FCC RF Test Report

APPLICANT	: Motorola Mobility LLC
EQUIPMENT	: Mobile Cellular Phone
BRAND NAME	: Motorola
MODEL NAME	: XT2451-3
FCC ID	: IHDT56AP8
STANDARD	: 47 CFR Part 2, 27(F)
CLASSIFICATION	: PCS Licensed Transmitter Held to Ear (PCE)
TEST DATE(S)	: Mar. 19, 2024 ~ Apr. 06, 2024

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

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

Jason Jia

Approved by: Jason Jia

ACCREDITED Cert #5145.01

Sporton International Inc. (ShenZhen)

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People's Republic of China

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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FG420703-01B	Rev. 01	Initial issue of report	Apr. 30, 2024

SUMMARY OF TEST RESULT

Report Section	FCC Rule	Description	Limit	Result	Remark
3.4	§2.1046	Conducted Output Power	-	Report Only	-
	§27.50(b)(10)	Effective Radiated Power (Band 13)	ERP < 3 Watt		-
3.5	N/A	Peak-to-Average Ratio	<13 dB	PASS	-
3.6	§2.1049	Occupied Bandwidth	-	Report Only	-
3.7	§2.1051 §27.53(c)(2)(4)	Conducted Band Edge Measurement (Band 13)	< 43+10log10(P[Watts])	PASS	-
3.8	§2.1051 §27.53(c)(2)	Conducted Spurious Emission (Band 13)	< 43+10log10(P[Watts])	PASS	-
3.9	§2.1055 §27.54	Frequency Stability Temperature & Voltage	Within Authorized Band	PASS	-
4.4	§2.1053 §27.53(c)(2) §27.53(f)	Radiated Spurious Emission (Band 13)	< 43+10log$_{10}$(P[Watts])	PASS	Under limit 21.07 dB at 1559.50 MHz

Conformity Assessment Condition:

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

Disclaimer:

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

1 General Description

1.1 Applicant

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

1.2 Manufacturer

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

1.3 Product Feature of Equipment Under Test

Product Feature	
Equipment	Mobile Cellular Phone
Brand Name	Motorola
Model Name	XT2451-3
FCC ID	IHDT56AP8
IMEI Code	Conducted: 355473450019278/355473450019286 Radiation: 355473450020037/355473450020045
HW Version	DVT2
SW Version	U3UX34.16
EUT Stage	Identical Prototype

1.4 Product Specification of Equipment Under Test

Standards-related Product Specification	
Tx Frequency	LTE Band 13 : 777 MHz ~ 787 MHz
Rx Frequency	LTE Band 13 : 746 MHz ~ 756 MHz
Bandwidth	LTE Band 13 : 5MHz / 10MHz
Maximum Output Power to Antenna	<ANT0> LTE Band 13 : 22.77 dBm <ANT1> LTE Band 13 : 22.71 dBm
Antenna Gain	<ANT0> LTE Band 13 : -4.35 dBi <ANT1> LTE Band 13 : -5.91 dBi
Type of Modulation	QPSK / 16QAM / 64QAM / 256QAM

Note: The maximum ERP is calculated from max output power and max antenna gain, only the maximum ERP of Antenna 0 is shown in the report.

1.5 Modification of EUT

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

1.6 Maximum ERP Power and Emission Designator

LTE Band 13		QPSK		16QAM/64QAM/256QAM	
BW (MHz)	**Frequency Range (MHz)**	**Maximum ERP(W)**	**Emission Designator (99%OBW)**	**Maximum ERP(W)**	**Emission Designator (99%OBW)**
5	779.5 ~ 784.5	0.0418	4M49G7D	0.0366	4M52W7D
10	782.0	0.0424	9M03G7D	0.0353	9M03W7D

Note: All modulations have been tested, and only the worst test results of PSK & QAM are shown in the report.

1.7 Testing Location

Sporton International Inc. (ShenZhen) is accredited to ISO/IEC 17025:2017 by American Association for Laboratory Accreditation with Certificate Number 5145.01.

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

Test Firm	Sporton International Inc. (ShenZhen)		
Test Site Location	101, 1st Floor, Block B, Building 1, No. 2, Tengfeng 4th Road, Fenghuang Community, Fuyong Street, Baoan District, Shenzhen City, Guangdong Province 518103 People's Republic of China TEL: +86-755-86066985		
Test Site No.	**Sporton Site No.**	**FCC Designation No.**	**FCC Test Firm Registration No.**
	03CH04-SZ	CN1256	421272

1.8 Test Software

Item	Site	Manufacture	Name	Version
1.	03CH04-SZ	AUDIX	E3	6.2009-8-24

1.9 Applicable Standards

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

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

Remark:

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

1.10 Specification of Accessory

Specification of Accessory				
AC Adapter 1(US)	**Brand Name**	Motorola(Chenyang)	**Model Name**	MC-681N
AC Adapter 1(EU)	**Brand Name**	Motorola(Chenyang)	**Model Name**	MC-682N
AC Adapter 1(UK)	**Brand Name**	Motorola(Chenyang)	**Model Name**	MC-683N
AC Adapter 1(AU)	**Brand Name**	Motorola(Chenyang)	**Model Name**	MC-685N
AC Adapter 1(AR)	**Brand Name**	Motorola(Chenyang)	**Model Name**	MC-686N
AC Adapter 1(BR)	**Brand Name**	Motorola(Chenyang)	**Model Name**	MC-687N
AC Adapter 1(Chile)	**Brand Name**	Motorola(Chenyang)	**Model Name**	MC-689N
AC Adapter 1(KR)	**Brand Name**	Motorola(Chenyang)	**Model Name**	MC-680N
AC Adapter 2(US)	**Brand Name**	Motorola(Acbel)	**Model Name**	MC-681N
AC Adapter 2(EU)	**Brand Name**	Motorola(Acbel)	**Model Name**	MC-682N
AC Adapter 2(UK)	**Brand Name**	Motorola(Acbel)	**Model Name**	MC-683N
AC Adapter 2(AU)	**Brand Name**	Motorola(Acbel)	**Model Name**	MC-685N
AC Adapter 2(AR)	**Brand Name**	Motorola(Acbel)	**Model Name**	MC-686N
AC Adapter 2(BR)	**Brand Name**	Motorola(Acbel)	**Model Name**	MC-687N
AC Adapter 3(IN)	**Brand Name**	Motorola(Acbel)	**Model Name**	MC-684N
Battery 1	**Brand Name**	Motorola(ATL)	**Model Name**	QR10
Battery 2	**Brand Name**	Motorola(ATL)	**Model Name**	QR30
USB Cable 1	**Brand Name**	Motorola(SAIBAO)	**Model Name**	SC18D71644
USB Cable 2	**Brand Name**	Motorola(Luxshare)	**Model Name**	SC18E08104
Wireless Earphones	**Brand Name**	Motorola	**Model Name**	XT2441-1

2 Test Configuration of Equipment Under Test

2.1 Test Mode

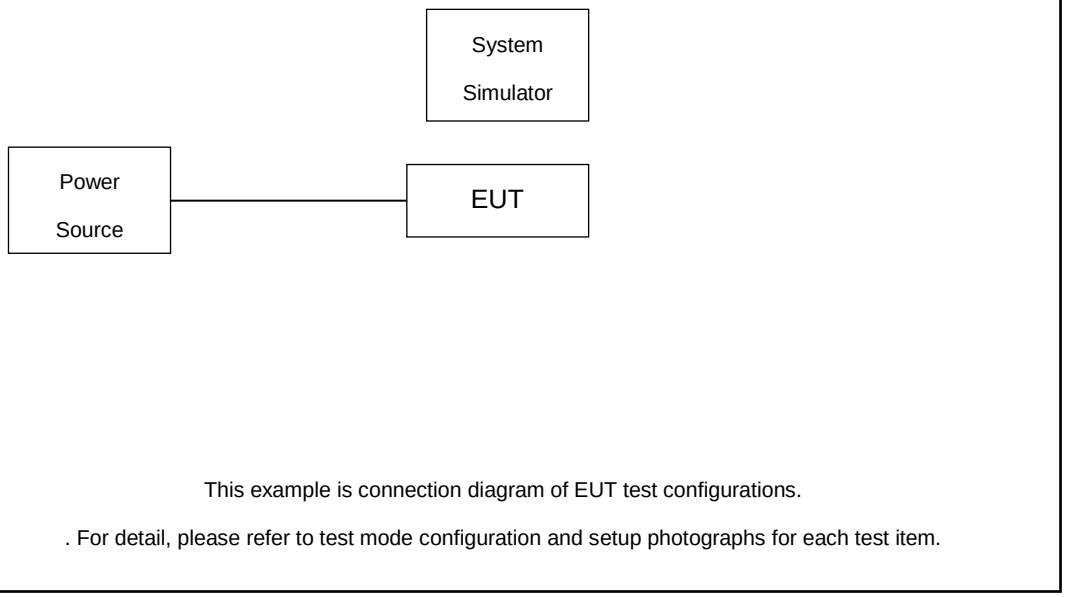
Antenna port conducted and radiated test items listed below are performed according to KDB 971168 D01 Power Meas License Digital Systems v03r01 with maximum output power.

Radiated measurements are performed by rotating the EUT in three different orthogonal test planes with Adapter mode, Earphone mode and Wireless Charging mode, and find the maximum emission. (X Plane-Adapter mode)

The device is a folded phone, pretest open & close status, the worst status perform final test.(open status)

Test Items	Band	Bandwidth (MHz)						Modulation				RB #			Test Channel		
		1.4	3	5	10	15	20	QPSK	16 QAM	64 QAM	256 QAM	1	Half	Full	L	M	H
Max. Output Power	13	-	-	v	v	-	-	v	v	v	v	v	v	v	v	v	v
Peak-to-Average Ratio	13	-	-		v	-	-	v	v	v				v		v	
26dB and 99% Bandwidth	13	-	-	v	v	-	-	v	v					v		v	
Conducted Band Edge	13	-	-	v	v	-	-	v	v	v		v		v	v		v
Conducted Spurious Emission	13	-	-	v	v	-	-	v				v			v	v	v
Frequency Stability	13	-	-		v	-	-	v						v		v	
E.R.P	13	-	-	v	v	-	-	v	v	v	v	v	v	v	v	v	v
Radiated Spurious Emission	13	Worst Case														v	
Note	1. The mark "**v** " means that this configuration is chosen for testing 2. The mark "-" means that this bandwidth is not supported. 3. The device is investigated from 30MHz to 10 times of fundamental signal for radiated spurious emission test under different RB size/offset and modulations in exploratory test. Subsequently, only the worst case emissions are reported. 4. For QAM modulation mode, the whole testing has assessed 16QAM&64QAM mode by referring to the higher conducted power.																

2.2 Connection Diagram of Test System



This example is connection diagram of EUT test configurations.

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

2.3 Support Unit used in test configuration and system

Item	Equipment	Trade Name	Model No.	FCC ID	Data Cable	Power Cord
1.	Power Supply	GWINSTEK	PSS-2002	N/A	N/A	Unshielded, 1.8 m
2.	LTE Base Station	Anritsu	MT8820C	N/A	N/A	Unshielded, 1.8 m

2.4 Measurement Results Explanation Example

For all conducted test items:

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

The spectrum analyzer offset is derived from RF cable loss and attenuator factor.

Offset = RF cable loss + attenuator factor.

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

Example :

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

= 4.0 + 10 = 14.0 (dB)

2.5 Frequency List of Low/Middle/High Channels

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

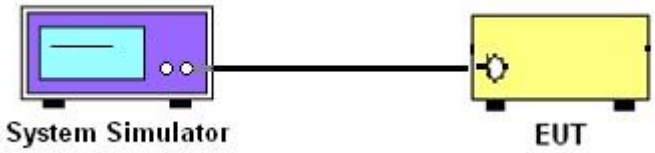
3 Conducted Test Items

3.1 Measuring Instruments

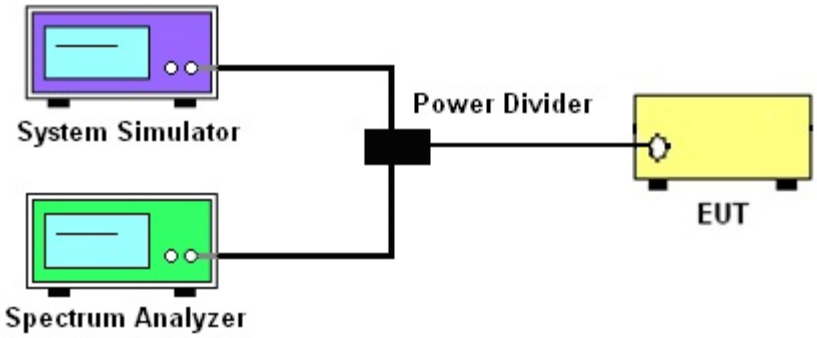
See list of measuring instruments of this test report.

3.2 Test Setup

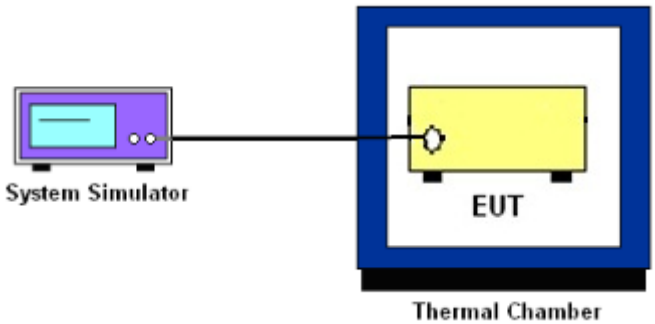
3.2.1 Conducted Output Power



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



3.2.3 Frequency Stability



3.3 Test Result of Conducted Test

Please refer to Appendix A.

3.4 Conducted Output Power and ERP

3.4.1 Description of the Conducted Output Power Measurement and ERP Measurement

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

The ERP of mobile transmitters must not exceed 3 Watts for LTE Band 13.

According to KDB 412172 D01 Power Approach,

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

P_T = transmitter output power in dBm

G_T = gain of the transmitting antenna in dBi

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

3.4.2 Test Procedures

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

3.5 Peak-to-Average Ratio

3.5.1 Description of the PAR Measurement

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

3.5.2 Test Procedures

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

3.6 Occupied Bandwidth

3.6.1 Description of Occupied Bandwidth Measurement

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

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

3.6.2 Test Procedures

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

3.7 Conducted Band Edge

3.7.1 Description of Conducted Band Edge Measurement

27.53 (c)

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

3.7.2 Test Procedures

1. The testing follows ANSI C63.26 section 5.7
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.

   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.
8. When using the integration method, the starting frequency of the integration shall be centered at one-half of the RBW away from the band edge.

3.8 Conducted Spurious Emission

3.8.1 Description of Conducted Spurious Emission Measurement

The power of any emission outside of the authorized operating frequency ranges must be lower than the transmitter power (P) by a factor of at least 43 + 10 log (P) dB.

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

3.8.2 Test Procedures

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

3.9 Frequency Stability

3.9.1 Description of Frequency Stability Measurement

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

3.9.2 Test Procedures for Temperature Variation

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

3.9.3 Test Procedures for Voltage Variation

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

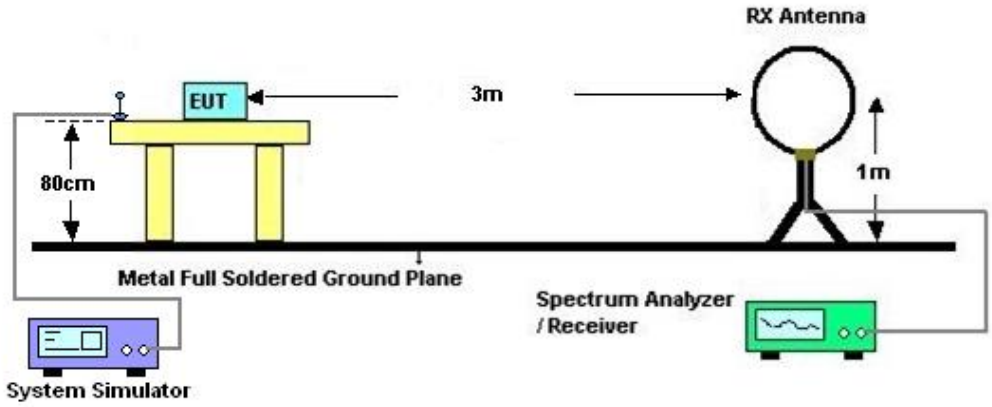
4 Radiated Test Items

4.1 Measuring Instruments

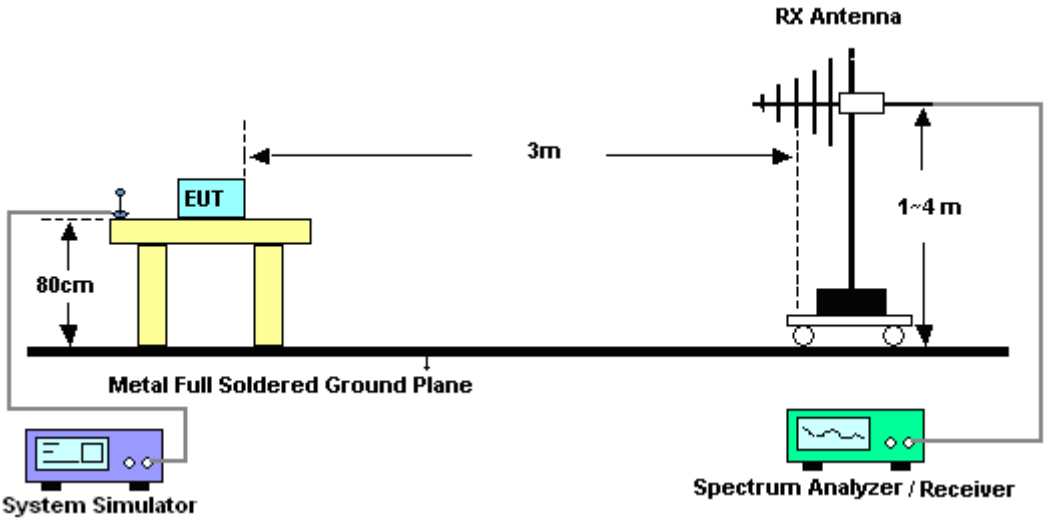
See list of measuring instruments of this test report.

4.2 Test Setup

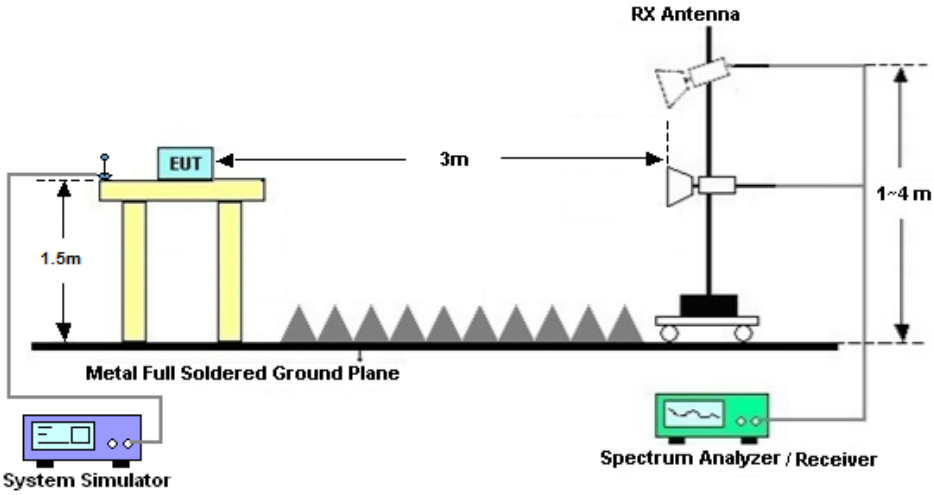
4.2.1 For radiated test below 30MHz



4.2.2 For radiated test from 30MHz to 1GHz



4.2.3 For radiated test above 1GHz



4.3 Test Result of Radiated Test

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

Please refer to Appendix B.

4.4 Radiated Spurious Emission

4.4.1 Description of Radiated Spurious Emission

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

For LTE Band 13

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

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

4.4.2 Test Procedures

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

5 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Spectrum Analyzer	R&S	FSV40	101078	10Hz~40GHz	Apr. 06, 2023	Mar. 19, 2024	Apr. 05, 2024	Conducted (TH01-SZ)
DC Power Supply	TTI	PL330P	290070	Max 32V，3A	Oct. 16, 2023	Mar. 19, 2024	Oct. 15, 2024	Conducted (TH01-SZ)
Power Divider	TOJOIN	PS-2SM-04265	60.06.020.0077	0.4GHz~26.5GHz	Dec. 25, 2023	Mar. 19, 2024	Dec. 24, 2024	Conducted (TH01-SZ)
Thermal Chamber	Ten Billion Hongzhangroup	LP-150U	H2014081803	-40~+150°C	Jul. 05, 2023	Mar. 19, 2024	Jul. 04, 2024	Conducted (TH01-SZ)
EMI Test Receiver	R&S	ESR7	101404	9kHz~7GHz	Oct. 18, 2023	Apr. 04, 2024~ Apr. 06, 2024	Oct. 17, 2024	Radiation (03CH04-SZ)
EXA Spectrum Analyzer	KEYSIGHT	N9010A	MY55150213	10Hz~44GHz	Jul. 07, 2023	Apr. 04, 2024~ Apr. 06, 2024	Jul. 06, 2024	Radiation (03CH04-SZ)
Loop Antenna	R&S	HFH2-Z2	100354	9kHz~30MHz	Jun. 28, 2022	Apr. 04, 2024~ Apr. 06, 2024	Jun. 27, 2024	Radiation (03CH04-SZ)
Bilog Antenna	TeseQ	CBL6111D	41909	30MHz~1GHz	May 14, 2023	Apr. 04, 2024~ Apr. 06, 2024	May 13, 2024	Radiation (03CH04-SZ)
Double Ridge Horn Antenna	SCHWARZBECK	BBHA9120D	9120D-1474	1GHz~18GHz	Jul. 07, 2023	Apr. 04, 2024~ Apr. 06, 2024	Jul. 06, 2024	Radiation (03CH04-SZ)
Amplifier	Burgeon	BPA-530	102211	0.01Hz ~3000MHz	Oct. 18, 2023	Apr. 04, 2024~ Apr. 06, 2024	Oct. 17, 2024	Radiation (03CH04-SZ)
HF Amplifier	MITEQ	AMF-7D-00101800-30-10P-R	1943528	1GHz~18GHz	Oct. 18, 2023	Apr. 04, 2024~ Apr. 06, 2024	Oct. 17, 2024	Radiation (03CH04-SZ)
Amplifier	Agilent Technologies	83017A	MY57280136	500MHz~26.5GHz	Aug. 21, 2023	Apr. 04, 2024~ Apr. 06, 2024	Aug. 20, 2024	Radiation (03CH04-SZ)
AC Power Source	APC	AFV-S-600B	F119050019	N/A	Oct. 18, 2023	Apr. 04, 2024~ Apr. 06, 2024	Oct. 17, 2024	Radiation (03CH04-SZ)
Turn Table	EM	EM1000	N/A	0~360 degree	NCR	Apr. 04, 2024~ Apr. 06, 2024	NCR	Radiation (03CH04-SZ)
Antenna Mast	EM	EM1000	N/A	1 m~4 m	NCR	Apr. 04, 2024~ Apr. 06, 2024	NCR	Radiation (03CH04-SZ)

NCR: No Calibration Required

6 Measurement Uncertainty

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

Uncertainty of Conducted Measurement

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

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	2.8 dB

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	3.1 dB

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

Appendix A. Test Results of Conducted Test

Test Engineer :	Lorenzo Liu	Temperature :	24~26℃
		Relative Humidity :	50~53%

Conducted Output Power(Average power) and ERP

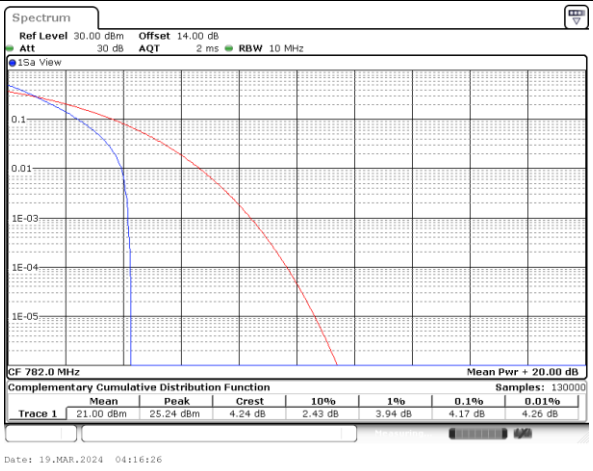
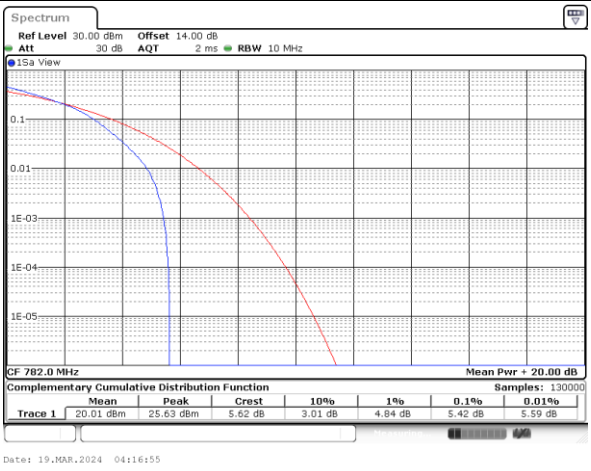
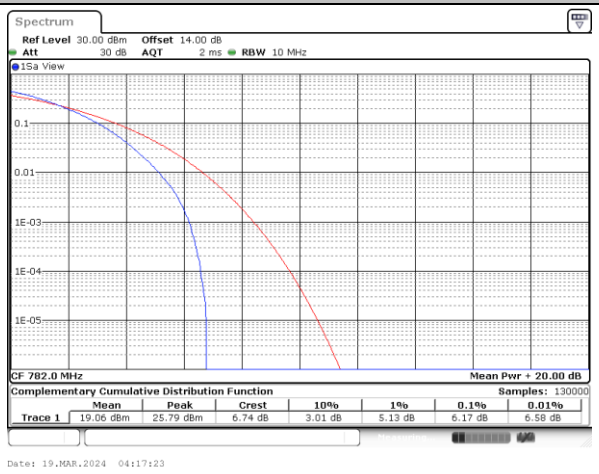
LTE Band13_ANT0

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	ERP(W)		
Channel					23230				
Frequency (MHz)					782			M	
10	QPSK	1	0		22.61			0.0408	
10	QPSK	1	25		22.61			0.0408	
10	QPSK	1	49		22.77			0.0424	
10	QPSK	25	0		21.73			0.0333	
10	QPSK	25	12		21.77			0.0337	
10	QPSK	25	25		21.80			0.0339	
10	QPSK	50	0		21.74			0.0334	
10	16QAM	1	0		21.98			0.0353	
10	64QAM	1	0		20.92			0.0277	
10	256QAM	1	0		17.65			0.0130	
Channel				23205	23230	23255	ERP(W)		
Frequency (MHz)				779.5	782	784.5	L	M	H
5	QPSK	1	0	22.61	22.69	22.71	0.0408	0.0416	0.0418
5	16QAM	1	0	22.01	22.14	22.08	0.0356	0.0366	0.0361

LTE Band 13

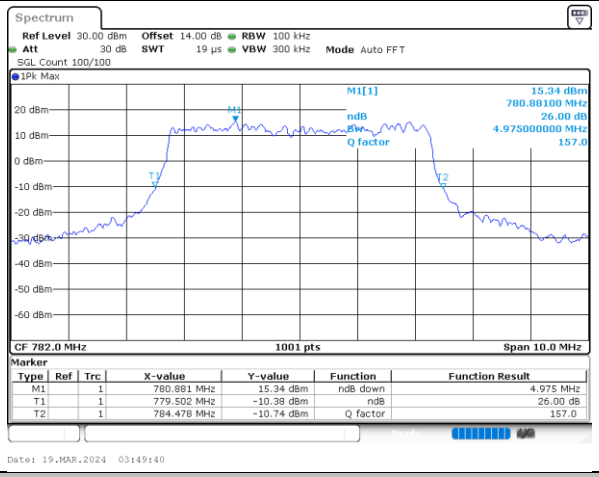
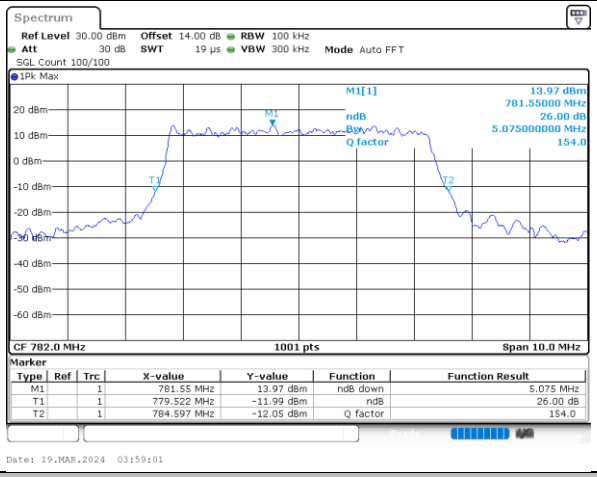
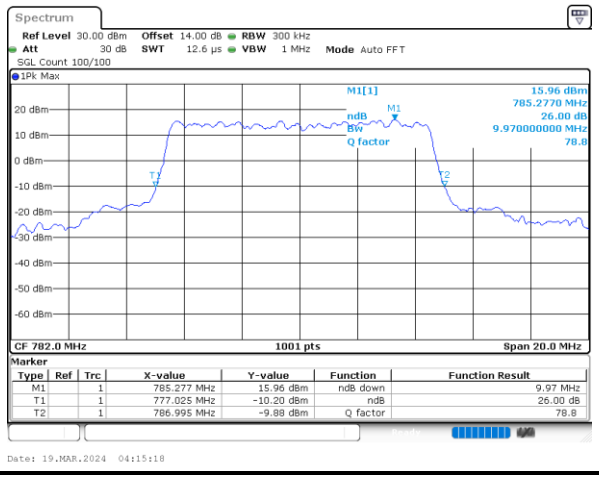
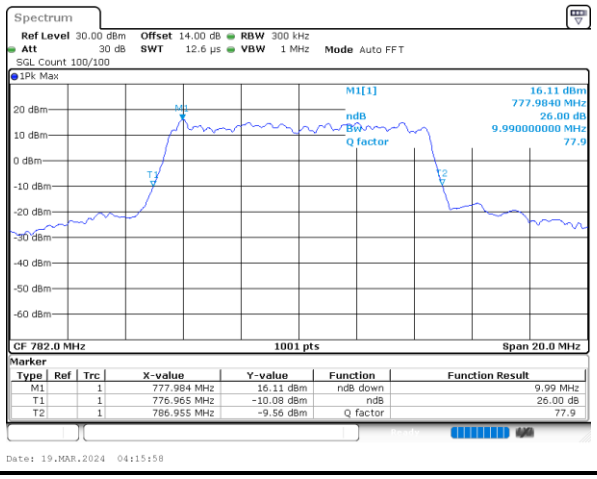
Peak-to-Average Ratio

Mode	LTE Band 13 / 10MHz			
Mod.	QPSK	16QAM	64QAM	Limit: 13dB
RB Size	Full RB	Full RB	Full RB	Result
Middle CH	4.17	5.42	6.17	PASS

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

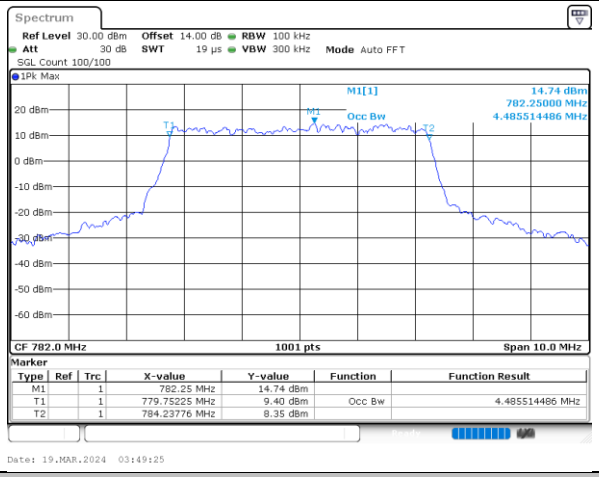
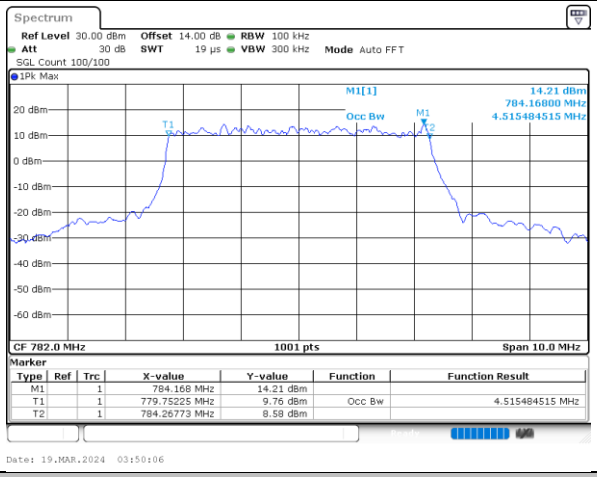
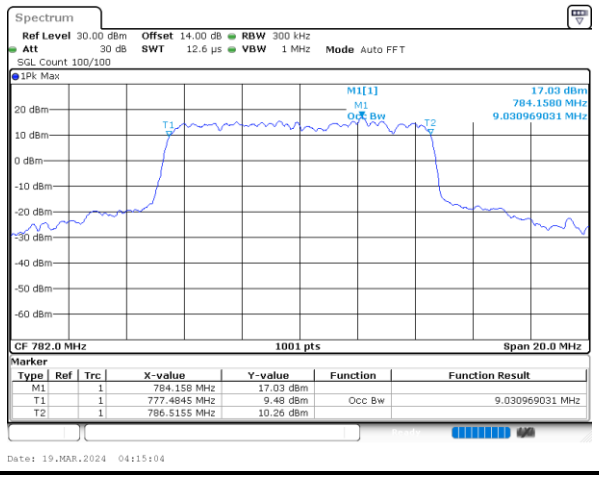
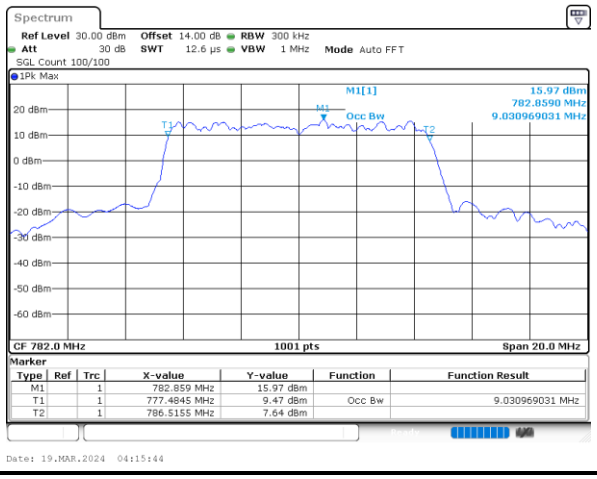
26dB Bandwidth

Mode	LTE Band 13 : 26dB BW(MHz)											
BW					5MHz		10MHz					
Mod.					QPSK	16QAM	QPSK	16QAM				
Middle CH					4.98	5.08	9.97	9.99				

LTE Band 13	
Middle Channel / 5MHz / QPSK	**Middle Channel / 5MHz / 16QAM**
	
Middle Channel / 10MHz / QPSK	**Middle Channel / 10MHz / 16QAM**
	

Occupied Bandwidth

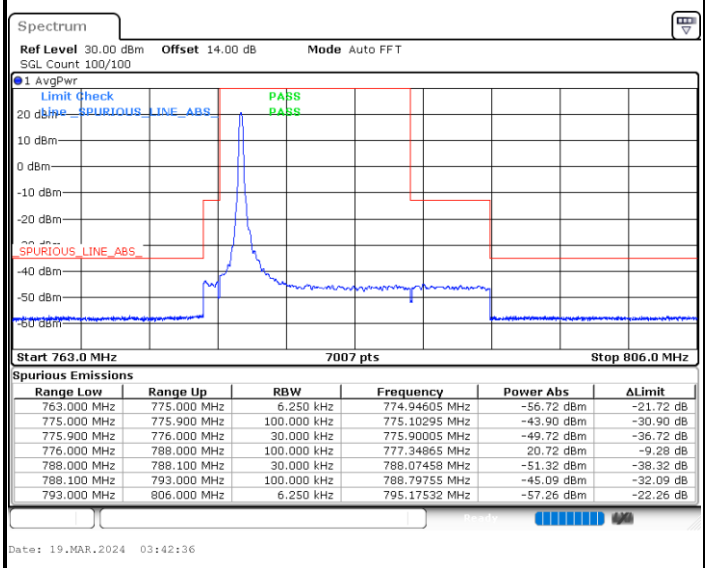
Mode	LTE Band 13 : 99%OBW(MHz)											
BW					5MHz		10MHz					
Mod.					QPSK	16QAM	QPSK	16QAM				
Middle CH					4.49	4.52	9.03	9.03				

LTE Band 13	
Middle Channel / 5MHz / QPSK	**Middle Channel / 5MHz / 16QAM**
	
Middle Channel / 10MHz / QPSK	**Middle Channel / 10MHz / 16QAM**
	

Conducted Band Edge

LTE Band 13 / 5MHz / QPSK

Lowest Band Edge / 1 RB

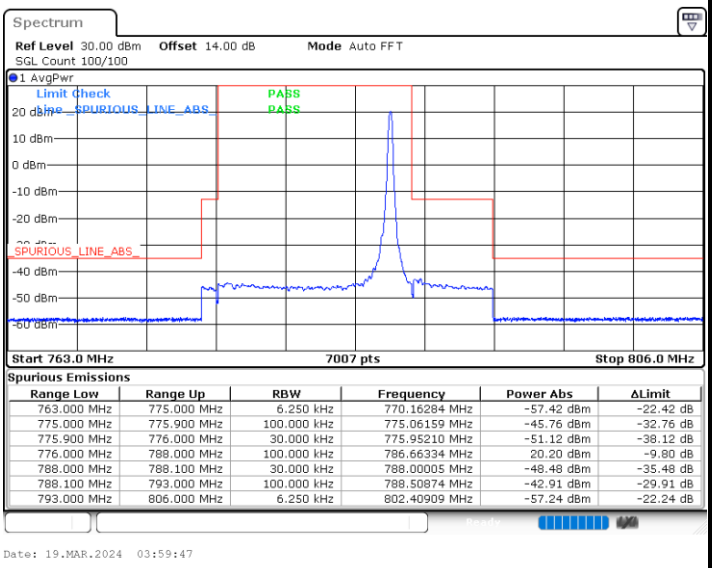


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
763.000 MHz	775.000 MHz	6.250 kHz	774.94605 MHz	-56.72 dBm	-21.72 dB
775.000 MHz	775.900 MHz	100.000 kHz	775.10295 MHz	-43.90 dBm	-30.90 dB
775.900 MHz	776.000 MHz	30.000 kHz	775.90005 MHz	-49.72 dBm	-36.72 dB
776.000 MHz	788.000 MHz	100.000 kHz	777.34865 MHz	20.72 dBm	-9.28 dB
788.000 MHz	788.100 MHz	30.000 kHz	788.07458 MHz	-51.32 dBm	-38.32 dB
788.100 MHz	793.000 MHz	100.000 kHz	788.79755 MHz	-45.09 dBm	-32.09 dB
793.000 MHz	806.000 MHz	6.250 kHz	795.17532 MHz	-57.26 dBm	-22.26 dB

Date: 19.MAR.2024 03:42:36

Highest Band Edge / 1 RB

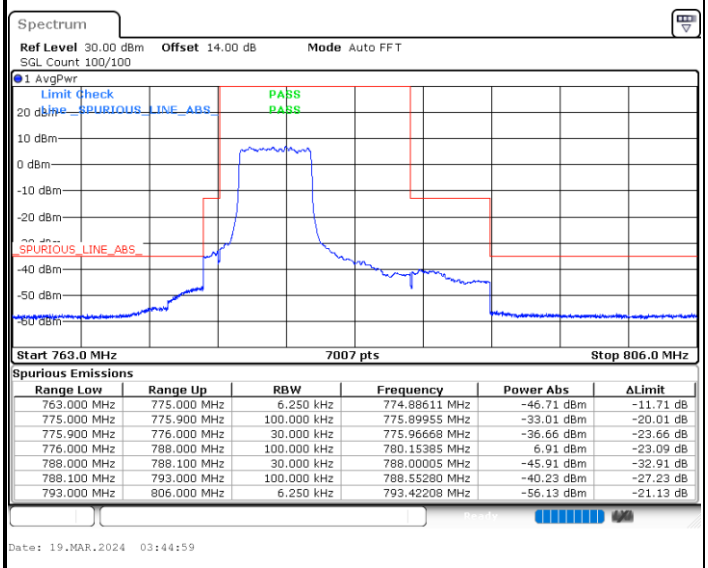


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
763.000 MHz	775.000 MHz	6.250 kHz	770.16284 MHz	-57.42 dBm	-22.42 dB
775.000 MHz	775.900 MHz	100.000 kHz	775.06159 MHz	-45.76 dBm	-32.76 dB
775.900 MHz	776.000 MHz	30.000 kHz	775.95210 MHz	-51.12 dBm	-38.12 dB
776.000 MHz	788.000 MHz	100.000 kHz	786.66334 MHz	20.20 dBm	-9.80 dB
788.000 MHz	788.100 MHz	30.000 kHz	788.00005 MHz	-48.48 dBm	-35.48 dB
788.100 MHz	793.000 MHz	100.000 kHz	788.50874 MHz	-42.91 dBm	-29.91 dB
793.000 MHz	806.000 MHz	6.250 kHz	802.40909 MHz	-57.24 dBm	-22.24 dB

Date: 19.MAR.2024 03:59:47

Lowest Band Edge / Full RB

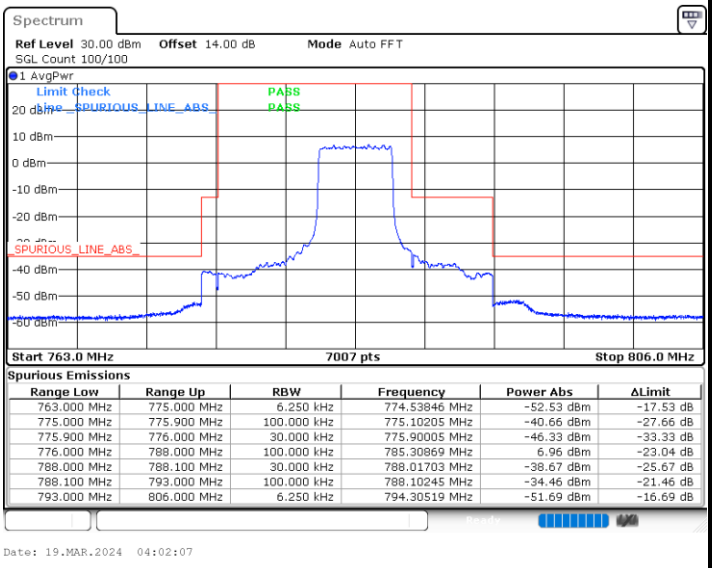


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
763.000 MHz	775.000 MHz	6.250 kHz	774.88611 MHz	-46.71 dBm	-11.71 dB
775.000 MHz	775.900 MHz	100.000 kHz	775.89955 MHz	-33.01 dBm	-20.01 dB
775.900 MHz	776.000 MHz	30.000 kHz	775.96668 MHz	-36.66 dBm	-23.66 dB
776.000 MHz	788.000 MHz	100.000 kHz	780.15385 MHz	6.91 dBm	-23.09 dB
788.000 MHz	788.100 MHz	30.000 kHz	788.00005 MHz	-45.91 dBm	-32.91 dB
788.100 MHz	793.000 MHz	100.000 kHz	788.55280 MHz	-40.23 dBm	-27.23 dB
793.000 MHz	806.000 MHz	6.250 kHz	793.42208 MHz	-56.13 dBm	-21.13 dB

Date: 19.MAR.2024 03:44:59

Highest Band Edge / Full RB



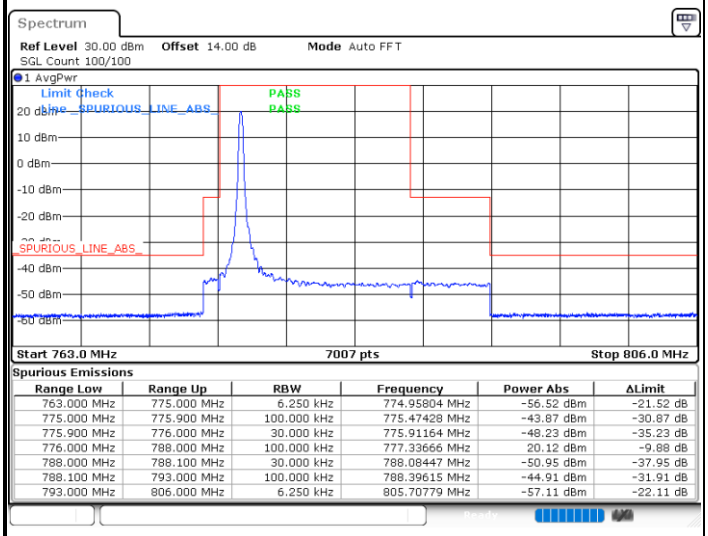
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
763.000 MHz	775.000 MHz	6.250 kHz	774.53846 MHz	-52.53 dBm	-17.53 dB
775.000 MHz	775.900 MHz	100.000 kHz	775.10205 MHz	-40.66 dBm	-27.66 dB
775.900 MHz	776.000 MHz	30.000 kHz	775.90005 MHz	-46.33 dBm	-33.33 dB
776.000 MHz	788.000 MHz	100.000 kHz	785.30869 MHz	6.96 dBm	-23.04 dB
788.000 MHz	788.100 MHz	30.000 kHz	788.01703 MHz	-38.67 dBm	-25.67 dB
788.100 MHz	793.000 MHz	100.000 kHz	788.10245 MHz	-34.46 dBm	-21.46 dB
793.000 MHz	806.000 MHz	6.250 kHz	794.30519 MHz	-51.69 dBm	-16.69 dB

Date: 19.MAR.2024 04:02:07

LTE Band 13 / 5MHz / 16QAM

Lowest Band Edge / 1 RB

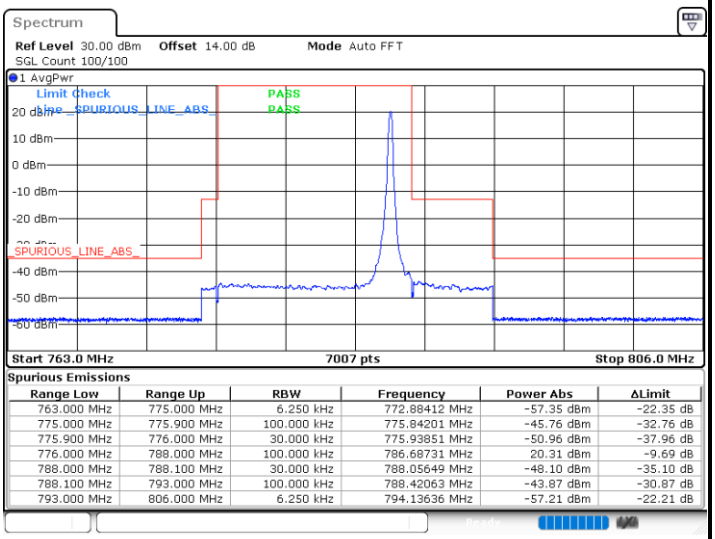


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
763.000 MHz	775.000 MHz	6.250 kHz	774.95804 MHz	-56.52 dBm	-21.52 dB
775.000 MHz	775.900 MHz	100.000 kHz	775.47428 MHz	-43.87 dBm	-30.87 dB
775.900 MHz	776.000 MHz	30.000 kHz	775.91164 MHz	-48.23 dBm	-35.23 dB
776.000 MHz	788.000 MHz	100.000 kHz	777.33666 MHz	20.12 dBm	-9.88 dB
788.000 MHz	788.100 MHz	30.000 kHz	788.08447 MHz	-50.95 dBm	-37.95 dB
788.100 MHz	793.000 MHz	100.000 kHz	788.39615 MHz	-44.91 dBm	-31.91 dB
793.000 MHz	806.000 MHz	6.250 kHz	805.70779 MHz	-57.11 dBm	-22.11 dB

Date: 19.MAR.2024 03:43:24

Highest Band Edge / 1 RB

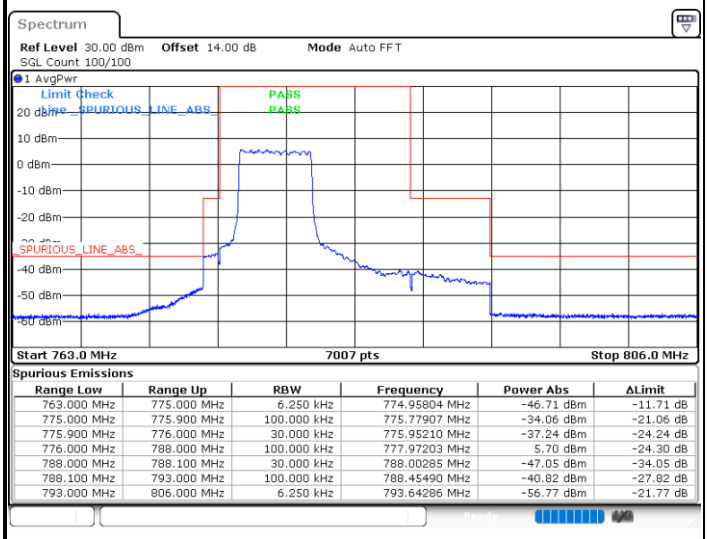


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
763.000 MHz	775.000 MHz	6.250 kHz	772.88412 MHz	-57.35 dBm	-22.35 dB
775.000 MHz	775.900 MHz	100.000 kHz	775.84201 MHz	-45.76 dBm	-32.76 dB
775.900 MHz	776.000 MHz	30.000 kHz	775.93851 MHz	-50.96 dBm	-37.96 dB
776.000 MHz	788.000 MHz	100.000 kHz	786.68731 MHz	20.31 dBm	-9.69 dB
788.000 MHz	788.100 MHz	30.000 kHz	788.05649 MHz	-48.10 dBm	-35.10 dB
788.100 MHz	793.000 MHz	100.000 kHz	788.42063 MHz	-43.87 dBm	-30.87 dB
793.000 MHz	806.000 MHz	6.250 kHz	794.13636 MHz	-57.21 dBm	-22.21 dB

Date: 19.MAR.2024 04:00:34

Lowest Band Edge / Full RB

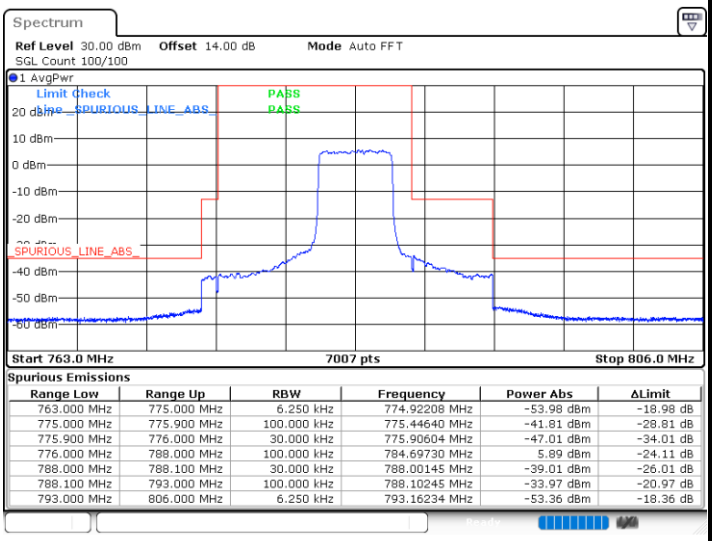


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
763.000 MHz	775.000 MHz	6.250 kHz	774.95804 MHz	-46.71 dBm	-11.71 dB
775.000 MHz	775.900 MHz	100.000 kHz	775.77907 MHz	-34.06 dBm	-21.06 dB
775.900 MHz	776.000 MHz	30.000 kHz	775.95210 MHz	-37.24 dBm	-24.24 dB
776.000 MHz	788.000 MHz	100.000 kHz	777.97203 MHz	5.70 dBm	-24.30 dB
788.000 MHz	788.100 MHz	30.000 kHz	788.00285 MHz	-47.05 dBm	-34.05 dB
788.100 MHz	793.000 MHz	100.000 kHz	788.45490 MHz	-40.82 dBm	-27.82 dB
793.000 MHz	806.000 MHz	6.250 kHz	793.64286 MHz	-56.77 dBm	-21.77 dB

Date: 19.MAR.2024 03:45:46

Highest Band Edge / Full RB



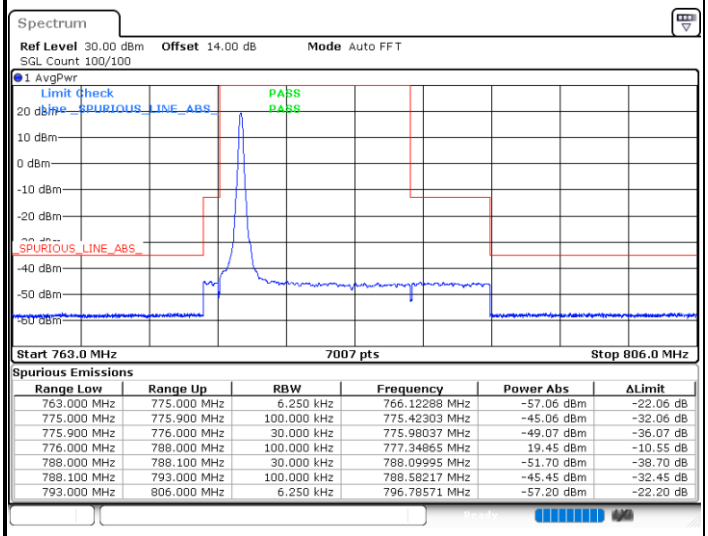
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
763.000 MHz	775.000 MHz	6.250 kHz	774.92208 MHz	-53.98 dBm	-18.98 dB
775.000 MHz	775.900 MHz	100.000 kHz	775.44640 MHz	-41.81 dBm	-28.81 dB
775.900 MHz	776.000 MHz	30.000 kHz	775.90604 MHz	-47.01 dBm	-34.01 dB
776.000 MHz	788.000 MHz	100.000 kHz	784.69730 MHz	5.89 dBm	-24.11 dB
788.000 MHz	788.100 MHz	30.000 kHz	788.00145 MHz	-39.01 dBm	-26.01 dB
788.100 MHz	793.000 MHz	100.000 kHz	788.10245 MHz	-33.97 dBm	-20.97 dB
793.000 MHz	806.000 MHz	6.250 kHz	793.16234 MHz	-53.36 dBm	-18.36 dB

Date: 19.MAR.2024 04:02:57

LTE Band 13 / 5MHz / 64QAM

Lowest Band Edge / 1 RB

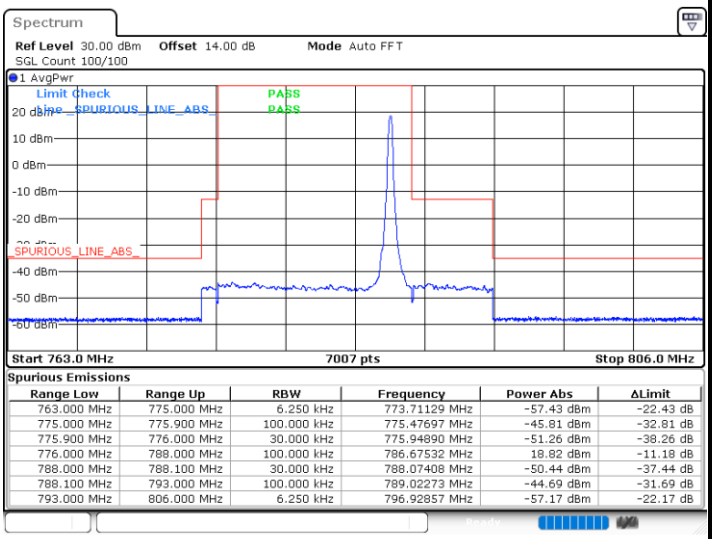


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
763.000 MHz	775.000 MHz	6.250 kHz	766.12288 MHz	-57.06 dBm	-22.06 dB
775.000 MHz	775.900 MHz	100.000 kHz	775.42303 MHz	-45.06 dBm	-32.06 dB
775.900 MHz	776.000 MHz	30.000 kHz	775.98037 MHz	-49.07 dBm	-36.07 dB
776.000 MHz	788.000 MHz	100.000 kHz	777.34865 MHz	19.45 dBm	-10.55 dB
788.000 MHz	788.100 MHz	30.000 kHz	788.09995 MHz	-51.70 dBm	-38.70 dB
788.100 MHz	793.000 MHz	100.000 kHz	788.58217 MHz	-45.45 dBm	-32.45 dB
793.000 MHz	806.000 MHz	6.250 kHz	796.78571 MHz	-57.20 dBm	-22.20 dB

Date: 19.MAR.2024 03:44:12

Highest Band Edge / 1 RB

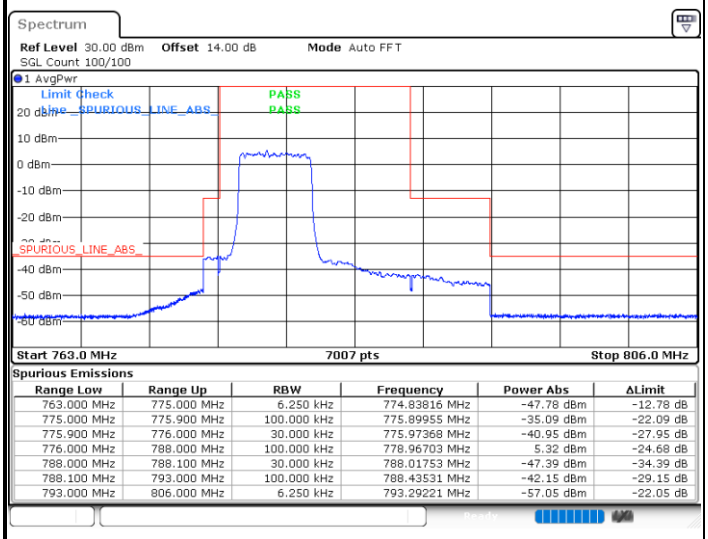


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
763.000 MHz	775.000 MHz	6.250 kHz	773.71129 MHz	-57.43 dBm	-22.43 dB
775.000 MHz	775.900 MHz	100.000 kHz	775.47697 MHz	-45.81 dBm	-32.81 dB
775.900 MHz	776.000 MHz	30.000 kHz	775.94890 MHz	-51.26 dBm	-38.26 dB
776.000 MHz	788.000 MHz	100.000 kHz	786.67532 MHz	18.82 dBm	-11.18 dB
788.000 MHz	788.100 MHz	30.000 kHz	788.07408 MHz	-50.44 dBm	-37.44 dB
788.100 MHz	793.000 MHz	100.000 kHz	789.02273 MHz	-44.69 dBm	-31.69 dB
793.000 MHz	806.000 MHz	6.250 kHz	796.92857 MHz	-57.17 dBm	-22.17 dB

Date: 19.MAR.2024 04:01:20

Lowest Band Edge / Full RB

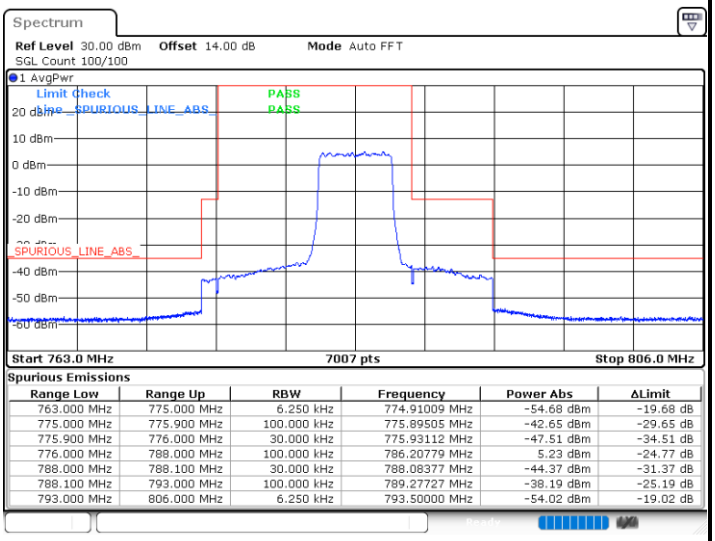


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
763.000 MHz	775.000 MHz	6.250 kHz	774.83816 MHz	-47.78 dBm	-12.78 dB
775.000 MHz	775.900 MHz	100.000 kHz	775.89955 MHz	-35.09 dBm	-22.09 dB
775.900 MHz	776.000 MHz	30.000 kHz	775.97368 MHz	-40.95 dBm	-27.95 dB
776.000 MHz	788.000 MHz	100.000 kHz	778.96703 MHz	5.32 dBm	-24.68 dB
788.000 MHz	788.100 MHz	30.000 kHz	788.01753 MHz	-47.39 dBm	-34.39 dB
788.100 MHz	793.000 MHz	100.000 kHz	788.43531 MHz	-42.15 dBm	-29.15 dB
793.000 MHz	806.000 MHz	6.250 kHz	793.29221 MHz	-57.05 dBm	-22.05 dB

Date: 19.MAR.2024 03:46:35

Highest Band Edge / Full RB

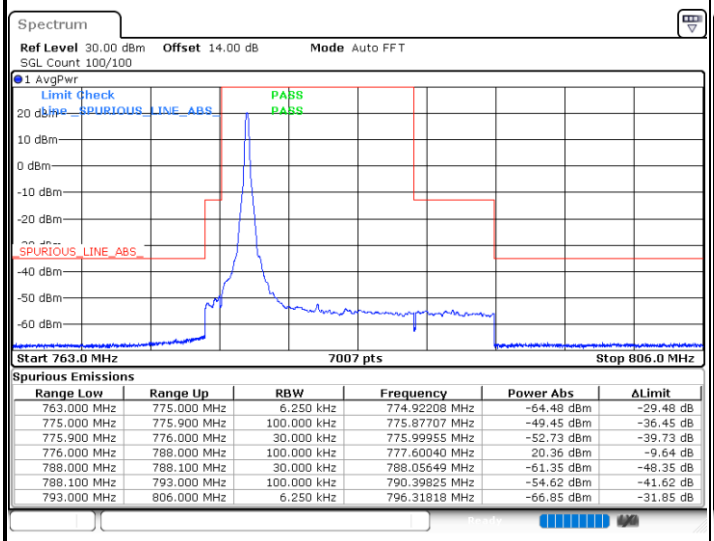


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
763.000 MHz	775.000 MHz	6.250 kHz	774.91009 MHz	-54.68 dBm	-19.68 dB
775.000 MHz	775.900 MHz	100.000 kHz	775.89505 MHz	-42.65 dBm	-29.65 dB
775.900 MHz	776.000 MHz	30.000 kHz	775.93112 MHz	-47.51 dBm	-34.51 dB
776.000 MHz	788.000 MHz	100.000 kHz	786.20779 MHz	5.23 dBm	-24.77 dB
788.000 MHz	788.100 MHz	30.000 kHz	788.08377 MHz	-44.37 dBm	-31.37 dB
788.100 MHz	793.000 MHz	100.000 kHz	789.27727 MHz	-38.19 dBm	-25.19 dB
793.000 MHz	806.000 MHz	6.250 kHz	793.50000 MHz	-54.02 dBm	-19.02 dB

Date: 19.MAR.2024 04:03:44

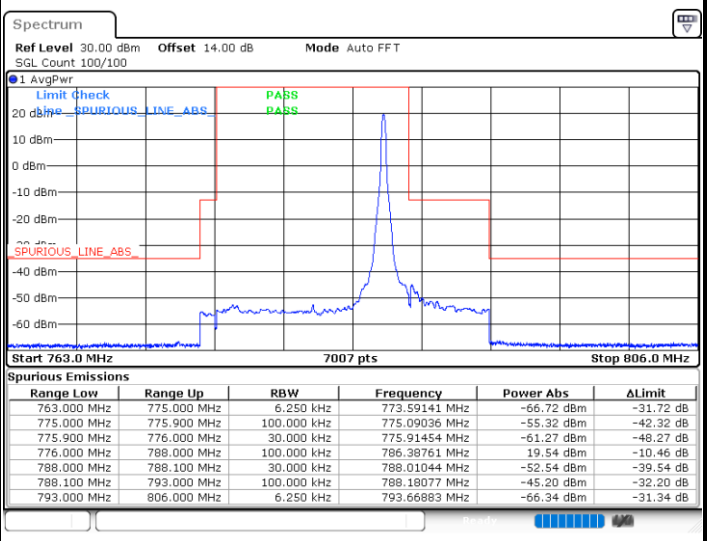
LTE Band 13 / 10MHz / QPSK	LTE Band 13 / 10MHz / QPSK
Band Edge / 1 RB	**Band Edge / 1 RB**



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
763.000 MHz	775.000 MHz	6.250 kHz	774.92208 MHz	-64.48 dBm	-29.48 dB
775.000 MHz	775.900 MHz	100.000 kHz	775.87707 MHz	-49.45 dBm	-36.45 dB
775.900 MHz	776.000 MHz	30.000 kHz	775.99955 MHz	-52.73 dBm	-39.73 dB
776.000 MHz	788.000 MHz	100.000 kHz	777.60040 MHz	20.36 dBm	-9.64 dB
788.000 MHz	788.100 MHz	30.000 kHz	788.05649 MHz	-61.35 dBm	-48.35 dB
788.100 MHz	793.000 MHz	100.000 kHz	790.39825 MHz	-54.62 dBm	-41.62 dB
793.000 MHz	806.000 MHz	6.250 kHz	796.31818 MHz	-66.85 dBm	-31.85 dB

Date: 19.MAR.2024 04:06:30

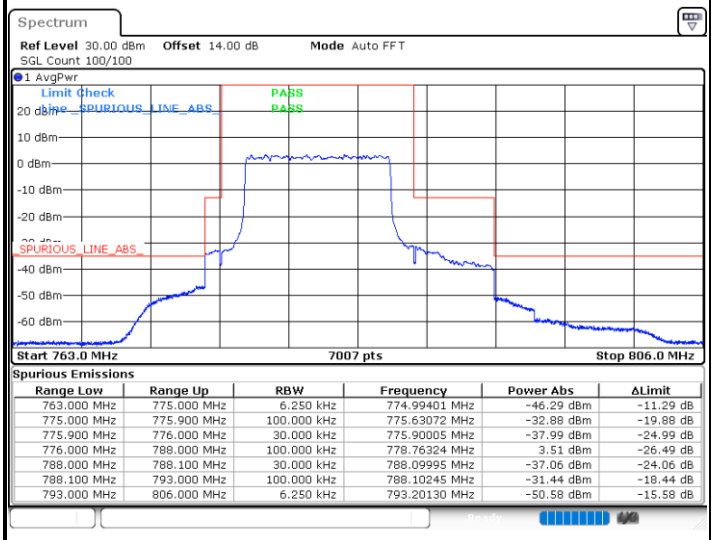


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
763.000 MHz	775.000 MHz	6.250 kHz	773.59141 MHz	-66.72 dBm	-31.72 dB
775.000 MHz	775.900 MHz	100.000 kHz	775.09036 MHz	-55.32 dBm	-42.32 dB
775.900 MHz	776.000 MHz	30.000 kHz	775.91454 MHz	-61.27 dBm	-48.27 dB
776.000 MHz	788.000 MHz	100.000 kHz	786.38761 MHz	19.54 dBm	-10.46 dB
788.000 MHz	788.100 MHz	30.000 kHz	788.01044 MHz	-52.54 dBm	-39.54 dB
788.100 MHz	793.000 MHz	100.000 kHz	788.18077 MHz	-45.20 dBm	-32.20 dB
793.000 MHz	806.000 MHz	6.250 kHz	793.66883 MHz	-66.34 dBm	-31.34 dB

Date: 19.MAR.2024 04:08:48

LTE Band 13 / 10MHz / QPSK	
Band Edge / Full RB	

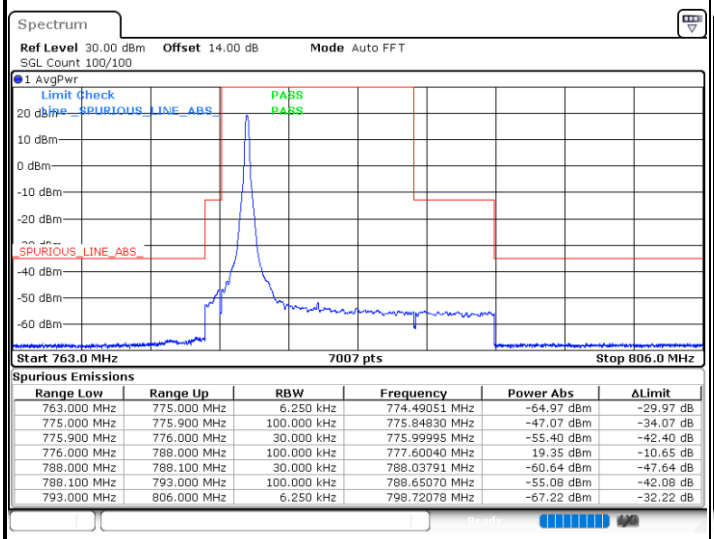


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
763.000 MHz	775.000 MHz	6.250 kHz	774.99401 MHz	-46.29 dBm	-11.29 dB
775.000 MHz	775.900 MHz	100.000 kHz	775.63072 MHz	-32.88 dBm	-19.88 dB
775.900 MHz	776.000 MHz	30.000 kHz	775.90005 MHz	-37.99 dBm	-24.99 dB
776.000 MHz	788.000 MHz	100.000 kHz	778.76324 MHz	3.51 dBm	-26.49 dB
788.000 MHz	788.100 MHz	30.000 kHz	788.09995 MHz	-37.06 dBm	-24.06 dB
788.100 MHz	793.000 MHz	100.000 kHz	788.10245 MHz	-31.44 dBm	-18.44 dB
793.000 MHz	806.000 MHz	6.250 kHz	793.20130 MHz	-50.58 dBm	-15.58 dB

Date: 19.MAR.2024 04:11:53

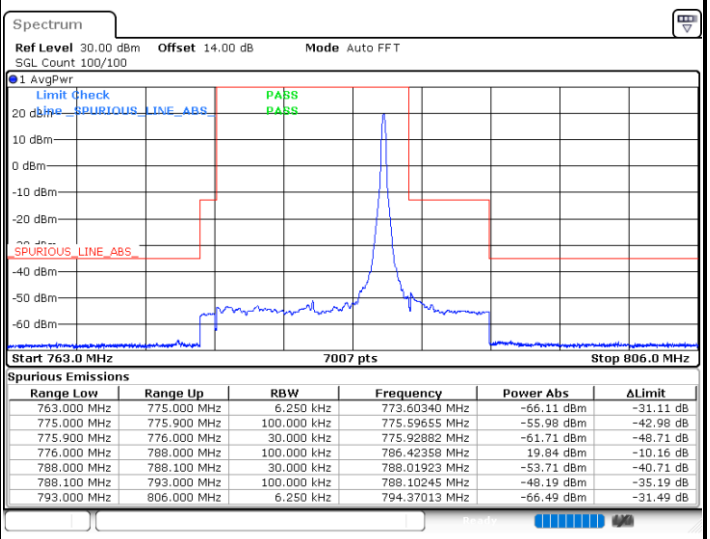
LTE Band 13 / 10MHz / 16QAM	LTE Band 13 / 10MHz / 16QAM
Band Edge / 1 RB	**Band Edge / 1 RB**



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
763.000 MHz	775.000 MHz	6.250 kHz	774.49051 MHz	-64.97 dBm	-29.97 dB
775.000 MHz	775.900 MHz	100.000 kHz	775.84830 MHz	-47.07 dBm	-34.07 dB
775.900 MHz	776.000 MHz	30.000 kHz	775.99995 MHz	-55.40 dBm	-42.40 dB
776.000 MHz	788.000 MHz	100.000 kHz	777.60040 MHz	19.35 dBm	-10.65 dB
788.000 MHz	788.100 MHz	30.000 kHz	788.03791 MHz	-60.64 dBm	-47.64 dB
788.100 MHz	793.000 MHz	100.000 kHz	788.65070 MHz	-55.08 dBm	-42.08 dB
793.000 MHz	806.000 MHz	6.250 kHz	798.72078 MHz	-67.22 dBm	-32.22 dB

Date: 19.MAR.2024 04:07:16

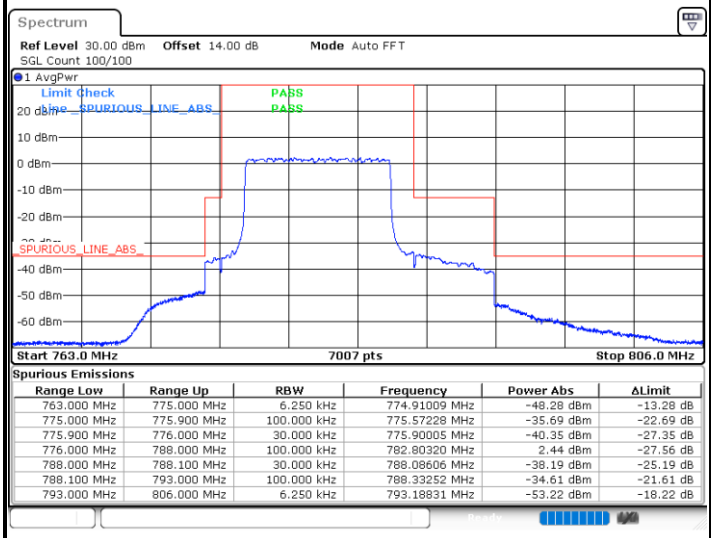


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
763.000 MHz	775.000 MHz	6.250 kHz	773.60340 MHz	-66.11 dBm	-31.11 dB
775.000 MHz	775.900 MHz	100.000 kHz	775.59655 MHz	-55.98 dBm	-42.98 dB
775.900 MHz	776.000 MHz	30.000 kHz	775.92882 MHz	-61.71 dBm	-48.71 dB
776.000 MHz	788.000 MHz	100.000 kHz	786.42358 MHz	19.84 dBm	-10.16 dB
788.000 MHz	788.100 MHz	30.000 kHz	788.01923 MHz	-53.71 dBm	-40.71 dB
788.100 MHz	793.000 MHz	100.000 kHz	788.10245 MHz	-48.19 dBm	-35.19 dB
793.000 MHz	806.000 MHz	6.250 kHz	794.37013 MHz	-66.49 dBm	-31.49 dB

Date: 19.MAR.2024 04:09:34

LTE Band 13 / 10MHz / 16QAM	
Band Edge / Full RB	

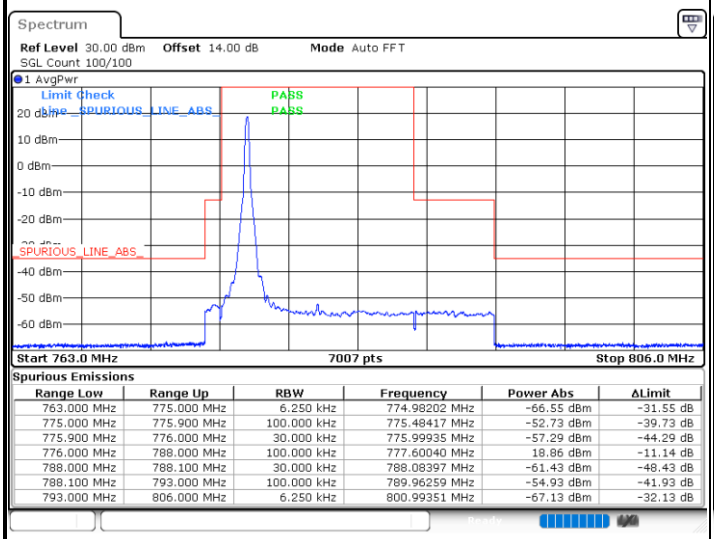


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
763.000 MHz	775.000 MHz	6.250 kHz	774.91009 MHz	-48.28 dBm	-13.28 dB
775.000 MHz	775.900 MHz	100.000 kHz	775.57228 MHz	-35.69 dBm	-22.69 dB
775.900 MHz	776.000 MHz	30.000 kHz	775.90005 MHz	-40.35 dBm	-27.35 dB
776.000 MHz	788.000 MHz	100.000 kHz	782.80320 MHz	2.44 dBm	-27.56 dB
788.000 MHz	788.100 MHz	30.000 kHz	788.08606 MHz	-38.19 dBm	-25.19 dB
788.100 MHz	793.000 MHz	100.000 kHz	788.33252 MHz	-34.61 dBm	-21.61 dB
793.000 MHz	806.000 MHz	6.250 kHz	793.18831 MHz	-53.22 dBm	-18.22 dB

Date: 19.MAR.2024 04:12:39

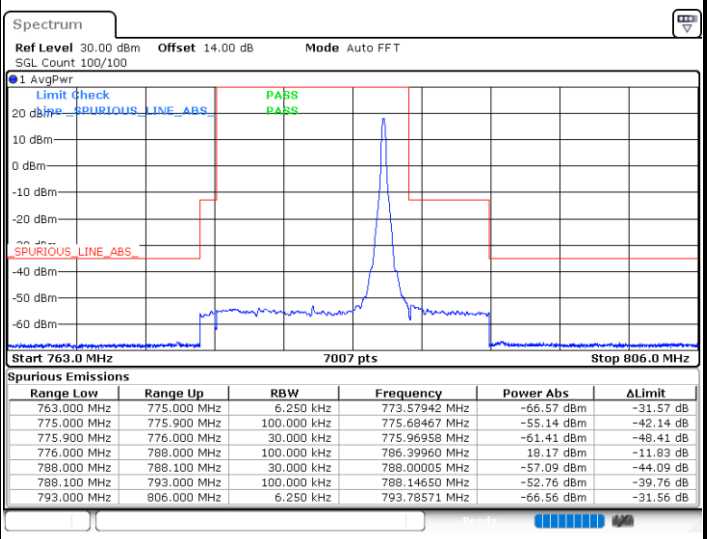
LTE Band 13 / 10MHz / 64QAM	LTE Band 13 / 10MHz / 64QAM
Band Edge / 1 RB	Band Edge / 1 RB



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
763.000 MHz	775.000 MHz	6.250 kHz	774.98202 MHz	-66.55 dBm	-31.55 dB
775.000 MHz	775.900 MHz	100.000 kHz	775.48417 MHz	-52.73 dBm	-39.73 dB
775.900 MHz	776.000 MHz	30.000 kHz	775.99935 MHz	-57.29 dBm	-44.29 dB
776.000 MHz	788.000 MHz	100.000 kHz	777.60040 MHz	18.86 dBm	-11.14 dB
788.000 MHz	788.100 MHz	30.000 kHz	788.08397 MHz	-61.43 dBm	-48.43 dB
788.100 MHz	793.000 MHz	100.000 kHz	789.96259 MHz	-54.93 dBm	-41.93 dB
793.000 MHz	806.000 MHz	6.250 kHz	800.99351 MHz	-67.13 dBm	-32.13 dB

Date: 19.MAR.2024 04:08:02

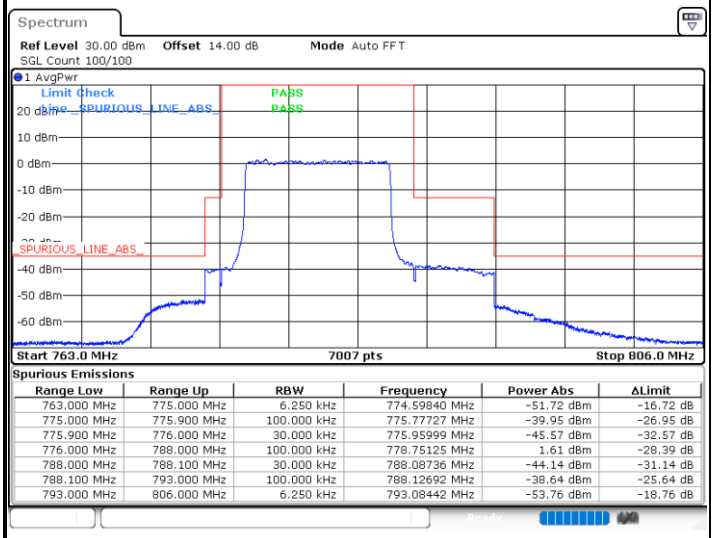


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
763.000 MHz	775.000 MHz	6.250 kHz	773.57942 MHz	-66.57 dBm	-31.57 dB
775.000 MHz	775.900 MHz	100.000 kHz	775.68467 MHz	-55.14 dBm	-42.14 dB
775.900 MHz	776.000 MHz	30.000 kHz	775.96958 MHz	-61.41 dBm	-48.41 dB
776.000 MHz	788.000 MHz	100.000 kHz	786.39960 MHz	18.17 dBm	-11.83 dB
788.000 MHz	788.100 MHz	30.000 kHz	788.00005 MHz	-57.09 dBm	-44.09 dB
788.100 MHz	793.000 MHz	100.000 kHz	788.14650 MHz	-52.76 dBm	-39.76 dB
793.000 MHz	806.000 MHz	6.250 kHz	793.78571 MHz	-66.56 dBm	-31.56 dB

Date: 19.MAR.2024 04:11:06

LTE Band 13 / 10MHz / 64QAM	
Band Edge / Full RB	



Spurious Emissions

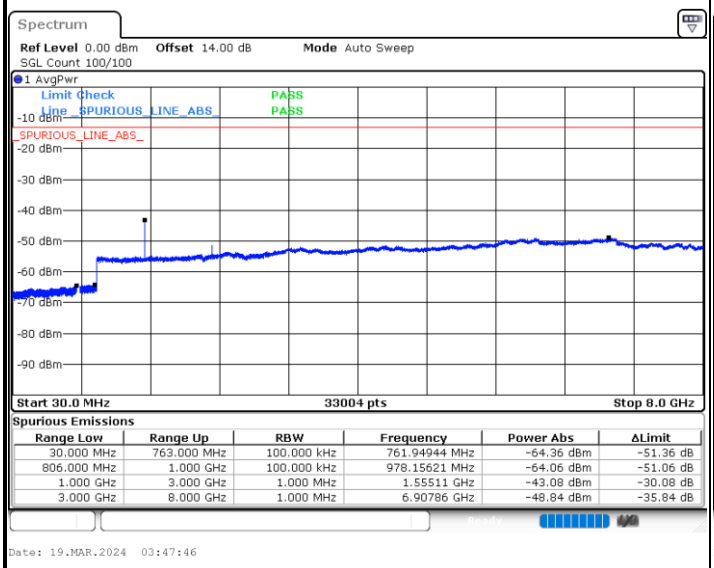
Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
763.000 MHz	775.000 MHz	6.250 kHz	774.59840 MHz	-51.72 dBm	-16.72 dB
775.000 MHz	775.900 MHz	100.000 kHz	775.77727 MHz	-39.95 dBm	-26.95 dB
775.900 MHz	776.000 MHz	30.000 kHz	775.95999 MHz	-45.57 dBm	-32.57 dB
776.000 MHz	788.000 MHz	100.000 kHz	778.75125 MHz	1.61 dBm	-28.39 dB
788.000 MHz	788.100 MHz	30.000 kHz	788.08736 MHz	-44.14 dBm	-31.14 dB
788.100 MHz	793.000 MHz	100.000 kHz	788.12692 MHz	-38.64 dBm	-25.64 dB
793.000 MHz	806.000 MHz	6.250 kHz	793.08442 MHz	-53.76 dBm	-18.76 dB

Date: 19.MAR.2024 04:13:26

Conducted Spurious Emission

LTE Band 13 / 5MHz

Lowest Channel / QPSK

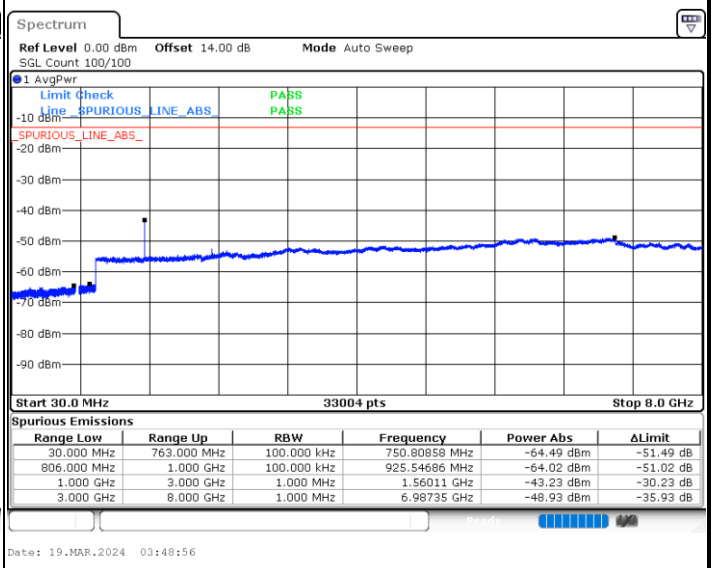


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	763.000 MHz	100.000 kHz	761.94944 MHz	-64.36 dBm	-51.36 dB
806.000 MHz	1.000 GHz	100.000 kHz	978.15621 MHz	-64.06 dBm	-51.06 dB
1.000 GHz	3.000 GHz	1.000 MHz	1.55511 GHz	-43.08 dBm	-30.08 dB
3.000 GHz	8.000 GHz	1.000 MHz	6.90786 GHz	-48.84 dBm	-35.84 dB

Date: 19.MAR.2024 03:47:46

Middle Channel / QPSK

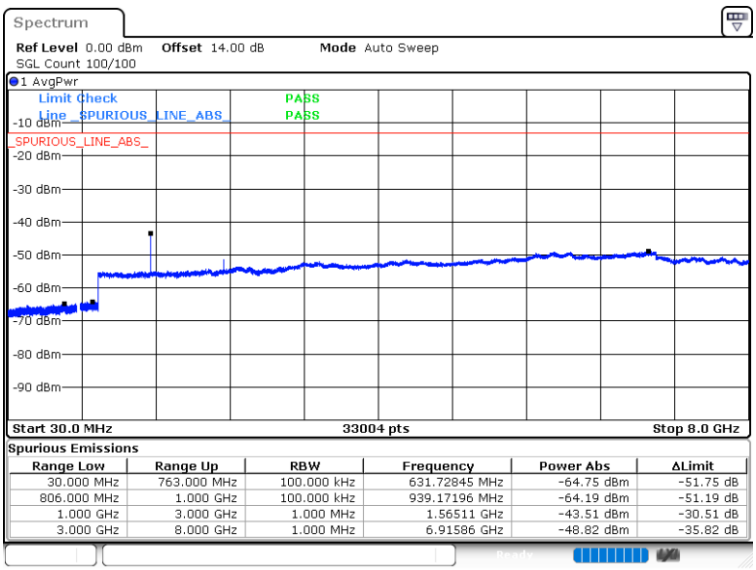


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	763.000 MHz	100.000 kHz	750.80858 MHz	-64.49 dBm	-51.49 dB
806.000 MHz	1.000 GHz	100.000 kHz	925.54686 MHz	-64.02 dBm	-51.02 dB
1.000 GHz	3.000 GHz	1.000 MHz	1.56011 GHz	-43.23 dBm	-30.23 dB
3.000 GHz	8.000 GHz	1.000 MHz	6.98735 GHz	-48.93 dBm	-35.93 dB

Date: 19.MAR.2024 03:48:56

Highest Channel / QPSK

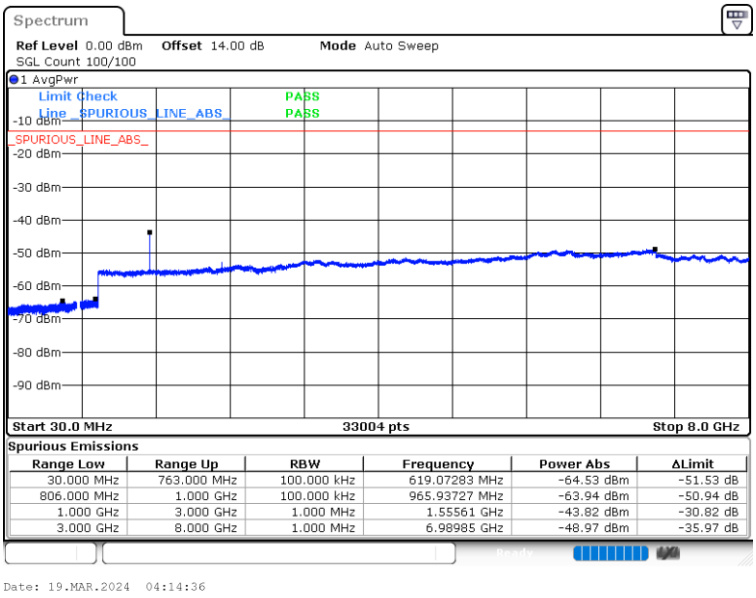


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	763.000 MHz	100.000 kHz	631.72845 MHz	-64.75 dBm	-51.75 dB
806.000 MHz	1.000 GHz	100.000 kHz	939.17196 MHz	-64.19 dBm	-51.19 dB
1.000 GHz	3.000 GHz	1.000 MHz	1.56511 GHz	-43.51 dBm	-30.51 dB
3.000 GHz	8.000 GHz	1.000 MHz	6.91586 GHz	-48.82 dBm	-35.82 dB

Date: 19.MAR.2024 04:04:55

LTE Band 13 / 10MHz
Middle Channel / QPSK



Frequency Stability

Test Conditions		LTE Band 13 (QPSK) / Middle Channel	Limit
Temperature (°C)	Voltage (Volt)	BW 10MHz	Note 2.
		Deviation (ppm)	Result
50	Normal Voltage	0.0004	PASS
40	Normal Voltage	0.0003	
30	Normal Voltage	0.0003	
20(Ref.)	Normal Voltage	0.0000	
10	Normal Voltage	0.0003	
0	Normal Voltage	0.0003	
-10	Normal Voltage	0.0005	
-20	Normal Voltage	0.0007	
-30	Normal Voltage	0.0000	
20	Maximum Voltage	0.0002	
20	Normal Voltage	0.0000	
20	Battery End Point	0.0003	

Note:

1. Normal Voltage =3.88 V. ; Battery End Point (BEP) =3.4 V. ; Maximum Voltage =4.53 V.
2. The frequency fundamental emissions stay within the authorized frequency block.

Appendix B. Test Results of Radiated Test

Radiated Spurious Emission

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

Note: Pre-scanned harmonic for all the supported antennas, choose the worst antenna perform final test and record in the report.

LTE Band 13 / 5MHz / QPSK / ANT0									
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	1559.5	-63.22	-42.15	-21.07	-72.43	-66.47	4.00	9.40	H
	2339.25	-63.59	-13	-50.59	-75.62	-67.16	4.88	10.60	H
	3119	-60.20	-13	-47.20	-75.36	-65.13	5.52	12.60	H
	1559.5	-63.73	-42.15	-21.58	-72.71	-66.98	4.00	9.40	V
	2339.25	-63.61	-13	-50.61	-75.65	-67.18	4.88	10.60	V
	3119	-60.16	-13	-47.16	-75.13	-65.09	5.52	12.60	V

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

LTE Band 13 / 10MHz / QPSK / ANT0									
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	1559.5	-64.30	-42.15	-22.15	-73.51	-67.55	4.00	9.40	H
	2339.25	-63.68	-13	-50.68	-75.71	-67.25	4.88	10.60	H
	3119	-60.39	-13	-47.39	-75.55	-65.32	5.52	12.60	H
	1559.5	-64.62	-42.15	-22.47	-73.60	-67.87	4.00	9.40	V
	2339.25	-63.58	-13	-50.58	-75.62	-67.15	4.88	10.60	V
	3119	-60.68	-13	-47.68	-75.65	-65.61	5.52	12.60	V

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