

FCC RF Test Report

APPLICANT : Smawave Technology Co. ,Ltd
EQUIPMENT : CAT12 outdoor CPE
BRAND NAME : Smawave
MODEL NAME : SRW410
FCC ID : 2AU8HSRW410-CBRS
STANDARD : 47 CFR Part 2, 96
CLASSIFICATION : Citizens Band Category A and B Devices (CBD)
EQUIPMENT TYPE : CPE-CBSD (Category B)
TEST DATE(S) : Dec. 19, 2022 ~ Jan. 13, 2023

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

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

Jason Jia

Approved by: Jason Jia



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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History of this test report

Report No.	Version	Description	Issued Date
FG2N2804B	01	Initial issue of report	Jan. 13, 2023

Summary of Test Result

Report Clause	Ref Std. Clause	Test Items	Result (PASS/FAIL)	Remark
3.2	§2.1046	Conducted Output Power	Reporting only	-
3.3	§96.41	Peak-to-Average Ratio	Pass	-
3.4	§96.41	Maximum E.I.R.P	Pass	-
		Maximum Power Spectral Density	Pass	-
3.5	§2.1049 §96.41	Occupied Bandwidth	Reporting only	-
3.6	§2.1051 §96.41	Conducted Band Edge Measurement	Pass	-
3.7	§2.1051 §96.41	Conducted Spurious Emission	Pass	
3.8	§2.1055	Frequency Stability for Temperature & Voltage	Pass	-
4.4	§2.1051 §96.41	Radiated Spurious Emission	Pass	Under limit 6.28 dB at 7284.000 MHz

Declaration of Conformity:

The test results with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers.

Comments and Explanations:

The declared of product specification for EUT presented in the report are provided by the manufacturer, and the manufacturer takes all the responsibilities for the accuracy of product specification.

1 General Description

1.1 Applicant

Smawave Technology Co.,Ltd

3/F, Building 8, 1001 North Qinzhou Road , Xuhui District, Shanghai, China

1.2 Manufacturer

Smawave Technology Co.,Ltd

3/F, Building 8, 1001 North Qinzhou Road , Xuhui District, Shanghai, China

1.3 Feature of Equipment Under Test

Product Feature	
Equipment	CAT12 outdoor CPE
Brand Name	Smawave
Model Name	SRW410
FCC ID	2AU8HSRW410-CBRS
Tx Frequency	LTE Band 48: 3550 MHz ~ 3700 MHz
Rx Frequency	LTE Band 48: 3550 MHz ~ 3700 MHz
Bandwidth	5MHz / 10MHz / 15MHz / 20MHz
Maximum Output Power to Antenna	Ant 0: LTE Band 48: 23.69 dBm LTE Band 48B: 23.48 dBm LTE Band 48C: 23.45 dBm
Antenna Gain	Ant 0: 7.08 dBi Ant 2: 6.80 dBi
Type of Modulation	QPSK / 16QAM / 64QAM
IMEI Code	Conducted: 862165041880814 Radiation: 862165041880921
HW Version	V1.0
SW Version	OCB12FW_Codium_CBSD_V1.0.12

Remark:

1. The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.
2. The maximum EIRP is calculated from max output power and antenna gain, only the maximum EIRP of antenna 0 is shown in the report.
3. LTE Band 48 support UL MIMO mode for Ant 0&Ant 2, the MIMO mode is completely uncorrelated, so the directional gain is selected the maximum gain among all antennas.
4. For B48 UL MIMO mode, the conducted BE/Spurious are tested at single antenna port and add $10 \cdot \log(N_{ANT})$ according to KDB 662911 D01.

1.4 Maximum EIRP Power and Emission Designator

LTE Band 48		QPSK		16QAM/64QAM	
BW (MHz)	Frequency Range (MHz)	Maximum EIRP(W)	Emission Designator (99%OBW)	Maximum EIRP(W)	Emission Designator (99%OBW)
5	3552.5~3697.5	0.8810	4M51G7D	0.7145	4M52W7D
10	3555~3695	1.0940	8M99G7D	0.8750	9M07W7D
15	3557.5~3692.5	1.1015	13M5G7D	0.8851	13M4W7D
20	3560~3690	1.1940	17M8G7D	0.9908	17M9W7D
LTE Band 48 UL MIMO		QPSK		16QAM/64QAM	
BW (MHz)	Frequency Range (MHz)	Maximum EIRP(W)	Emission Designator (99%OBW)	Maximum EIRP(W)	Emission Designator (99%OBW)
5	3552.5~3697.5	0.7478	4M50G7D	0.7153	4M51W7D
10	3555~3695	0.9333	9M01G7D	0.7728	9M03W7D
15	3557.5~3692.5	0.9071	13M5G7D	0.7621	13M5W7D
20	3560~3690	0.9694	17M9G7D	0.7392	17M9W7D

LTE Band 48B_CA		QPSK		16QAM/64QAM	
BW (MHz) Frequency (MHz)		Maximum EIRP(W)	Emission Designator (99%OBW)	Maximum EIRP(W)	Emission Designator (99%OBW)
10MHz+10MHz (3555 ~ 3695 MHz)		1.1376	18M7G7D	0.9333	18M7W7D
LTE Band 48C_CA		QPSK		16QAM/64QAM	
BW (MHz) Frequency (MHz)		Maximum EIRP(W)	Emission Designator (99%OBW)	Maximum EIRP(W)	Emission Designator (99%OBW)
5MHz+20MHz (3553.5 ~ 3690 MHz)		0.9772	23M3G7D	0.9036	23M3W7D
10MHz+20MHz (3555.5 ~ 3690 MHz)		1.1092	27M8G7D	0.8851	27M9W7D
15MHz+20MHz (3557.8 ~ 3690 MHz)		1.0965	32M7G7D	0.8710	32M7W7D
20MHz+5MHz (3560 ~ 3696.7 MHz)		1.0520	23M2G7D	0.9120	23M1W7D
20MHz+10MHz (3560 ~ 3694.5 MHz)		1.1272	28M0G7D	0.9204	28M1W7D
20MHz+15MHz (3560 ~ 3692.2 MHz)		1.0715	32M8G7D	0.8670	32M6W7D
20MHz+20MHz (3560 ~ 3690 MHz)		1.1298	37M6G7D	0.9290	37M7W7D

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 FAX : +86-512-57900958		
Test Site No.	Sporton Site No.	FCC Designation No.	FCC Test Firm Registration No.
	TH01- KS 03CH04-KS	CN1257	314309

1.6 Test Software

Item	Site	Manufacturer	Name	Version
1.	03CH04-KS	AUDIX	E3	6.2009-8-24al

1.7 Applied Standards

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

- ♦ ANSI C63.26-2015
- ♦ 47 CFR Part 2, 96
- ♦ FCC KDB 971168 D01 Power Meas. License Digital Systems v03r01
- ♦ FCC KDB 940660 D01 Part 96 CBRS v03
- ♦ FCC KDB 412172 D01 Determining ERP and EIRP v01r01

Remark:

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

2 Test Configuration of Equipment Under Test

2.1 Test Mode

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

For radiated measurement, pre-scanned in three orthogonal panels, X, Y, Z. The worst cases (Y plane) were recorded in this report.

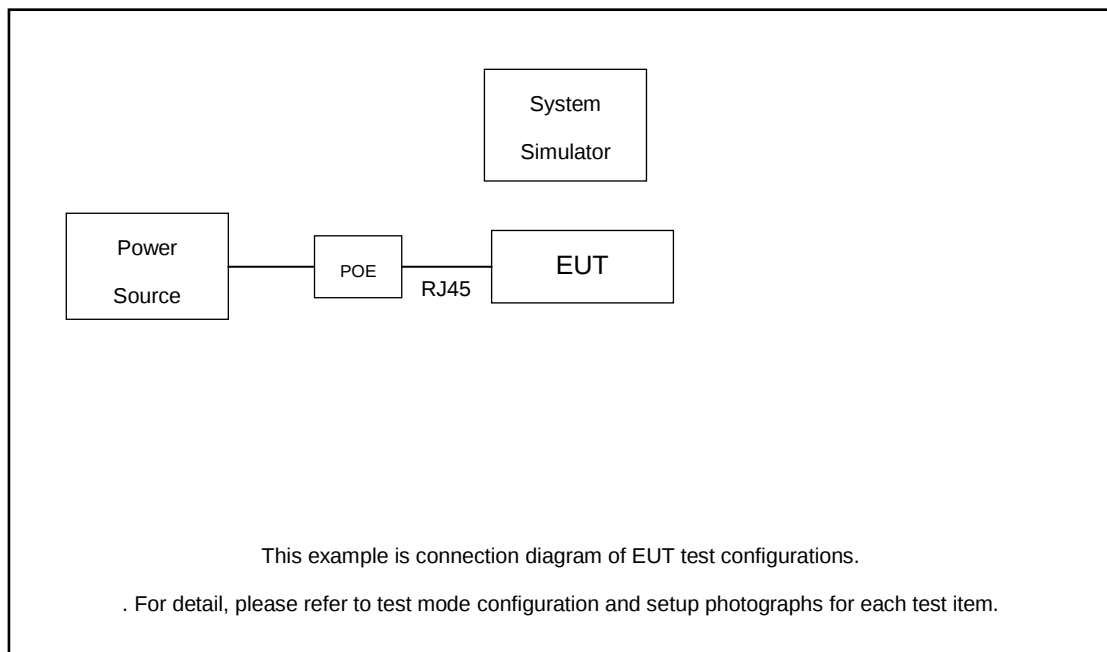
Test Items	Band	Bandwidth (MHz)						Modulation			RB #			Test Channel		
		1.4	3	5	10	15	20	QPSK	16QAM	64QAM	1	Half	Full	L	M	H
Max. Output Power	48	-	-	v	v	v	v	v	v	v	v		v	v	v	v
EIRP PSD	48	-	-	v	v	v	v	v	v	v	v		v	v	v	v
26dB and 99% Bandwidth	48	-	-	v	v	v	v	v	v				v		v	
Conducted Band Edge	48	-	-	v	v	v	v	v	v	v	v		v	v		v
Peak-to-Average Ratio	48	-	-				v	v	v	v			v		v	
Conducted Spurious Emission	48	-	-	v	v	v	v	v			v		v	v	v	v
E.I.R.P	48	-	-	v	v	v	v	v	v	v	v		v	v	v	v
Frequency Stability	48	-	-		v			v			v				v	
Radiated Spurious Emission	48	Worst Case													v	
Remark	1. The mark “v ” means that this configuration is chosen for testing 2. The mark “-” means that this bandwidth is not supported. 3. The device is investigated from 30MHz to 10 times of fundamental signal for radiated spurious emission test under different RB size/offset and modulations in exploratory test. Subsequently, only the worst case emissions are reported.															



Test Items	Band	Bandwidth (MHz)								Modulation			RB #			Test Channel		
		20+20	20+15	15+20	20+10	10+20	10+10	20+5	5+20	QPSK	16QAM	64QAM	1	Half	Full	L	M	H
Max. Output Power	48C	v	v	v	v	v	-	v	v	v	v	v	v		v	v	v	v
	48B	-	-	-	-	-	v	-	-	v	v	v	v		v	v	v	v
EIRP PSD	48C	v	v	v	v	v	-	v	v	v	v	v	v		v	v	v	v
	48B	-	-	-	-	-	v	-	-	v	v	v	v		v	v	v	v
26dB and 99% Bandwidth	48C	v	v	v	v	v	-	v	v	v	v				v		v	
	48B	-	-	-	-	-	v	-	-	v	v				v		v	
Conducted Band Edge	48C	v	v	v	v	v	-	v	v	v	v	v	v		v	v	v	v
	48B	-	-	-	-	-	v	-	-	v	v	v	v		v	v	v	v
Conducted Spurious Emission	48C	v	v	v	v	v	-	v	v	v			v			v	v	v
	48B	-	-	-	-	-	v	-	-	v			v			v	v	v
E.R.P / E.I.R.P	48C	v	v	v	v	v	-	v	v	v	v	v	v		v	v	v	v
	48B	-	-	-	-	-	v	-	-	v	v	v	v		v	v	v	v
Frequency Stability	48C	v					-			v			v				v	
	48B	-	-	-	-	-	v	-	-	v			v				v	
Radiated Spurious Emission	48C	Worst Case															v	
	48B	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. All test items are based on engineering evaluation.																	

Test Items	Band	Bandwidth (MHz)						Modulation			RB #			Test Channel		
		1.4	3	5	10	15	20	QPSK	16QAM	64QAM	1	Half	Full	L	M	H
	48A-48A	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. The test items of intra band CA 48A-48A were cover by LTE single carrier due to the CA power is reduced according to 3GPP MPR															

2.2 Connection Diagram of Test System



2.3 Support Unit used in test configuration

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.	Base Station	Anritsu	MT8820/8821	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 6.5 dB.

Example :

$$\begin{aligned} \text{Offset(dB)} &= \text{RF cable loss(dB)}. \\ &= 6.5(\text{dB}) \end{aligned}$$

2.5 Frequency List of Low/Middle/High Channels

LTE Band 48 Channel and Frequency List				
BW [MHz]	Channel/Frequency(MHz)	Lowest	Middle	Highest
20	Channel	55340	55990	56640
	Frequency	3560.0	3625.0	3690.0
15	Channel	55315	55990	56665
	Frequency	3557.5	3625.0	3692.5
10	Channel	55290	55990	56690
	Frequency	3555.0	3625.0	3695.0
5	Channel	55265	55990	56715
	Frequency	3552.5	3625.0	3697.5

LTE Band 48B_CA Channel and Frequency List					
BW [MHz]	Channel/Frequency(MHz)		Lowest	Middle	Highest
10 + 10	PCC	Channel	55290	55941	56591
		Frequency	3555	3620.1	3685.1
	SCC	Channel	55389	56039	56690
		Frequency	3564.9	3629.9	3695

LTE Band 48C_CA Channel and Frequency List					
BW [MHz]	Channel/Frequency(MHz)		Lowest	Middle	Highest
5 + 20	PCC	Channel	55273	55898	56523
		Frequency	3553.3	3615.8	3678.3
	SCC	Channel	55390	56015	56640
		Frequency	3565	3627.5	3690
20 + 5	PCC	Channel	55340	55965	56590
		Frequency	3560	3622.5	3685
	SCC	Channel	55457	56082	56707
		Frequency	3571.7	3634.2	3696.7
10 + 20	PCC	Channel	55295	55896	56496
		Frequency	3555.5	3615.6	3675.6
	SCC	Channel	55439	56040	56640
		Frequency	3569.9	3630	3690
20 + 10	PCC	Channel	55340	55941	56541
		Frequency	3560	3620.1	3680.1
	SCC	Channel	55484	56085	56685
		Frequency	3574.4	3634.5	3694.5
15 + 20	PCC	Channel	55318	55893	56469
		Frequency	3557.8	3615.3	3672.9
	SCC	Channel	55489	56064	56640
		Frequency	3574.9	3632.4	3690
20 + 15	PCC	Channel	55340	55916	56491
		Frequency	3560	3617.6	3675.1
	SCC	Channel	55511	56087	56662
		Frequency	3577.1	3634.7	3692.2
20 + 20	PCC	Channel	55340	55891	56442
		Frequency	3560	3615.1	3670.2
	SCC	Channel	55538	56089	56640
		Frequency	3579.8	3634.9	3690

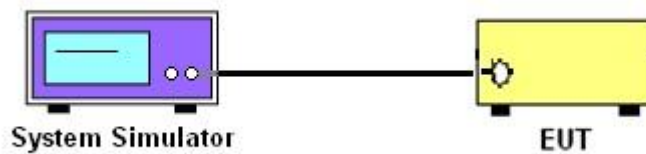
3 Conducted Test Items

3.1 Measuring Instruments

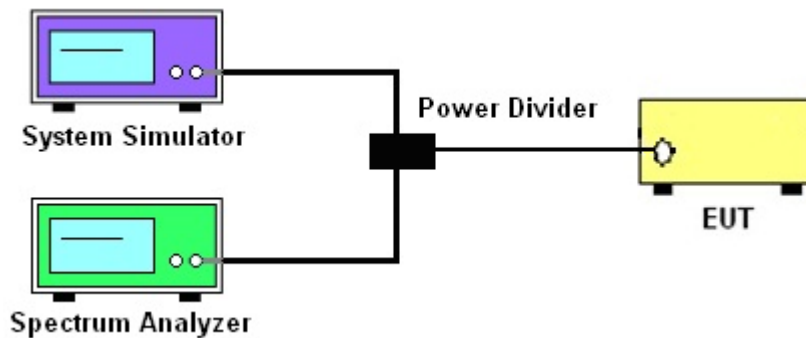
See list of measuring instruments of this test report.

3.1.1 Test Setup

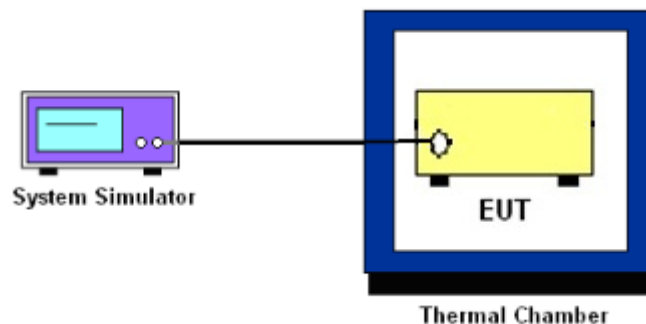
3.1.2 Conducted Output Power



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



3.1.4 Frequency Stability



3.1.5 Test Result of Conducted Test

Please refer to Appendix A.

3.2 Conducted Output Power

3.2.1 Description of the Conducted Output Power Measurement

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

3.2.2 Test Procedures

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

3.3 Peak-to-Average Ratio

3.3.1 Description of the PAR Measurement

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

3.3.2 Test Procedures

The testing follows ANSI C63.26-2015 Section 5.2.6

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

3.4 EIRP and PSD

3.4.1 Description of the EIRP and PSD Measurement

EIRP and PSD limits for CBRS equipment as below table:

Device		Maximum EIRP (dBm/10 MHz)	Maximum PSD (dBm/MHz)
☐	End User Device	23	n/a
☐	Category A CBSD	30	20
Applied	Category B CBSD	47	37

Remark:

1. The worst case EIRP shown in this section is found with LTE operating only using 1RB. As such, the EIRP/10MHz and full channel EIRP values will be identical since 1RB is fully contained within all available channel bandwidths for LTE Band 48 (i.e. 5, 10, 15, 20MHz)
2. Maximum PSD values are radiated. Measurements can be done conducted and add antenna gain back in.

3.4.2 Test Procedures for EIRP

1. Establishing a communications link with the call box (Base station) to measure the Maximum conducted power, the parameters were set to force the EUT transmitting at maximum output power level. Use the average power measurement function to measure total channel power of each channel bandwidth (per ANSI C63.26-2015 Section 5.2.1)

2. Determining ERP and/or EIRP from conducted RF output power measurements (Per ANSI C63.26-2015 Section 5.2.5.5)

$$\text{EIRP} = P_T + G_T - L_C, \text{ ERP} = \text{EIRP} - 2.15, \text{ where}$$

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

3.4.3 Test Procedures for EIRP PSD

1. Set instrument center frequency to OBW center frequency.
2. Set span to at least 2 times the OBW.
3. Set the RBW to the specified reference bandwidth (often 1 MHz).
4. Set VBW $\geq 3 \times$ RBW.
5. Detector = RMS (power averaging).
6. Ensure that the number of measurement points in the sweep $\geq 2 \times$ span/RBW.
7. Sweep time = auto couple.
8. Employ trace averaging (RMS) mode over a minimum of 100 traces.
9. Use the peak marker function to determine the maximum amplitude level within the reference bandwidth (PSD).
10. Determine the EIRP by adding the effective antenna gain to the adjusted power level.
11. Add 10 log (1/duty cycle) to the measured power level to compute the average power during continuous transmission.

The testing follows ANSI C63.26-2015 Section 5.2.5.5

According to KDB 412172 D01 Power Approach,

$EIRP = P_T + G_T - L_C$, 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

3.5 Occupied Bandwidth

3.5.1 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.

3.5.2 Test Procedures

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

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

3.6 Conducted Band Edge

3.6.1 Description of Conducted Band Edge Measurement

Part 96.41 (e) (1) (i)

For CBSD the emission limits outside the fundamental are as follows:

Within 0 MHz to 10 MHz above and below the assigned channel ≤ -13 dBm/MHz

Greater than 10 MHz above and below the assigned channel ≤ -25 dBm/MHz

Part 96.41 (e) (2)

For CBSDs and End User Devices, the conducted power of emissions below 3540 MHz or above 3710 MHz shall not exceed -25 dBm/MHz, and the conducted power of emissions below 3530 MHz or above 3720 MHz shall not exceed -40 dBm/MHz

3.6.2 Test Procedures

The testing follows FCC KDB 971168 D01 v03r01 Section 6.1.

1. The EUT was connected to spectrum analyzer and system simulator via a power divider.
2. The band edges of low and high channels for the highest RF powers were measured.
3. Set RBW $\geq 1\%$ 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. Offset has included the duty factor for LTE Band 48. Duty factor $=10 \log (1/x)$, where x is the measured duty cycle.
6. Set spectrum analyzer with RMS detector.
7. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.

3.7 Conducted Spurious Emission

3.7.1 Description of Conducted Spurious Emission Measurement

96.41 (e)(2)

The conducted power of any emissions below 3530 MHz or above 3720 MHz shall not exceed -40dBm/MHz.

3.7.2 Test Procedures

The testing follows FCC KDB 971168 D01 v03r01 Section 6.1.

1. The EUT was connected to spectrum analyzer and system simulator via a power divider.
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator.
The path loss was compensated to the results for each measurement.
3. The middle channel for the highest RF power within the transmitting frequency was measured.
4. The conducted spurious emission for the whole frequency range was taken.
5. Make the measurement with the spectrum analyzer's RBW = 1MHz, VBW = 3MHz.
6. Set spectrum analyzer with RMS detector.
7. Taking the record of maximum spurious emission.
8. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
9. The limit line is -40dBm/MHz.

3.8 Frequency Stability

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. The frequency stability of the transmitter shall be maintained within $\pm 0.00025\%$ ($\pm 2.5\text{ppm}$) of the center frequency

3.8.2 Test Procedures for Temperature Variation

The testing follows FCC KDB 971168 D01 v03r01 Section 9.0.

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

3.8.3 Test Procedures for Voltage Variation

The testing follows FCC KDB 971168 D01 v03r01 Section 9.0.

1. The EUT was placed in a temperature chamber at $25\pm 5^{\circ}\text{C}$ and connected with the system simulator.
2. The power supply voltage to the EUT was varied from 85% to 115% of the nominal value measured at the input to the EUT.
3. The variation in frequency was measured for the worst case.

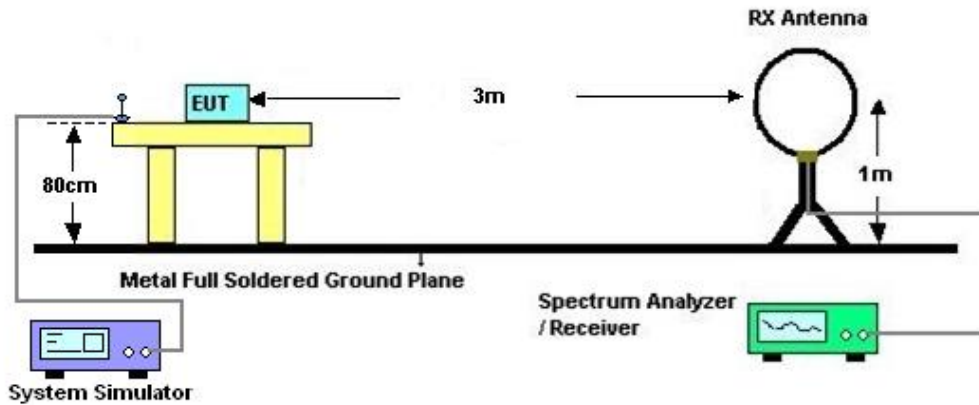
4 Radiated Test Items

4.1 Measuring Instruments

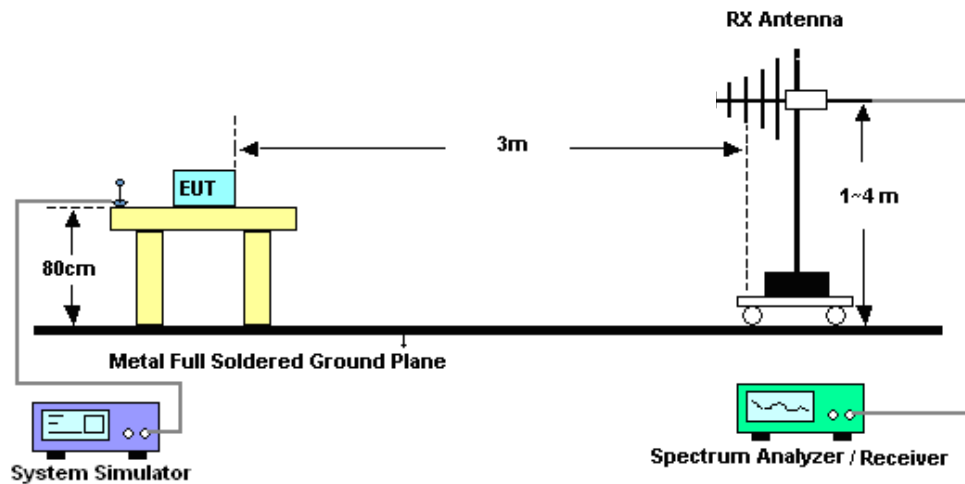
See list of measuring instruments of this test report.

4.2 Test Setup

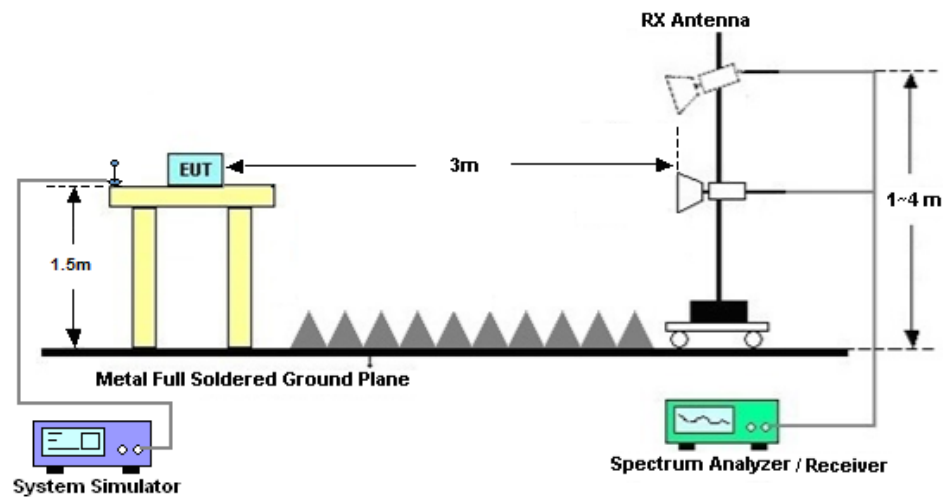
4.2.1 For radiated test below 30MHz



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 Measurement

The radiated spurious emission was measured by substitution method according to ANSI C63.26-2015.

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 -40dBm / MHz.

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

4.4.2 Test Procedures

1. 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.
2. The EUT was set 3 meters from the receiving antenna mounted on the antenna tower.
3. The table was rotated 360 degrees to determine the position of the highest spurious emission.
4. The height of the receiving antenna is varied between 1m to 4m to search the maximum spurious emission for both horizontal and vertical polarizations.
5. During the measurement, the system simulator parameters were set to force the EUT transmitting at maximum output power.
6. Make the measurement with the spectrum analyzer's RBW = 1MHz, VBW = 3MHz, taking the record of maximum spurious emission.
7. A horn antenna was substituted in place of the EUT and was driven by a signal generator. Tune the output power of signal generator to the same emission level with EUT maximum spurious emission.
$$\text{EIRP (dBm)} = \text{S.G. Power} - \text{Tx Cable Loss} + \text{Tx Antenna Gain}$$
$$\text{ERP (dBm)} = \text{EIRP} - 2.15$$
8. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.

The limit line is -40dBm/MHz



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. 13, 2021	Jan. 04, 2023~ Jan. 13, 2023	Oct. 12, 202	Conducted (TH01-KS)
Power divider	STI	STI08-0055	-	0.5~40GHz	Aug. 25, 2022	Jan. 04, 2023~ Jan. 13, 2023	Aug. 24, 2023	Conducted (TH01-KS)
Temperature & humidity chamber	Hongzhan	LP-150U	H2014011440	-40~+150°C 20%~95%RH	Jul. 15, 2022	Jan. 04, 2023~ Jan. 13, 2023	Jul. 14, 2023	Conducted (TH01-KS)
EXA Spectrum Analyzer	Keysight	N9010B	MY57471079	10Hz-44G,MAX 30dB	Oct. 12, 2022	Dec. 19, 2022	Oct. 11, 2023	Radiation (03CH04-KS)
Loop Antenna	R&S	HFH2-Z2	100321	9kHz~30MHz	Oct. 16, 2022	Dec. 19, 2022	Oct. 15, 2023	Radiation (03CH04-KS)
Bilog Antenna	TeseQ	CBL6111D	49922	30MHz-1GHz	May 24, 2022	Dec. 19, 2022	May 23, 2023	Radiation (03CH04-KS)
Horn Antenna	Schwarzbeck	BBHA9120D	1284	1GHz~18GHz	Jan. 05, 2022	Dec. 19, 2022	Jan. 04, 2023	Radiation (03CH04-KS)
SHF-EHF Horn	Com-power	AH-840	101070	18GHz~40GHz	Jan. 05, 2022	Dec. 19, 2022	Jan. 04, 2023	Radiation (03CH04-KS)
Amplifier	SONOMA	310N	187289	9KHz-1GHz	Jan. 05, 2022	Dec. 19, 2022	Jan. 04, 2023	Radiation (03CH04-KS)
Amplifier	MITEQ	EM18G40G GA	060728	18~40GHz	Jan. 05, 2022	Dec. 19, 2022	Jan. 04, 2023	Radiation (03CH04-KS)
high gain Amplifier	EM	EM01G18G A	060840	1Ghz-18Ghz	Oct. 12, 2022	Dec. 19, 2022	Oct. 11, 2023	Radiation (03CH04-KS)
Amplifier	Agilent	8449B	3008A02370	1Ghz-18Ghz	Oct. 12, 2022	Dec. 19, 2022	Oct. 11, 2023	Radiation (03CH04-KS)
AC Power Source	Chroma	61601	F104090004	N/A	NCR	Dec. 19, 2022	NCR	Radiation (03CH04-KS)
Turn Table	ChamPro	EM 1000-T	060762-T	0~360 degree	NCR	Dec. 19, 2022	NCR	Radiation (03CH04-KS)
Antenna Mast	ChamPro	EM 1000-A	060762-A	1 m~4 m	NCR	Dec. 19, 2022	NCR	Radiation (03CH04-KS)

NCR: No Calibration Required

6 Uncertainty of Evaluation

Uncertainty of Conducted Measurement

Test Item	Uncertainty
Conducted Power	± 0.46 dB
Conducted Emissions	± 0.48 dB
Occupied Channel Bandwidth	± 0.1 %

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

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2U_c(y)$)	3.3dB
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Uncertainty of Radiated Emission Measurement (1 GHz ~ 18 GHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2U_c(y)$)	2.8dB
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Uncertainty of Radiated Emission Measurement (18 GHz ~ 40 GHz)

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

----- 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 EIRP

The worst case EIRP shown in this section is found with LTE operating only using 1RB. As such, the EIRP/10MHz and full channel EIRP values will be identical since 1RB is fully contained within all available channel bandwidths for LTE Band 48 (i.e. 5, 10, 15, 20MHz)

LTE Band 48-Ant 0									
BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	EIRP(W)		
Channel				55340	55990	56640			
Frequency (MHz)				3560	3625	3690	L	M	H
20	QPSK	1	0	22.99	23.69	22.82	1.0162	1.1940	0.9772
20	QPSK	1	99	23.04	23.44	22.80	1.0280	1.1272	0.9727
20	QPSK	100	0	21.83	22.53	21.68	0.7780	0.9141	0.7516
20	16QAM	1	0	22.06	22.88	21.88	0.8204	0.9908	0.7870
20	64QAM	1	0	20.58	21.31	20.40	0.5834	0.6902	0.5598
Channel				55315	55990	56665	EIRP(W)		
Frequency (MHz)				3557.5	3625	3692.5	L	M	H
15	QPSK	1	0	22.89	23.34	22.60	0.9931	1.1015	0.9290
15	16QAM	1	0	21.87	22.39	21.61	0.7852	0.8851	0.7396
Channel				55290	55990	56690	EIRP(W)		
Frequency (MHz)				3555	3625	3695	L	M	H
10	QPSK	1	0	22.83	23.31	22.51	0.9795	1.0940	0.9099
10	16QAM	1	0	21.78	22.34	21.52	0.7691	0.8750	0.7244
Channel				55265	55990	56715	EIRP(W)		
Frequency (MHz)				3552.5	3625	3697.5	L	M	H
5	QPSK	1	0	22.21	22.37	21.66	0.8492	0.8810	0.7482
5	16QAM	1	0	21.18	21.46	20.93	0.6699	0.7145	0.6324

Antenna Gain = 7.08dBi

LTE Band 48 UL MIMO-Ant 0+ Ant 2									
BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	EIRP	EIRP	EIRP
Channel				55340	55990	56640	L	M	H
Frequency (MHz)				3560	3625	3690			
20	QPSK	1	0	22.38	22.78	22.64	0.8825	0.9694	0.9372
20	QPSK	1	99	22.49	22.41	21.89	0.9049	0.8899	0.7880
20	QPSK	100	0	21.86	21.52	21.53	0.7843	0.7247	0.7256
20	16QAM	1	0	21.38	21.51	21.61	0.7015	0.7223	0.7392
20	64QAM	1	0	20.71	21.04	20.81	0.6014	0.6480	0.6149
Channel				55315	55990	56665	L	M	H
Frequency (MHz)				3557.5	3625	3692.5			
15	QPSK	1	0	22.50	22.39	22.35	0.9071	0.8843	0.8772
15	16QAM	1	0	21.74	21.64	21.72	0.7621	0.7448	0.7593
15	QPSK	1	74	22.10	21.92	22.13	0.8274	0.7941	0.8334
15	QPSK	75	0	21.77	21.48	21.78	0.7681	0.7172	0.7691
Channel				55290	55990	56690	L	M	H
Frequency (MHz)				3555	3625	3695			
10	QPSK	1	0	22.62	22.53	22.21	0.9333	0.9132	0.8483
10	16QAM	1	0	21.80	21.74	21.69	0.7728	0.7621	0.7532
10	QPSK	1	49	22.38	22.05	22.04	0.8834	0.8180	0.8171
10	QPSK	50	0	21.52	21.46	21.66	0.7238	0.7148	0.7489
Channel				55265	55990	56715	L	M	H
Frequency (MHz)				3552.5	3625	3697.5			
5	QPSK	1	0	21.66	21.34	21.66	0.7478	0.6952	0.7486
5	16QAM	1	0	21.46	21.31	21.38	0.7153	0.6902	0.7017
5	QPSK	1	24	21.48	21.19	21.57	0.7181	0.6710	0.7321
5	QPSK	25	0	21.41	21.34	21.39	0.7057	0.6950	0.7029

Directional Gain = 7.08dBi (completely uncorrelated)



LTE Band 48B-Ant 0									
BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	EIRP	EIRP	EIRP
Channel				L	M	H	L	M	H
10+10	QPSK	1RB01RBMAX		13.54	13.36	13.53	0.1153	0.1107	0.1151
	QPSK	1RBMAX1RB0		23.48	23.28	23.31	1.1376	1.0864	1.0940
	QPSK	FULL		21.69	21.32	21.46	0.7534	0.6918	0.7145
	16QAM	1RB01RBMAX		13.61	13.51	13.61	0.1172	0.1146	0.1172
	16QAM	1RBMAX1RB0		22.62	22.36	22.35	0.9333	0.8790	0.8770
	16QAM	FULL		20.58	20.34	20.50	0.5834	0.5521	0.5728
	64QAM	1RB01RBMAX		13.20	13.10	13.22	0.1067	0.1042	0.1072
	64QAM	1RBMAX1RB0		20.09	19.91	19.92	0.5212	0.5000	0.5012
	64QAM	FULL		20.53	20.30	20.44	0.5768	0.5470	0.5649

Antenna Gain = 7.08dBi

LTE Band 48C-Ant 0									
BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	EIRP	EIRP	EIRP
Channel				L	M	H	L	M	H
20+20	QPSK	1RB01RBMAX		15.12	14.96	15.59	0.1660	0.1600	0.1849
	QPSK	1RBMAX1RB0		23.45	22.94	23.11	1.1298	1.0046	1.0447
	QPSK	FULL		21.27	21.18	21.29	0.6839	0.6699	0.6871
	16QAM	1RB01RBMAX		15.18	15.06	15.66	0.1683	0.1637	0.1879
	16QAM	1RBMAX1RB0		22.60	22.36	22.48	0.9290	0.8790	0.9036
	16QAM	FULL		20.21	20.17	20.28	0.5358	0.5309	0.5445
	64QAM	1RB01RBMAX		14.76	14.64	15.24	0.1528	0.1486	0.1706
	64QAM	1RBMAX1RB0		19.98	19.61	19.73	0.5082	0.4667	0.4797
	64QAM	FULL		20.17	20.12	20.38	0.5309	0.5248	0.5572
20+15	QPSK	1RB01RBMAX		15.07	15.07	15.53	0.1641	0.1641	0.1824
	QPSK	1RBMAX1RB0		23.22	22.91	23.04	1.0715	0.9977	1.0280
	QPSK	FULL		21.22	21.03	21.23	0.6761	0.6471	0.6776
	16QAM	1RB01RBMAX		15.16	15.16	15.62	0.1675	0.1675	0.1862
	16QAM	1RBMAX1RB0		22.30	22.02	22.17	0.8670	0.8128	0.8414
	16QAM	FULL		20.24	20.01	20.33	0.5395	0.5117	0.5508
	64QAM	1RB01RBMAX		14.75	14.74	15.21	0.1524	0.1521	0.1694
	64QAM	1RBMAX1RB0		19.96	19.64	19.67	0.5058	0.4699	0.4732
	64QAM	FULL		20.22	19.99	20.30	0.5370	0.5093	0.5470
20+10	QPSK	1RB01RBMAX		15.31	15.05	15.51	0.1734	0.1633	0.1816
	QPSK	1RBMAX1RB0		23.44	22.98	23.18	1.1272	1.0139	1.0617
	QPSK	FULL		21.36	21.11	21.31	0.6982	0.6592	0.6902
	16QAM	1RB01RBMAX		15.39	15.18	15.62	0.1766	0.1683	0.1862
	16QAM	1RBMAX1RB0		22.56	22.07	22.24	0.9204	0.8222	0.8551



	16QAM	FULL	20.28	20.08	20.35	0.5445	0.5200	0.5534
	64QAM	1RB01RBMAX	14.98	14.80	15.21	0.1607	0.1542	0.1694
	64QAM	1RBMAX1RB0	20.10	19.62	19.74	0.5224	0.4677	0.4808
	64QAM	FULL	20.25	20.03	20.32	0.5408	0.5140	0.5495
20+5	QPSK	1RB01RBMAX	15.16	15.13	15.33	0.1675	0.1663	0.1742
	QPSK	1RBMAX1RB0	23.14	22.65	22.96	1.0520	0.9397	1.0093
	QPSK	FULL	21.36	21.12	21.26	0.6982	0.6607	0.6823
	16QAM	1RB01RBMAX	15.25	15.22	15.50	0.1710	0.1698	0.1811
	16QAM	1RBMAX1RB0	22.52	21.97	22.22	0.9120	0.8035	0.8511
	16QAM	FULL	20.36	20.14	20.25	0.5546	0.5272	0.5408
	64QAM	1RB01RBMAX	14.86	14.80	15.08	0.1563	0.1542	0.1644
	64QAM	1RBMAX1RB0	20.07	19.56	19.69	0.5188	0.4613	0.4753
	64QAM	FULL	20.35	20.12	20.25	0.5534	0.5248	0.5408
15+20	QPSK	1RB01RBMAX	15.01	14.91	15.43	0.1618	0.1581	0.1782
	QPSK	1RBMAX1RB0	23.32	22.88	20.89	1.0965	0.9908	0.6266
	QPSK	FULL	21.21	21.07	21.18	0.6745	0.6531	0.6699
	16QAM	1RB01RBMAX	15.09	14.99	15.53	0.1648	0.1611	0.1824
	16QAM	1RBMAX1RB0	22.32	21.99	22.05	0.8710	0.8072	0.8185
	16QAM	FULL	20.14	20.04	20.17	0.5272	0.5152	0.5309
	64QAM	1RB01RBMAX	14.70	14.58	15.12	0.1507	0.1466	0.1660
	64QAM	1RBMAX1RB0	19.99	19.55	19.64	0.5093	0.4603	0.4699
	64QAM	FULL	20.13	20.02	20.15	0.5260	0.5129	0.5284
10+20	QPSK	1RB01RBMAX	15.05	14.86	15.23	0.1633	0.1563	0.1702
	QPSK	1RBMAX1RB0	23.37	23.01	22.99	1.1092	1.0209	1.0162
	QPSK	FULL	21.28	21.04	21.26	0.6855	0.6486	0.6823
	16QAM	1RB01RBMAX	15.13	14.93	15.33	0.1663	0.1589	0.1742
	16QAM	1RBMAX1RB0	22.39	22.07	22.15	0.8851	0.8222	0.8375
	16QAM	FULL	20.28	20.04	20.29	0.5445	0.5152	0.5458
	64QAM	1RB01RBMAX	14.72	14.60	14.92	0.1514	0.1472	0.1585
	64QAM	1RBMAX1RB0	20.07	19.61	19.69	0.5188	0.4667	0.4753
	64QAM	FULL	20.24	20.03	20.23	0.5395	0.5140	0.5383
5+20	QPSK	1RB01RBMAX	15.01	14.91	15.21	0.1618	0.1581	0.1694
	QPSK	1RBMAX1RB0	22.82	22.50	22.62	0.9772	0.9078	0.9333
	QPSK	FULL	21.42	21.24	21.23	0.7079	0.6792	0.6776
	16QAM	1RB01RBMAX	15.43	15.00	16.33	0.1782	0.1614	0.2193
	16QAM	1RBMAX1RB0	22.48	22.01	22.02	0.9036	0.8110	0.8128
	16QAM	FULL	20.34	20.18	20.23	0.5521	0.5321	0.5383
	64QAM	1RB01RBMAX	15.00	14.59	14.93	0.1614	0.1469	0.1589
	64QAM	1RBMAX1RB0	20.02	19.48	19.67	0.5129	0.4529	0.4732
	64QAM	FULL	20.35	20.18	20.25	0.5534	0.5321	0.5408

Antenna Gain = 7.08dBi

Limit	47dBm /10MHz
Result	Pass

LTE Band 48

EIRP PSD Density

1RB0

Mode	LTE Band 48 : EIRP PSD Density (dBm/MHz)							
BW	5MHz				10MHz			
Mod.	QPSK	16QAM	64QAM		QPSK	16QAM	64QAM	
Lowest CH	28.21	27.08	26.6		28.85	28.1	27.1	
Middle CH	28.64	27.64	26.68		29.66	28.44	27.29	
Highest CH	27.75	27.3	26.25		28.72	27.58	26.85	
BW	15MHz				20MHz			
Mod.	QPSK	16QAM	64QAM		QPSK	16QAM	64QAM	
Lowest CH	28.63	28.05	26.64		28.93	27.94	26.91	
Middle CH	29.49	28.64	27.38		29.49	28.8	27.45	
Highest CH	28.82	28	26.94		28.56	27.94	26.64	
Limit	37dBm /MHz							
Result	Pass							

1RB MAX

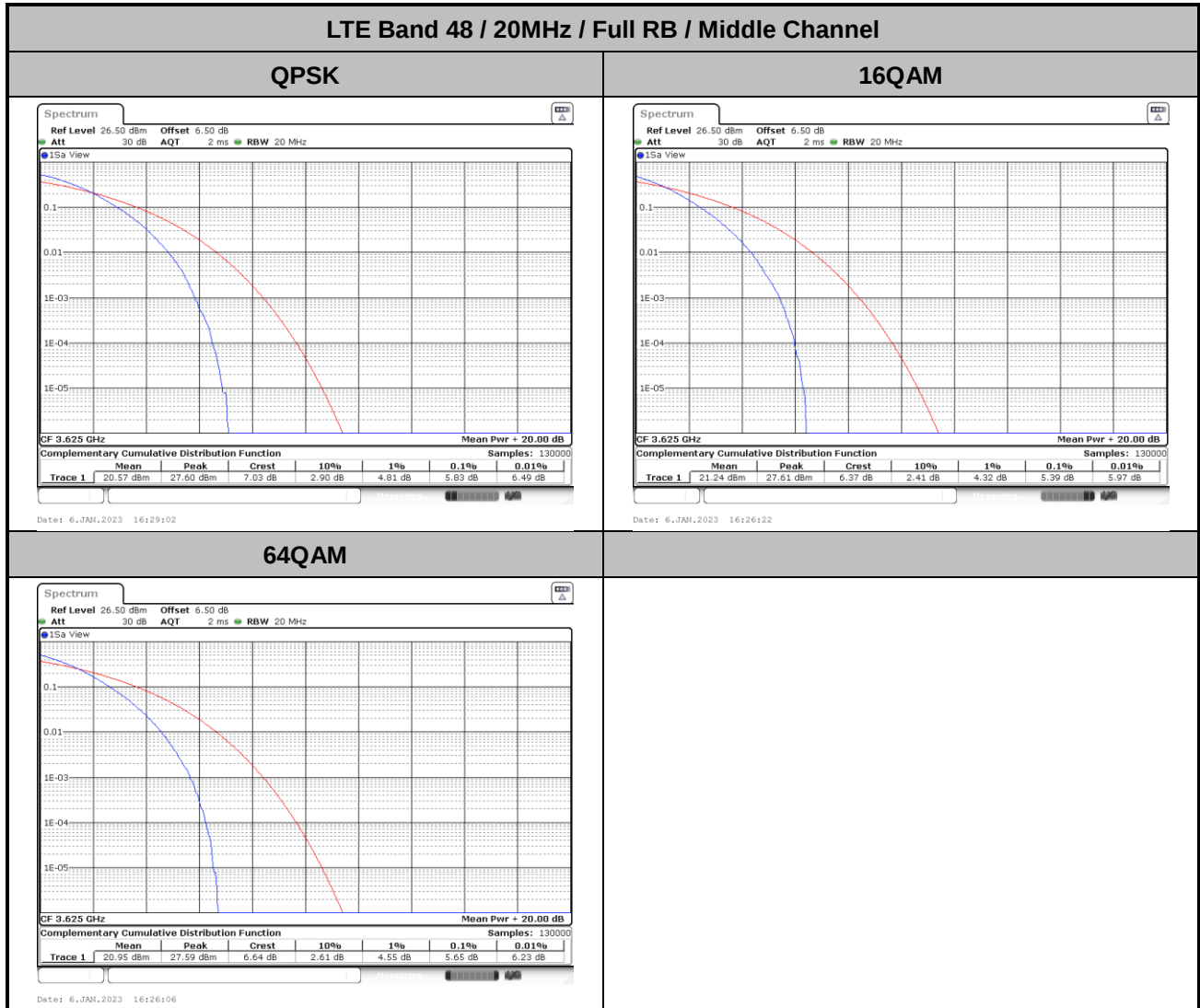
Mode	LTE Band 48 : EIRP PSD Density (dBm/MHz)							
BW	5MHz				10MHz			
Mod.	QPSK	16QAM	64QAM		QPSK	16QAM	64QAM	
Lowest CH	28.19	27.32	26.45		29.26	28.58	27.23	
Middle CH	28.54	28.03	26.94		29.66	28.6	27.46	
Highest CH	27.85	27.38	26.25		28.84	27.97	27.07	
BW	15MHz				20MHz			
Mod.	QPSK	16QAM	64QAM		QPSK	16QAM	64QAM	
Lowest CH	28.9	28.08	27.32		29.13	27.82	27.09	
Middle CH	29.17	28.53	27.11		29.43	28.49	27.72	
Highest CH	28.46	28.26	26.89		28.9	27.62	26.63	
Limit	37dBm /MHz							
Result	pass							

FULL RB

Mode	LTE Band 48 : EIRP PSD Density (dBm/MHz)							
BW	5MHz				10MHz			
Mod.	QPSK	16QAM	64QAM		QPSK	16QAM	64QAM	
Lowest CH	23.05	23.45	23.32		19.37	18.39	17.44	
Middle CH	22.75	21.92	21.11		19.82	18.8	17.97	
Highest CH	22.48	21.52	20.48		19.07	18.43	17.41	
BW	15MHz				20MHz			
Mod.	QPSK	16QAM	64QAM		QPSK	16QAM	64QAM	
Lowest CH	17.43	16.61	15.59		16.65	15.83	14.75	
Middle CH	18.03	17.08	16.2		17.1	16.15	15.09	
Highest CH	17.4	16.55	15.61		16.34	15.55	14.91	
Limit	37dBm /MHz							
Result	Pass							

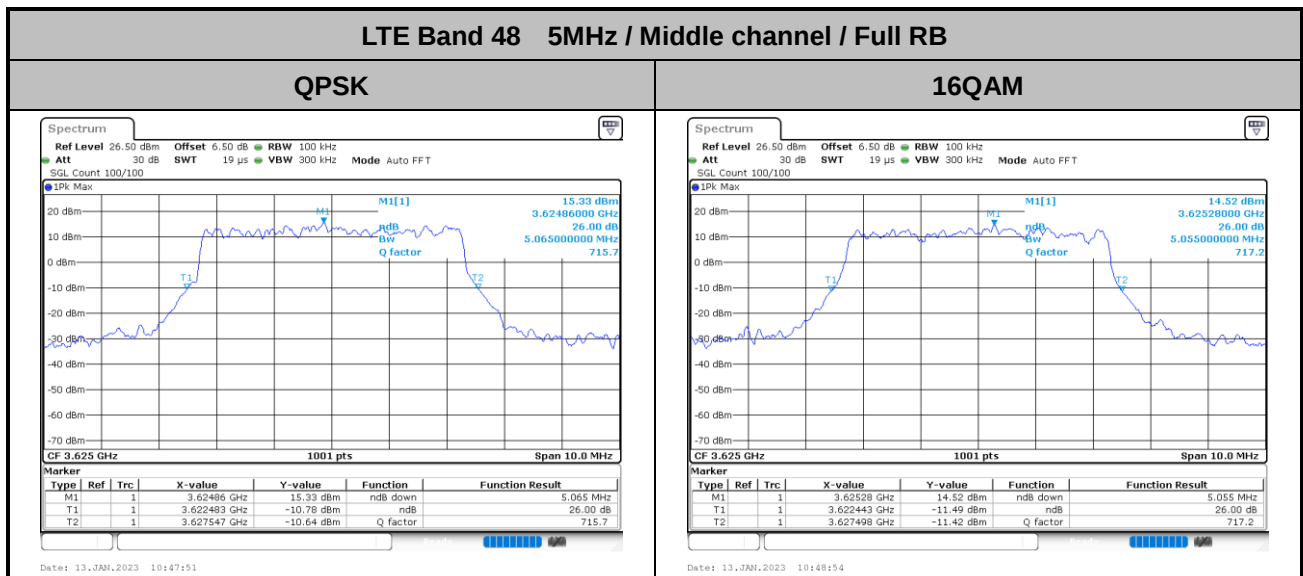
Peak-to-Average Ratio

Mode	LTE Band 48 / 20MHz				
Mod.	QPSK	16QAM	64QAM		Limit: 13dB
RB Size	Full RB				Result
Middle CH	5.83	5.39	5.65		PASS



**26dB Bandwidth**

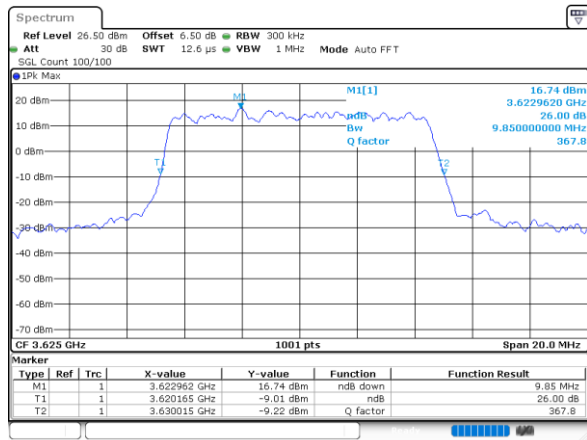
Mode	LTE Band 48 : 26dB BW(MHz)	
BW	5MHz	
Mod.	QPSK	16QAM
Middle CH	5.07	5.06
BW	10MHz	
Mod.	QPSK	16QAM
Middle CH	9.85	9.63
BW	15MHz	
Mod.	QPSK	16QAM
Middle CH	14.21	14.15
BW	20MHz	
Mod.	QPSK	16QAM
Middle CH	18.66	18.98





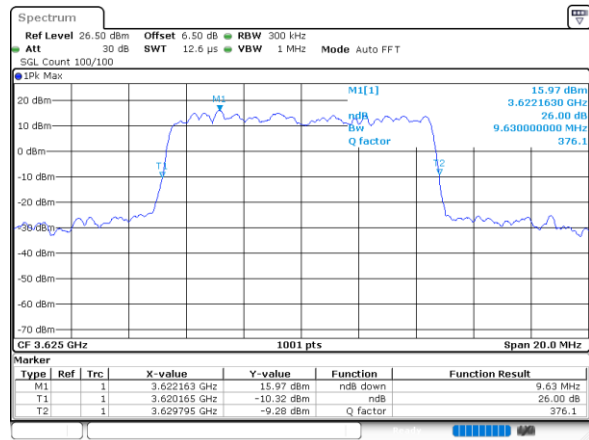
LTE Band 48 10MHz / Middle channel / Full RB

QPSK



Date: 13.JAN.2023 10:49:15

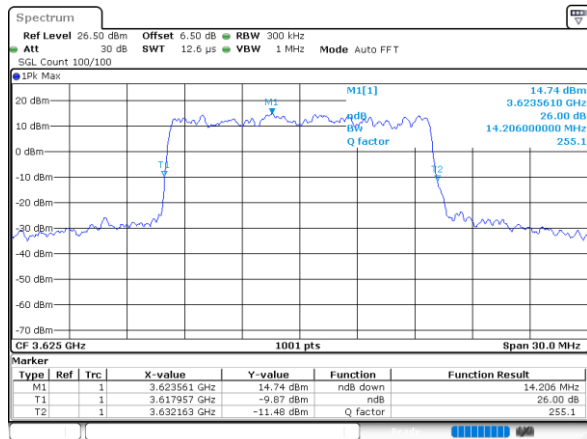
16QAM



Date: 13.JAN.2023 10:50:18

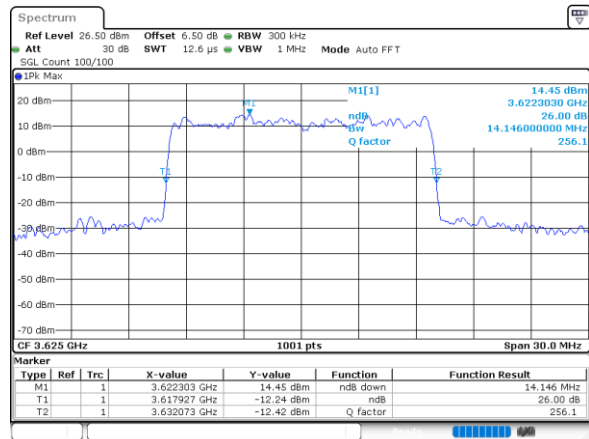
LTE Band 48 15MHz / Middle channel / Full RB

QPSK



Date: 13.JAN.2023 10:50:58

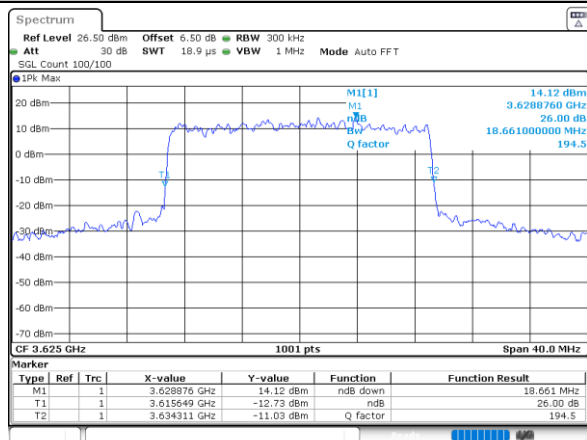
16QAM



Date: 13.JAN.2023 10:52:01

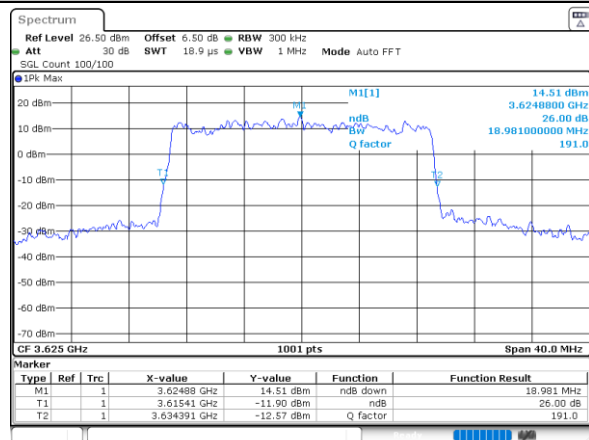
LTE Band 48 20MHz / Middle channel / Full RB

QPSK



Date: 6.JAN.2023 16:25:16

16QAM

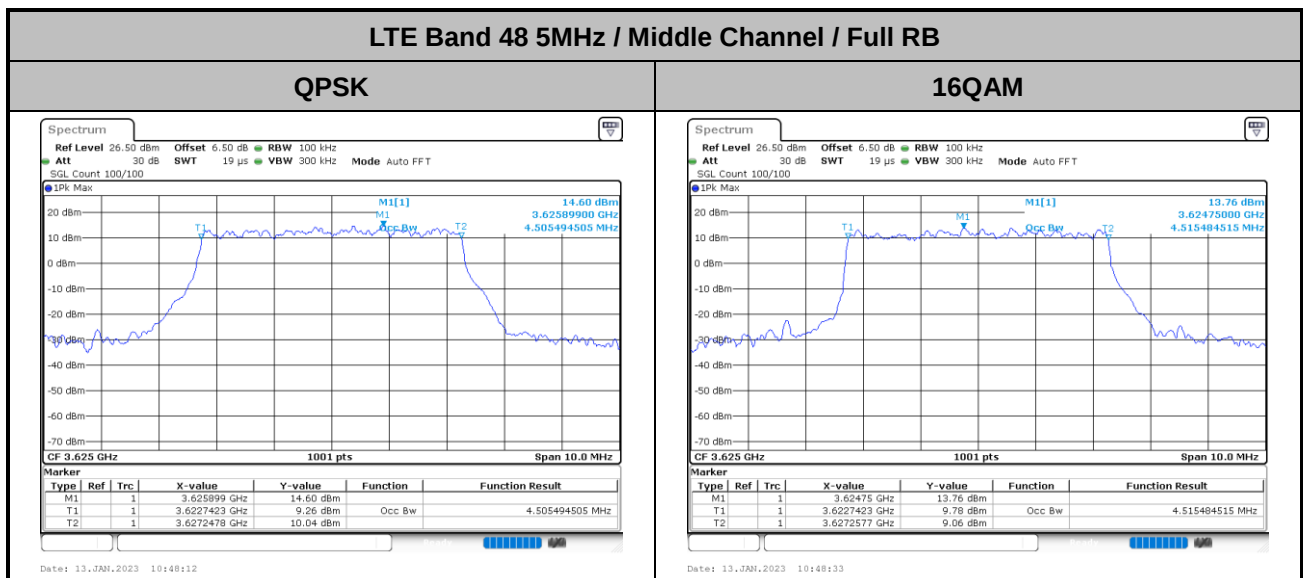


Date: 6.JAN.2023 16:25:46



Occupied Bandwidth

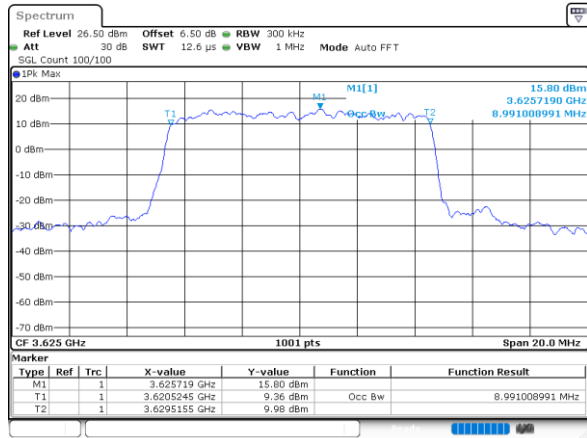
Mode	LTE Band 48 : 99%OBW(MHz)	
BW	5MHZ	
Mod.	QPAK	16QAM
Middle CH	4.51	4.52
BW	10MHZ	
Mod.	QPAK	16QAM
Middle CH	8.99	9.07
BW	15MHZ	
Mod.	QPAK	16QAM
Middle CH	13.46	13.40
BW	20MHZ	
Mod.	QPAK	16QAM
Middle CH	17.82	17.86



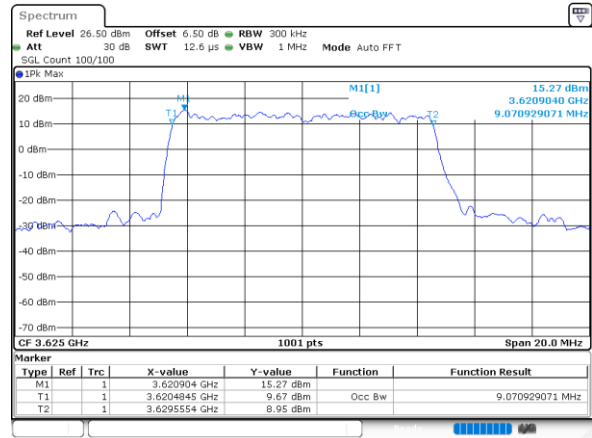


LTE Band 48 10MHz / Middle Channel / Full RB

QPSK

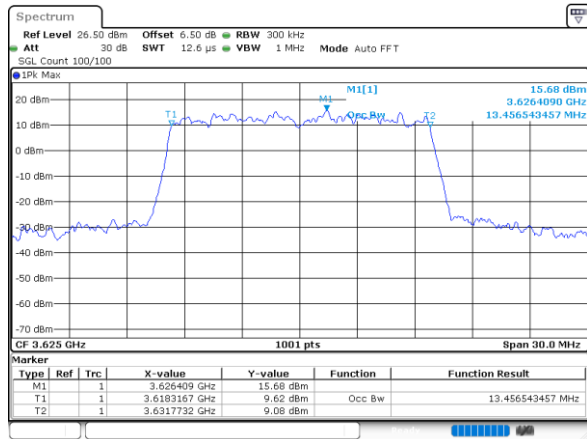


16QAM

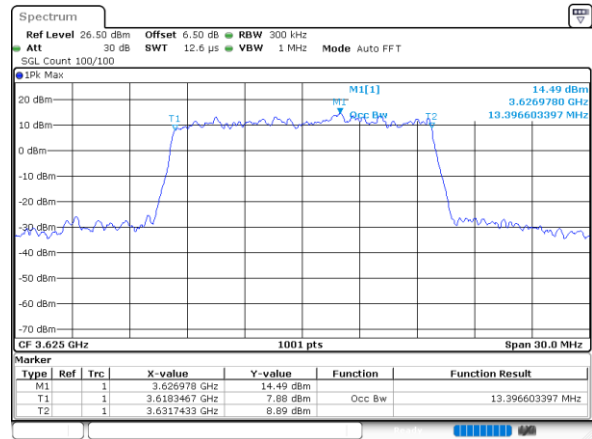


LTE Band 48 15MHz / Middle Channel / Full RB

QPSK

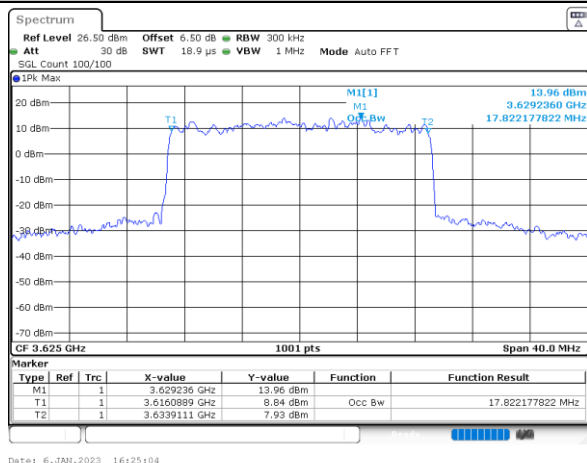


16QAM

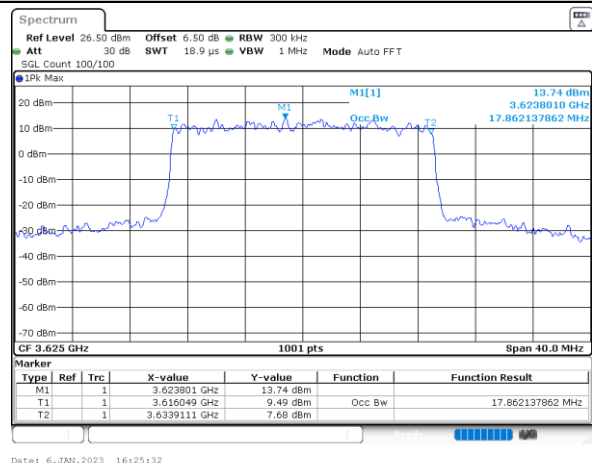


LTE Band 48 20MHz / Middle Channel / Full RB

QPSK



16QAM



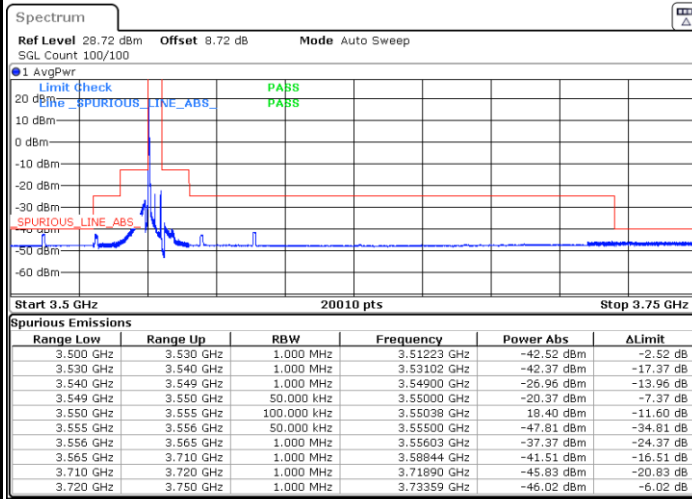


Conducted Band Edge

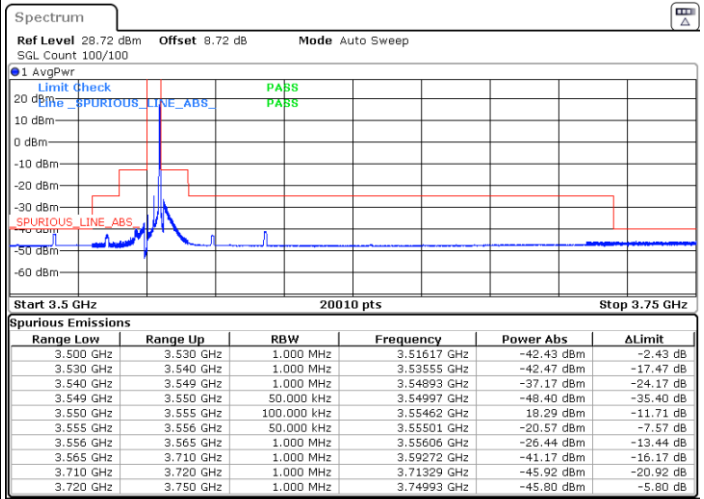
LTE Band 48 / 5MHz

QPSK

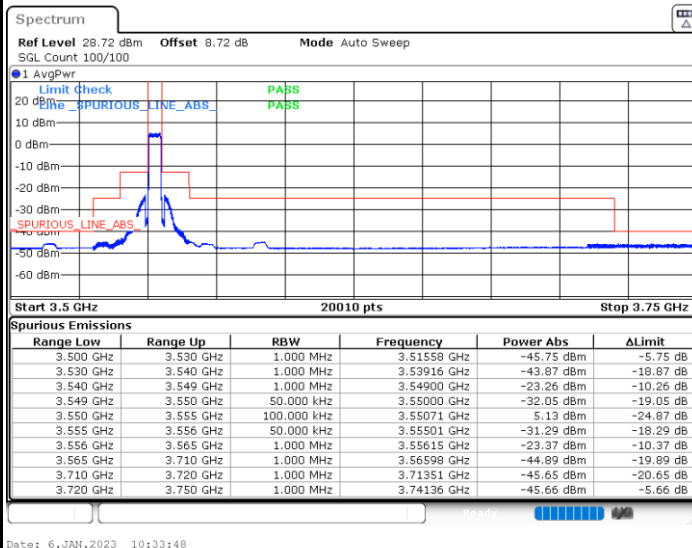
Lowest Channel / 1RB0



Lowest Channel / 1RBmax



Lowest Channel / FullRB



N/A

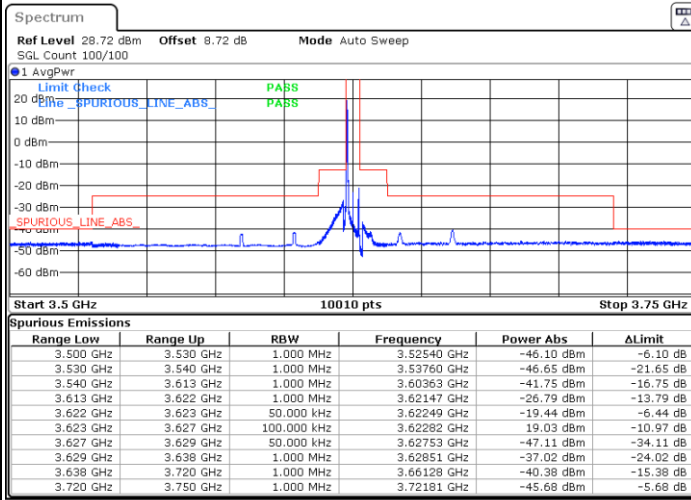


LTE Band 48 / 5MHz

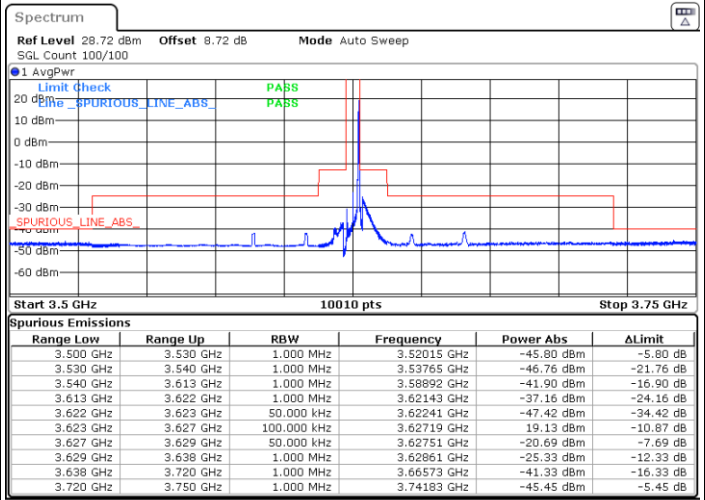
QPSK

Middle Channel / 1RB0

Middle Channel / 1RBmax



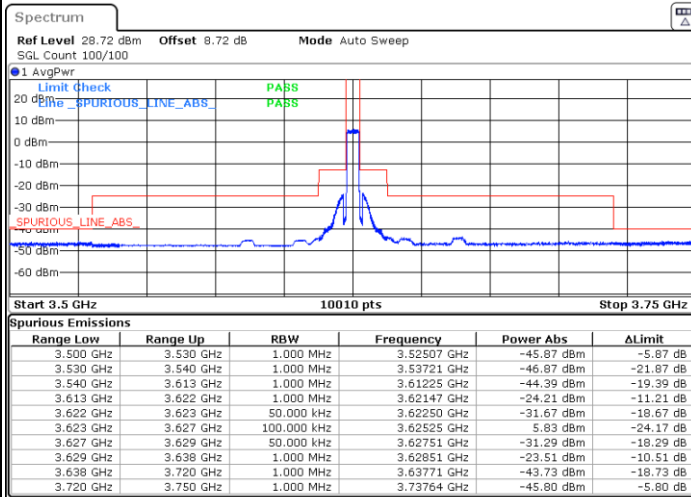
Date: 6.JAN.2023 10:38:51



Date: 6.JAN.2023 10:47:13

Middle Channel / Full

N/A



Date: 6.JAN.2023 10:48:53

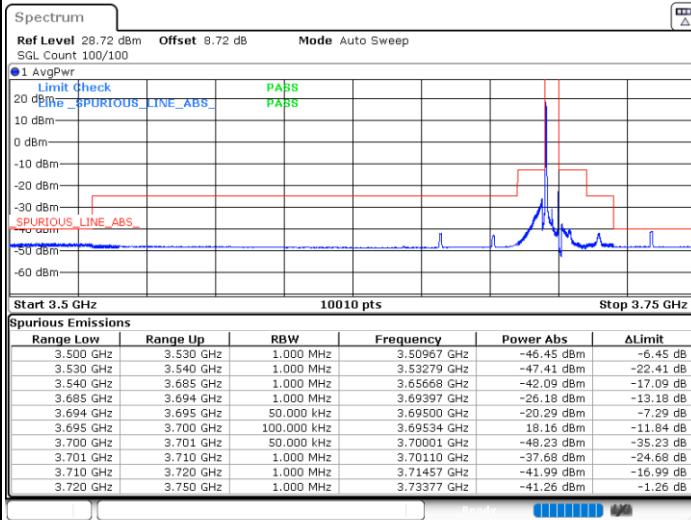


LTE Band 48 / 5MHz

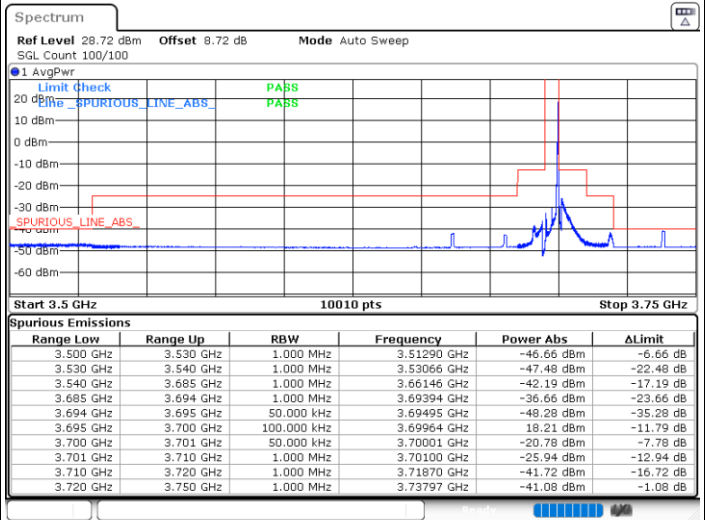
QPSK

Highest Channel / 1RB0

Highest Channel / 1RBmax



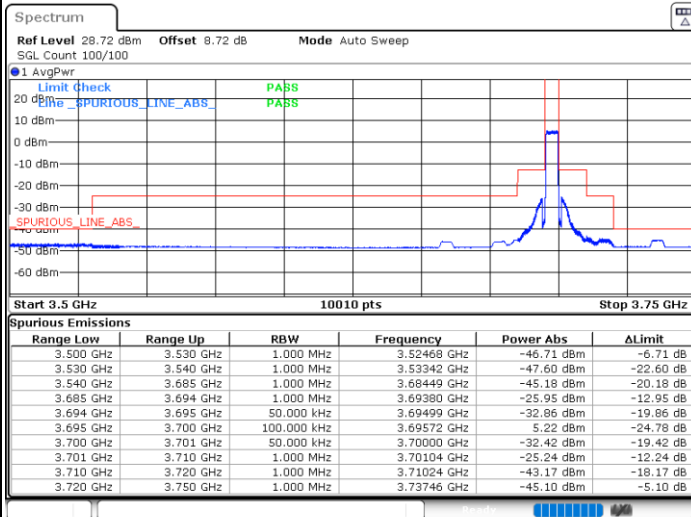
Date: 6.JAN.2023 10:53:54



Date: 6.JAN.2023 11:02:19

Highest Channel / FullIRB

N/A



Date: 6.JAN.2023 11:04:00

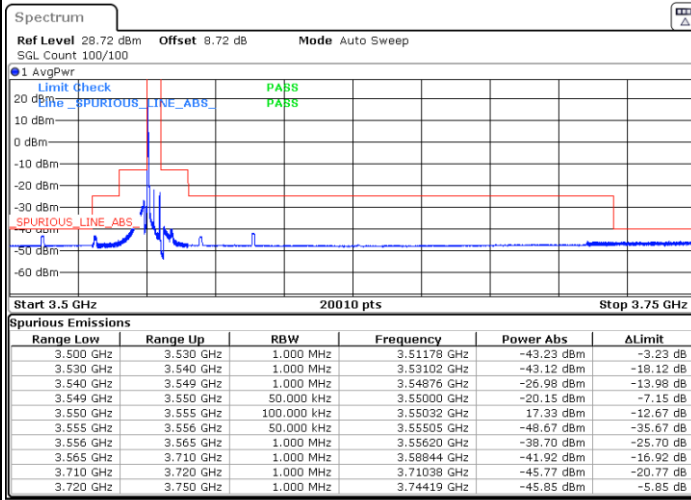


LTE Band 48 / 5MHz

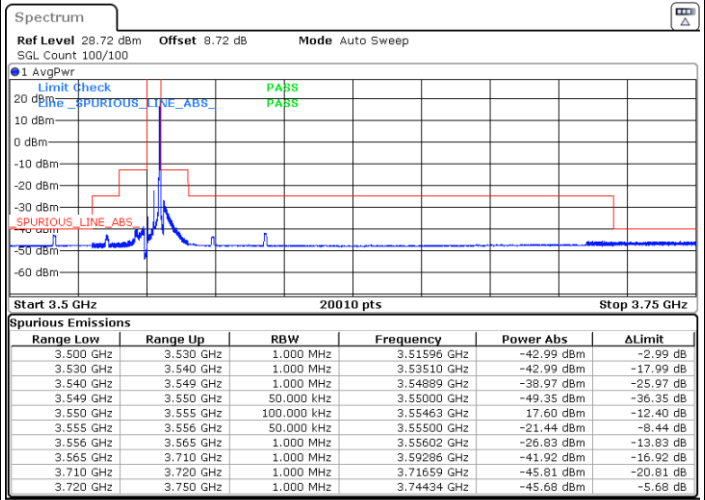
16QAM

Lowest Channel / 1RB0

Lowest Channel / 1RBmax



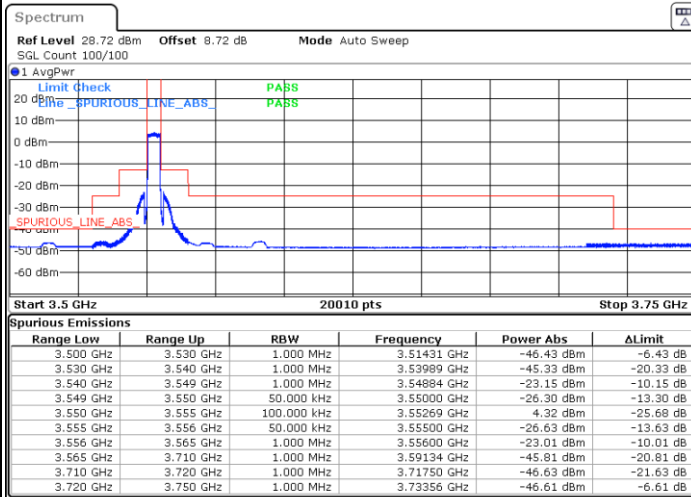
Date: 6.JAN.2023 10:25:24



Date: 6.JAN.2023 10:30:26

Lowest Channel / FullRB

N/A



Date: 6.JAN.2023 10:35:29

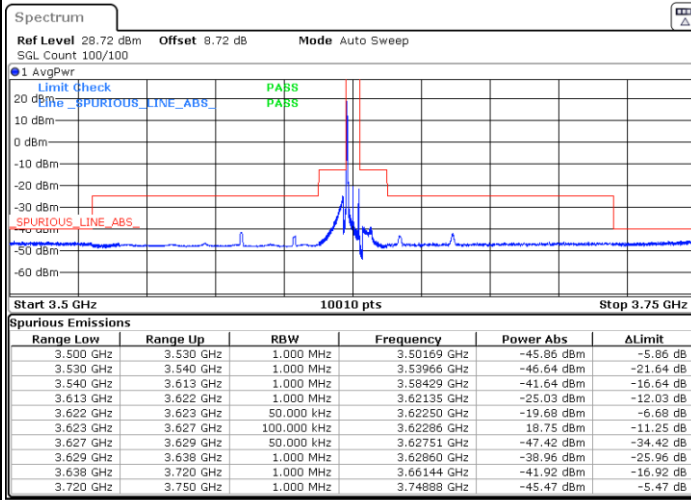


LTE Band 48 / 5MHz

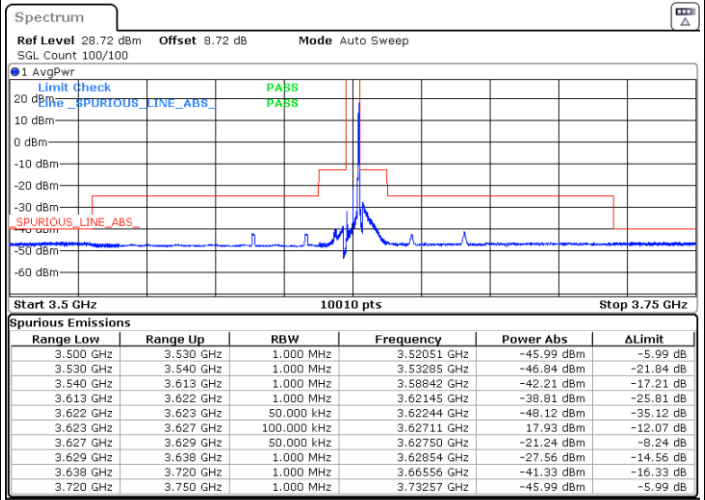
16QAM

Middle Channel / 1RB0

Middle Channel / 1RBmax



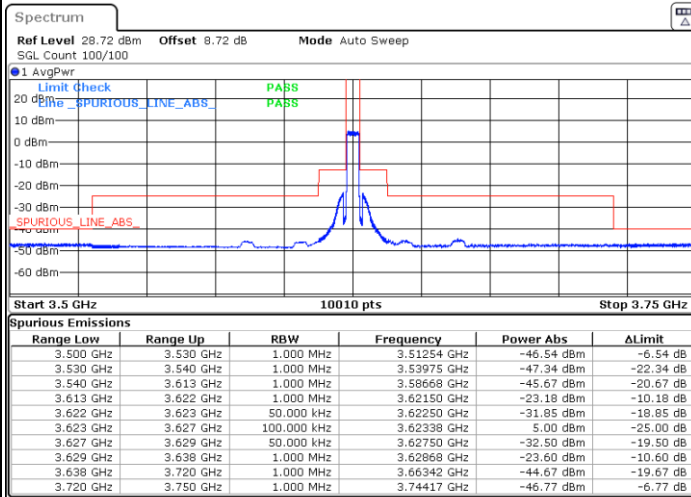
Date: 6.JAN.2023 10:40:32



Date: 6.JAN.2023 10:45:33

Middle Channel / Full

N/A



Date: 6.JAN.2023 10:50:33

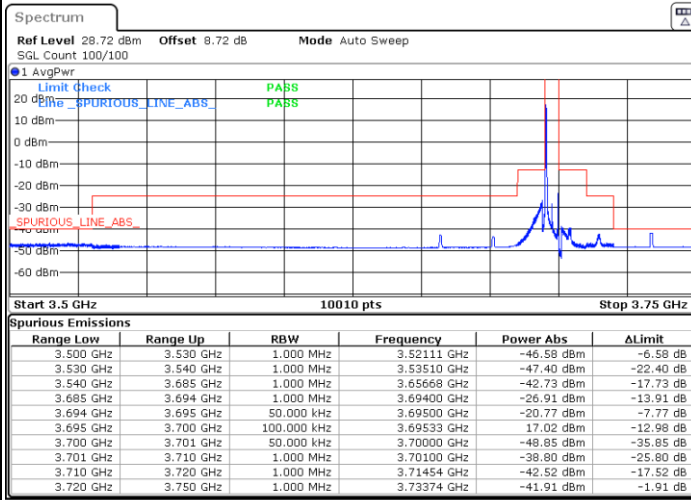


LTE Band 48 / 5MHz

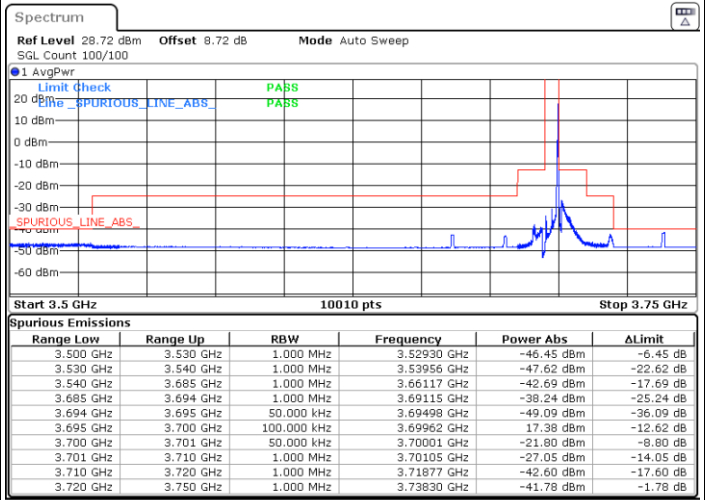
16QAM

Highest Channel / 1RB0

Highest Channel / 1RBmax



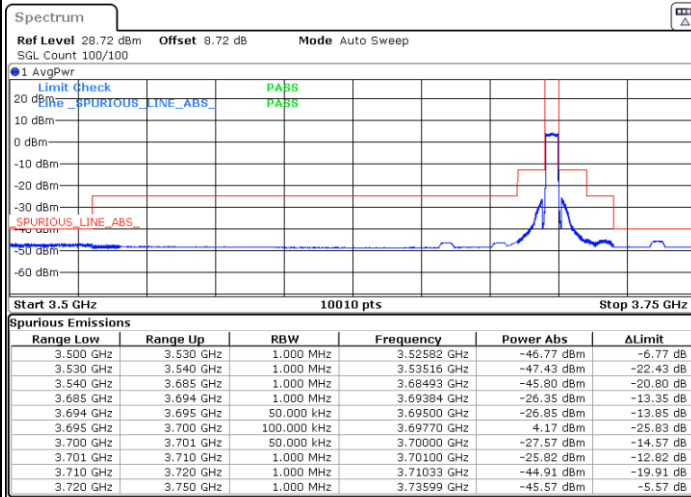
Date: 6.JAN.2023 10:55:35



Date: 6.JAN.2023 11:00:38

Highest Channel / FullRB

N/A



Date: 6.JAN.2023 11:05:41

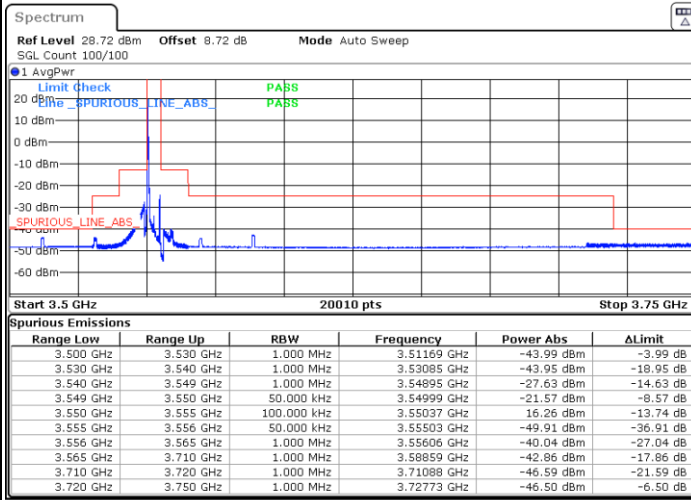


LTE Band 48 / 5MHz

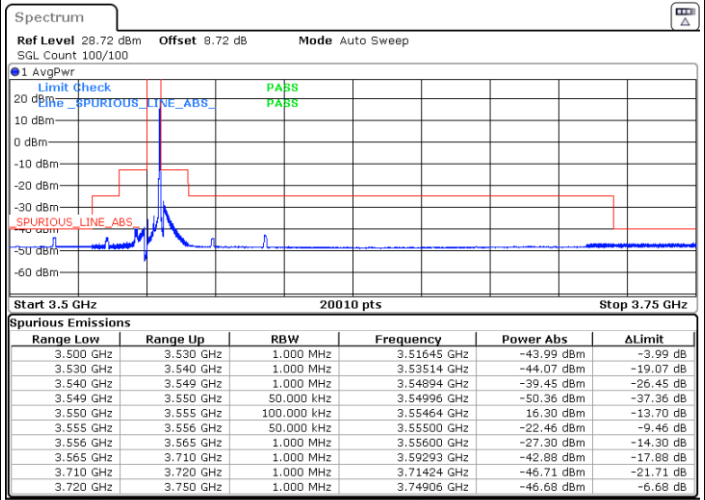
64QAM

Lowest Channel / 1RB0

Lowest Channel / 1RBmax



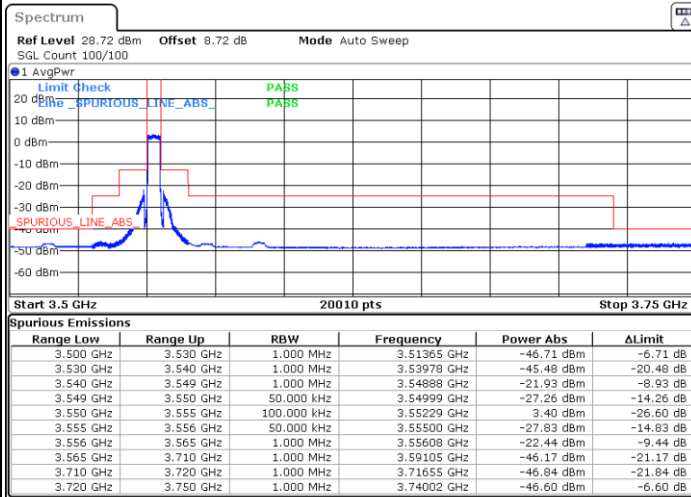
Date: 6.JAN.2023 10:27:04



Date: 6.JAN.2023 10:28:45

Lowest Channel / FullRB

N/A



Date: 6.JAN.2023 10:37:11

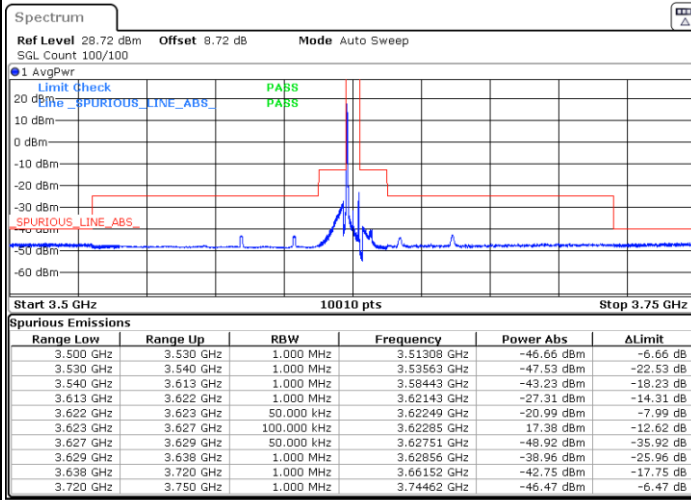


LTE Band 48 / 5MHz

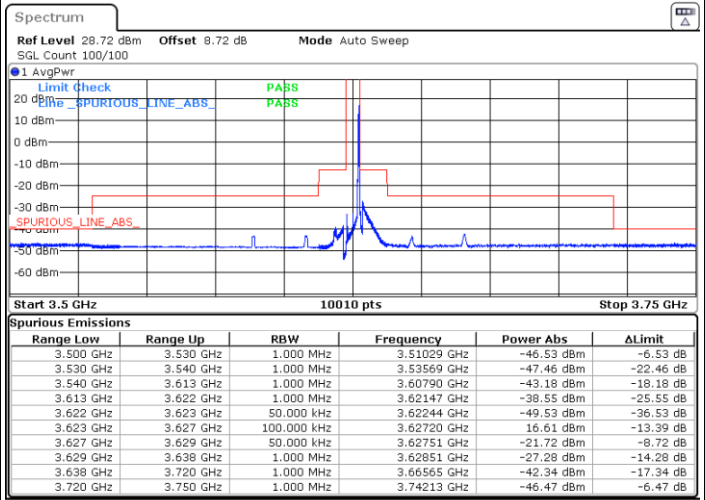
64QAM

Middle Channel / 1RB0

Middle Channel / 1RBmax



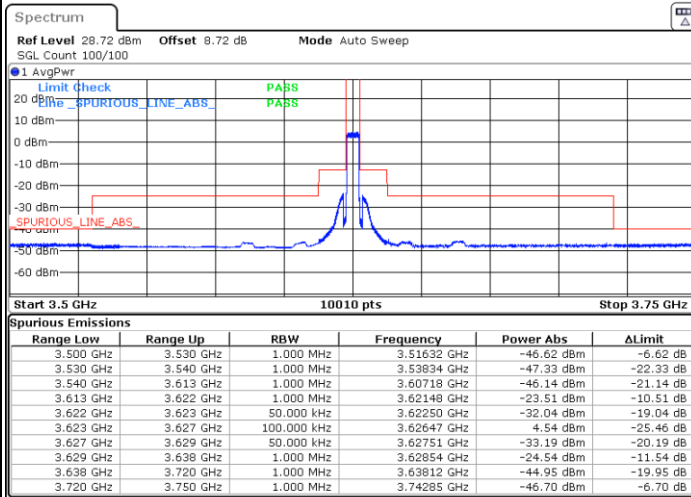
Date: 6.JAN.2023 10:42:12



Date: 6.JAN.2023 10:43:52

Middle Channel / Full

N/A



Date: 6.JAN.2023 10:52:14

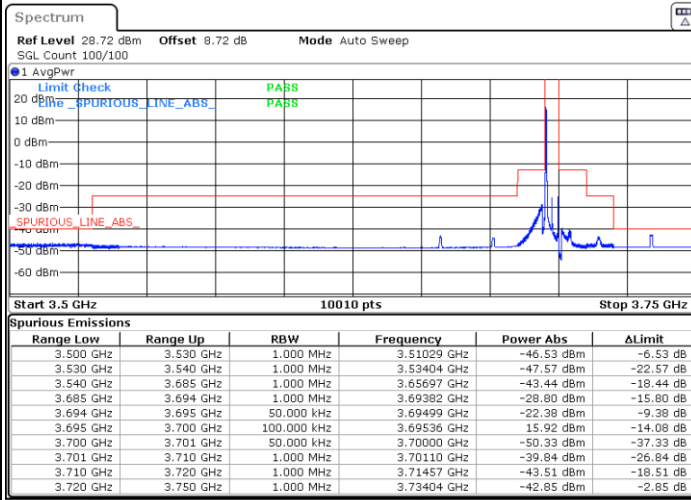


LTE Band 48 / 5MHz

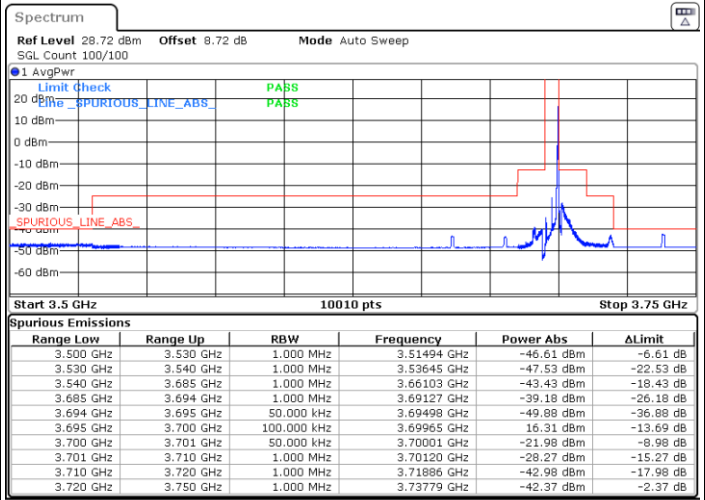
64QAM

Highest Channel / 1RB0

Highest Channel / 1RBmax



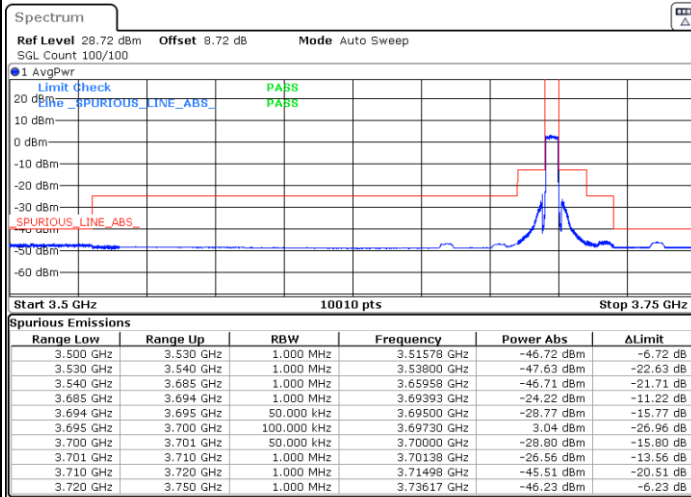
Date: 6.JAN.2023 10:57:16



Date: 6.JAN.2023 10:58:57

Highest Channel / FullRB

N/A



Date: 6.JAN.2023 11:07:22

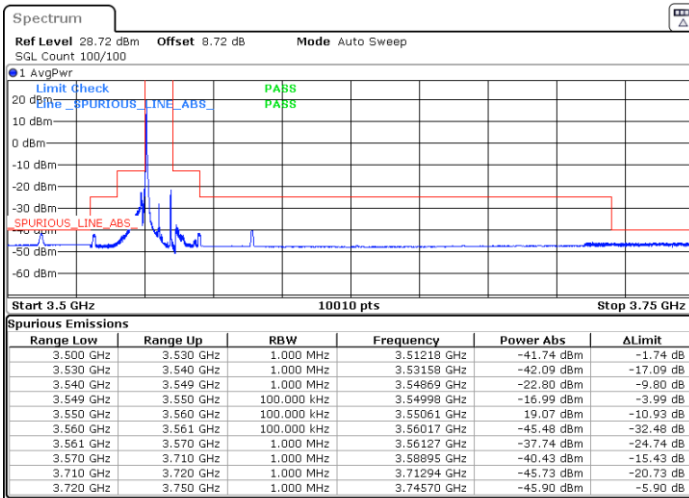


LTE Band 48 / 10MHz

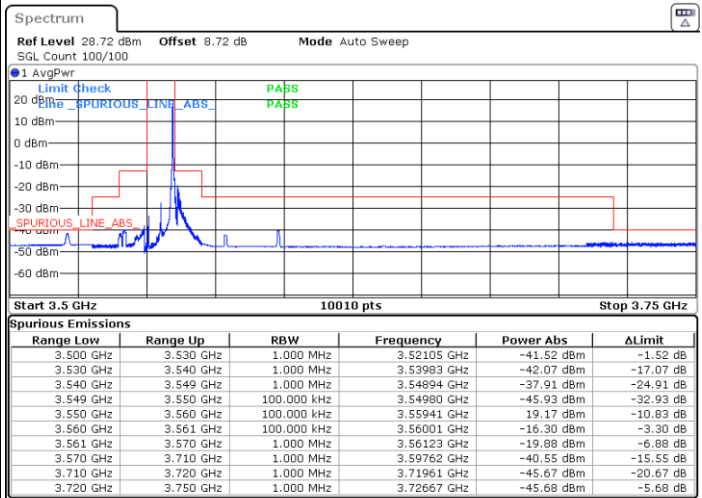
QPSK

Lowest Channel / 1RB0

Lowest Channel / 1RBmax



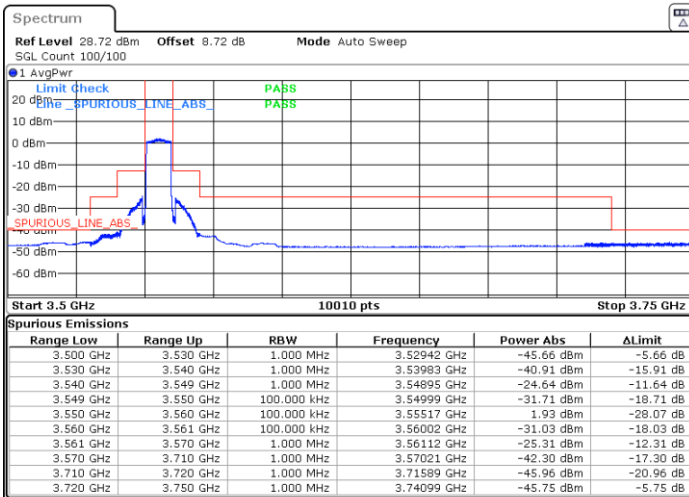
Date: 6.JAN.2023 11:11:50



Date: 6.JAN.2023 11:20:15

Lowest Channel / FullRB

N/A



Date: 6.JAN.2023 11:21:56

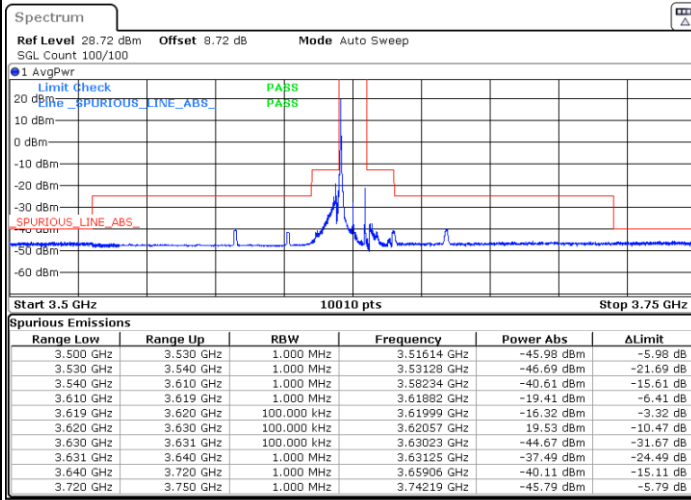


LTE Band 48 / 10MHz

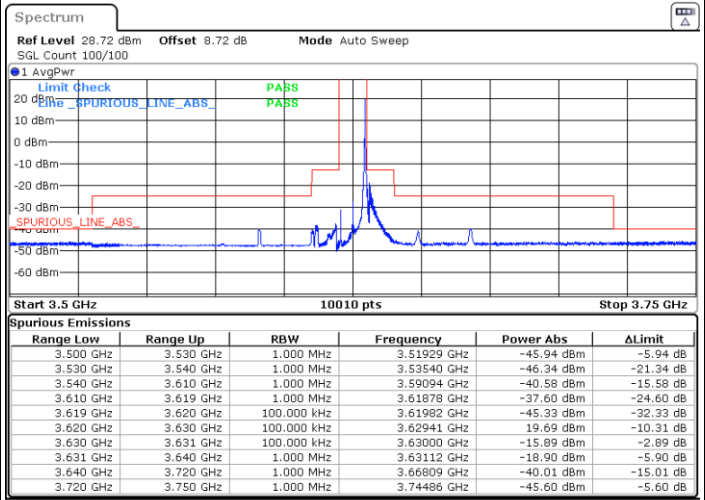
QPSK

Middle Channel / 1RB0

Middle Channel / 1RBmax



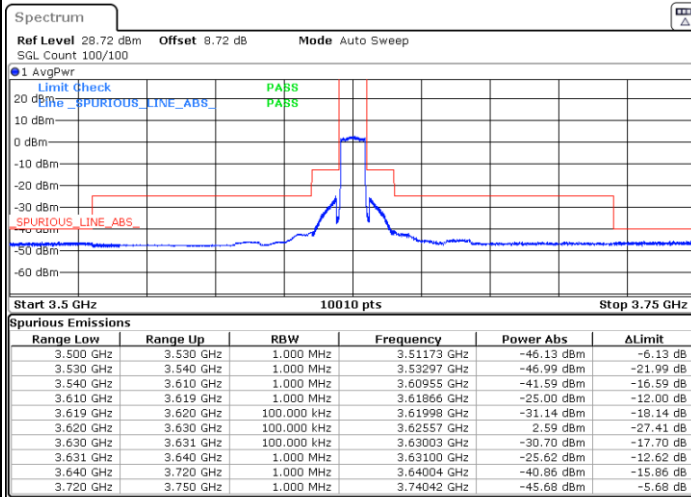
Date: 6.JAN.2023 11:26:59



Date: 6.JAN.2023 11:32:00

Middle Channel / Full

N/A



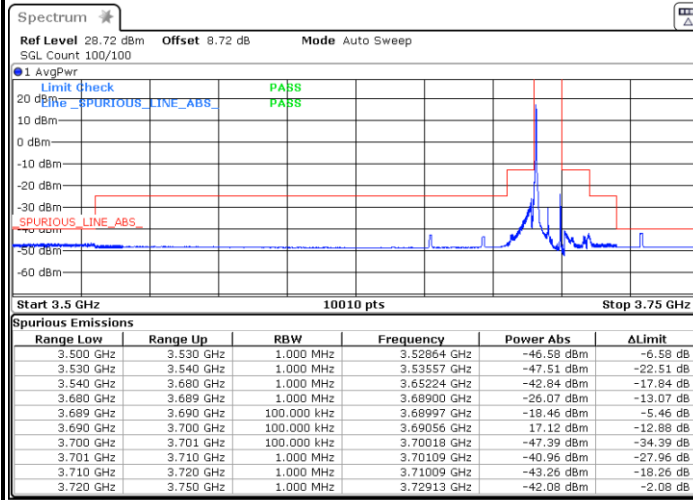
Date: 6.JAN.2023 11:40:21



LTE Band 48 / 10MHz

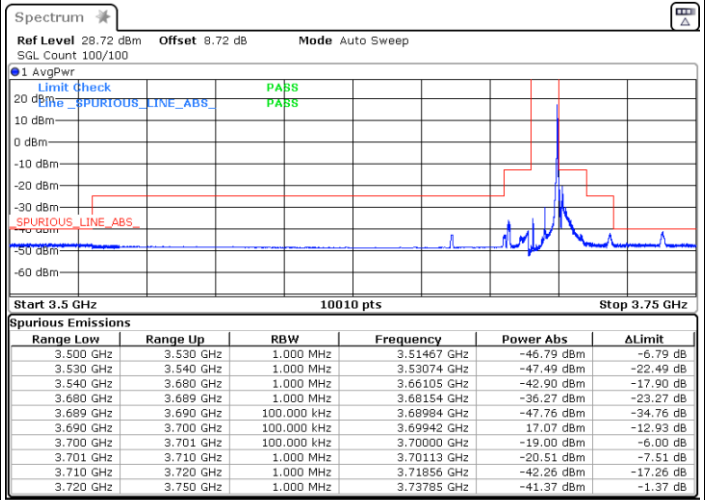
QPSK

Highest Channel / 1RB0



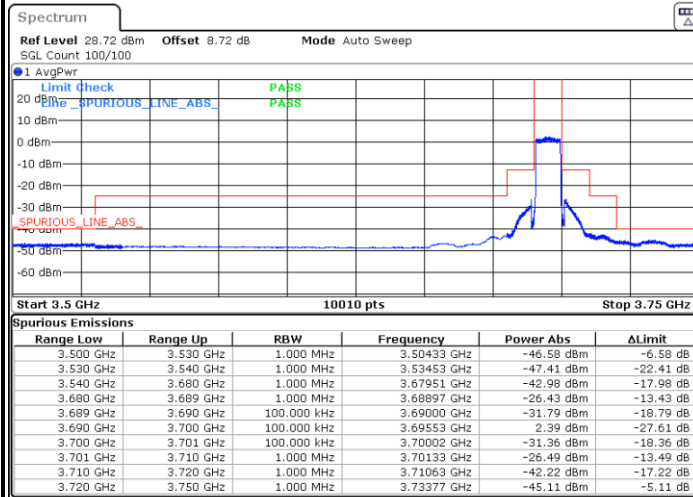
Date: 6.JAN.2023 12:26:09

Highest Channel / 1RBmax



Date: 6.JAN.2023 12:33:36

Highest Channel / FullIRB



Date: 6.JAN.2023 11:52:07

N/A

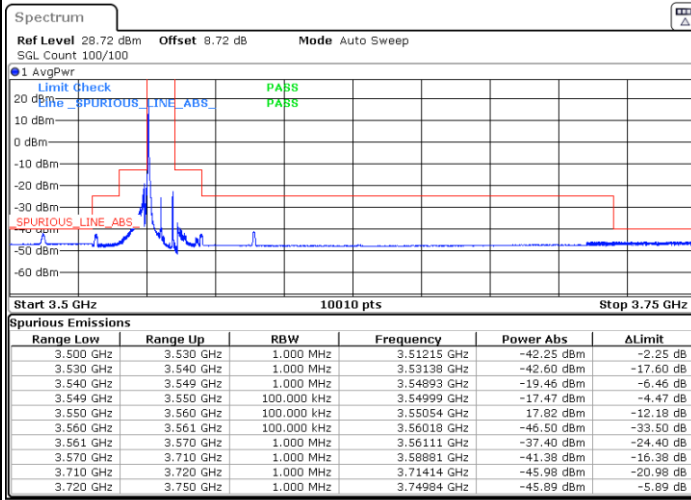


LTE Band 48 / 10MHz

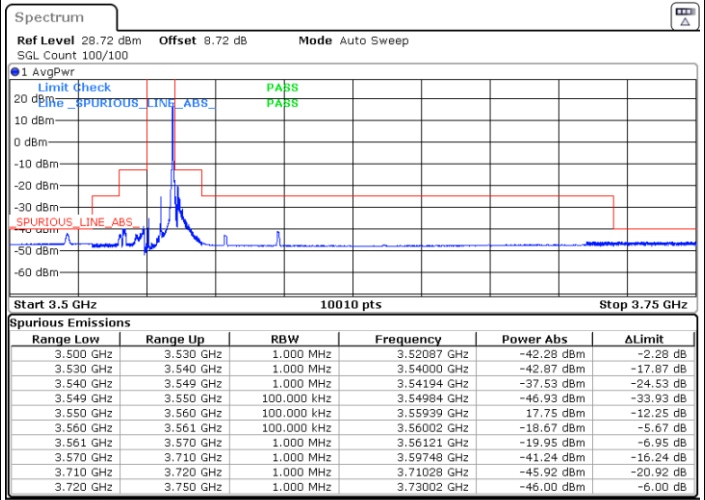
16QAM

Lowest Channel / 1RB0

Lowest Channel / 1RBmax



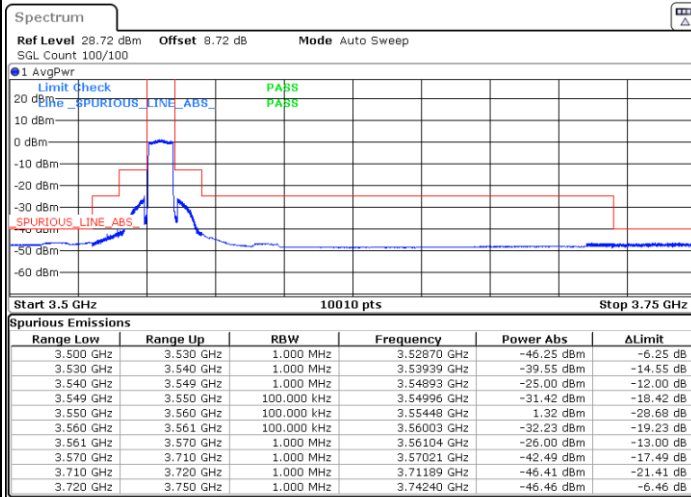
Date: 6.JAN.2023 11:13:32



Date: 6.JAN.2023 11:18:34

Lowest Channel / FullRB

N/A



Date: 6.JAN.2023 11:23:37

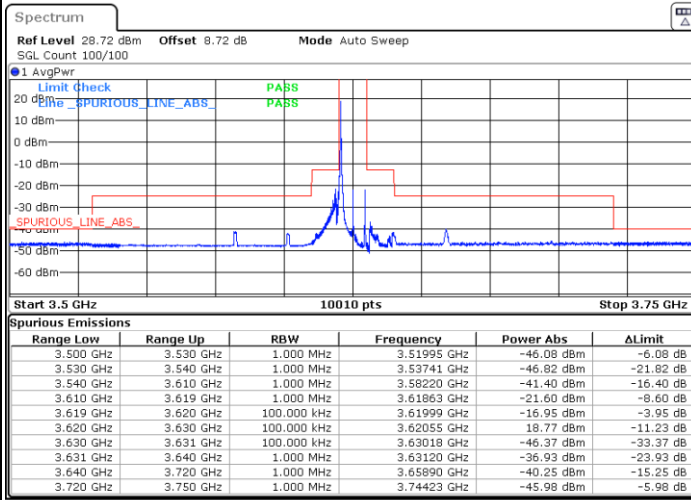


LTE Band 48 / 10MHz

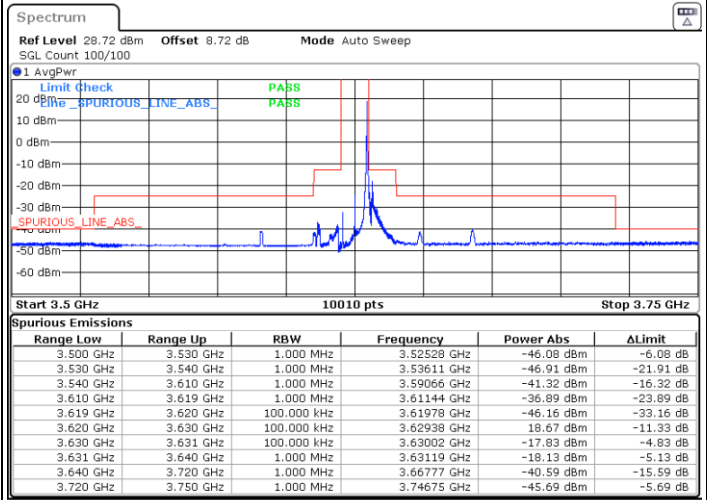
16QAM

Middle Channel / 1RB0

Middle Channel / 1RBmax



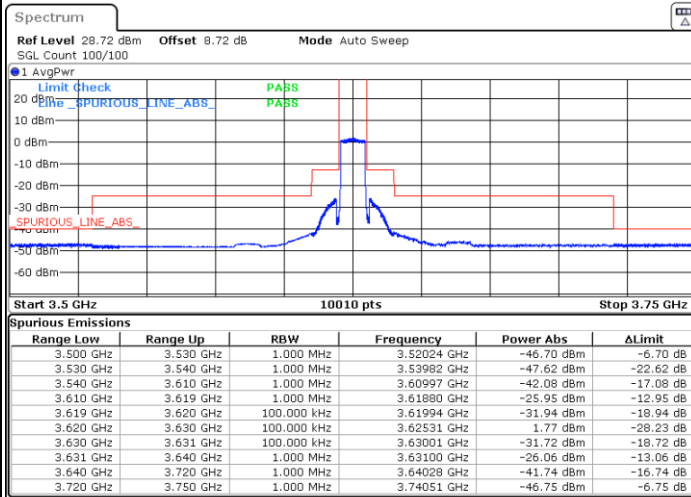
Date: 6.JAN.2023 11:28:39



Date: 6.JAN.2023 11:33:40

Middle Channel / Full

N/A



Date: 6.JAN.2023 11:38:41

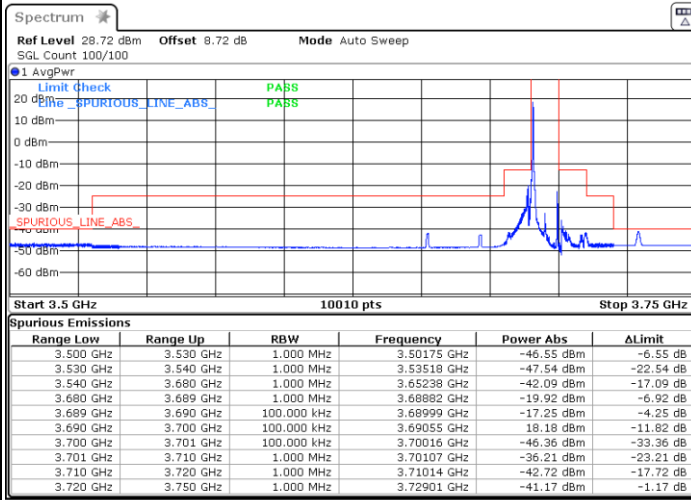


LTE Band 48 / 10MHz

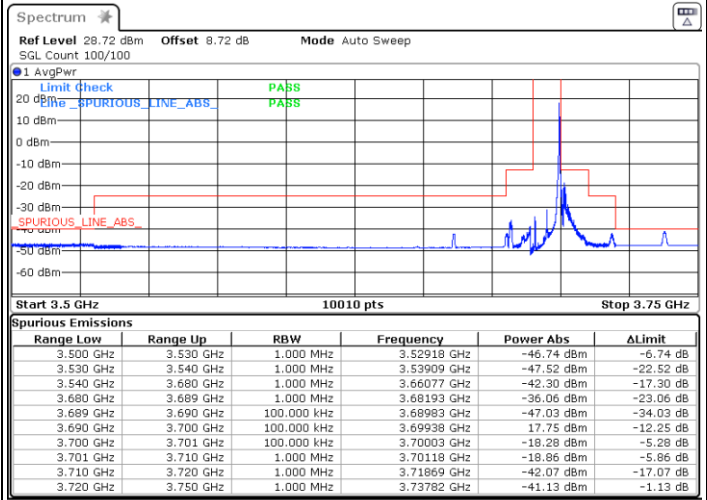
16QAM

Highest Channel / 1RB0

Highest Channel / 1RBmax



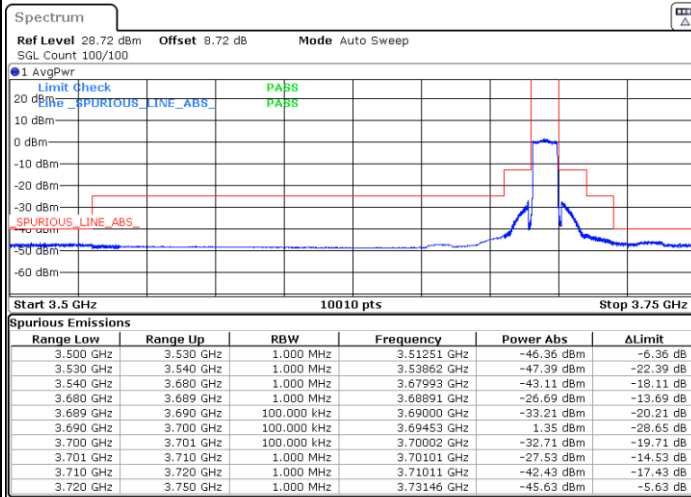
Date: 6.JAN.2023 12:28:23



Date: 6.JAN.2023 12:31:58

Highest Channel / FullIRB

N/A



Date: 6.JAN.2023 11:53:48

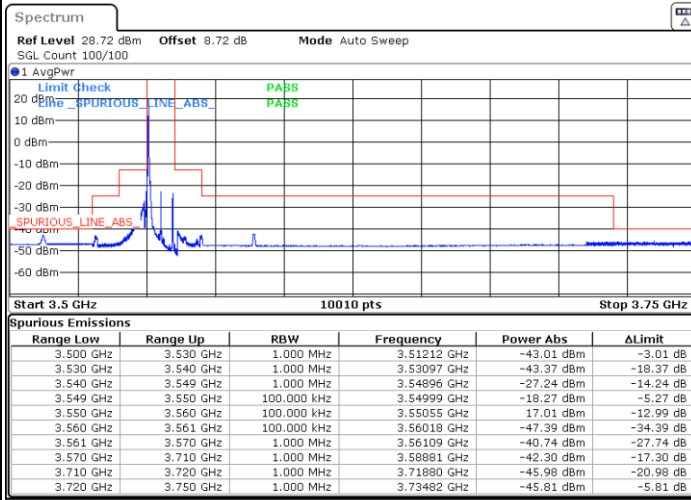


LTE Band 48 / 10MHz

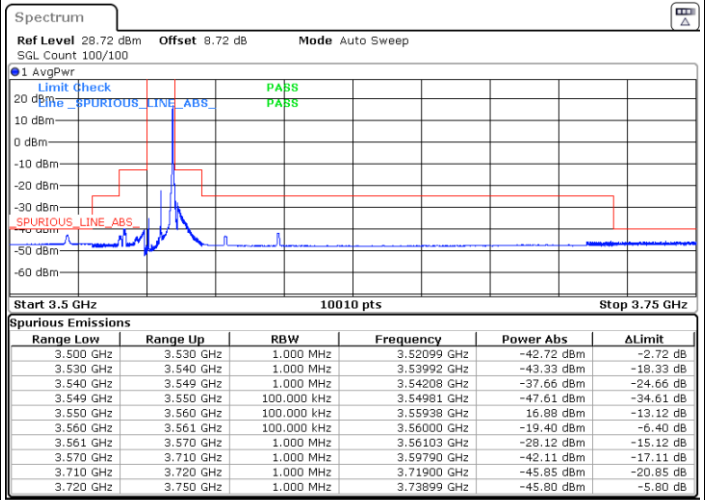
64QAM

Lowest Channel / 1RB0

Lowest Channel / 1RBmax



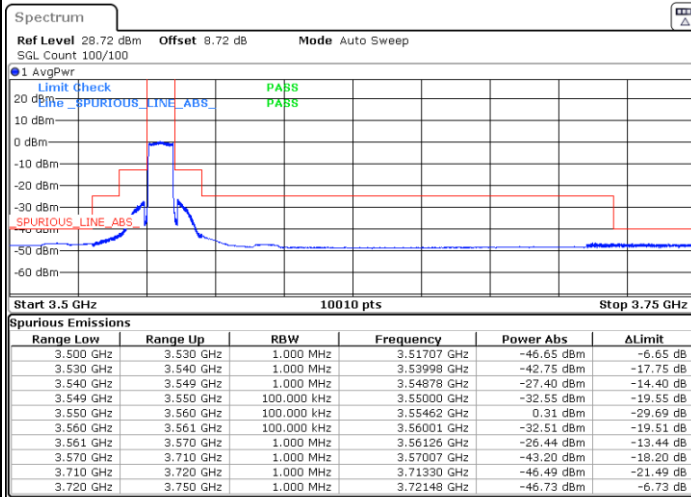
Date: 6.JAN.2023 11:15:13



Date: 6.JAN.2023 11:16:53

Lowest Channel / FullRB

N/A



Date: 6.JAN.2023 11:25:18

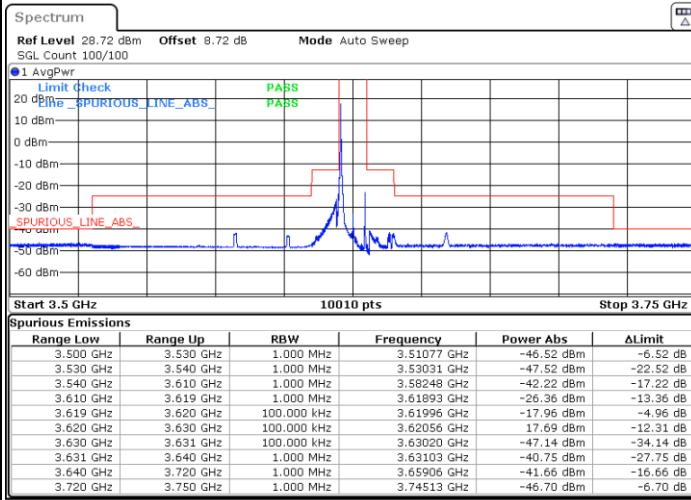


LTE Band 48 / 10MHz

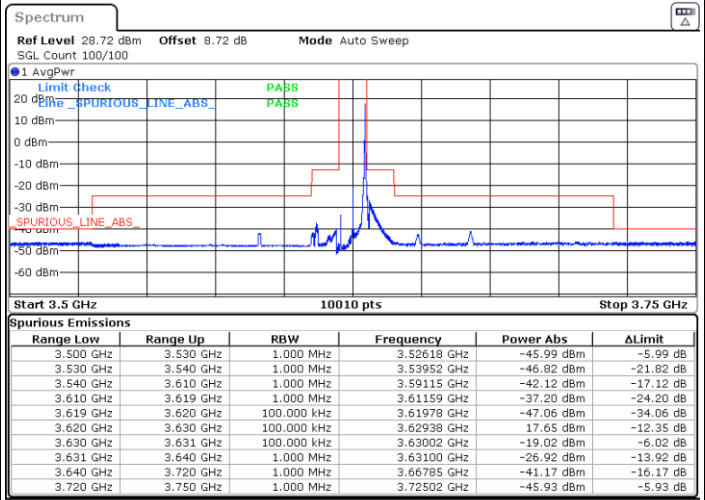
64QAM

Middle Channel / 1RB0

Middle Channel / 1RBmax



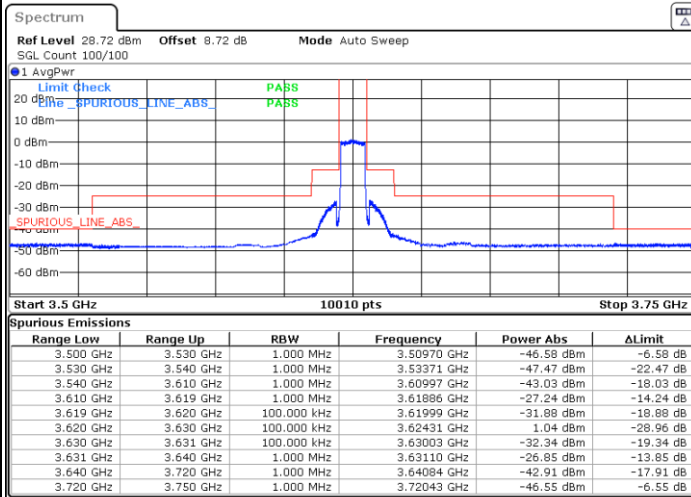
Date: 6.JAN.2023 11:30:19



Date: 6.JAN.2023 11:35:20

Middle Channel / Full

N/A



Date: 6.JAN.2023 11:37:01