FCC RF Test Report

APPLICANT	:	Relay, Inc.
EQUIPMENT	:	Relay
BRAND NAME	:	RelayM
MODEL NAME	:	RY2267
FCC ID	:	2AMBHRY2267
STANDARD	:	47 CFR Part 90(R)
CLASSIFICATION	:	PCS Licensed Transmitter held to face (PCF)
TEST DATE(S)	:	Sep. 11, 2024 ~ Feb. 08, 2025

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

This report contains data that were produced under subcontract by Sporton International Inc. (Shenzhen).

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

Jason Jia

Approved by: Jason Jia

ACCREDITED
Cert #5145.02

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

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APPENDIX A. TEST RESULTS OF CONDUCTED TEST

APPENDIX B. TEST RESULTS OF RADIATED TEST

APPENDIX C. TEST SETUP PHOTOGRAPHS

REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FG250505C	Rev. 01	Initial issue of report	Feb. 24, 2025

SUMMARY OF TEST RESULT

Report Section	FCC Rule	Description	Limit	Result	Remark
3.2	§2.1046	Conducted Output Power	—	Reporting only	-
	§90.542 (a)(7)	Effective Radiated Power	ERP < 3Watt	PASS	-
3.3	-	Peak-to-Average Ratio	—	Reporting only	-
3.4	§2.1049	Occupied Bandwidth	—	Reporting only	-
3.5	§2.1053 §90.543 (e)(2)(3)	Conducted Band Edge Measurement	Refer standard	PASS	-
3.6	§2.1051 §90.210(n)	Emission Mask	Mask B	PASS	-
3.7	§2.1053 §90.543 (e)(3)	Conducted Spurious Emission	< $43+10\log_{10}$(P[Watts])	PASS	-
3.8	§2.1055 §90.539 (e)	Frequency Stability Temperature & Voltage	< ±1.25 ppm	PASS	-
4.4	§2.1053 §90.543 (e)(3) §90.543 (f)	Radiated Spurious Emission	< $43+10\log_{10}$(P[Watts])	PASS	Under limit 22.73 dB at 1586.50 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

Relay, Inc.
2230 Bandmate Way, Suite 500, Raleigh, NC 27607, USA

1.2 Manufacturer

Relay, Inc.
2230 Bandmate Way, Suite 500, Raleigh, NC 27607, USA

1.3 Feature of Equipment Under Test

Product Feature	
Equipment	Relay
Brand Name	RelayM
Model Name	RY2267
FCC ID	2AMBHRY2267
Tx Frequency	LTE Band 14: 788 MHz ~ 798 MHz
Rx Frequency	LTE Band 14: 758 MHz ~ 768 MHz
Bandwidth	5MHz / 10MHz
Maximum Output Power to Antenna	24.63 dBm
Antenna Gain	<Ant.1> : -11.6 dBi
Antenna Type	PIFA Antenna
Type of Modulation	QPSK / 16QAM / 64QAM
IMEI Code	Conducted: 004400152020000 Radiation: 990007540010789
HW Version	v01
EUT Stage	Identical Prototype

Remark: The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.

1.4 Maximum ERP Power, and Emission Designator

LTE Band 14		QPSK		16QAM/64QAM	
BW (MHz)	Frequency Range (MHz)	Maximum ERP(W)	Emission Designator (99%OBW)	Maximum ERP(W)	Emission Designator (99%OBW)
5	**790.5~795.5**	0.0122	4M52G7D	0.0099	4M50W7D
10	**793**	0.0122	8M99G7D	0.0098	9M07W7D

1.5 Testing Site

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

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

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	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.**
	03CH02-SZ	CN1256	421272

Test data subcontracted: Radiated Spurious Emission test case in section 4.4 of this report.

1.6 Test Software

Item	Site	Manufacture	Name	Version
1.	TH01-KS	SPORTON	FCC LTE_Ver2.0 Auto_china_210503	2.0
2.	03CH02-SZ	AUDIX	E3	6.2009-8-24a

1.7 Applied Standards

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

- 47 CFR Part 90(R)
- ANSI C63.26
- KDB 971168 D01 Power Meas License Digital Systems v03r01
- 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

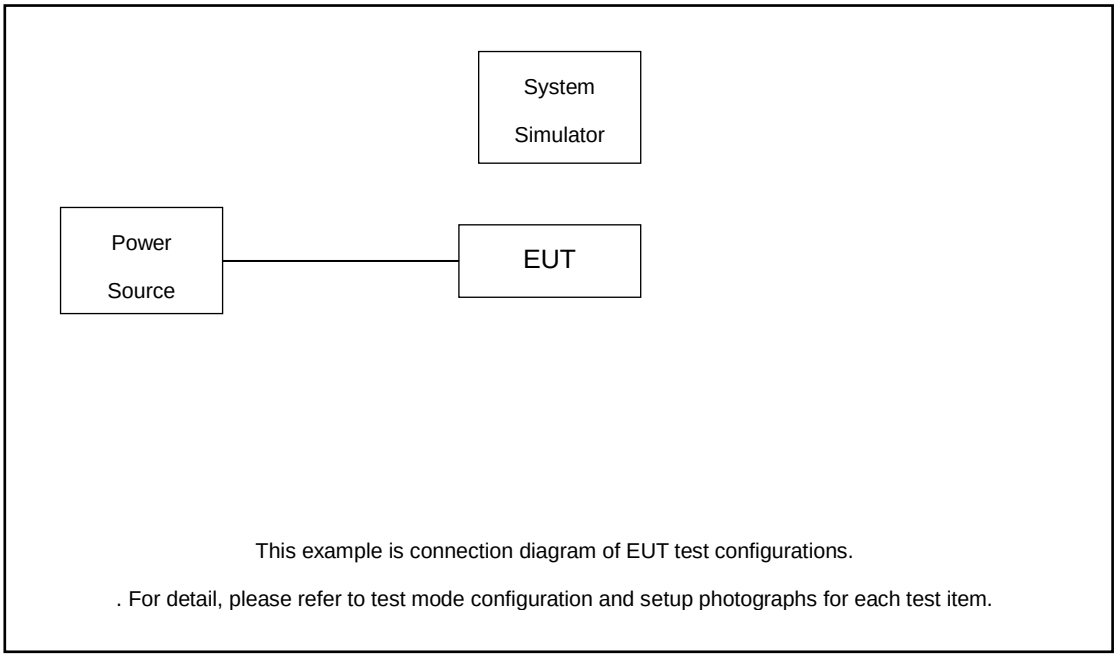
2.1 Test Mode

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. (Y Plane)

Conducted Test Cases	Band	Bandwidth (MHz)						Modulation			RB #			Test Channel		
		1.4	3	5	10	15	20	QPSK	16QAM	64QAM	1	Half	Full	L	M	H
Max. Output Power	14	-	-	V		-	-	V	V	V	V	V	V	V	V	V
	14	-	-		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
	14	-	-		V	-	-	V	V				V		V	
Conducted Band Edge	14	-	-	V		-	-	V	V	V	V		V	V		V
	14	-	-		V	-	-	V	V	V	V		V		V	
Emission Mask	14	-	-	V		-	-	V	V	V	V		V	V	V	V
	14	-	-		V	-	-	V	V	V	V		V		V	
Conducted Spurious Emission	14	-	-	V		-	-	V			V			V	V	V
	14	-	-		V	-	-	V			V				V	
Frequency Stability	14	-	-		V	-	-	V					V		V	
E.R.P	14	-	-	V		-	-	V	V	V	V	V	V	V	V	V
	14	-	-		V	-	-	V	V	V	V	V	V		V	
Radiated Spurious Emission	14	-	-	V	V	-	-	V			V			V	V	V
Note	1. The mark "v " means that this configuration is chosen for testing 2. The mark "-" means that this bandwidth is not supported. 3. The device is investigated from 30MHz to 10 times of fundamental signal for radiated spurious emission test under different RB size/offset and modulations in exploratory test. Subsequently, only the worst case emissions are reported.															

2.2 Connection Diagram of Test System



2.3 Support Unit used in test configuration and system

Item	Equipment	Trade Name	Model No.	FCC ID	Data Cable	Power Cord
1.	LTE Base Station	Anritsu	MT8820C	N/A	N/A	Unshielded, 1.8 m
2.	DC Power Supply	GW INSTEK	GPS-3030D	N/A	N/A	Unshielded, 1.8 m

2.4 Measurement Results Explanation Example

For all conducted test items:

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

The spectrum analyzer offset is derived from RF cable loss.

Offset = RF cable loss.

Following shows an offset computation example with cable loss 4.8 dB.

Example :

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

=4.8 (dB)

2.5 Frequency List of Low/Middle/High Channels

LTE Band 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

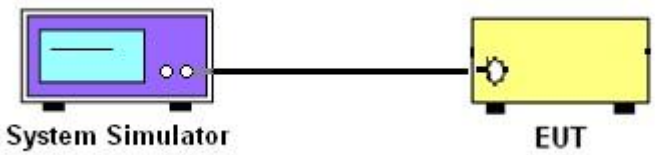
3 Conducted Test Items

3.1 Measuring Instruments

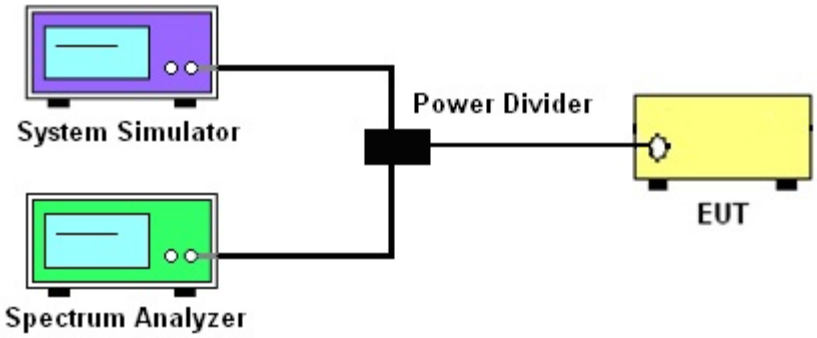
See list of measuring instruments of this test report.

3.1.1 Test Setup

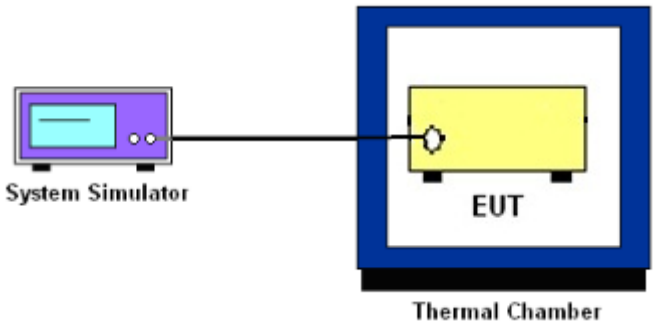
3.1.2 Conducted Output Power



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 and ERP

3.2.1 Description of the Conducted Output Power Measurement and ERP

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

The ERP of mobile transmitters must not exceed 3 Watts for LTE Band 14.

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

3.2.2 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.

3.3 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

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

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.

3.5 Conducted Band Edge Measurement

3.5.1 Description of Conducted Band Edge Measurement

For operations in the 758-768 MHz and the 788-798 MHz bands

(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

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 spectrum analyzer with RMS detector.
5. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
6. 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.

3.6 Emission Mask

3.6.1 Description of Emission Mask

<Emission Mask B>.

For transmitters that are equipped with an audio low-pass filter, the power of any emission must be attenuated below the unmodulated carrier power (P) as follows:

(1) On any frequency removed from the assigned frequency by more than 50 percent, but not more than 100 percent of the authorized bandwidth: At least 25 dB.

(2) On any frequency removed from the assigned frequency by more than 100 percent, but not more than 250 percent of the authorized bandwidth: At least 35 dB.

(3) On any frequency removed from the assigned frequency by more than 250 percent of the authorized bandwidth: At least 43 + 10 log (P) dB.

3.6.2 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. Make the measurement with the spectrum analyzer's RBW = 1MHz, VBW = 3MHz.
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)
   = P(W)- [43 + 10log(P)] (dB)
   = [30 + 10log(P)] (dBm) - [43 + 10log(P)] (dB)
   = -13dBm.

3.7 Conducted Spurious Emission Measurement

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 30MHz up to a frequency including its 10th harmonic.

3.7.2 Test Procedures

1. The testing follows ANSI C63.26 section 5.7
2. The EUT was connected to spectrum analyzer and base station via 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, for under 1GHz RBW = 100kHz, VBW = 300kHz and for above 1GHz RBW = 1MHz, VBW = 3MHz, taking the record of maximum spurious emission.
7. Set spectrum analyzer with RMS detector.
8. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
9. 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.

3.8 Frequency Stability Measurement

3.8.1 Description of Frequency Stability Measurement

The frequency stability shall be measured by variation of ambient temperature and variation of primary supply voltage to ensure that the fundamental emission stays within the authorized frequency block.

3.8.2 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.

3.8.3 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.

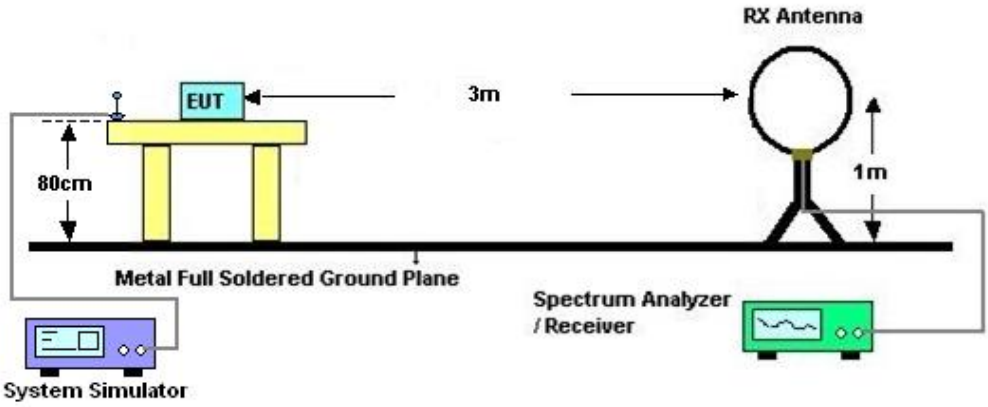
4 Radiated Test Items

4.1 Measuring Instruments

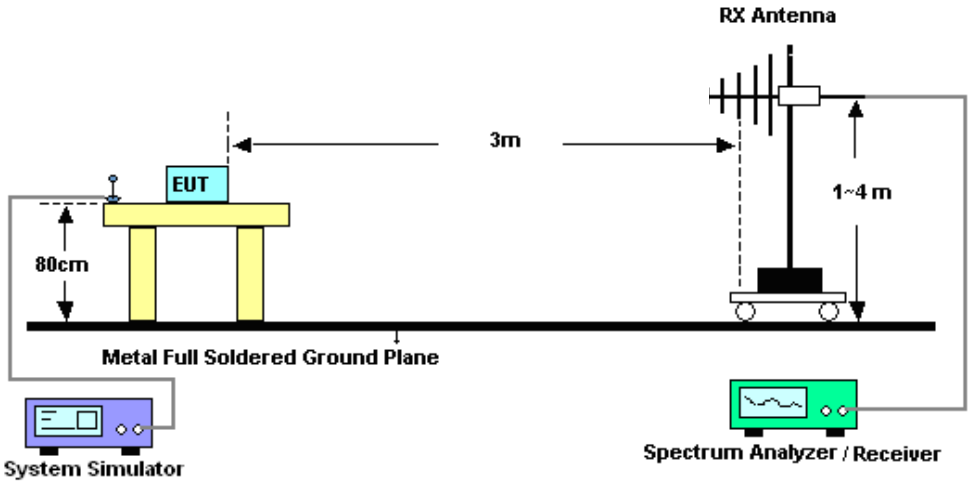
See list of measuring instruments of this test report.

4.2 Test Setup

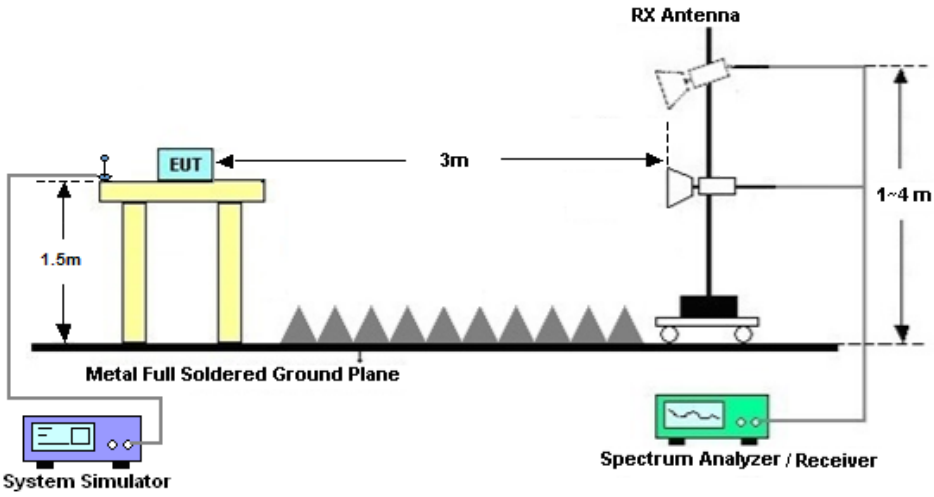
4.2.1 For radiated test below 30MHz



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 Measurement

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 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.

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	101040	10Hz~40GHz	Oct. 10, 2023	Sep. 11, 2024~ Oct. 11, 2024	Oct. 09, 2025	Conducted (TH01-KS)
Power divider	STI	STI08-0055	-	0.5~40GHz	NCR	Sep. 11, 2024~ Oct. 11, 2024	NCR	Conducted (TH01-KS)
Temperature & humidity chamber	Hongzhan	LP-150U	H2014011440	-40~+150°C 20%~95%RH	Jul. 04, 2024	Sep. 11, 2024~ Oct. 11, 2024	Jul. 03, 2025	Conducted (TH01-KS)
EXA Spectrum Analyzer	KEYSIGHT	N9010A	MY55150213	10Hz~44GHz	Jul. 03, 2024	Feb. 08, 2025	Jul. 02, 2025	Radiation (03CH02-SZ)
Loop Antenna	R&S	HFH2-Z2E	101141	9kHz~30MHz	Dec. 28, 2024	Feb. 08, 2025	Dec. 27, 2025	Radiation (03CH02-SZ)
Bilog Antenna	TeseQ	CBL6112D	35407	30MHz-2GHz	Oct. 24, 2023	Feb. 08, 2025	Oct. 23, 2025	Radiation (03CH02-SZ)
Double Ridge Horn Antenna	ETS-Lindgren	3117	00119436	1GHz~18GHz	Jul. 04, 2024	Feb. 08, 2025	Jul. 04, 2025	Radiation (03CH02-SZ)
HF Amplifier	MITEQ	TTA1840-35 -HG	1871923	18GHz~40GHz	Jul. 03, 2024	Feb. 08, 2025	Jul. 03, 2025	Radiation (03CH02-SZ)
SHF-EHF Horn	com-power	AH-840	101071	18Ghz-40GHz	Apr. 09, 2024	Feb. 08, 2025	Apr. 08, 2025	Radiation (03CH02-SZ)
LF Amplifier	Burgeon	BPA-530	102211	0.01~3000Mhz	Oct. 18, 2024	Feb. 08, 2025	Oct. 17, 2025	Radiation (03CH02-SZ)
HF Amplifier	KEYSIGHT	83017A	MY53270105	0.5GHz~26.5Ghz	Oct. 14, 2024	Feb. 08, 2025	Oct. 13, 2025	Radiation (03CH02-SZ)
AC Power Source	Chroma	61601	616010003043	N/A	Oct. 18, 2024	Feb. 08, 2025	Oct. 17, 2025	Radiation (03CH02-SZ)
Turn Table	Chaintek	T-200	N/A	0~360 degree	NCR	Feb. 08, 2025	NCR	Radiation (03CH02-SZ)
Antenna Mast	Chaintek	MBS-400	N/A	1 m~4 m	NCR	Feb. 08, 2025	NCR	Radiation (03CH02-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	±2.22 dB
Occupied Channel Bandwidth	±0.1%
Conducted Power	±0.50 dB
Peak to Average Ratio	±0.50 dB
Frequency Stability	±0.04 ppm

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	2.47 dB

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	3.31 dB

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	3.72 dB

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

Appendix A. Test Results of Conducted Test

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

Conducted Output Power(Average power) and ERP

LTE Band 14_ANT1:

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	ERP	ERP	ERP
Channel				23330			23330		
Frequency (MHz)				793			793		
10	QPSK	1	0		24.63			0.0122	
10	QPSK	1	25		24.57			0.0121	
10	QPSK	1	49		24.42			0.0117	
10	QPSK	25	0		23.55			0.0095	
10	QPSK	25	12		23.56			0.0096	
10	QPSK	25	25		23.47			0.0094	
10	QPSK	50	0		23.50			0.0094	
10	16QAM	1	0		23.63			0.0097	
10	16QAM	1	25		23.66			0.0098	
10	16QAM	1	49		23.66			0.0098	
10	16QAM	25	0		22.67			0.0078	
10	16QAM	25	12		22.62			0.0077	
10	16QAM	25	25		22.49			0.0075	
10	16QAM	50	0		22.47			0.0074	
10	64QAM	1	0		22.66			0.0078	
10	64QAM	1	25		22.61			0.0077	
10	64QAM	1	49		22.49			0.0075	
10	64QAM	25	0		21.60			0.0061	
10	64QAM	25	12		21.49			0.0059	
10	64QAM	25	25		21.63			0.0061	
10	64QAM	50	0		21.60			0.0061	
Channel				23305	23330	23355	23305	23330	23355
Frequency (MHz)				790.5	793	795.5	790.5	793	795.5
5	QPSK	1	0	24.52	24.61	24.58	0.0119	0.0122	0.0121
5	QPSK	1	12	24.52	24.51	24.50	0.0119	0.0119	0.0119
5	QPSK	1	24	24.43	24.51	24.37	0.0117	0.0119	0.0115
5	QPSK	12	0	23.64	23.65	23.55	0.0097	0.0098	0.0095
5	QPSK	12	7	23.49	23.51	23.60	0.0094	0.0095	0.0097
5	QPSK	12	13	23.46	23.56	23.52	0.0094	0.0096	0.0095
5	QPSK	25	0	23.58	23.58	23.50	0.0096	0.0096	0.0094
5	16QAM	1	0	23.70	23.62	23.65	0.0099	0.0097	0.0098
5	16QAM	1	12	23.64	23.52	23.61	0.0097	0.0095	0.0097

5	16QAM	1	24	23.65	23.64	23.59	0.0098	0.0097	0.0096
5	16QAM	12	0	22.63	22.60	22.60	0.0077	0.0077	0.0077
5	16QAM	12	7	22.60	22.61	22.54	0.0077	0.0077	0.0076
5	16QAM	12	13	22.63	22.63	22.68	0.0077	0.0077	0.0078
5	16QAM	25	0	22.58	22.54	22.56	0.0076	0.0076	0.0076
5	64QAM	1	0	22.55	22.58	22.50	0.0076	0.0076	0.0075
5	64QAM	1	12	22.60	22.58	22.51	0.0077	0.0076	0.0075
5	64QAM	1	24	22.38	22.57	22.67	0.0073	0.0076	0.0078
5	64QAM	12	0	21.62	21.64	21.61	0.0061	0.0062	0.0061
5	64QAM	12	7	21.46	21.47	21.41	0.0059	0.0059	0.0058
5	64QAM	12	13	21.49	21.59	21.43	0.0059	0.0061	0.0059
5	64QAM	25	0	21.62	21.67	21.69	0.0061	0.0062	0.0062

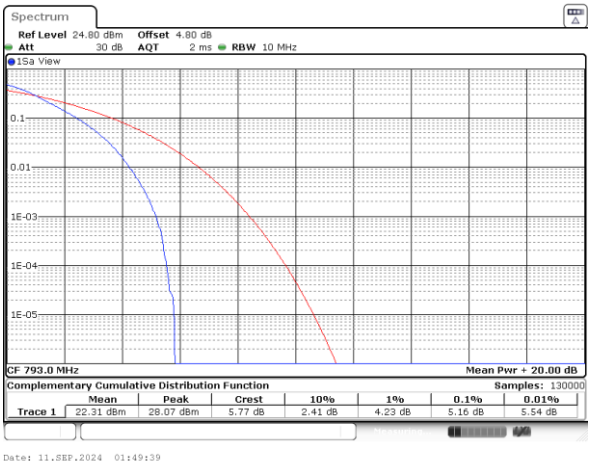
LTE Band 14

Peak-to-Average Ratio

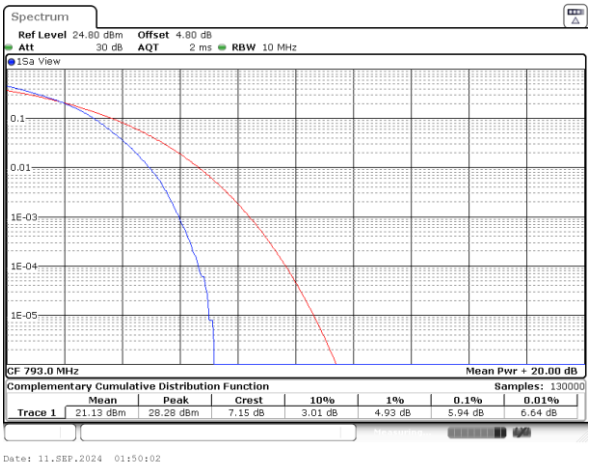
Mode	LTE Band 14 / 10MHz				
Mod.	QPSK	16QAM	64QAM		Limit: 13dB
RB Size	Full RB	Full RB	Full RB		Result
Middle CH	5.16	5.94	6.32		PASS

LTE Band 14 / 5MHz

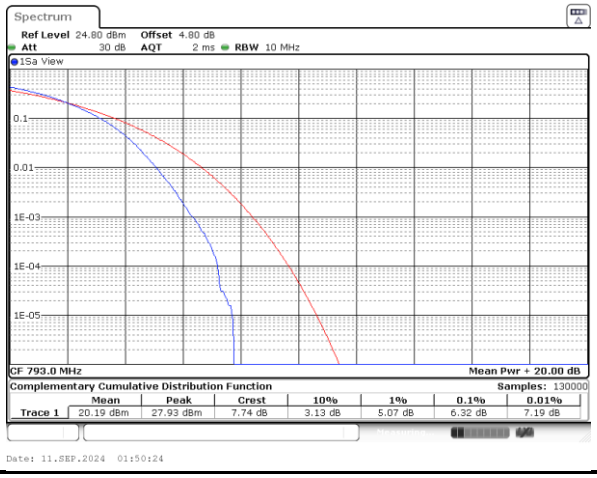
Middle Channel / Full RB/ QPSK



Middle Channel / Full RB/ 16QAM



Middle Channel / Full RB/ 64QAM

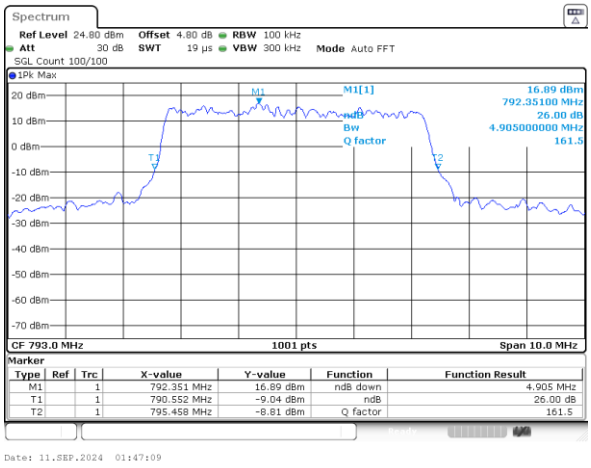


26dB Bandwidth

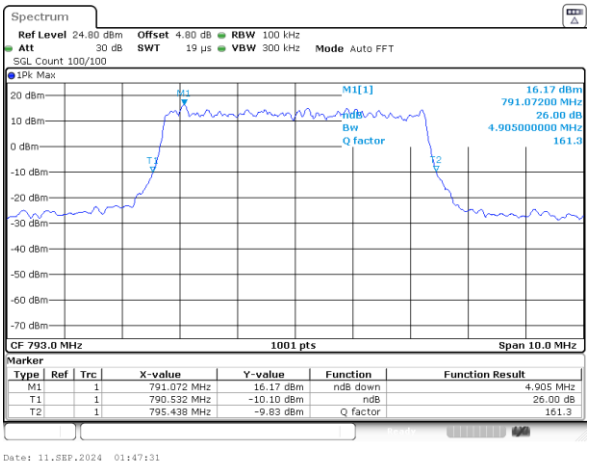
Mode	LTE Band 14 : 26dB BW(MHz)	
BW	5MHz	
Mod.	QPSK	16QAM
Middle CH	4.91	4.91
BW	10MHz	
Mod.	QPSK	16QAM
Middle CH	9.79	9.99

LTE Band 14

Middle Channel / 5MHz / QPSK

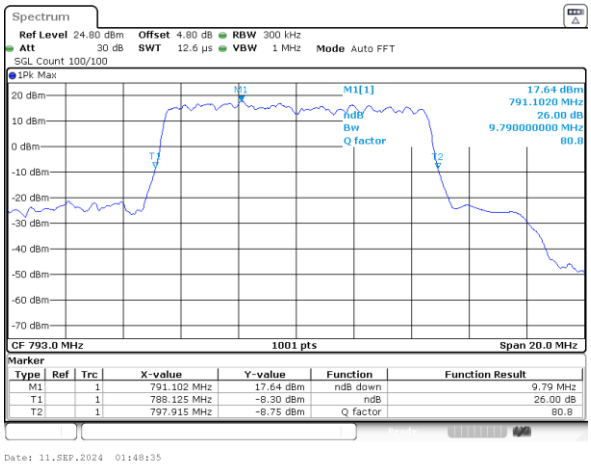


Middle Channel / 5MHz / 16QAM

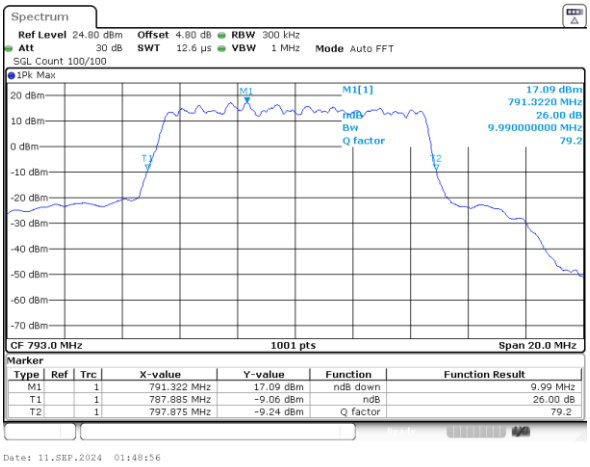


LTE Band 14

Middle Channel /10MHz / QPSK



Middle Channel / 10MHz / 16QAM

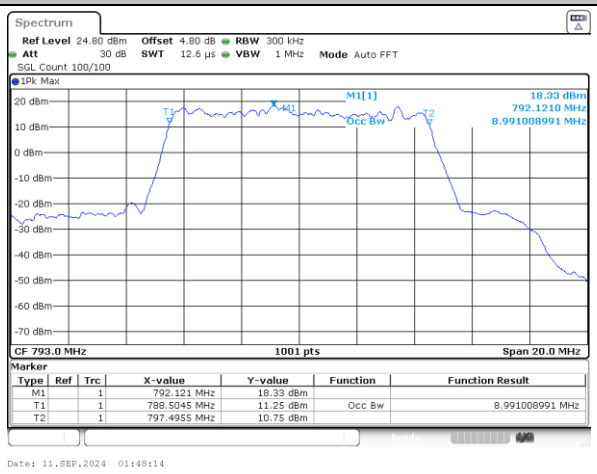


Occupied Bandwidth

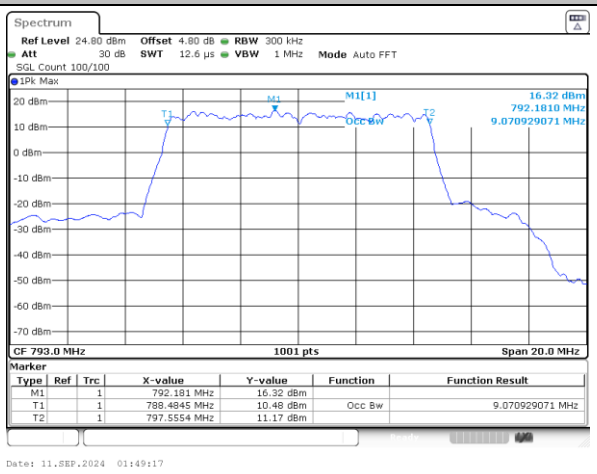
Mode	LTE Band 14 : 99%OBW(MHz)	
BW	10MHz	
Mod.	QPSK	16QAM
Middle CH	8.99	9.07
BW	5MHz	
Mod.	QPSK	16QAM
Middle CH	4.52	4.50

LTE Band 14

Middle Channel / 10MHz / QPSK

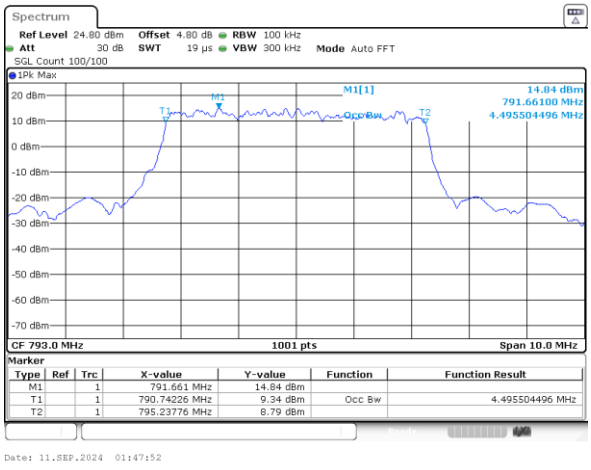


Middle Channel / 10MHz / 16QAM

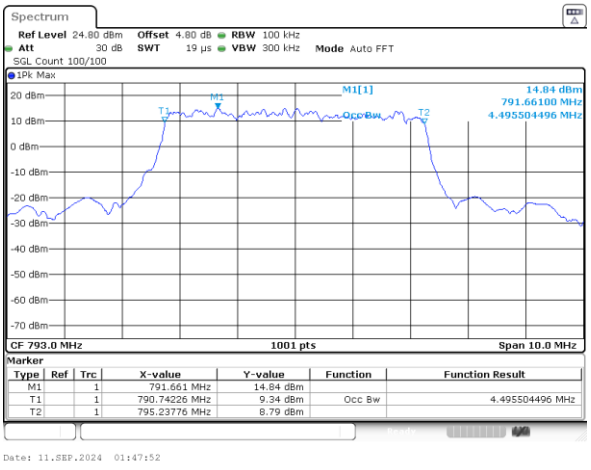


LTE Band 14

Middle Channel / 5MHz / QPSK



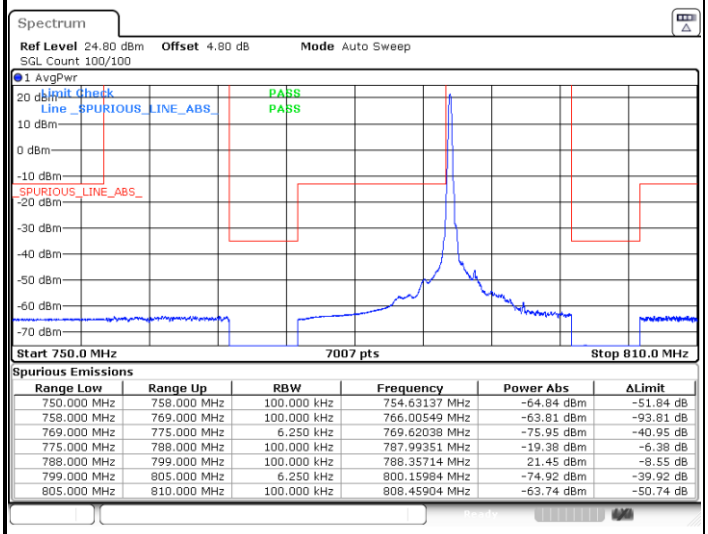
Middle Channel / 5MHz / 16QAM



Conducted Band Edge

LTE Band 14 / 5MHz / QPSK

Lowest Band Edge / 1 RB

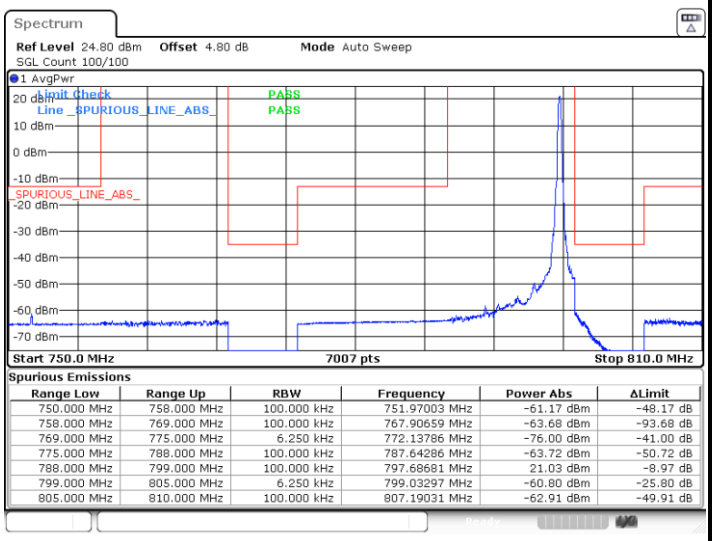


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
750.000 MHz	758.000 MHz	100.000 kHz	754.63137 MHz	-64.84 dBm	-51.84 dB
758.000 MHz	769.000 MHz	100.000 kHz	766.00549 MHz	-63.81 dBm	-93.81 dB
769.000 MHz	775.000 MHz	6.250 kHz	769.62038 MHz	-75.95 dBm	-40.95 dB
775.000 MHz	788.000 MHz	100.000 kHz	787.99351 MHz	-19.38 dBm	-6.38 dB
788.000 MHz	799.000 MHz	100.000 kHz	788.35714 MHz	21.45 dBm	-8.55 dB
799.000 MHz	805.000 MHz	6.250 kHz	800.15984 MHz	-74.92 dBm	-39.92 dB
805.000 MHz	810.000 MHz	100.000 kHz	808.45904 MHz	-63.74 dBm	-50.74 dB

Date: 11.SEP.2024 01:12:48

Highest Band Edge / 1 RB

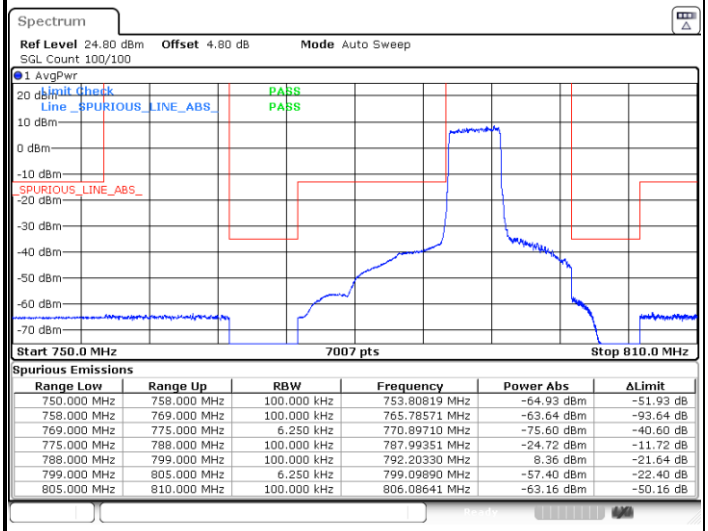


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
750.000 MHz	758.000 MHz	100.000 kHz	751.97003 MHz	-61.17 dBm	-48.17 dB
758.000 MHz	769.000 MHz	100.000 kHz	767.90659 MHz	-63.68 dBm	-93.68 dB
769.000 MHz	775.000 MHz	6.250 kHz	772.13786 MHz	-76.00 dBm	-41.00 dB
775.000 MHz	788.000 MHz	100.000 kHz	787.64286 MHz	-63.72 dBm	-50.72 dB
788.000 MHz	799.000 MHz	100.000 kHz	797.68681 MHz	21.03 dBm	-8.97 dB
799.000 MHz	805.000 MHz	6.250 kHz	799.03297 MHz	-60.80 dBm	-25.80 dB
805.000 MHz	810.000 MHz	100.000 kHz	807.19031 MHz	-62.91 dBm	-49.91 dB

Date: 11.SEP.2024 01:25:32

Lowest Band Edge / Full RB

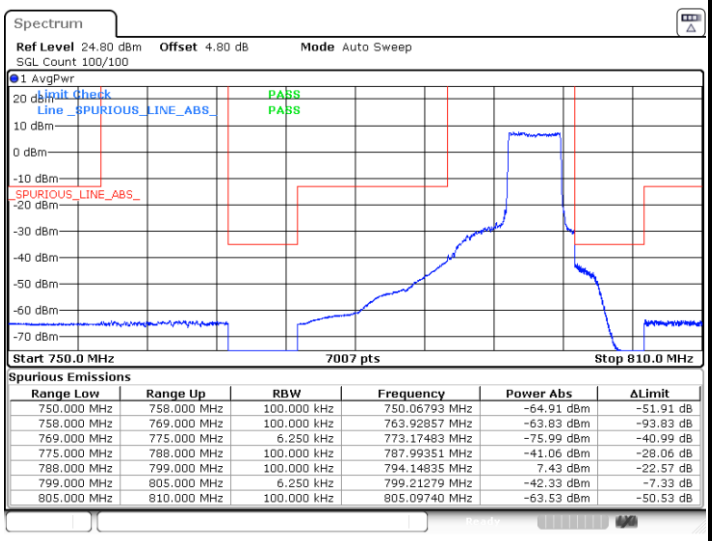


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
750.000 MHz	758.000 MHz	100.000 kHz	753.80819 MHz	-64.93 dBm	-51.93 dB
758.000 MHz	769.000 MHz	100.000 kHz	765.78571 MHz	-63.64 dBm	-93.64 dB
769.000 MHz	775.000 MHz	6.250 kHz	770.89710 MHz	-75.60 dBm	-40.60 dB
775.000 MHz	788.000 MHz	100.000 kHz	787.99351 MHz	-24.72 dBm	-11.72 dB
788.000 MHz	799.000 MHz	100.000 kHz	792.20330 MHz	8.36 dBm	-21.64 dB
799.000 MHz	805.000 MHz	6.250 kHz	799.09890 MHz	-57.40 dBm	-22.40 dB
805.000 MHz	810.000 MHz	100.000 kHz	806.08641 MHz	-63.16 dBm	-50.16 dB

Date: 11.SEP.2024 01:17:00

Highest Band Edge / Full RB



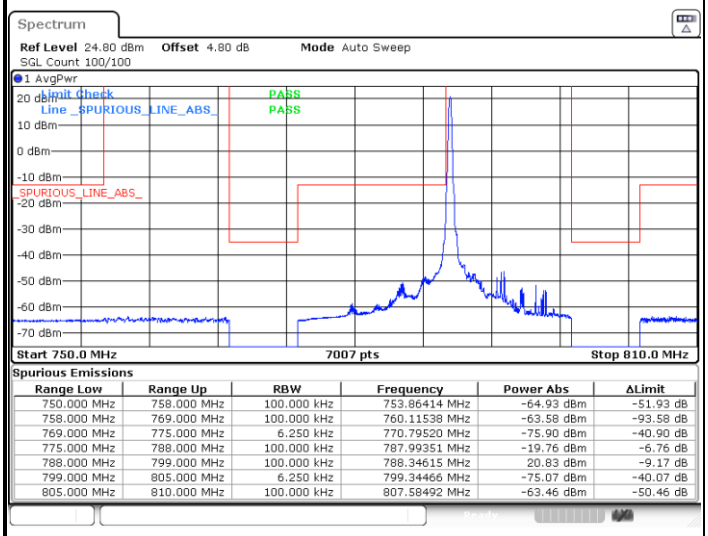
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
750.000 MHz	758.000 MHz	100.000 kHz	750.06793 MHz	-64.91 dBm	-51.91 dB
758.000 MHz	769.000 MHz	100.000 kHz	763.92857 MHz	-63.83 dBm	-93.83 dB
769.000 MHz	775.000 MHz	6.250 kHz	773.17483 MHz	-75.99 dBm	-40.99 dB
775.000 MHz	788.000 MHz	100.000 kHz	787.99351 MHz	-41.06 dBm	-28.06 dB
788.000 MHz	799.000 MHz	100.000 kHz	794.14835 MHz	7.43 dBm	-22.57 dB
799.000 MHz	805.000 MHz	6.250 kHz	799.21279 MHz	-42.33 dBm	-7.33 dB
805.000 MHz	810.000 MHz	100.000 kHz	805.09740 MHz	-63.53 dBm	-50.53 dB

Date: 11.SEP.2024 01:29:43

LTE Band 14 / 5MHz / 16QAM

Lowest Band Edge /1 RB

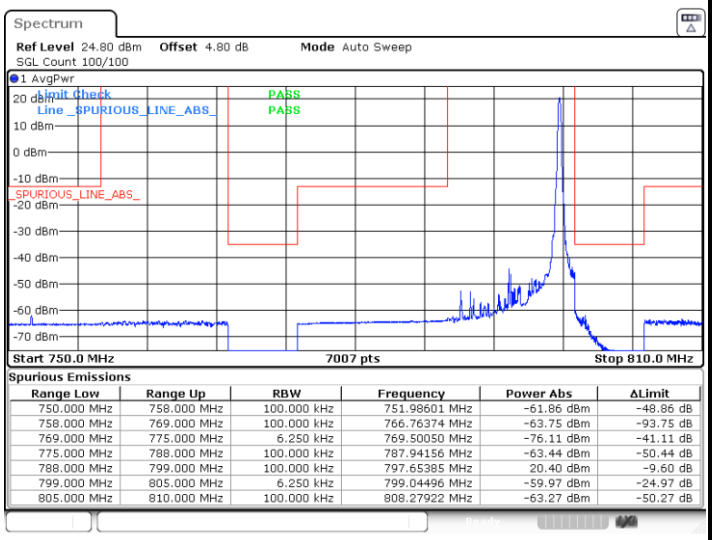


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
750.000 MHz	758.000 MHz	100.000 kHz	753.86414 MHz	-64.93 dBm	-51.93 dB
758.000 MHz	769.000 MHz	100.000 kHz	760.11538 MHz	-63.58 dBm	-93.58 dB
769.000 MHz	775.000 MHz	6.250 kHz	770.79520 MHz	-75.90 dBm	-40.90 dB
775.000 MHz	788.000 MHz	100.000 kHz	787.99351 MHz	-19.76 dBm	-6.76 dB
788.000 MHz	799.000 MHz	100.000 kHz	788.34615 MHz	20.83 dBm	-9.17 dB
799.000 MHz	805.000 MHz	6.250 kHz	799.34466 MHz	-75.07 dBm	-40.07 dB
805.000 MHz	810.000 MHz	100.000 kHz	807.58492 MHz	-63.46 dBm	-50.46 dB

Date: 11.SEP.2024 01:14:12

Highest Band Edge / 1 RB

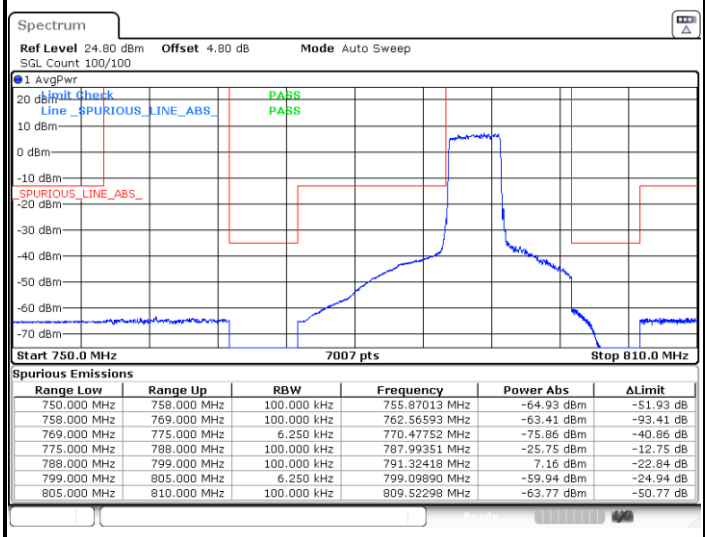


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
750.000 MHz	758.000 MHz	100.000 kHz	751.98601 MHz	-61.86 dBm	-48.86 dB
758.000 MHz	769.000 MHz	100.000 kHz	766.76374 MHz	-63.75 dBm	-93.75 dB
769.000 MHz	775.000 MHz	6.250 kHz	769.50050 MHz	-76.11 dBm	-41.11 dB
775.000 MHz	788.000 MHz	100.000 kHz	787.94156 MHz	-63.44 dBm	-50.44 dB
788.000 MHz	799.000 MHz	100.000 kHz	797.65385 MHz	20.40 dBm	-9.60 dB
799.000 MHz	805.000 MHz	6.250 kHz	799.04496 MHz	-59.97 dBm	-24.97 dB
805.000 MHz	810.000 MHz	100.000 kHz	808.27922 MHz	-63.27 dBm	-50.27 dB

Date: 11.SEP.2024 01:26:56

Lowest Band Edge / Full RB

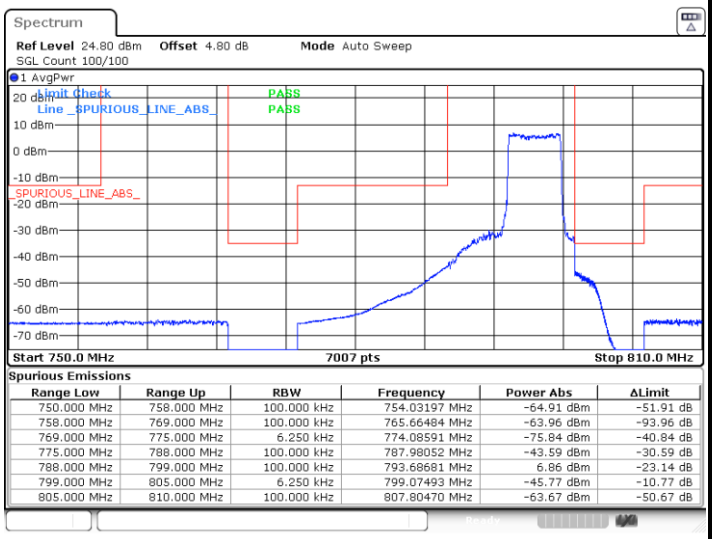


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
750.000 MHz	758.000 MHz	100.000 kHz	755.87013 MHz	-64.93 dBm	-51.93 dB
758.000 MHz	769.000 MHz	100.000 kHz	762.56593 MHz	-63.41 dBm	-93.41 dB
769.000 MHz	775.000 MHz	6.250 kHz	770.47752 MHz	-75.86 dBm	-40.86 dB
775.000 MHz	788.000 MHz	100.000 kHz	787.99351 MHz	-25.75 dBm	-12.75 dB
788.000 MHz	799.000 MHz	100.000 kHz	791.32418 MHz	7.16 dBm	-22.84 dB
799.000 MHz	805.000 MHz	6.250 kHz	799.09890 MHz	-59.94 dBm	-24.94 dB
805.000 MHz	810.000 MHz	100.000 kHz	809.52298 MHz	-63.77 dBm	-50.77 dB

Date: 11.SEP.2024 01:18:23

Highest Band Edge / Full RB



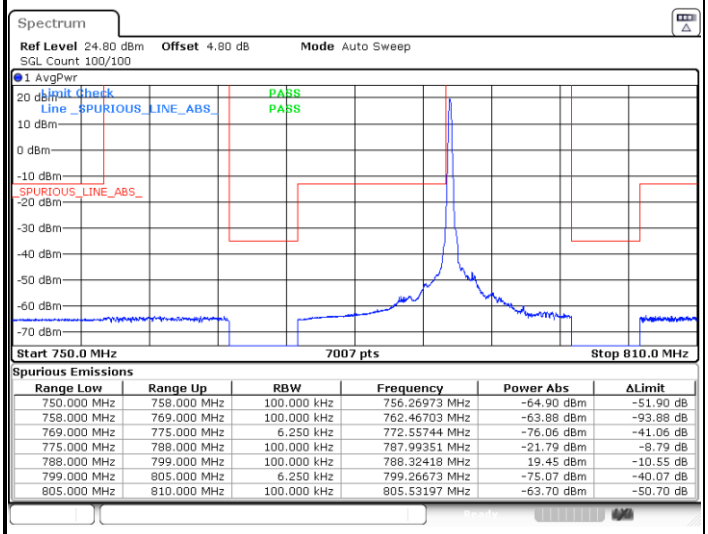
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
750.000 MHz	758.000 MHz	100.000 kHz	754.03197 MHz	-64.91 dBm	-51.91 dB
758.000 MHz	769.000 MHz	100.000 kHz	765.66484 MHz	-63.96 dBm	-93.96 dB
769.000 MHz	775.000 MHz	6.250 kHz	774.08591 MHz	-75.84 dBm	-40.84 dB
775.000 MHz	788.000 MHz	100.000 kHz	787.98052 MHz	-43.59 dBm	-30.59 dB
788.000 MHz	799.000 MHz	100.000 kHz	793.68681 MHz	6.86 dBm	-23.14 dB
799.000 MHz	805.000 MHz	6.250 kHz	799.07493 MHz	-45.77 dBm	-10.77 dB
805.000 MHz	810.000 MHz	100.000 kHz	807.80470 MHz	-63.67 dBm	-50.67 dB

Date: 11.SEP.2024 01:31:06

LTE Band 14 / 5MHz / 64QAM

Lowest Band Edge / 1 RB

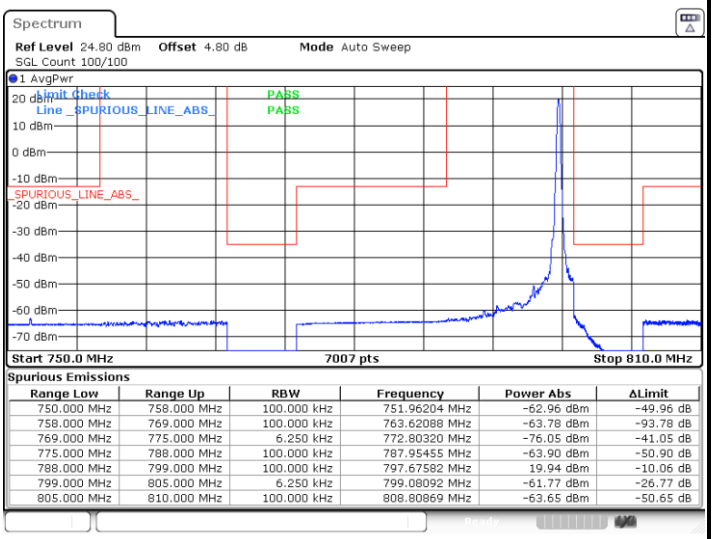


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
750.000 MHz	758.000 MHz	100.000 kHz	756.26973 MHz	-64.90 dBm	-51.90 dB
758.000 MHz	769.000 MHz	100.000 kHz	762.46703 MHz	-63.88 dBm	-93.88 dB
769.000 MHz	775.000 MHz	6.250 kHz	772.55744 MHz	-76.06 dBm	-41.06 dB
775.000 MHz	788.000 MHz	100.000 kHz	787.99351 MHz	-21.79 dBm	-8.79 dB
788.000 MHz	799.000 MHz	100.000 kHz	788.32418 MHz	19.45 dBm	-10.55 dB
799.000 MHz	805.000 MHz	6.250 kHz	799.26673 MHz	-75.07 dBm	-40.07 dB
805.000 MHz	810.000 MHz	100.000 kHz	805.53197 MHz	-63.70 dBm	-50.70 dB

Date: 11.SEP.2024 01:15:36

Highest Band Edge / 1 RB

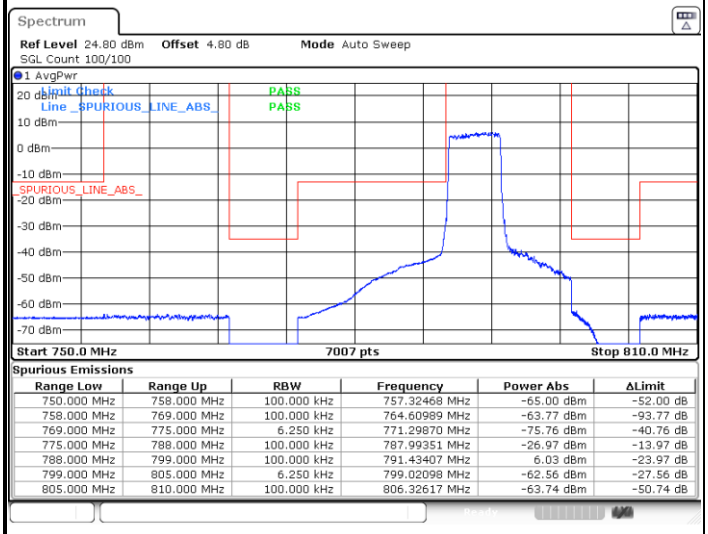


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
750.000 MHz	758.000 MHz	100.000 kHz	751.96204 MHz	-62.96 dBm	-49.96 dB
758.000 MHz	769.000 MHz	100.000 kHz	763.62088 MHz	-63.78 dBm	-93.78 dB
769.000 MHz	775.000 MHz	6.250 kHz	772.80320 MHz	-76.05 dBm	-41.05 dB
775.000 MHz	788.000 MHz	100.000 kHz	787.95455 MHz	-63.90 dBm	-50.90 dB
788.000 MHz	799.000 MHz	100.000 kHz	797.67582 MHz	19.94 dBm	-10.06 dB
799.000 MHz	805.000 MHz	6.250 kHz	799.08092 MHz	-61.77 dBm	-26.77 dB
805.000 MHz	810.000 MHz	100.000 kHz	808.80869 MHz	-63.65 dBm	-50.65 dB

Date: 11.SEP.2024 01:28:19

Lowest Band Edge / Full RB

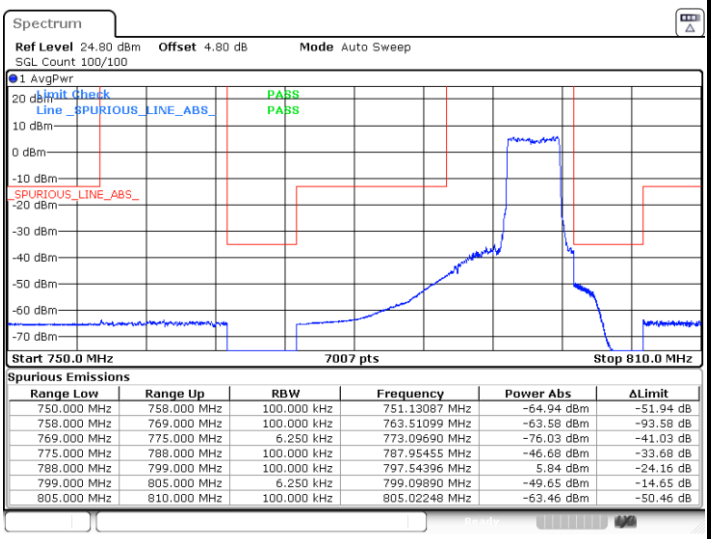


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
750.000 MHz	758.000 MHz	100.000 kHz	757.32468 MHz	-65.00 dBm	-52.00 dB
758.000 MHz	769.000 MHz	100.000 kHz	764.60989 MHz	-63.77 dBm	-93.77 dB
769.000 MHz	775.000 MHz	6.250 kHz	771.29870 MHz	-75.76 dBm	-40.76 dB
775.000 MHz	788.000 MHz	100.000 kHz	787.99351 MHz	-26.97 dBm	-13.97 dB
788.000 MHz	799.000 MHz	100.000 kHz	791.43407 MHz	6.03 dBm	-23.97 dB
799.000 MHz	805.000 MHz	6.250 kHz	799.02098 MHz	-62.56 dBm	-27.56 dB
805.000 MHz	810.000 MHz	100.000 kHz	806.32617 MHz	-63.74 dBm	-50.74 dB

Date: 11.SEP.2024 01:19:47

Highest Band Edge / Full RB



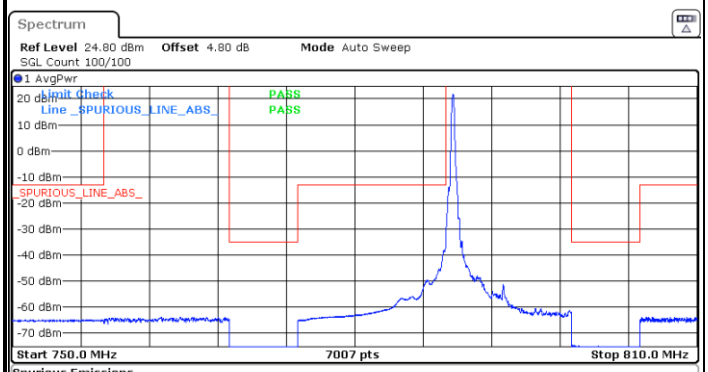
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
750.000 MHz	758.000 MHz	100.000 kHz	751.13087 MHz	-64.94 dBm	-51.94 dB
758.000 MHz	769.000 MHz	100.000 kHz	763.51099 MHz	-63.58 dBm	-93.58 dB
769.000 MHz	775.000 MHz	6.250 kHz	773.09690 MHz	-76.03 dBm	-41.03 dB
775.000 MHz	788.000 MHz	100.000 kHz	787.95455 MHz	-46.68 dBm	-33.68 dB
788.000 MHz	799.000 MHz	100.000 kHz	797.54396 MHz	5.84 dBm	-24.16 dB
799.000 MHz	805.000 MHz	6.250 kHz	799.09890 MHz	-49.65 dBm	-14.65 dB
805.000 MHz	810.000 MHz	100.000 kHz	805.02248 MHz	-63.46 dBm	-50.46 dB

Date: 11.SEP.2024 01:32:30

LTE Band 14 / 10MHz / QPSK

Lowest Band Edge / 1 RB

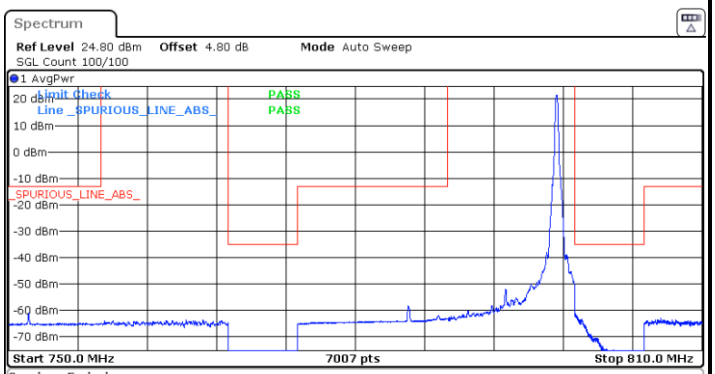


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
750.000 MHz	758.000 MHz	100.000 kHz	750.68332 MHz	-64.84 dBm	-51.84 dB
758.000 MHz	769.000 MHz	100.000 kHz	764.66484 MHz	-63.74 dBm	-93.74 dB
769.000 MHz	775.000 MHz	6.250 kHz	774.10390 MHz	-75.92 dBm	-40.92 dB
775.000 MHz	788.000 MHz	100.000 kHz	787.99351 MHz	-32.35 dBm	-19.35 dB
788.000 MHz	799.000 MHz	100.000 kHz	788.59890 MHz	21.87 dBm	-8.13 dB
799.000 MHz	805.000 MHz	6.250 kHz	799.08691 MHz	-74.39 dBm	-39.39 dB
805.000 MHz	810.000 MHz	100.000 kHz	805.55694 MHz	-63.84 dBm	-50.84 dB

Date: 11.SEP.2024 01:35:20

Highest Band Edge / 1 RB

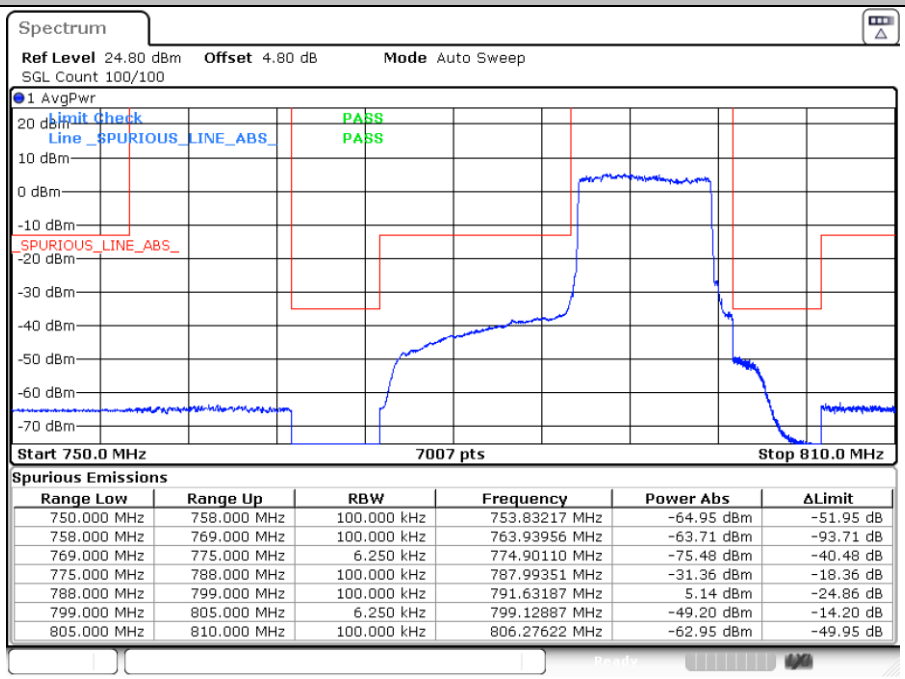


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
750.000 MHz	758.000 MHz	100.000 kHz	751.73027 MHz	-61.03 dBm	-48.03 dB
758.000 MHz	769.000 MHz	100.000 kHz	765.36813 MHz	-63.62 dBm	-93.62 dB
769.000 MHz	775.000 MHz	6.250 kHz	772.32368 MHz	-75.85 dBm	-40.85 dB
775.000 MHz	788.000 MHz	100.000 kHz	784.57792 MHz	-58.25 dBm	-45.25 dB
788.000 MHz	799.000 MHz	100.000 kHz	797.44505 MHz	21.59 dBm	-8.41 dB
799.000 MHz	805.000 MHz	6.250 kHz	799.02697 MHz	-61.16 dBm	-26.16 dB
805.000 MHz	810.000 MHz	100.000 kHz	806.42108 MHz	-63.00 dBm	-50.00 dB

Date: 11.SEP.2024 01:39:30

Band Edge / Full RB



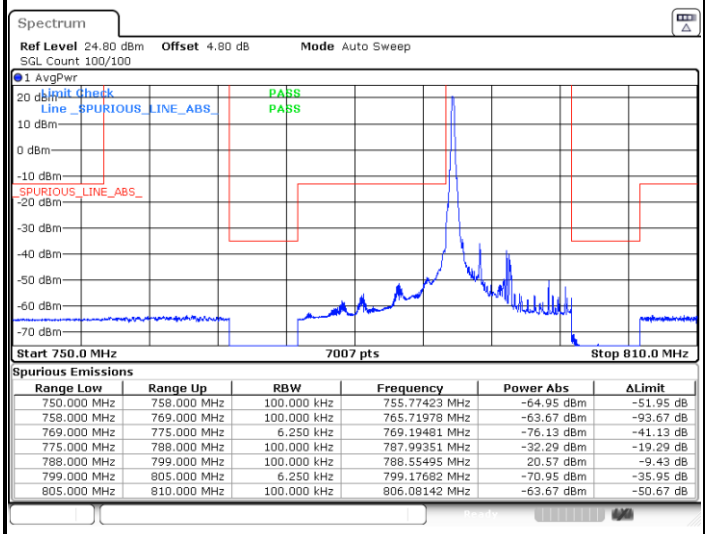
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
750.000 MHz	758.000 MHz	100.000 kHz	753.83217 MHz	-64.95 dBm	-51.95 dB
758.000 MHz	769.000 MHz	100.000 kHz	763.93956 MHz	-63.71 dBm	-93.71 dB
769.000 MHz	775.000 MHz	6.250 kHz	774.90110 MHz	-75.48 dBm	-40.48 dB
775.000 MHz	788.000 MHz	100.000 kHz	787.99351 MHz	-31.36 dBm	-18.36 dB
788.000 MHz	799.000 MHz	100.000 kHz	791.63187 MHz	5.14 dBm	-24.86 dB
799.000 MHz	805.000 MHz	6.250 kHz	799.12887 MHz	-49.20 dBm	-14.20 dB
805.000 MHz	810.000 MHz	100.000 kHz	806.27622 MHz	-62.95 dBm	-49.95 dB

Date: 11.SEP.2024 01:43:39

LTE Band 14 / 10MHz / 16QAM

Lowest Band Edge / 1 RB

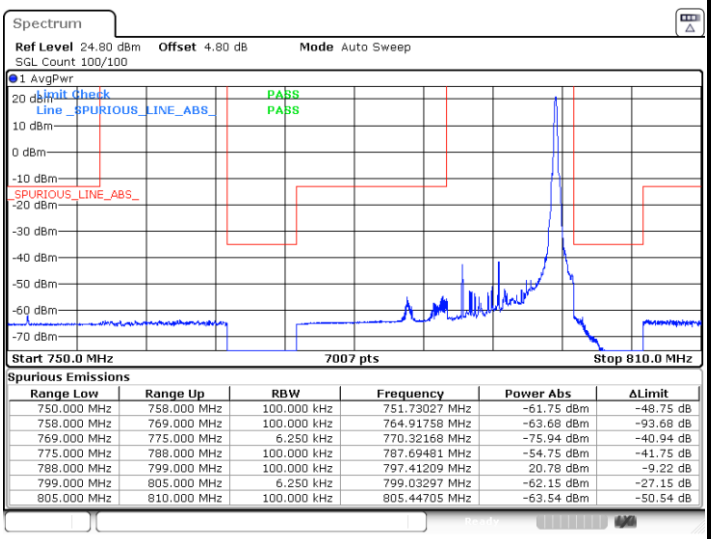


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
750.000 MHz	758.000 MHz	100.000 kHz	755.77423 MHz	-64.95 dBm	-51.95 dB
758.000 MHz	769.000 MHz	100.000 kHz	765.71978 MHz	-63.67 dBm	-93.67 dB
769.000 MHz	775.000 MHz	6.250 kHz	769.19481 MHz	-76.13 dBm	-41.13 dB
775.000 MHz	788.000 MHz	100.000 kHz	787.99351 MHz	-32.29 dBm	-19.29 dB
788.000 MHz	799.000 MHz	100.000 kHz	788.55495 MHz	20.57 dBm	-9.43 dB
799.000 MHz	805.000 MHz	6.250 kHz	799.17682 MHz	-70.95 dBm	-35.95 dB
805.000 MHz	810.000 MHz	100.000 kHz	806.08142 MHz	-63.67 dBm	-50.67 dB

Date: 11.SEP.2024 01:36:43

Highest Band Edge / 1 RB

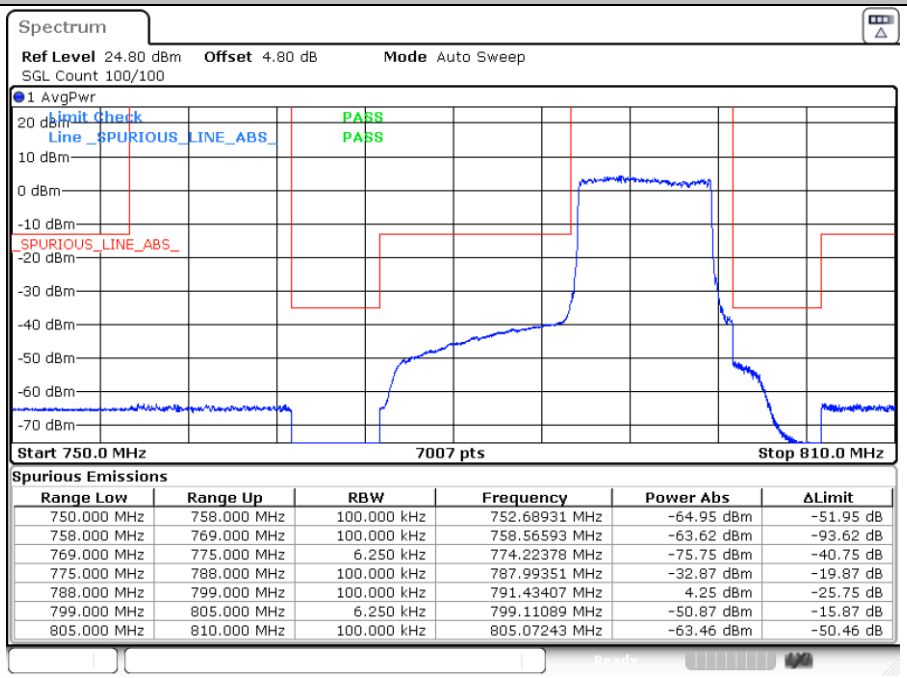


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
750.000 MHz	758.000 MHz	100.000 kHz	751.73027 MHz	-61.75 dBm	-48.75 dB
758.000 MHz	769.000 MHz	100.000 kHz	764.91758 MHz	-63.68 dBm	-93.68 dB
769.000 MHz	775.000 MHz	6.250 kHz	770.32168 MHz	-75.94 dBm	-40.94 dB
775.000 MHz	788.000 MHz	100.000 kHz	787.69481 MHz	-54.75 dBm	-41.75 dB
788.000 MHz	799.000 MHz	100.000 kHz	797.41209 MHz	20.78 dBm	-9.22 dB
799.000 MHz	805.000 MHz	6.250 kHz	799.03297 MHz	-62.15 dBm	-27.15 dB
805.000 MHz	810.000 MHz	100.000 kHz	805.44705 MHz	-63.54 dBm	-50.54 dB

Date: 11.SEP.2024 01:40:52

Band Edge / Full RB



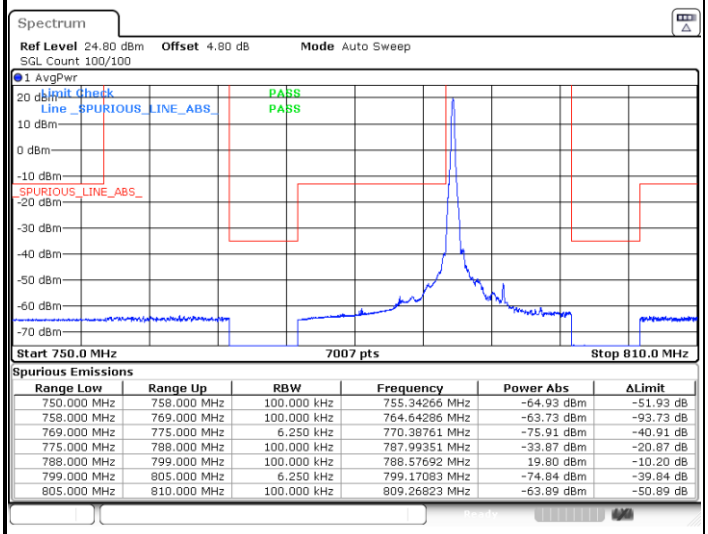
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
750.000 MHz	758.000 MHz	100.000 kHz	752.68931 MHz	-64.95 dBm	-51.95 dB
758.000 MHz	769.000 MHz	100.000 kHz	758.56593 MHz	-63.62 dBm	-93.62 dB
769.000 MHz	775.000 MHz	6.250 kHz	774.22378 MHz	-75.75 dBm	-40.75 dB
775.000 MHz	788.000 MHz	100.000 kHz	787.99351 MHz	-32.87 dBm	-19.87 dB
788.000 MHz	799.000 MHz	100.000 kHz	791.43407 MHz	4.25 dBm	-25.75 dB
799.000 MHz	805.000 MHz	6.250 kHz	799.11089 MHz	-50.87 dBm	-15.87 dB
805.000 MHz	810.000 MHz	100.000 kHz	805.07243 MHz	-63.46 dBm	-50.46 dB

Date: 11.SEP.2024 01:45:02

LTE Band 14 / 10MHz / 64QAM

Lowest Band Edge / 1 RB

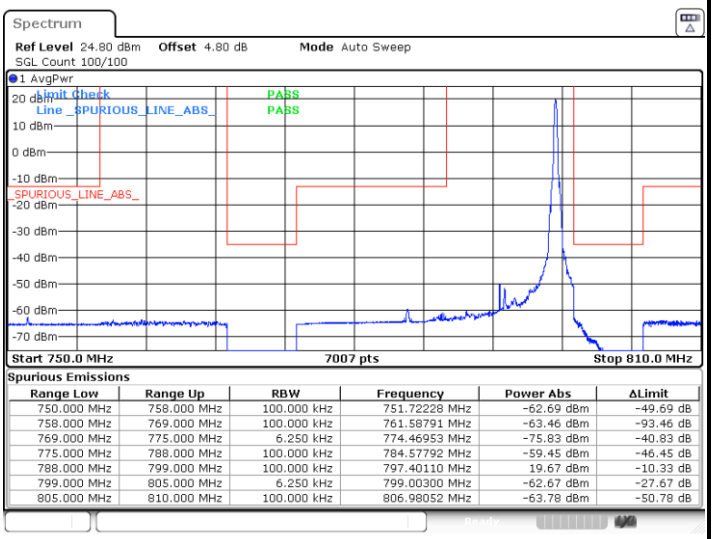


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
750.000 MHz	758.000 MHz	100.000 kHz	755.34266 MHz	-64.93 dBm	-51.93 dB
758.000 MHz	769.000 MHz	100.000 kHz	764.64286 MHz	-63.73 dBm	-93.73 dB
769.000 MHz	775.000 MHz	6.250 kHz	770.38761 MHz	-75.91 dBm	-40.91 dB
775.000 MHz	788.000 MHz	100.000 kHz	787.99351 MHz	-33.87 dBm	-20.87 dB
788.000 MHz	799.000 MHz	100.000 kHz	788.57692 MHz	19.80 dBm	-10.20 dB
799.000 MHz	805.000 MHz	6.250 kHz	799.17083 MHz	-74.84 dBm	-39.84 dB
805.000 MHz	810.000 MHz	100.000 kHz	809.26823 MHz	-63.89 dBm	-50.89 dB

Date: 11.SEP.2024 01:38:06

Highest Band Edge / 1 RB

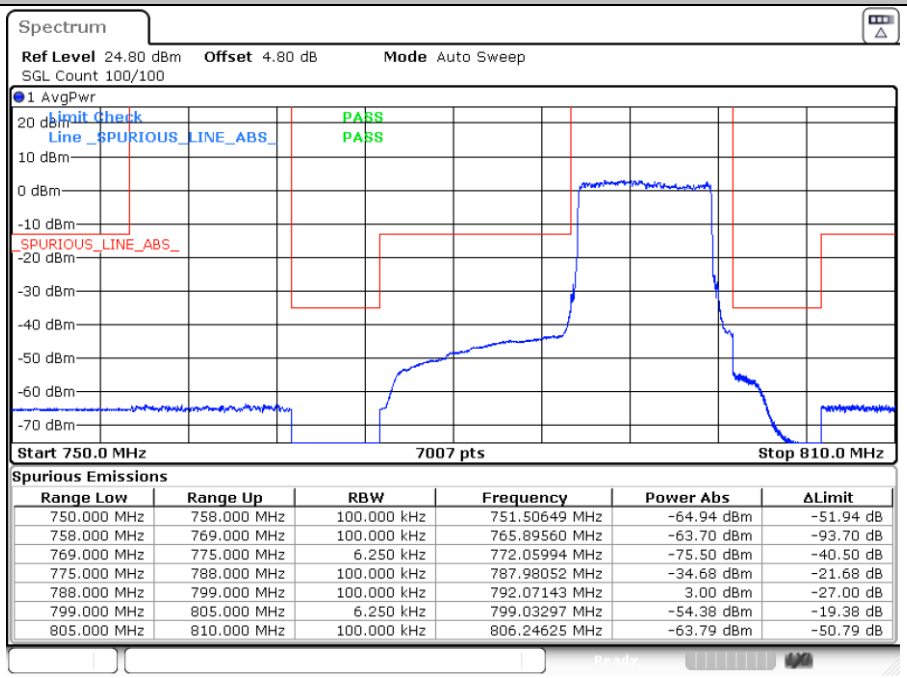


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
750.000 MHz	758.000 MHz	100.000 kHz	751.72228 MHz	-62.69 dBm	-49.69 dB
758.000 MHz	769.000 MHz	100.000 kHz	761.58791 MHz	-63.46 dBm	-93.46 dB
769.000 MHz	775.000 MHz	6.250 kHz	774.46953 MHz	-75.83 dBm	-40.83 dB
775.000 MHz	788.000 MHz	100.000 kHz	784.57792 MHz	-59.45 dBm	-46.45 dB
788.000 MHz	799.000 MHz	100.000 kHz	797.40110 MHz	19.67 dBm	-10.33 dB
799.000 MHz	805.000 MHz	6.250 kHz	799.00300 MHz	-62.67 dBm	-27.67 dB
805.000 MHz	810.000 MHz	100.000 kHz	806.98052 MHz	-63.78 dBm	-50.78 dB

Date: 11.SEP.2024 01:42:16

Band Edge / Full RB



Spurious Emissions

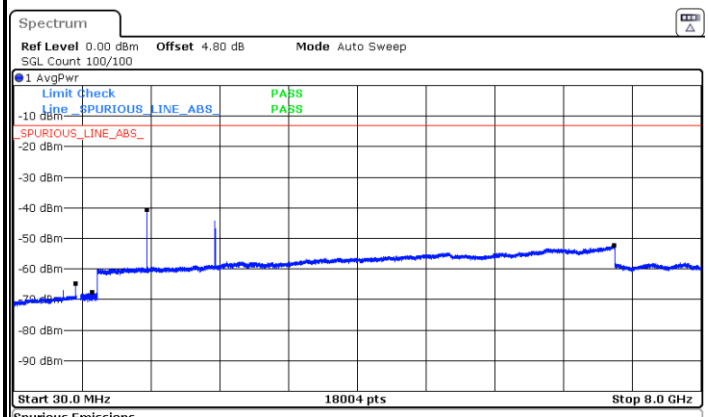
Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
750.000 MHz	758.000 MHz	100.000 kHz	751.50649 MHz	-64.94 dBm	-51.94 dB
758.000 MHz	769.000 MHz	100.000 kHz	765.89560 MHz	-63.70 dBm	-93.70 dB
769.000 MHz	775.000 MHz	6.250 kHz	772.05994 MHz	-75.50 dBm	-40.50 dB
775.000 MHz	788.000 MHz	100.000 kHz	787.98052 MHz	-34.68 dBm	-21.68 dB
788.000 MHz	799.000 MHz	100.000 kHz	792.07143 MHz	3.00 dBm	-27.00 dB
799.000 MHz	805.000 MHz	6.250 kHz	799.03297 MHz	-54.38 dBm	-19.38 dB
805.000 MHz	810.000 MHz	100.000 kHz	806.24625 MHz	-63.79 dBm	-50.79 dB

Date: 11.SEP.2024 01:46:26

Conducted Spurious Emission

LTE Band 14 / 5MHz

Lowest Channel / QPSK

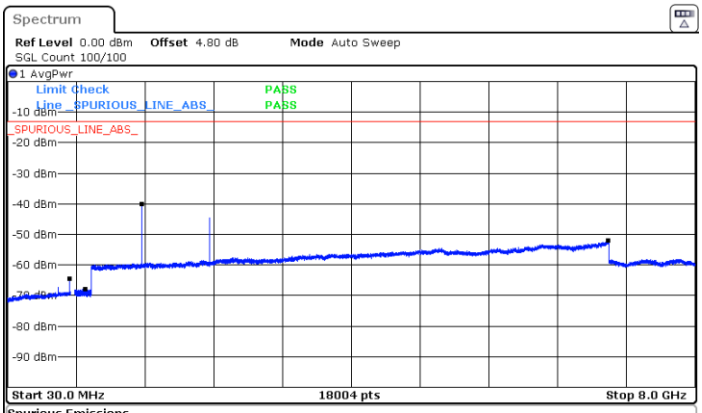


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	758.000 MHz	100.000 kHz	743.26537 MHz	-64.70 dBm	-51.70 dB
805.000 MHz	1.000 GHz	100.000 kHz	936.31559 MHz	-67.74 dBm	-54.74 dB
1.000 GHz	3.000 GHz	1.000 MHz	1.57711 GHz	-40.61 dBm	-27.61 dB
3.000 GHz	8.000 GHz	1.000 MHz	6.98885 GHz	-52.23 dBm	-39.23 dB

Date: 11.SEP.2024 01:21:14

Middle Channel / QPSK

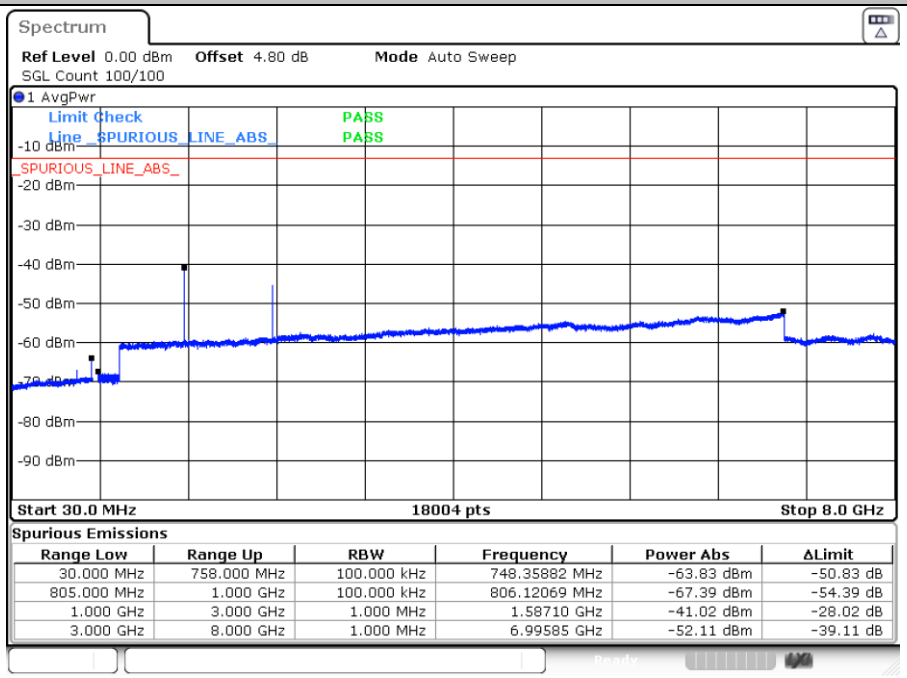


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	758.000 MHz	100.000 kHz	745.81209 MHz	-64.45 dBm	-51.45 dB
805.000 MHz	1.000 GHz	100.000 kHz	929.39655 MHz	-67.81 dBm	-54.81 dB
1.000 GHz	3.000 GHz	1.000 MHz	1.58210 GHz	-40.07 dBm	-27.07 dB
3.000 GHz	8.000 GHz	1.000 MHz	6.99585 GHz	-52.01 dBm	-39.01 dB

Date: 11.SEP.2024 01:22:41

Highest Channel / QPSK

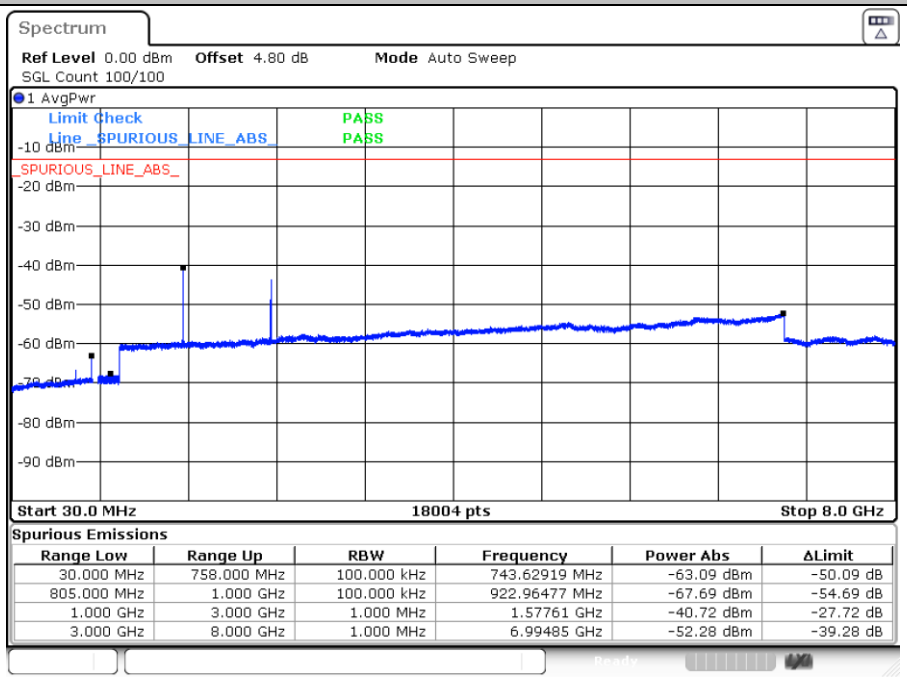


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	758.000 MHz	100.000 kHz	748.35882 MHz	-63.83 dBm	-50.83 dB
805.000 MHz	1.000 GHz	100.000 kHz	806.12069 MHz	-67.39 dBm	-54.39 dB
1.000 GHz	3.000 GHz	1.000 MHz	1.58710 GHz	-41.02 dBm	-28.02 dB
3.000 GHz	8.000 GHz	1.000 MHz	6.99585 GHz	-52.11 dBm	-39.11 dB

Date: 11.SEP.2024 01:24:08

LTE Band 14 / 10MHz
Middle Channel / QPSK



Spurious Emissions

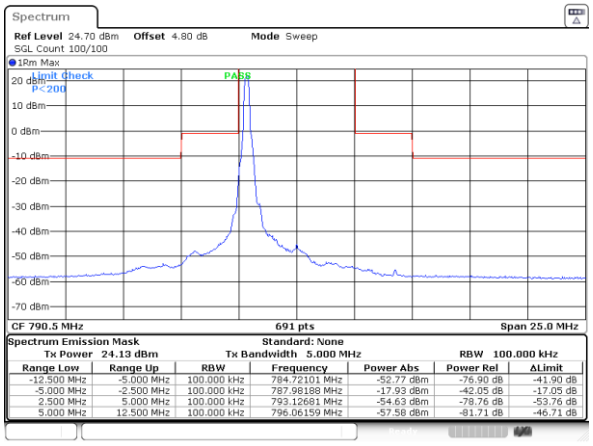
Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	758.000 MHz	100.000 kHz	743.62919 MHz	-63.09 dBm	-50.09 dB
805.000 MHz	1.000 GHz	100.000 kHz	922.96477 MHz	-67.69 dBm	-54.69 dB
1.000 GHz	3.000 GHz	1.000 MHz	1.57761 GHz	-40.72 dBm	-27.72 dB
3.000 GHz	8.000 GHz	1.000 MHz	6.99485 GHz	-52.28 dBm	-39.28 dB

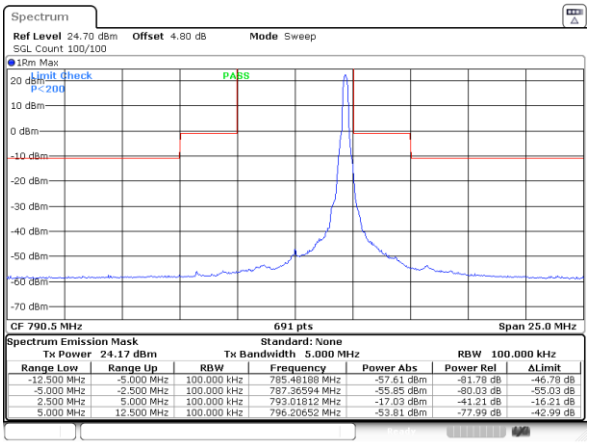
Date: 11.SEP.2024 01:33:57

Mask

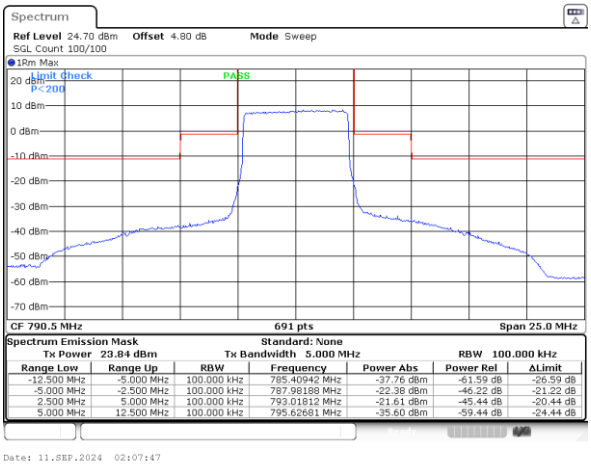
LTE Band 14 / 5MHz / QPSK

Lowest Channel / 1RB



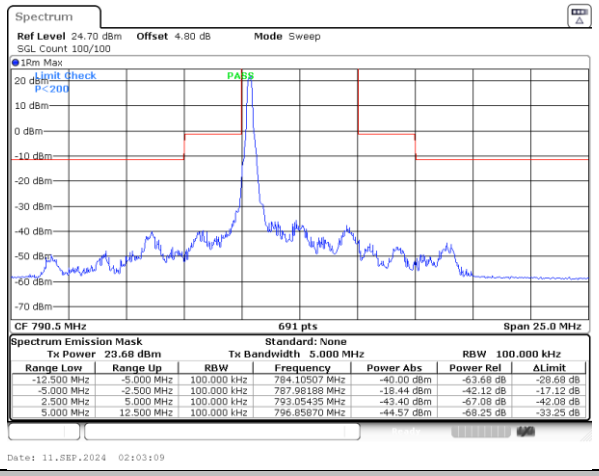


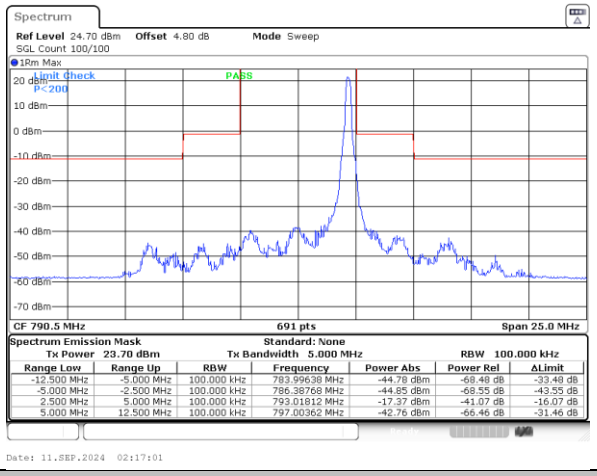
Lowest Channel / Full RB



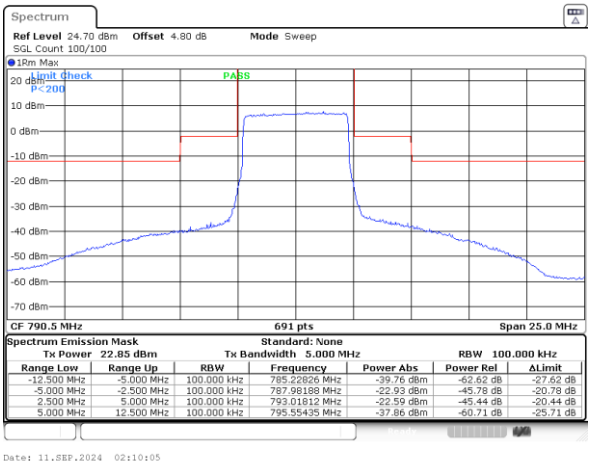
LTE Band 14 / 5MHz / 16QAM

Lowest Channel / 1RB



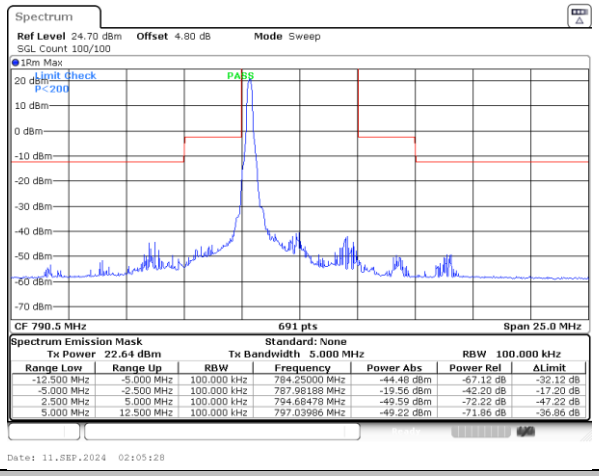


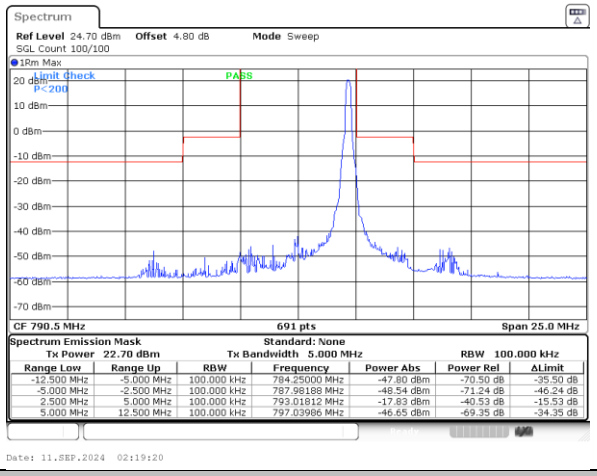
Lowest Channel / Full RB



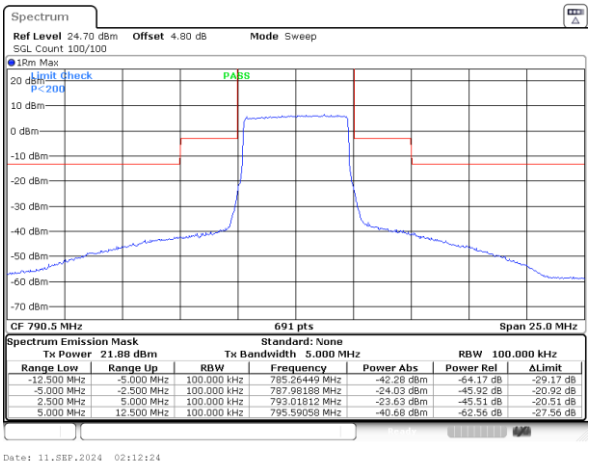
LTE Band 14 / 5MHz / 64QAM

Lowest Channel / 1RB



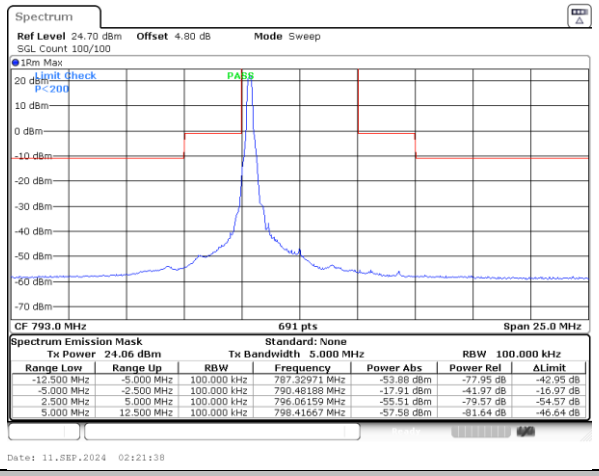


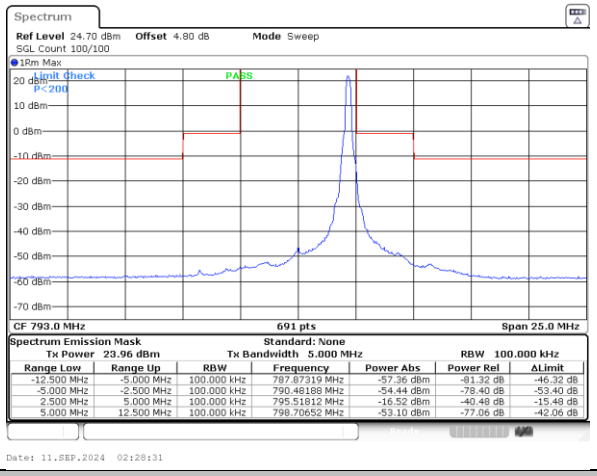
Lowest Channel / Full RB



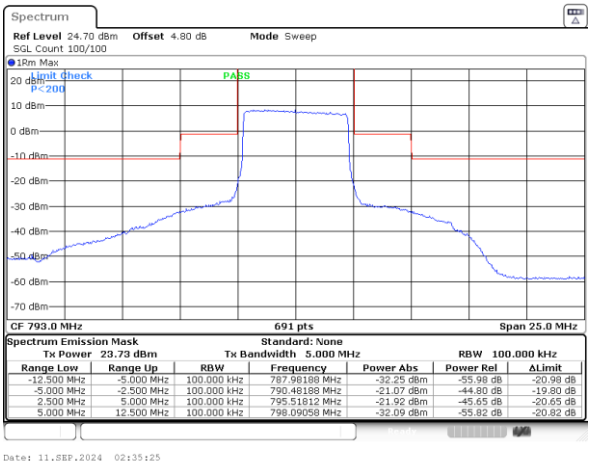
LTE Band 14 / 5MHz / QPSK

Middle Channel / 1RB



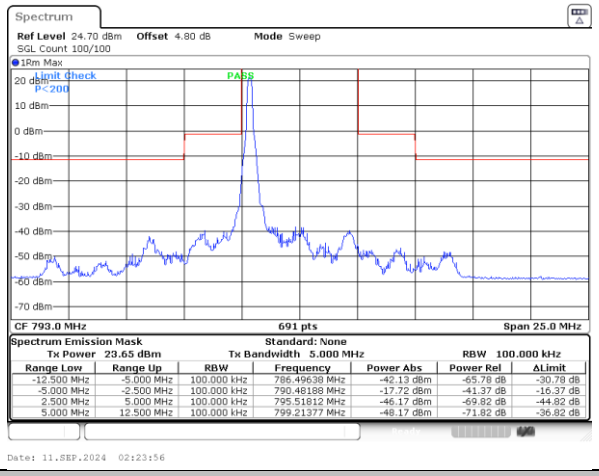


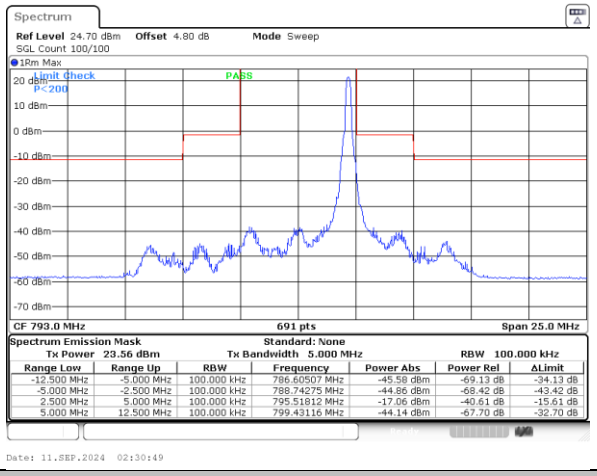
Middle Channel / Full RB



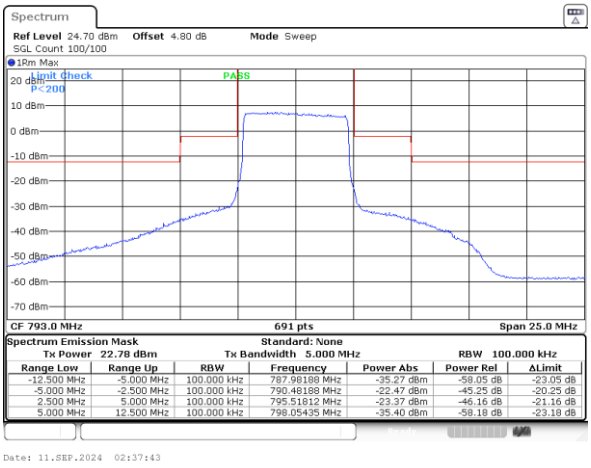
LTE Band 14 / 5MHz / 16QAM

Middle Channel / 1RB



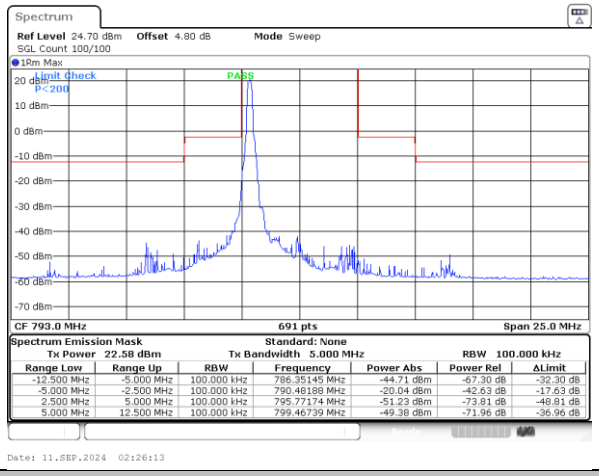


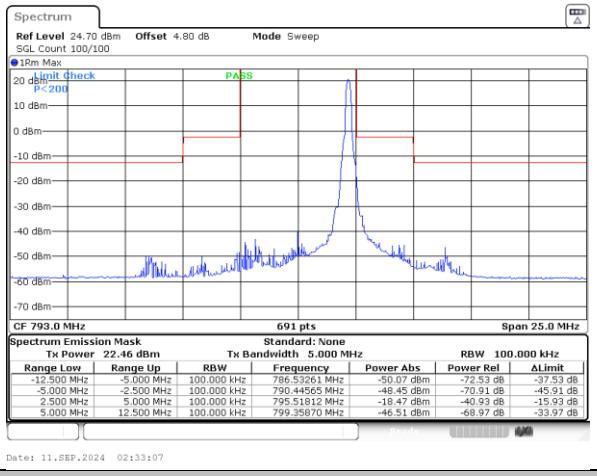
Middle Channel / Full RB



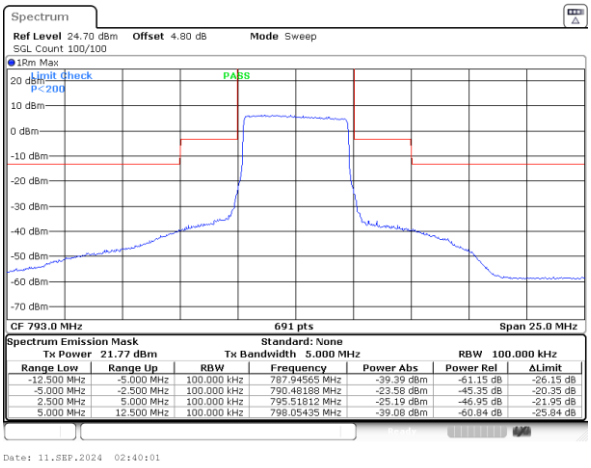
LTE Band 14 / 5MHz / 64QAM

Middle Channel / 1RB



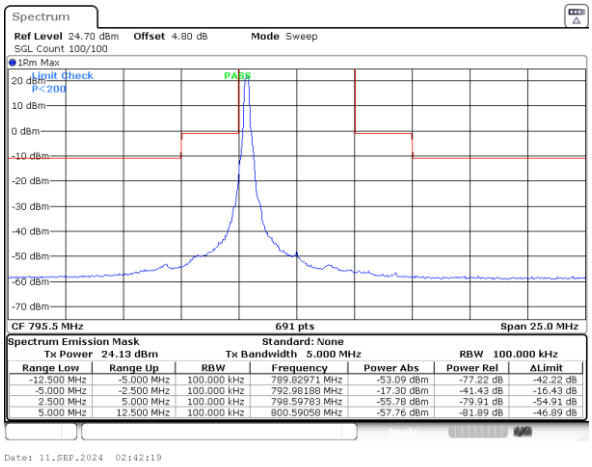


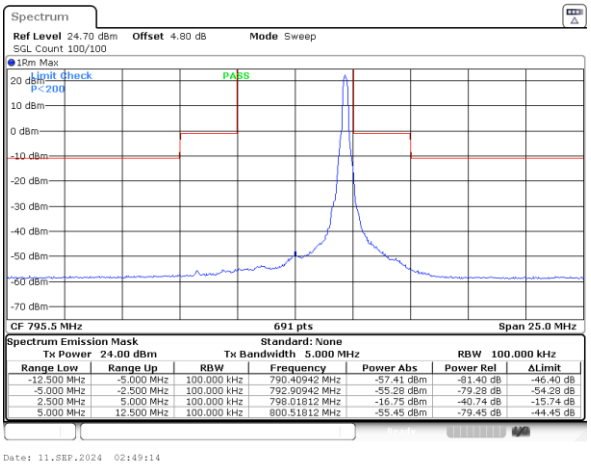
Middle Channel / Full RB



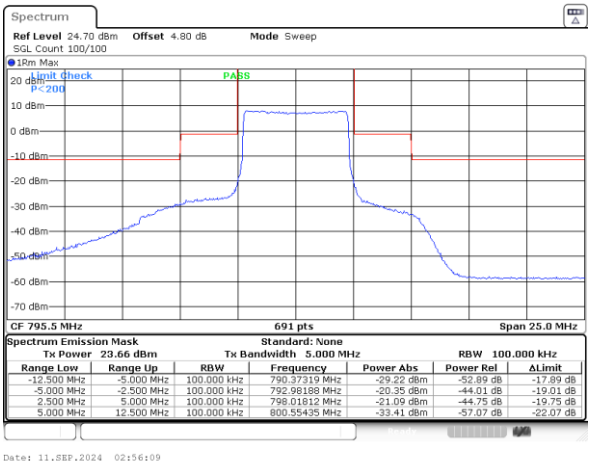
LTE Band 14 / 5MHz / QPSK

Highest Channel / 1RB



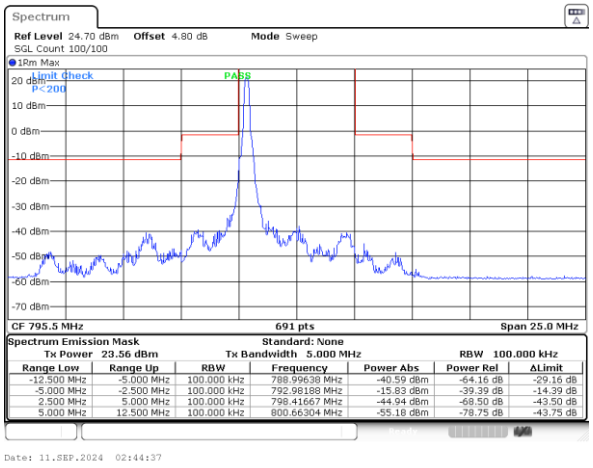


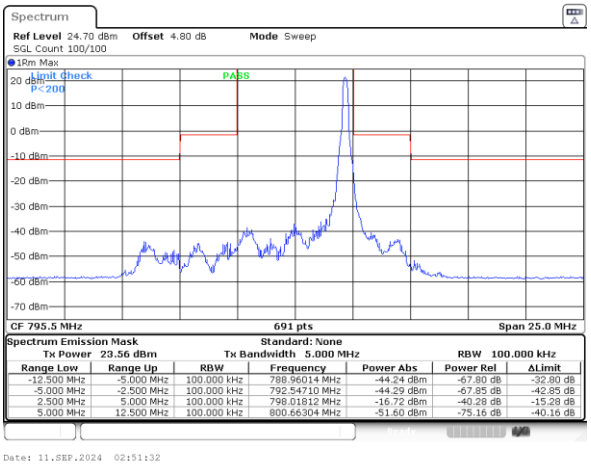
Highest Channel / Full RB



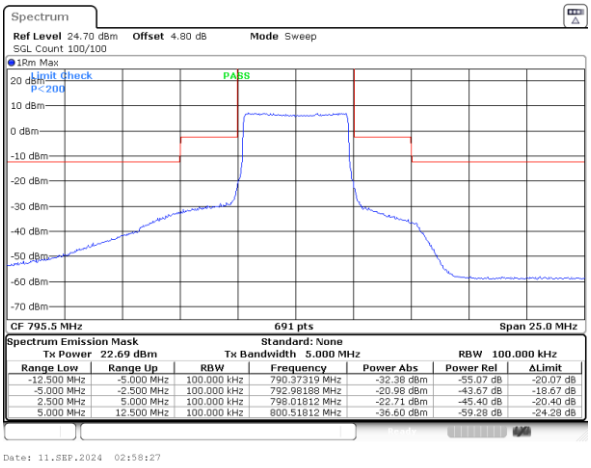
LTE Band 14 / 5MHz / 16QAM

Highest Channel / 1RB



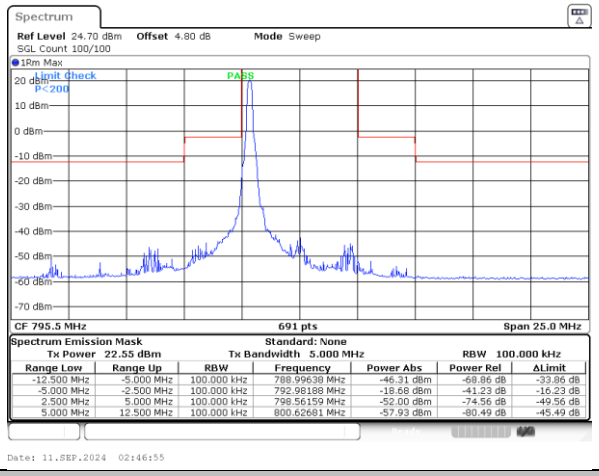


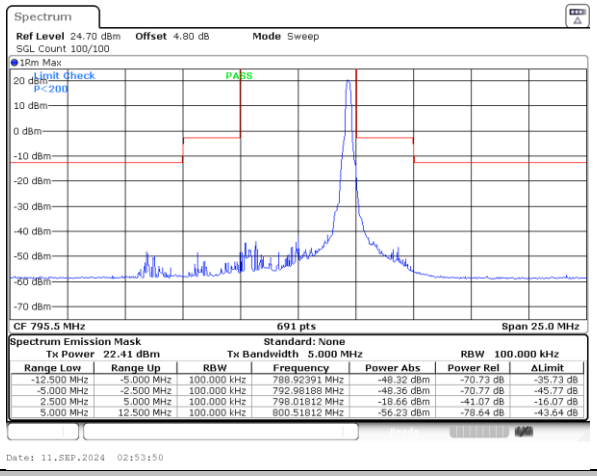
Highest Channel / Full RB



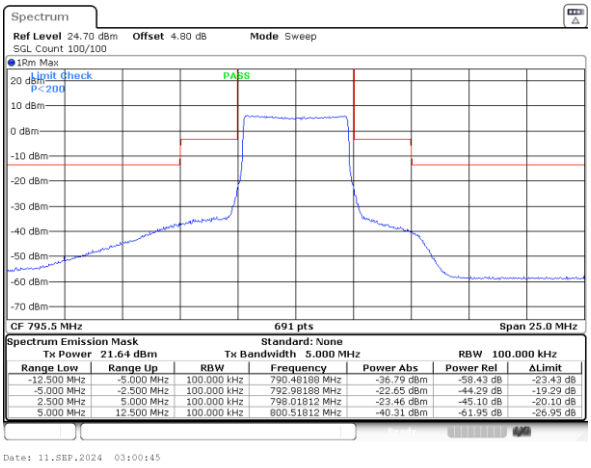
LTE Band 14 / 5MHz / 64QAM

Highest Channel / 1RB



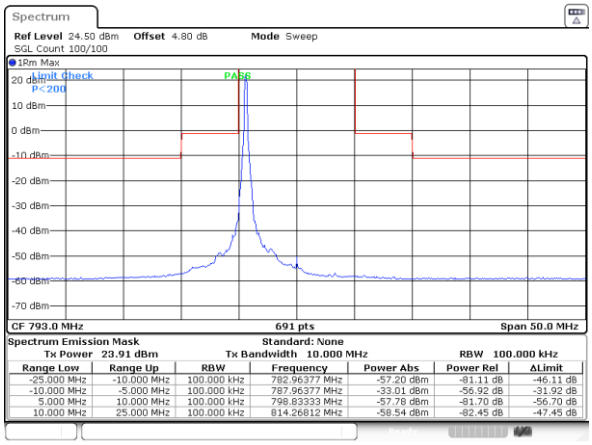


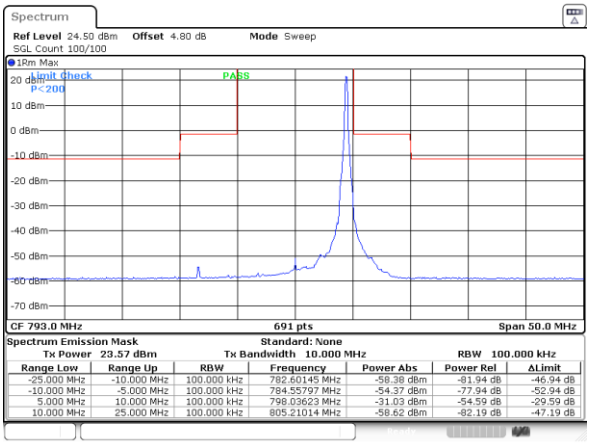
Highest Channel / Full RB



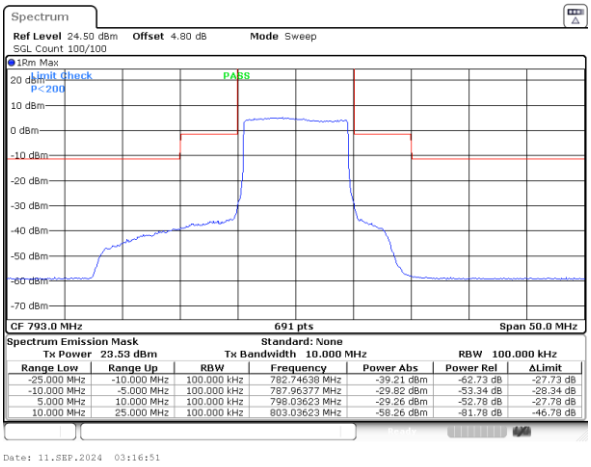
LTE Band 14 / 10MHz / QPSK

Middle Channel / 1RB



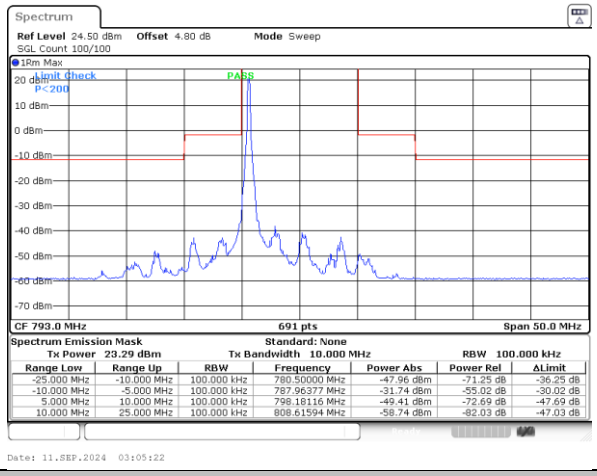


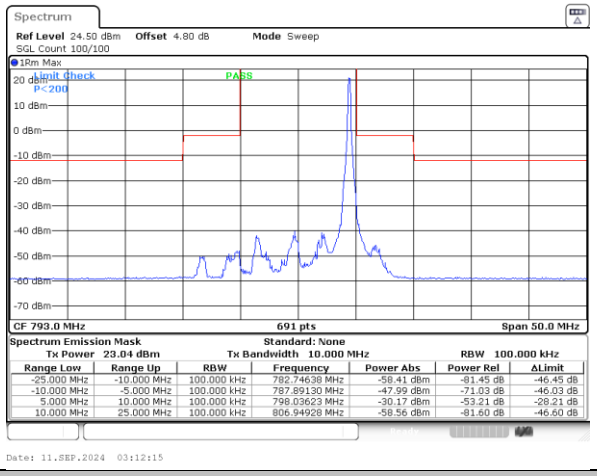
Middle Channel / Full RB



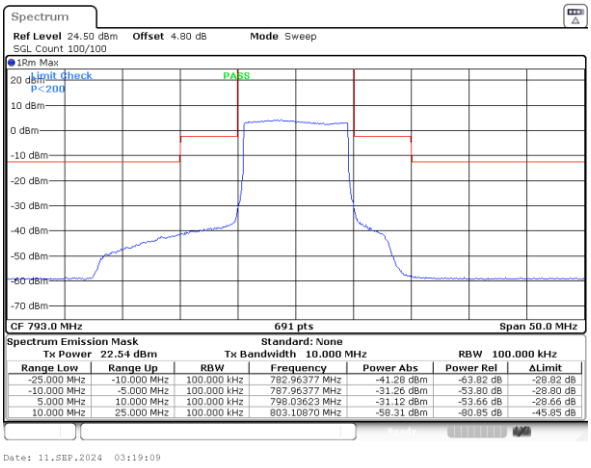
LTE Band 14 / 10MHz / 16QAM

Middle Channel / 1RB



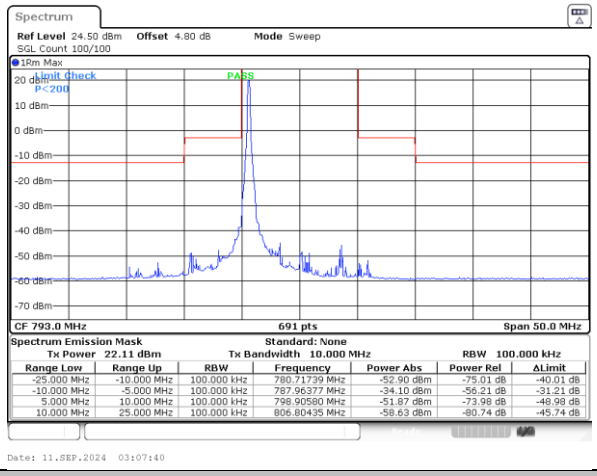


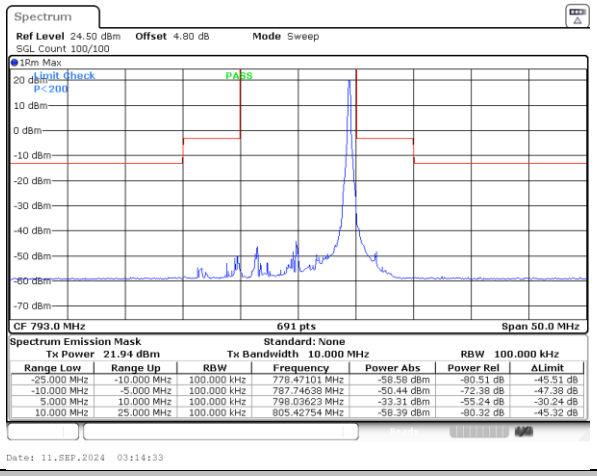
Middle Channel / Full RB



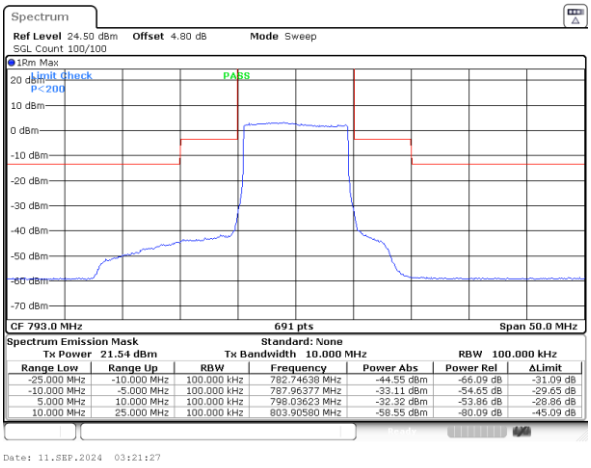
LTE Band 14 / 10MHz / 64QAM

Middle Channel / 1RB





Middle Channel / Full RB



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	0.0011	PASS
40	Normal Voltage	0.0021	
30	Normal Voltage	0.0023	
20(Ref.)	Normal Voltage	0.0000	
10	Normal Voltage	0.0015	
0	Normal Voltage	0.0012	
-10	Normal Voltage	0.0016	
-20	Normal Voltage	0.0004	
-30	Normal Voltage	0.0015	
20	Maximum Voltage	0.0042	
20	Normal Voltage	0.0011	
20	Battery End Point	0.0035	

Note:

1. Normal Voltage =3.85V. ; Battery End Point (BEP) =3.6V. ; Maximum Voltage =4.4 V.
2. Note: The frequency fundamental emissions stay within the authorized frequency block.

Appendix B. Test Results of Radiated Test

Field Strength of Spurious Radiated

Test Engineer :	PingZhou Liang	Temperature :	22~25℃
		Relative Humidity :	48~52%

LTE Band 14 / 10MHz / QPSK / Ant.1									
Channel	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Lowest	1576.5	-65.09	-42.15	-22.94	-75.02	-75.87	3.98	9.36	H
	2364.75	-62.48	-13	-49.48	-77.21	-76.93	4.85	10.55	H
	3153	-60.61	-13	-47.61	-77.94	-78.65	5.50	12.58	H
	1576.5	-65.12	-42.15	-22.97	-75.18	-75.94	3.98	9.36	V
	2364.75	-62.63	-13	-49.63	-77.35	-76.51	4.85	10.55	V
	3153	-60.63	-13	-47.63	-77.96	-78.79	5.50	12.58	V
Middle	1577	-65.16	-42.15	-23.01	-75.09	-68.41	4.00	9.40	H
	2365.5	-62.23	-13	-49.23	-76.96	-65.80	4.88	10.60	H
	3154	-60.53	-13	-47.53	-77.86	-65.46	5.52	12.60	H
	1577	-65.31	-42.15	-23.16	-75.37	-68.56	4.00	9.40	V
	2365.5	-62.51	-13	-49.51	-77.23	-66.08	4.88	10.60	V
	3154	-60.65	-13	-47.65	-77.98	-65.58	5.52	12.60	V
Highest	1586.5	-65.22	-42.15	-23.07	-75.16	-68.39	4.10	9.42	H
	2379.75	-62.47	-13	-49.47	-77.16	-66.05	4.90	10.63	H
	3173	-60.30	-13	-47.30	-77.72	-65.22	5.55	12.62	H
	1586.5	-64.88	-42.15	-22.73	-74.95	-68.05	4.10	9.42	V
	2379.75	-62.32	-13	-49.32	-77.00	-65.90	4.90	10.63	V
	3173	-60.21	-13	-47.21	-77.61	-65.13	5.55	12.62	V

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

LTE Band 14 / 5MHz / QPSK / Ant.1									
Channel	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Middle	1581.5	-65.03	-42.15	-22.88	-74.97	-68.28	4.00	9.40	H
	2372.25	-62.55	-13	-49.55	-77.23	-66.12	4.88	10.60	H
	3163	-60.09	-13	-47.09	-77.42	-65.02	5.52	12.60	H
	1581.5	-65.04	-42.15	-22.89	-75.11	-68.29	4.00	9.40	V
	2372.25	-62.53	-13	-49.53	-77.20	-66.10	4.88	10.60	V
	3163	-60.29	-13	-47.29	-77.62	-65.22	5.52	12.60	V

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