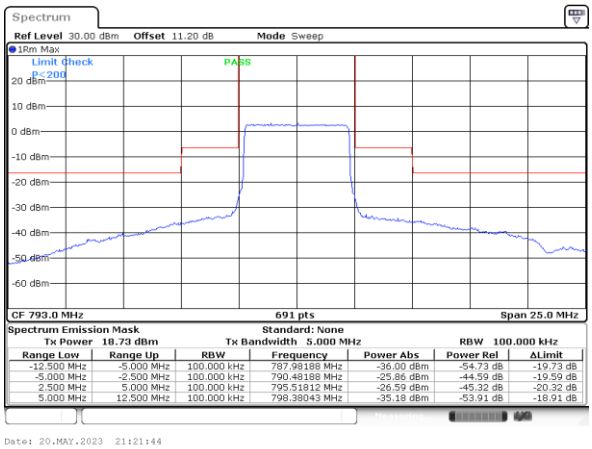
LTE Band 14 / 5MHz / 64QAM

Middle Channel / 1RB



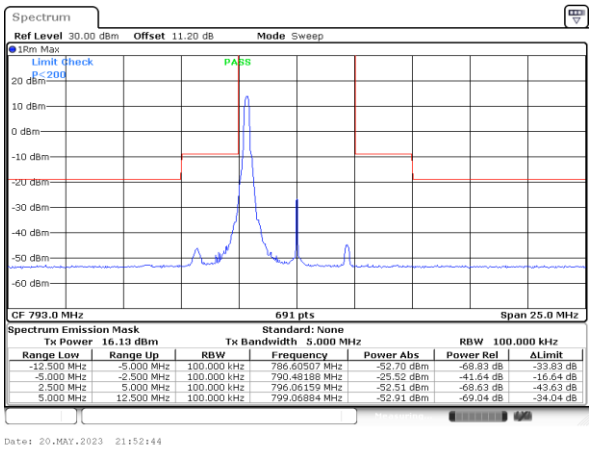


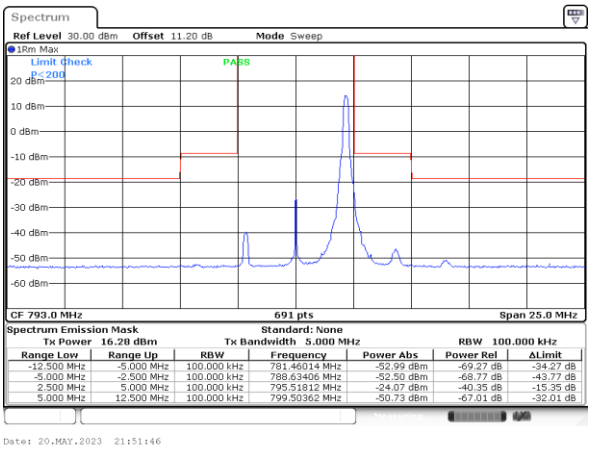
Middle Channel / Full RB



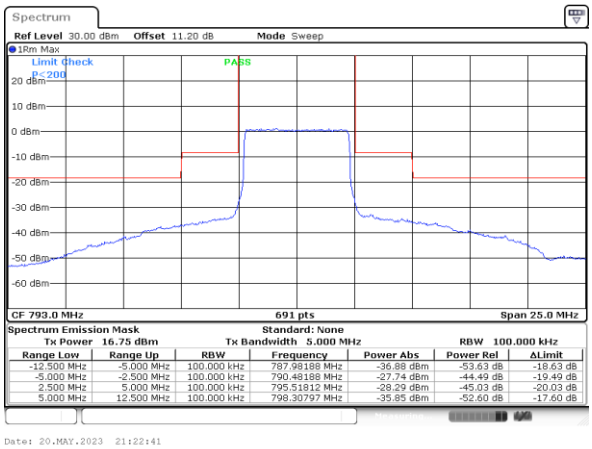
LTE Band 14 / 5MHz / 256QAM

Middle Channel / 1RB



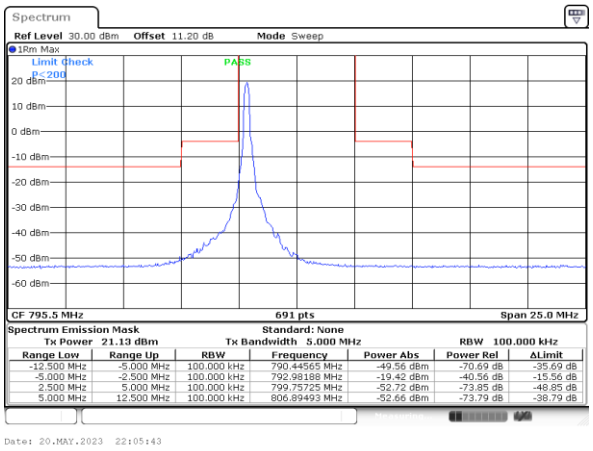


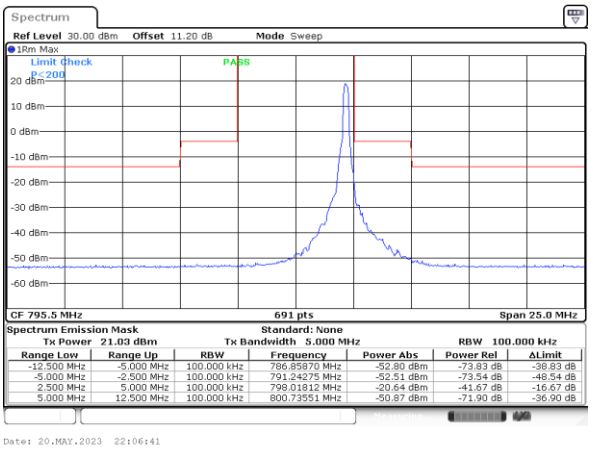
Middle Channel / Full RB



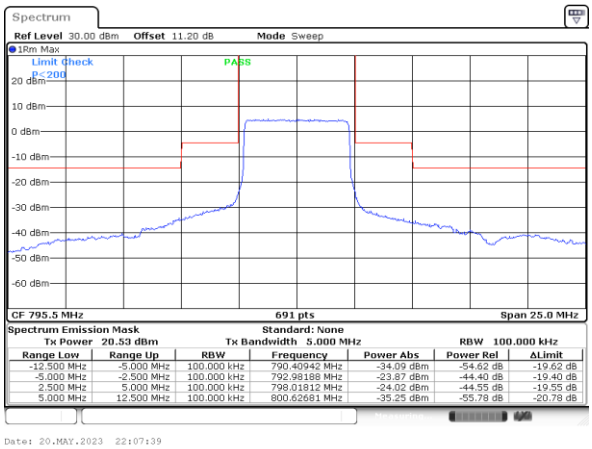
LTE Band 14 / 5MHz / QPSK

Highest Channel / 1RB



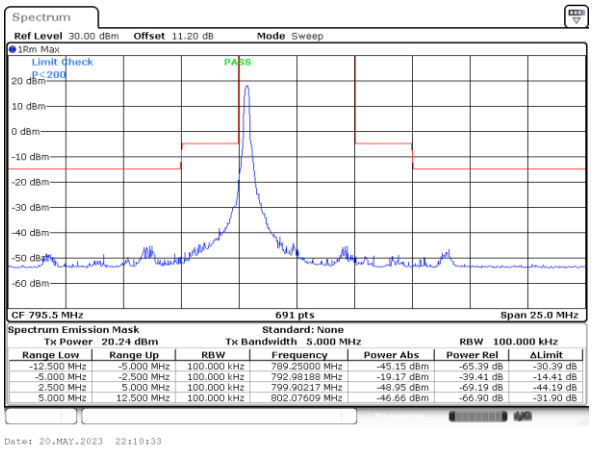


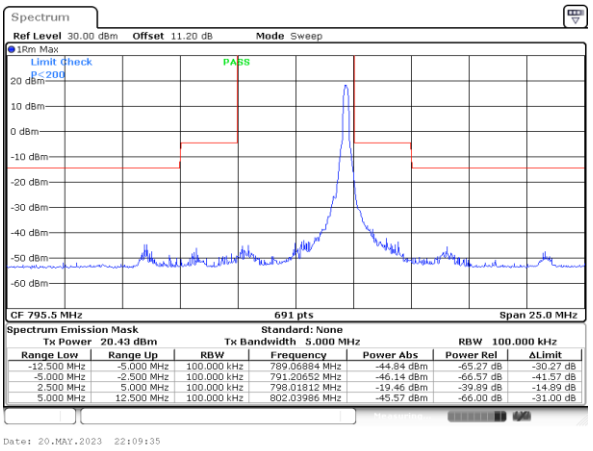
Highest Channel / Full RB



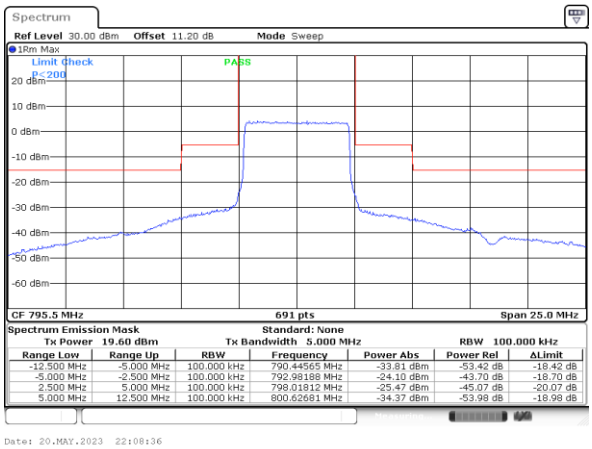
LTE Band 14 / 5MHz / 16QAM

Highest Channel / 1RB



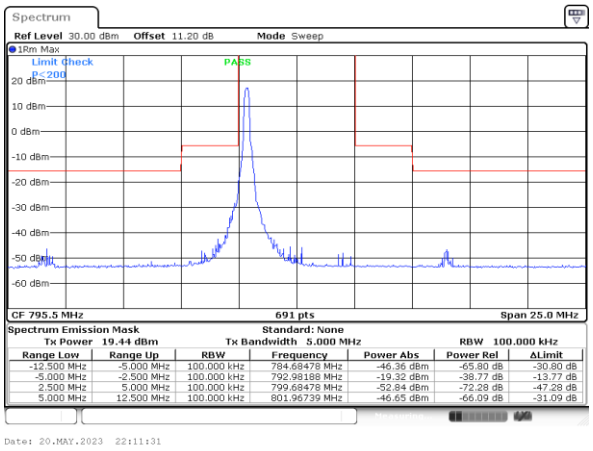


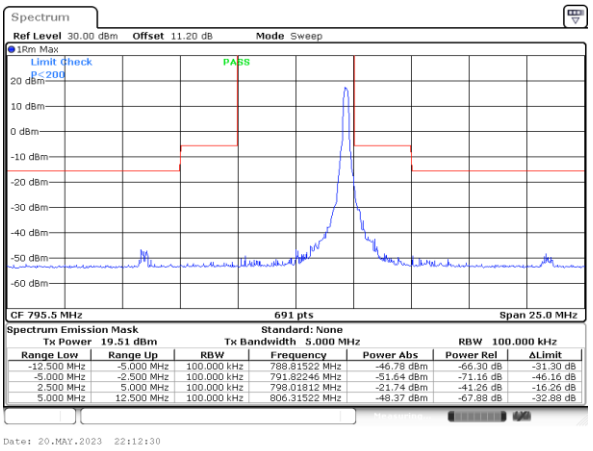
Highest Channel / Full RB



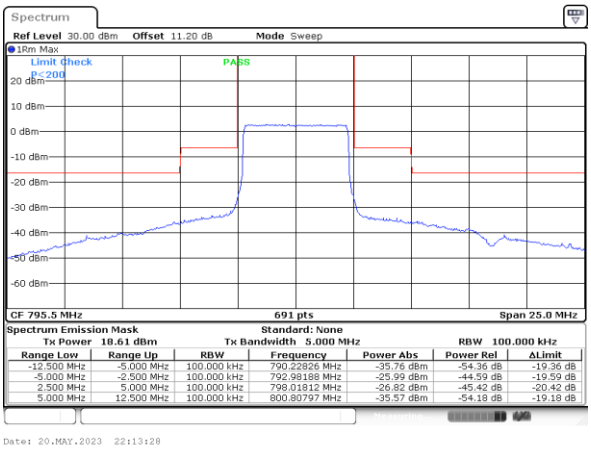
LTE Band 14 / 5MHz / 64QAM

Highest Channel / 1RB



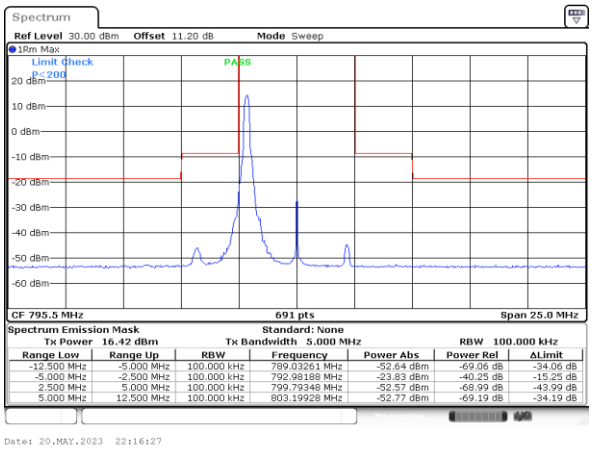


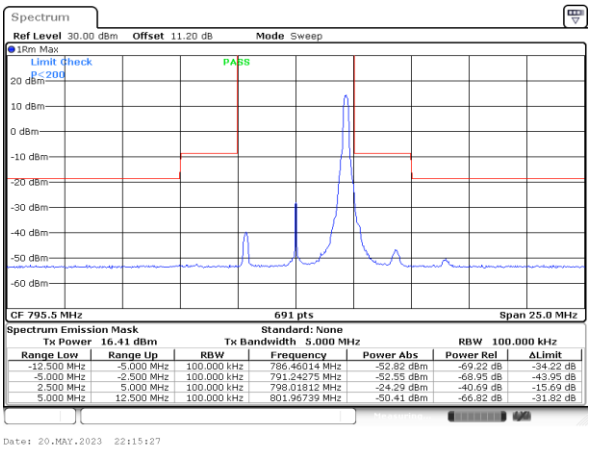
Highest Channel / Full RB



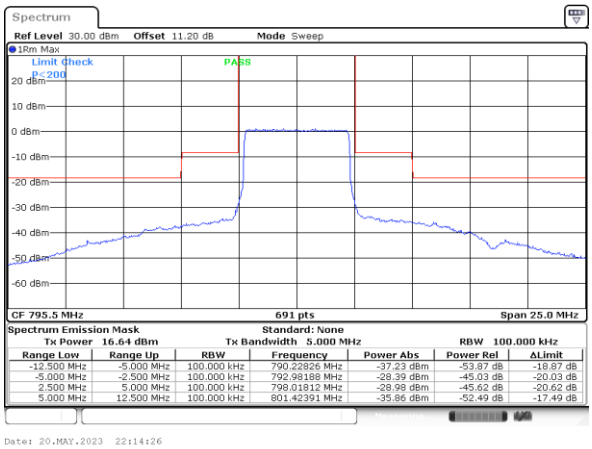
LTE Band 14 / 5MHz / 256QAM

Highest Channel / 1RB



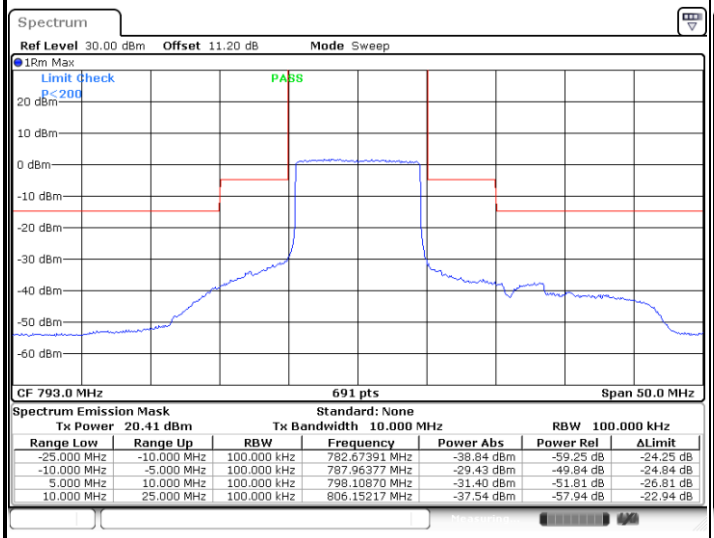


Highest Channel / Full RB



LTE Band 14 / 10MHz / QPSK

Middle Channel / Full RB



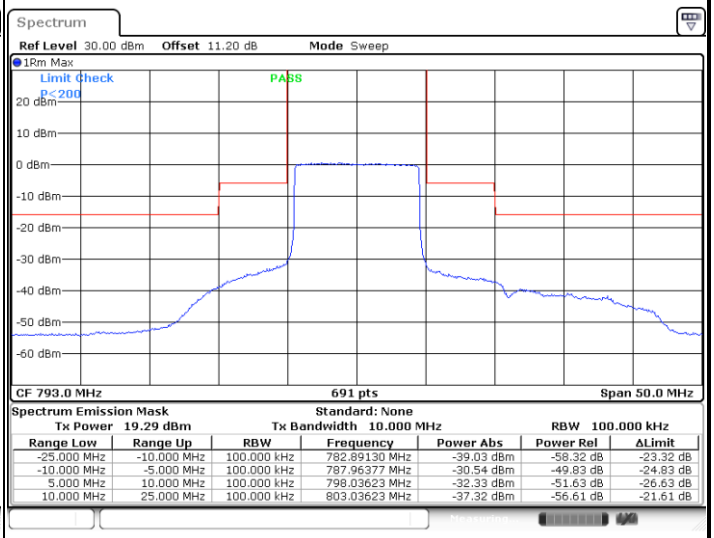
Spectrum Emission Mask Standard: None
Tx Power 20.41 dBm Tx Bandwidth 10.000 MHz RBW 100.000 kHz

Range Low	Range Up	RBW	Frequency	Power Abs	Power Rel	ΔLimit
-25.000 MHz	-10.000 MHz	100.000 kHz	782.67391 MHz	-38.84 dBm	-59.25 dB	-24.25 dB
-10.000 MHz	-5.000 MHz	100.000 kHz	787.96377 MHz	-29.43 dBm	-49.84 dB	-24.84 dB
5.000 MHz	10.000 MHz	100.000 kHz	798.10870 MHz	-31.40 dBm	-51.81 dB	-26.81 dB
10.000 MHz	25.000 MHz	100.000 kHz	806.15217 MHz	-37.54 dBm	-57.94 dB	-22.94 dB

Date: 20.MAY.2023 22:18:35

LTE Band 14 / 10MHz / 16QAM

Middle Channel / Full RB



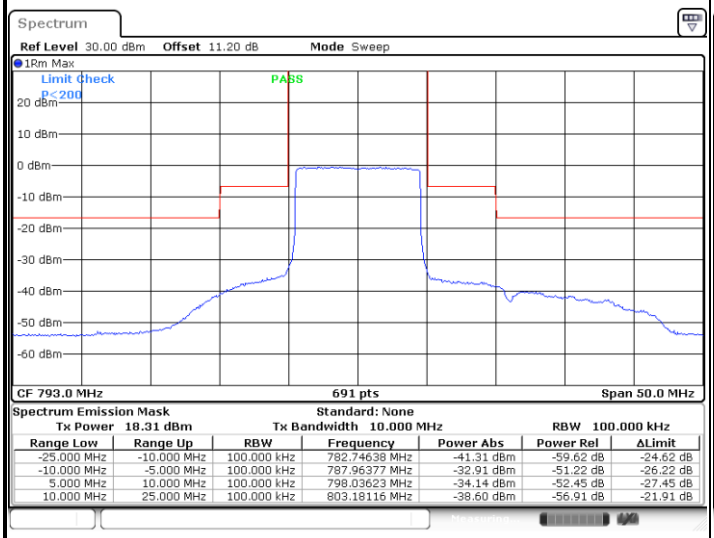
Spectrum Emission Mask Standard: None
Tx Power 19.29 dBm Tx Bandwidth 10.000 MHz RBW 100.000 kHz

Range Low	Range Up	RBW	Frequency	Power Abs	Power Rel	ΔLimit
-25.000 MHz	-10.000 MHz	100.000 kHz	782.89130 MHz	-39.03 dBm	-58.32 dB	-23.32 dB
-10.000 MHz	-5.000 MHz	100.000 kHz	787.96377 MHz	-30.54 dBm	-49.83 dB	-24.83 dB
5.000 MHz	10.000 MHz	100.000 kHz	798.03623 MHz	-32.33 dBm	-51.63 dB	-26.63 dB
10.000 MHz	25.000 MHz	100.000 kHz	803.03623 MHz	-37.32 dBm	-56.61 dB	-21.61 dB

Date: 20.MAY.2023 22:22:04

LTE Band 14 / 10MHz / 64QAM

Middle Channel / Full RB



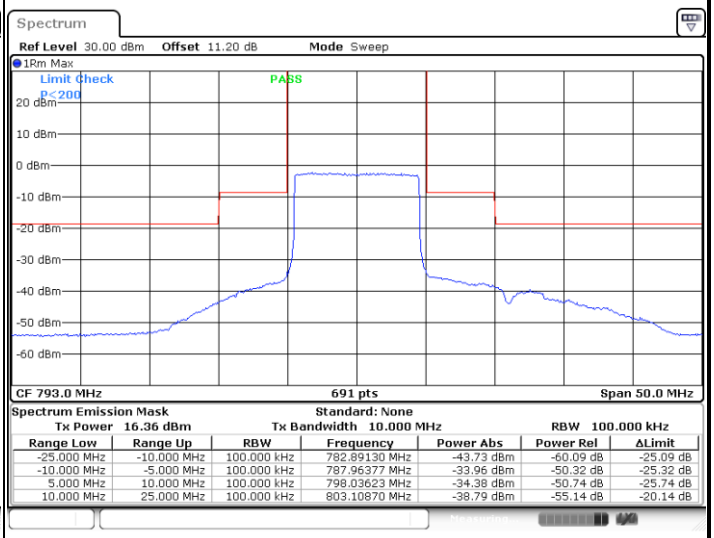
Spectrum Emission Mask Standard: None
Tx Power 18.31 dBm Tx Bandwidth 10.000 MHz RBW 100.000 kHz

Range Low	Range Up	RBW	Frequency	Power Abs	Power Rel	ΔLimit
-25.000 MHz	-10.000 MHz	100.000 kHz	782.74638 MHz	-41.31 dBm	-59.62 dB	-24.62 dB
-10.000 MHz	-5.000 MHz	100.000 kHz	787.96377 MHz	-32.91 dBm	-51.22 dB	-26.22 dB
5.000 MHz	10.000 MHz	100.000 kHz	798.03623 MHz	-34.14 dBm	-52.45 dB	-27.45 dB
10.000 MHz	25.000 MHz	100.000 kHz	803.18116 MHz	-38.60 dBm	-56.91 dB	-21.91 dB

Date: 20.MAY.2023 22:23:01

LTE Band 14 / 10MHz / 256QAM

Middle Channel / Full RB



Spectrum Emission Mask Standard: None
Tx Power 16.36 dBm Tx Bandwidth 10.000 MHz RBW 100.000 kHz

Range Low	Range Up	RBW	Frequency	Power Abs	Power Rel	ΔLimit
-25.000 MHz	-10.000 MHz	100.000 kHz	782.89130 MHz	-43.73 dBm	-60.09 dB	-25.09 dB
-10.000 MHz	-5.000 MHz	100.000 kHz	787.96377 MHz	-33.96 dBm	-50.32 dB	-25.32 dB
5.000 MHz	10.000 MHz	100.000 kHz	798.03623 MHz	-34.38 dBm	-50.74 dB	-25.74 dB
10.000 MHz	25.000 MHz	100.000 kHz	803.10870 MHz	-38.79 dBm	-55.14 dB	-20.14 dB

Date: 20.MAY.2023 22:27:34

Frequency Stability

Test Conditions		LTE Band 14 (QPSK) / Middle Channel	Limit
Temperature (°C)	Voltage (Volt)	BW 10MHz	Note 2.
		Deviation (ppm)	Result
50	Normal Voltage	0.0223	PASS
40	Normal Voltage	0.0224	
30	Normal Voltage	0.0091	
20(Ref.)	Normal Voltage	0.0000	
10	Normal Voltage	0.0223	
0	Normal Voltage	0.0160	
-10	Normal Voltage	0.0013	
-20	Normal Voltage	0.0129	
-30	Normal Voltage	0.0009	
20	Maximum Voltage	0.0207	
20	Normal Voltage	0.0223	
20	Battery End Point	0.0021	

Note:

1. Normal Voltage = 3.3 V.；Battery End Point (BEP) = 3.135 V.；Maximum Voltage = 4.4 V.
2. The frequency fundamental emissions stay within the authorized frequency block.

Appendix B. Test Results of Radiated Test

LTE Band 14

LTE Band 14 / 5MHz / QPSK									
Channel	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Lowest	1576	-61.95	-42.15	-19.80	-71.38	-65.01	3.80	9.01	H
	2365	-49.76	-13.00	-36.76	-63.69	-52.85	4.68	9.92	H
	3153	-58.17	-13.00	-45.17	-74.21	-61.91	5.42	11.31	H
									H
									H
									H
	1576	-62.57	-42.15	-20.42	-72.12	-65.63	3.80	9.01	V
	2365	-53.41	-13.00	-40.41	-67.54	-56.50	4.68	9.92	V
	3153	-57.49	-13.00	-44.49	-73.85	-61.23	5.42	11.31	V
									V
									V
									V
Middle	1581	-62.87	-42.15	-20.72	-72.29	-65.96	3.80	9.05	H
	2372	-49.55	-13.00	-36.55	-63.48	-52.68	4.69	9.98	H
	3163	-57.80	-13.00	-44.80	-73.87	-61.57	5.43	11.35	H
									H
									H
									H
	1581	-62.66	-42.15	-20.51	-72.21	-65.75	3.80	9.05	V
	2372	-53.49	-13.00	-40.49	-67.60	-56.62	4.69	9.98	V
	3163	-57.74	-13.00	-44.74	-74.15	-61.51	5.43	11.35	V
									V
									V
									V

Highest	1586	-62.58	-42.15	-20.43	-71.97	-65.71	3.81	9.09	H
	2380	-51.43	-13.00	-38.43	-65.37	-54.62	4.70	10.04	H
	3173	-58.18	-13.00	-45.18	-74.26	-61.98	5.44	11.39	H
									H
									H
									H
	1586	-62.11	-42.15	-19.96	-71.63	-65.24	3.81	9.09	V
	2380	-56.17	-13.00	-43.17	-70.26	-59.36	4.70	10.04	V
	3173	-57.76	-13.00	-44.76	-74.21	-61.56	5.44	11.39	V
									V
									V
									V

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

———THE END———