



FCC RF Test Report

APPLICANT : Nauto
EQUIPMENT : In-vehicle camera
BRAND NAME : Nauto
MODEL NAME : N4
FCC ID : 2AKJ5-N4
STANDARD : 47 CFR Part 2, 22(H), 24(E), 27(L), 27(F), 27(H)
CLASSIFICATION : PCS Licensed Transmitter (PCB)
TEST DATE(S) : Apr. 03, 2024 ~ Apr. 19, 2024

This product installed a RF module (Brand Name: AirPrime, Model Name: RC7611, FCC ID: N7NRC76B) during the test, the Conducted Power/ERP/EIRP are verified, and the HOST support LTE Cat1, thus 16QAM are re-tested in this report, all the conducted test results of QPSK are leveraged from module RF report.

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

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)

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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FG3D2618	Rev. 01	Initial issue of report	May 14, 2024



SUMMARY OF TEST RESULT

Report Section	FCC Rule	Description	Limit	Result	Remark
3.4	§2.1046	Conducted Output Power	-	Report Only	-
	§22.913(a)(5)	Effective Radiated Power (Band 5)	ERP < 7 Watt	PASS	-
	§27.50(b)(10) §27.50(c)(10)	Effective Radiated Power (Band 12) (Band 13)	ERP < 3 Watt		-
	§24.232(c)	Equivalent Isotropic Radiated Power (Band 2)	EIRP < 2Watt		-
	§27.50(d)(4)	Equivalent Isotropic Radiated Power (Band 4)	EIRP < 1Watt		-
3.5	§24.232(d)	Peak-to-Average Ratio	<13 dB	PASS	1
3.6	§2.1049	Occupied Bandwidth	-	Report Only	1
3.7	§2.1051 §22.917(a) §24.238(a) §27.53(c)(2)(4) §27.53(g) §27.53(h)	Conducted Band Edge Measurement (Band 2) (Band 4) (Band 5) (Band 12) (Band 13)	< 43+10log ₁₀ (P[Watts])	PASS	1
3.8	§2.1051 §22.917(a) §24.238(a) §27.53(c)(2) §27.53(g) §27.53(h)	Conducted Spurious Emission (Band 2) (Band 4) (Band 5) (Band 12) (Band 13)	< 43+10log ₁₀ (P[Watts])	PASS	1
3.9	§2.1055 §22.355	Frequency Stability Temperature & Voltage	< 2.5 ppm for Part 22	PASS	1
	§2.1055 §24.235 §27.54		Within Authorized Band		
4.4	§2.1053 §22.917(a) §24.238(a) §27.53(c)(2) §27.53(f) §27.53(g) §27.53(h)	Radiated Spurious Emission (Band 2) (Band 4) (Band 5) (Band 12) (Band 13)	< 43+10log ₁₀ (P[Watts])	PASS	Under limit 23.76 dB at 1568.000 MHz

Remark 1: the conducted test items of QPSK were leverage from module RF report which can refer to Report No.: 19B0422R-HPUSP50V00.

Conformity Assessment Condition:

- 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/manufacture who shall bear all the risks of non-compliance that may potentially occur if measurement uncertainty is taken into account.
- 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

Nauto

1259 Reamwood Ave, Sunnyvale, CA 94089, USA

1.2 Manufacturer

Nauto

1259 Reamwood Ave, Sunnyvale, CA 94089, USA

1.3 Product Feature of Equipment Under Test

Product Feature	
Equipment	In-vehicle camera
Brand Name	Nauto
Model Name	N4
FCC ID	2AKJ5-N4
SNCode	Conducted: N40HTV6E1000E5L Radiation: N40HTV6E10011CZ
HW Version	V4
SW Version	NautoN4
EUT Stage	Identical Prototype

1.4 Product Specification of Equipment Under Test

Standards-related Product Specification	
Tx Frequency	LTE Band 2 : 1850 MHz ~ 1910 MHz LTE Band 4 : 1710 MHz ~ 1755 MHz LTE Band 5 : 824 MHz ~ 849 MHz LTE Band 12 : 699 MHz ~ 716 MHz LTE Band 13 : 777 MHz ~ 787 MHz
Rx Frequency	LTE Band 2 : 1930 MHz ~ 1990 MHz LTE Band 4 : 2110 MHz ~ 2155 MHz LTE Band 5 : 869 MHz ~ 894 MHz LTE Band 12 : 729 MHz ~ 746 MHz LTE Band 13 : 746 MHz ~ 756 MHz
Bandwidth	LTE Band 2 : 1.4MHz / 3MHz / 5MHz / 10MHz / 15MHz / 20MHz LTE Band 4 : 1.4MHz / 3MHz / 5MHz / 10MHz / 15MHz / 20MHz LTE Band 5 : 1.4MHz / 3MHz / 5MHz / 10MHz LTE Band 12 : 1.4MHz / 3MHz / 5MHz / 10MHz LTE Band 13 : 5MHz / 10MHz
Maximum Output Power to Antenna	LTE Band 2 : 23.44 dBm LTE Band 4 : 23.09 dBm LTE Band 5 : 23.46 dBm LTE Band 12 : 23.26 dBm LTE Band 13 : 23.13 dBm

Antenna Gain	LTE Band 2 : -1.2 dBi LTE Band 4 : -1.2 dBi LTE Band 5 : -2.7 dBi LTE Band 12 : -1.0 dBi LTE Band 13 : -1.1 dBi
Type of Modulation	QPSK / 16QAM

Note: the device support LTE Cat 1.

1.5 Modification of EUT

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

1.6 Maximum ERP/EIRP Power and Emission Designator

LTE Band 2		QPSK		16QAM	
BW (MHz)	Frequency Range (MHz)	Maximum EIRP(W)	Emission Designator (99%OBW)	Maximum EIRP(W)	Emission Designator (99%OBW)
1.4	1850.7 ~ 1909.3	0.1603	-	0.1050	1M10W7D
3	1851.5 ~ 1908.5	0.1585	-	0.1086	2M75W7D
5	1852.5 ~ 1907.5	0.1552	-	0.1107	4M48W7D
10	1855.0 ~ 1905.0	0.1675	-	0.1094	5M01W7D
15	1857.5 ~ 1902.5	0.1589	-	0.1084	5M00W7D
20	1860.0 ~ 1900.0	0.1652	-	0.1132	5M07W7D
LTE Band 4		QPSK		16QAM	
BW (MHz)	Frequency Range (MHz)	Maximum EIRP(W)	Emission Designator (99%OBW)	Maximum EIRP(W)	Emission Designator (99%OBW)
1.4	1710.7 ~ 1754.3	0.1545	-	0.1135	1M10W7D
3	1711.5 ~ 1753.5	0.1462	-	0.1140	2M73W7D
5	1712.5 ~ 1752.5	0.1442	-	0.1175	4M48W7D
10	1715.0 ~ 1750.0	0.1496	-	0.1164	5M03W7D
15	1717.5 ~ 1747.5	0.1466	-	0.1132	5M06W7D
20	1720.0 ~ 1745.0	0.1517	-	0.1191	5M03W7D



LTE Band 5		QPSK		16QAM	
BW (MHz)	Frequency Range (MHz)	Maximum ERP(W)	Emission Designator (99%OBW)	Maximum ERP(W)	Emission Designator (99%OBW)
1.4	824.7 ~ 848.3	0.0726	-	0.0462	1M10W7D
3	825.5 ~ 847.5	0.0693	-	0.0480	2M72W7D
5	826.5 ~ 846.5	0.0675	-	0.0489	4M47W7D
10	829.0 ~ 844.0	0.0714	-	0.0532	4M96W7D
LTE Band 12		QPSK		16QAM	
BW (MHz)	Frequency Range (MHz)	Maximum ERP(W)	Emission Designator (99%OBW)	Maximum ERP(W)	Emission Designator (99%OBW)
1.4	699.7 ~ 715.3	0.1005	-	0.0787	1M11W7D
3	700.5 ~ 714.5	0.1026	-	0.0859	2M74W7D
5	701.5 ~ 713.5	0.0971	-	0.0798	4M52W7D
10	704.0 ~ 711.0	0.0991	-	0.0830	5M00W7D
LTE Band 13		QPSK		16QAM	
BW (MHz)	Frequency Range (MHz)	Maximum ERP(W)	Emission Designator (99%OBW)	Maximum ERP(W)	Emission Designator (99%OBW)
5	779.5 ~ 784.5	0.0962	-	0.0738	4M51W7D
10	782.0	0.0973	-	0.0711	5M07W7D

Note: the conducted test items of QPSK were leverage from module RF report which can refer to Report No.: 19B0422R-HPUSP50V00.

1.7 Testing Location

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

Test Firm	Sporton International Inc. (Kunshan)		
Test Site Location	No. 1098, Pengxi North Road, Kunshan Economic Development Zone Jiangsu Province 215300 People's Republic of China TEL : +86-512-57900158		
Test Site No.	Sporton Site No.	FCC Designation No.	FCC Test Firm Registration No.
	TH01-KS 03CH04-KS	CN1257	314309



1.8 Test Software

Item	Site	Manufacture	Name	Version
1.	TH01-KS	SPORTON	FCC LTE_Ver2.0 Auto_china_210503	2.0
2.	03CH04-KS	AUDIX	E3	210616

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, 22(H), 24(E), 27(L), 27(F), 27(H)
- ♦ ANSI C63.26-2015
- ♦ FCC KDB 971168 D01 Power Meas License Digital Systems v03r01
- ♦ FCC KDB 412172 D01 Determining ERP and EIRP v01r01

Remark:

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



2 Test Configuration of Equipment Under Test

2.1 Test Mode

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

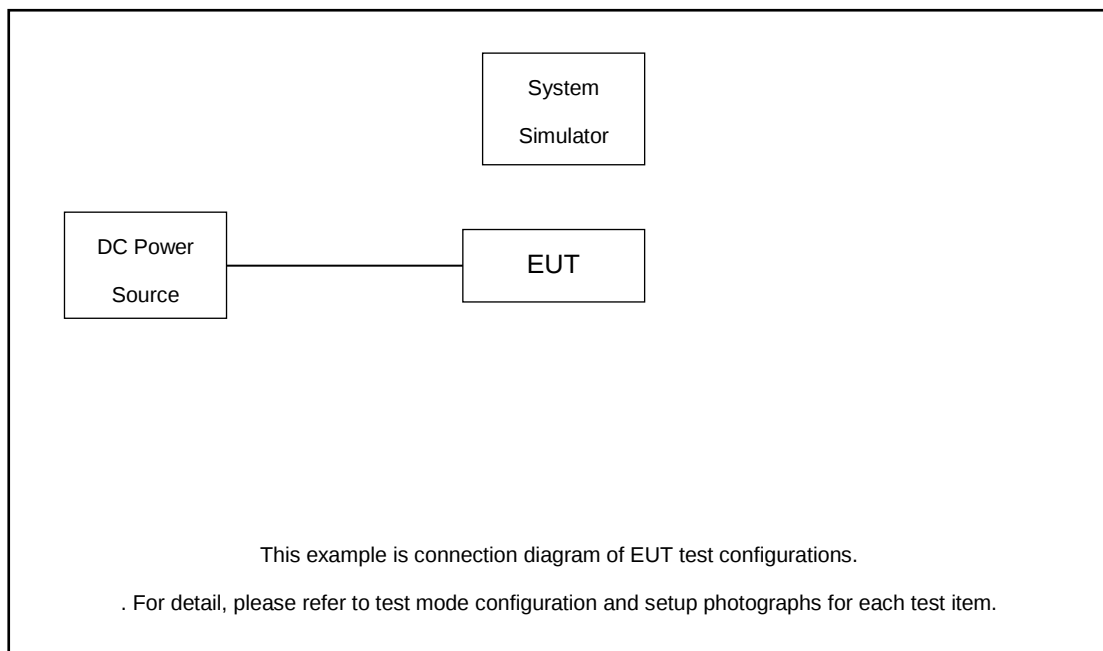
Radiated measurements are performed by rotating the EUT in three different orthogonal test planes to find the maximum emission.

Test Items	Band	Bandwidth (MHz)						Modulation				RB #			Test Channel		
		1.4	3	5	10	15	20	QPSK	16QAM	64QAM	256QAM	1	Half	Full	L	M	H
Max. Output Power	2	v	v	v	v	v	v	v	v	-	-	v		v	v	v	v
	4	v	v	v	v	v	v	v	v	-	-	v		v	v	v	v
	5	v	v	v	v	-	-	v	v	-	-	v		v	v	v	v
	12	v	v	v	v	-	-	v	v	-	-	v		v	v	v	v
	13	-	-	v	v	-	-	v	v	-	-	v		v	v	v	v
Peak-to-Average Ratio	2						v		v	-	-			v		v	
	4				v				v	-	-			v		v	
	5				v	-	-		v	-	-			v		v	
	12				v	-	-		v	-	-			v		v	
	13				v	-	-		v	-	-			v		v	
26dB and 99% Bandwidth	2	v	v	v	v	v	v		v	-	-			v		v	
	4	v	v	v	v	v	v		v	-	-			v		v	
	5	v	v	v	v	-	-		v	-	-			v		v	
	12	v	v	v	v	-	-		v	-	-			v		v	
	13			v	v	-	-		v	-	-			v		v	
Conducted Band Edge	2	v	v	v	v	v	v		v	-	-	v		v	v		v
	4	v	v	v	v	v	v		v	-	-	v		v	v		v
	5	v	v	v	v	-	-		v	-	-	v		v	v		v
	12	v	v	v	v	-	-		v	-	-	v		v	v		v
	13			v	v	-	-		v	-	-	v		v	v		v



Test Items	Band	Bandwidth (MHz)						Modulation				RB #			Test Channel		
		1.4	3	5	10	15	20	QPSK	16QAM	64QAM	256QAM	1	Half	Full	L	M	H
E.R.P / E.I.R.P	2	v	v	v	v	v	v	v	v	-	-	v		v	v	v	v
	4	v	v	v	v	v	v	v	v	-	-	v		v	v	v	v
	5	v	v	v	v	-	-	v	v	-	-	v		v	v	v	v
	12	v	v	v	v	-	-	v	v	-	-	v		v	v	v	v
	13	-	-	v	v	-	-	v	v	-	-	v		v	v	v	v
Radiated Spurious Emission	2	Worst Case													v	v	v
	4	Worst Case													v	v	v
	5	Worst Case													v	v	v
	12	Worst Case													v	v	v
	13	Worst Case													v	v	v
Note	1. The mark “v ” means that this configuration is chosen for testing 2. The mark “-” means that this bandwidth is not supported. 3. The device is investigated from 30MHz to 10 times of fundamental signal for radiated spurious emission test under different RB size/offset and modulations in exploratory test. Subsequently, only the worst case emissions are reported.																

2.2 Connection Diagram of Test System



2.3 Support Unit used in test configuration and system

Item	Equipment	Trade Name	Model No.	FCC ID	Data Cable	Power Cord
1.	LTE Base Station	Anritsu	MT8820/8821	N/A	N/A	Unshielded, 1.8 m
2.	DC Power	TIANNENG	A6-DZF-12V	N/A	N/A	N/A

2.4 Measurement Results Explanation Example

For all conducted test items:

The offset level is set in the spectrum analyzer to compensate the RF cable loss 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 5.4 dB.

Example :

$$\begin{aligned} \text{Offset(dB)} &= \text{RF cable loss(dB)}. \\ &= 5.4 \text{ (dB)} \end{aligned}$$



2.5 Frequency List of Low/Middle/High Channels

LTE Band 2 Channel and Frequency List				
BW [MHz]	Channel/Frequency(MHz)	Lowest	Middle	Highest
20	Channel	18700	18900	19100
	Frequency	1860	1880	1900
15	Channel	18675	18900	19125
	Frequency	1857.5	1880	1902.5
10	Channel	18650	18900	19150
	Frequency	1855	1880	1905
5	Channel	18625	18900	19175
	Frequency	1852.5	1880	1907.5
3	Channel	18615	18900	19185
	Frequency	1851.5	1880	1908.5
1.4	Channel	18607	18900	19193
	Frequency	1850.7	1880	1909.3

LTE Band 4 Channel and Frequency List				
BW [MHz]	Channel/Frequency(MHz)	Lowest	Middle	Highest
20	Channel	20050	20175	20300
	Frequency	1720	1732.5	1745
15	Channel	20025	20175	20325
	Frequency	1717.5	1732.5	1747.5
10	Channel	20000	20175	20350
	Frequency	1715	1732.5	1750
5	Channel	19975	20175	20375
	Frequency	1712.5	1732.5	1752.5
3	Channel	19965	20175	20385
	Frequency	1711.5	1732.5	1753.5
1.4	Channel	19957	20175	20393
	Frequency	1710.7	1732.5	1754.3



LTE Band 5 Channel and Frequency List				
BW [MHz]	Channel/Frequency(MHz)	Lowest	Middle	Highest
10	Channel	20450	20525	20600
	Frequency	829	836.5	844
5	Channel	20425	20525	20625
	Frequency	826.5	836.5	846.5
3	Channel	20415	20525	20635
	Frequency	825.5	836.5	847.5
1.4	Channel	20407	20525	20643
	Frequency	824.7	836.5	848.3

LTE Band 12 Channel and Frequency List				
BW [MHz]	Channel/Frequency(MHz)	Lowest	Middle	Highest
10	Channel	23060	23095	23130
	Frequency	704	707.5	711
5	Channel	23035	23095	23155
	Frequency	701.5	707.5	713.5
3	Channel	23025	23095	23165
	Frequency	700.5	707.5	714.5
1.4	Channel	23017	23095	23173
	Frequency	699.7	707.5	715.3

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

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/EIRP

3.4.1 Description of the Conducted Output Power Measurement and ERP/EIRP Measurement

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

The ERP of mobile transmitters must not exceed 7 Watts for LTE Band 5.

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

The EIRP of mobile transmitters must not exceed 2 Watts for LTE Band 2.

The EIRP of mobile transmitters must not exceed 1 Watts for LTE Band 4.

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

22.917(a)

For operations in the 824 – 849 MHz band, the FCC limit is $43 + 10\log_{10}(P[\text{Watts}])$ dB below the transmitter power $P(\text{Watts})$ in a 100kHz bandwidth. However, in the 1MHz bands immediately outside and adjacent to the licensee's frequency block, a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed.

24.238 (a)

For operations in the 1850-1910 and 1930-1990 MHz band, the FCC limit is $43 + 10\log_{10}(P[\text{Watts}])$ dB below the transmitter power $P(\text{Watts})$ in a 1MHz bandwidth. However, in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed.

27.53 (c)

For operations in the 776-788 MHz band, the FCC limit is $43 + 10\log_{10}(P[\text{Watts}])$ dB below the transmitter power $P(\text{Watts})$ 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 $65 + 10 \log_{10} p(\text{watts})$, dB, for mobile and portable equipment.

27.53 (g)

For operations in the 600MHz band and 698 -746 MHz band, the FCC limit is $43 + 10\log_{10}(P[\text{Watts}])$ dB below the transmitter power $P(\text{Watts})$ in a 100 kHz bandwidth. However, in the 100 kilohertz bands immediately outside and adjacent to a licensee's frequency block, a resolution bandwidth of at least 30 kHz may be employed.

27.53 (h)

For operations in the 1710 – 1755 MHz band, the FCC limit is $43 + 10\log_{10}(P[\text{Watts}])$ dB below the transmitter power $P(\text{Watts})$ in a 1 MHz bandwidth. However, in the 1MHz bands immediately outside and adjacent to the licensee's frequency block, a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed.

3.7.2 Test Procedures

1. The testing follows ANSI C63.26 section 5.7
2. The EUT was connected to spectrum analyzer and system simulator via a power divider.
3. The band edges of low and high channels for the highest RF powers were measured.
4. Set RBW $\geq 1\%$ EBW in the 1MHz band immediately outside and adjacent to the band edge.
5. Beyond the 1 MHz band from the band edge, RBW=1MHz was used or a narrower RBW was used and the measured power was integrated over the full required measurement bandwidth of 1 MHz.
6. Set spectrum analyzer with RMS detector.
7. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
8. Checked that all the results comply with the emission limit line.

Example:

The limit line is derived from $43 + 10\log(P)$ dB below the transmitter power P(Watts)

$$= P(W) - [43 + 10\log(P)] \text{ (dB)}$$

$$= [30 + 10\log(P)] \text{ (dBm)} - [43 + 10\log(P)] \text{ (dB)} = -13\text{dBm}.$$

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

3.8 Conducted Spurious Emission

3.8.1 Description of Conducted Spurious Emission Measurement

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

It is measured by means of a calibrated spectrum analyzer and scanned from 30 MHz up to a frequency including its 10th 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 $43 + 10\log(P)$ dB below the transmitter power P(Watts)
 $= P(W) - [43 + 10\log(P)]$ (dB)
 $= [30 + 10\log(P)]$ (dBm) - $[43 + 10\log(P)]$ (dB)
 $= -13$ dBm.

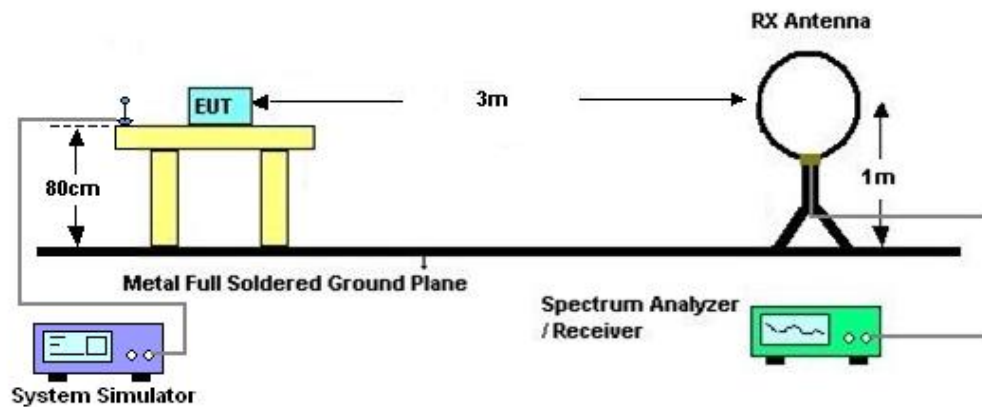
4 Radiated Test Items

4.1 Measuring Instruments

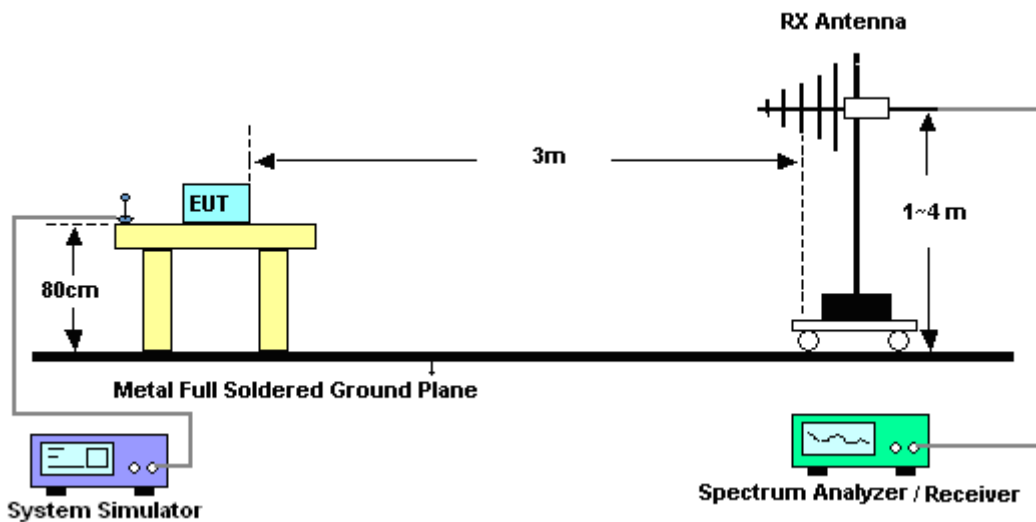
See list of measuring instruments of this test report.

4.2 Test Setup

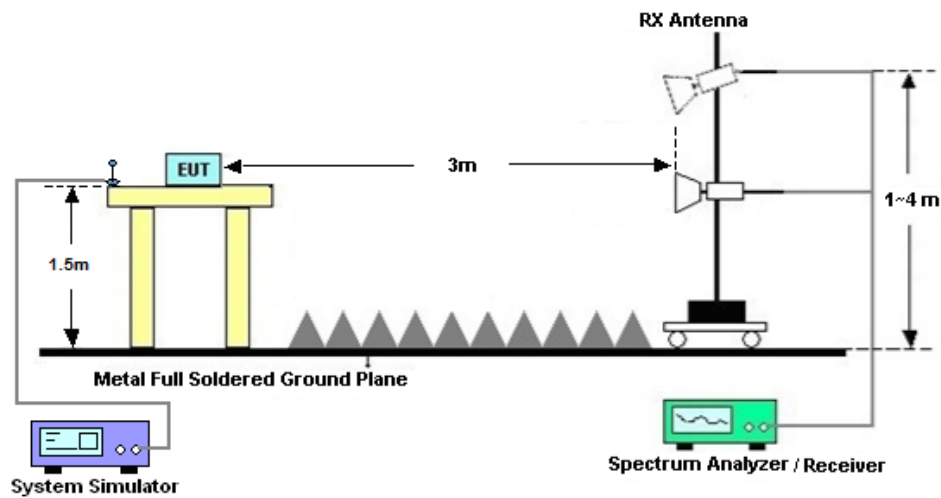
4.2.1 For radiated test below 30MHz



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. $\text{EIRP (dBm)} = \text{S.G. Power} - \text{Tx Cable Loss} + \text{Tx Antenna Gain}$
11. $\text{ERP (dBm)} = \text{EIRP} - 2.15$
12. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.

The limit line is derived from $43 + 10\log(P)$ dB below the transmitter power P(Watts)
 $= P(W) - [43 + 10\log(P)] \text{ (dB)}$
 $= [30 + 10\log(P)] \text{ (dBm)} - [43 + 10\log(P)] \text{ (dB)}$
 $= -13\text{dBm}.$



5 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
EXA Spectrum Analyzer	Keysight	N9010B	MY57471079	10Hz-44G,MAX 30dB	Oct. 10, 2023	Apr. 19, 2024	Oct. 09, 2024	Conducted (TH01-KS)
Power divider	STI	STI08-0055	-	0.5~40GHz	NCR	Apr. 19, 2024	NCR	Conducted (TH01-KS)
Temperature & humidity chamber	Hongzhan	LP-150U	H2014011440	-40~+150°C 20%~95%RH	Jul. 06, 2023	Apr. 19, 2024	Jul. 05, 2024	Conducted (TH01-KS)
EXA Spectrum Analyzer	Keysight	N9010B	MY57471079	10Hz-44G,MAX 30dB	Oct. 10, 2023	Apr. 03, 2024	Oct. 09, 2024	Radiation (03CH04-KS)
Loop Antenna	R&S	HFH2-Z2E	101125	9kHz~30MHz	Sep. 11 2023	Apr. 03, 2024	Sep. 10, 2024	Radiation (03CH04-KS)
Bilog Antenna	TeseQ	CBL6111D	49922	30MHz-1GHz	Apr. 09, 2023	Apr. 03, 2024	Apr. 08, 2024	Radiation (03CH04-KS)
Double Ridge Horn Antenna	ETS-Lindgren	3117	00251694	1GHz~18GHz	Jul. 12, 2023	Apr. 03, 2024	Jul. 11, 2024	Radiation (03CH04-KS)
SHF-EHF Horn	Com-power	AH-840	101070	18GHz~40GHz	Jan. 05, 2024	Apr. 03, 2024	Jan. 04, 2025	Radiation (03CH04-KS)
Amplifier	SONOMA	310N	380827	9KHz-1GHz	Jul. 06, 2023	Apr. 03, 2024	Jul. 05, 2024	Radiation (03CH04-KS)
Amplifier	MITEQ	EM18G40G GA	060728	18~40GHz	Jan. 05, 2024	Apr. 03, 2024	Jan. 04, 2025	Radiation (03CH04-KS)
high gain Amplifier	EM	EM01G18G A	060840	1Ghz-18Ghz	Oct. 10, 2023	Apr. 03, 2024	Oct. 09, 2024	Radiation (03CH04-KS)
Amplifier	Agilent	8449B	3008A02370	1Ghz-18Ghz	Oct. 10, 2023	Apr. 03, 2024	Oct. 09, 2024	Radiation (03CH04-KS)
AC Power Source	Chroma	61601	F104090004	N/A	NCR	Apr. 03, 2024	NCR	Radiation (03CH04-KS)
Turn Table	ChamPro	EM 1000-T	060762-T	0~360 degree	NCR	Apr. 03, 2024	NCR	Radiation (03CH04-KS)
Antenna Mast	ChamPro	EM 1000-A	060762-A	1 m~4 m	NCR	Apr. 03, 2024	NCR	Radiation (03CH04-KS)

NCR: No Calibration Required



6 Measurement Uncertainty

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

Uncertainty of Conducted Measurement

Test Item	Uncertainty
Conducted Spurious Emission & Bandedge	± 2.26 dB
Occupied Channel Bandwidth	$\pm 0.1\%$
Conducted Power	± 0.46 dB
Peak to Average Ratio	± 0.46 dB
Frequency Stability	± 0.4 Hz

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

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	3.82 dB
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Uncertainty of Radiated Emission Measurement (1 GHz ~ 18 GHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	3.56 dB
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Uncertainty of Radiated Emission Measurement (18 GHz ~ 40 GHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	3.54 dB
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----- THE END -----



Appendix A. Test Results of Conducted Test

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

Conducted Output Power(Average power) and ERP/EIRP

LTE Band 2:

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	EIRP(W)		
Channel				18700	18900	19100			
Frequency (MHz)				1860	1880	1900	L	M	H
20	QPSK	1	0	23.13	23.26	22.75	0.1560	0.1607	0.1429
20	QPSK	1	99	23.19	23.38	22.72	0.1581	0.1652	0.1419
20	QPSK	100	0	22.11	22.10	22.11	0.1233	0.1230	0.1233
20	16QAM	1	0	21.74	21.61	21.46	0.1132	0.1099	0.1062
20	16QAM	1	99	21.35	21.12	21.49	0.1035	0.0982	0.1069
20	16QAM	27	0	20.64	20.53	20.54	0.0879	0.0857	0.0859
Channel				18675	18900	19125	EIRP(W)		
Frequency (MHz)				1857.5	1880	1902.5	L	M	H
15	QPSK	1	0	22.96	23.14	23.21	0.1500	0.1563	0.1589
15	16QAM	1	0	21.51	21.55	21.42	0.1074	0.1084	0.1052
Channel				18650	18900	19150	EIRP(W)		
Frequency (MHz)				1855	1880	1905	L	M	H
10	QPSK	1	0	23.17	23.21	23.44	0.1574	0.1589	0.1675
10	16QAM	1	0	21.59	21.52	21.50	0.1094	0.1076	0.1072
Channel				18625	18900	19175	EIRP(W)		
Frequency (MHz)				1852.5	1880	1907.5	L	M	H
5	QPSK	1	0	22.86	23.06	23.11	0.1466	0.1535	0.1552
5	16QAM	1	0	21.55	21.34	21.64	0.1084	0.1033	0.1107
Channel				18615	18900	19185	EIRP(W)		
Frequency (MHz)				1851.5	1880	1908.5	L	M	H
3	QPSK	1	0	22.99	23.06	23.20	0.1510	0.1535	0.1585
3	16QAM	1	0	21.45	21.50	21.56	0.1059	0.1072	0.1086
Channel				18607	18900	19193	EIRP(W)		
Frequency (MHz)				1850.7	1880	1909.3	L	M	H
1.4	QPSK	1	0	23.25	23.09	23.12	0.1603	0.1545	0.1556
1.4	16QAM	1	0	21.41	21.34	21.30	0.1050	0.1033	0.1023



LTE Band 4:

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	EIRP(W)		
Channel				20050	20175	20300			
Frequency (MHz)				1720	1732.5	1745	L	M	H
20	QPSK	1	0	22.82	22.81	22.92	0.1452	0.1449	0.1486
20	QPSK	1	99	22.72	22.73	23.01	0.1419	0.1422	0.1517
20	QPSK	100	0	21.98	21.82	21.75	0.1197	0.1153	0.1135
20	16QAM	1	0	21.82	21.73	21.84	0.1153	0.1130	0.1159
20	16QAM	1	99	21.96	21.70	21.77	0.1191	0.1122	0.1140
20	16QAM	27	0	20.92	20.89	20.82	0.0938	0.0931	0.0916
Channel				20025	20175	20325	EIRP(W)		
Frequency (MHz)				1717.5	1732.5	1747.5	L	M	H
15	QPSK	1	0	22.86	22.67	22.72	0.1466	0.1403	0.1419
15	16QAM	1	0	21.66	21.74	21.52	0.1112	0.1132	0.1076
Channel				20000	20175	20350	EIRP(W)		
Frequency (MHz)				1715	1732.5	1750	L	M	H
10	QPSK	1	0	22.94	22.76	22.95	0.1493	0.1432	0.1496
10	16QAM	1	0	21.79	21.86	21.76	0.1146	0.1164	0.1138
Channel				19975	20175	20375	EIRP(W)		
Frequency (MHz)				1712.5	1732.5	1752.5	L	M	H
5	QPSK	1	0	22.79	22.70	22.62	0.1442	0.1413	0.1387
5	16QAM	1	0	21.81	21.90	21.72	0.1151	0.1175	0.1127
Channel				19965	20175	20385	EIRP(W)		
Frequency (MHz)				1711.5	1732.5	1753.5	L	M	H
3	QPSK	1	0	22.85	22.74	22.66	0.1462	0.1426	0.1400
3	16QAM	1	0	21.77	21.74	21.69	0.1140	0.1132	0.1119
Channel				19950	20175	20393	EIRP(W)		
Frequency (MHz)				1710	1732.5	1754.3	L	M	H
1.4	QPSK	1	0	23.04	23.09	22.87	0.1528	0.1545	0.1469
1.4	16QAM	1	0	21.74	21.68	21.75	0.1132	0.1117	0.1135



LTE Band 5:

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	ERP(W)		
Channel				20450	20525	20600			
Frequency (MHz)				829	836.5	844	L	M	H
10	QPSK	1	0	23.26	23.35	23.28	0.0693	0.0708	0.0697
10	QPSK	1	49	23.11	23.39	23.21	0.0670	0.0714	0.0685
10	QPSK	50	0	22.33	22.29	22.32	0.0560	0.0555	0.0558
10	16QAM	1	0	22.11	21.85	21.79	0.0532	0.0501	0.0494
10	16QAM	1	49	21.84	21.92	21.80	0.0500	0.0509	0.0495
10	16QAM	27	0	21.16	21.15	21.16	0.0428	0.0427	0.0428
Channel				20425	20525	20625	ERP(W)		
Frequency (MHz)				826.5	836.5	846.5	L	M	H
5	QPSK	1	0	23.08	23.09	23.14	0.0665	0.0667	0.0675
5	16QAM	1	0	21.66	21.74	21.52	0.0480	0.0489	0.0465
Channel				20415	20525	20635	ERP(W)		
Frequency (MHz)				825.5	836.5	847.5	L	M	H
3	QPSK	1	0	23.26	23.18	23.22	0.0693	0.0681	0.0687
3	16QAM	1	0	21.46	21.59	21.66	0.0458	0.0472	0.0480
Channel				20407	20525	20643	ERP(W)		
Frequency (MHz)				824.7	836.5	848.3	L	M	H
1.4	QPSK	1	0	23.46	23.18	23.11	0.0726	0.0681	0.0670
1.4	16QAM	1	0	21.49	21.50	21.43	0.0461	0.0462	0.0455

LTE Band 12:

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	ERP(W)		
Channel				23060	23095	23130			
Frequency (MHz)				704	707.5	711	L	M	H
10	QPSK	1	0	23.02	23.08	23.06	0.0971	0.0984	0.0979
10	QPSK	1	49	22.93	23.11	23.02	0.0951	0.0991	0.0971
10	QPSK	50	0	22.20	21.99	22.13	0.0804	0.0766	0.0791
10	16QAM	1	0	22.34	22.16	22.19	0.0830	0.0796	0.0802
10	16QAM	1	49	21.98	22.09	21.84	0.0764	0.0783	0.0740
10	16QAM	27	0	21.44	21.35	21.28	0.0675	0.0661	0.0650
Channel				23035	23095	23155	ERP(W)		
Frequency (MHz)				701.5	707.5	713.5	L	M	H
5	QPSK	1	0	23.02	22.84	22.84	0.0971	0.0931	0.0931
5	16QAM	1	0	22.17	22.16	22.06	0.0798	0.0796	0.0778
Channel				23025	23095	23165	ERP(W)		
Frequency (MHz)				700.5	707.5	714.5	L	M	H
3	QPSK	1	0	23.12	23.26	23.06	0.0993	0.1026	0.0979
3	16QAM	1	0	22.49	22.11	22.39	0.0859	0.0787	0.0839
Channel				23017	23095	23173	ERP(W)		
Frequency (MHz)				699.7	707.5	715.3	L	M	H
1.4	QPSK	1	0	23.17	23.06	23.05	0.1005	0.0979	0.0977
1.4	16QAM	1	0	22.11	22.06	22.09	0.0787	0.0778	0.0783

**LTE Band 13:**

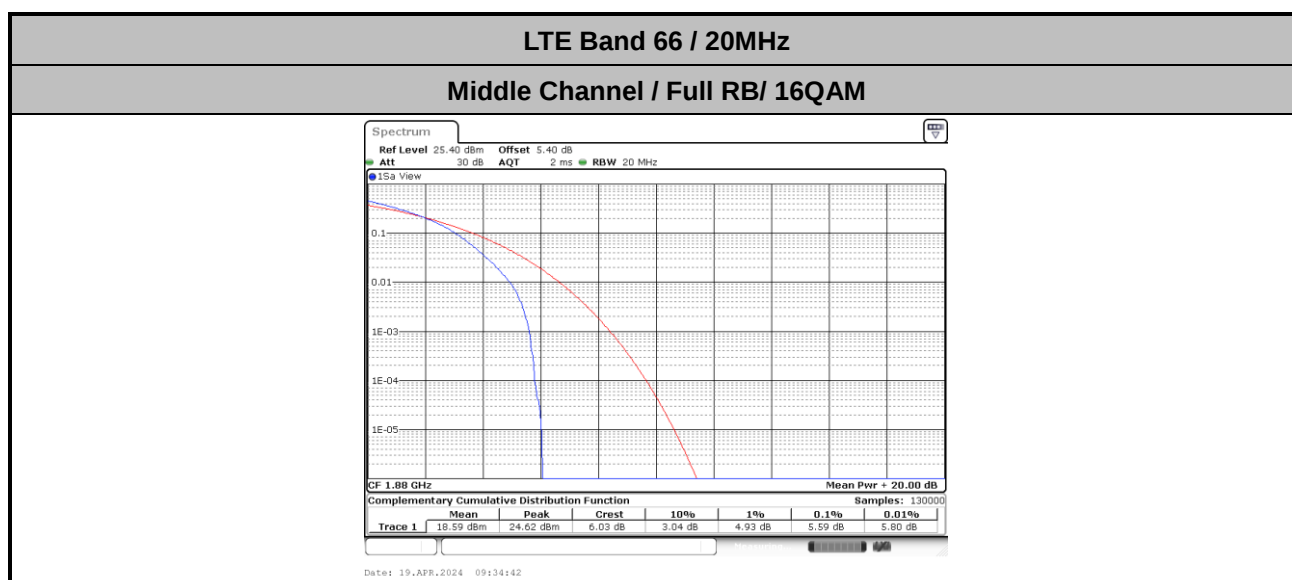
BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	ERP(W)		
Channel				23230					
Frequency (MHz)				782					
10	QPSK	1	0	23.13			0.0973		
10	QPSK	1	49	23.06			0.0957		
10	QPSK	50	0	21.96			0.0743		
10	16QAM	1	0	21.77			0.0711		
10	16QAM	1	49	21.64			0.0690		
10	16QAM	27	0	20.93			0.0586		
Channel				23205	23230	23255	ERP(W)		
Frequency (MHz)				779.5	782	784.5	L	M	H
5	QPSK	1	0	23.08	23.02	22.89	0.0962	0.0948	0.0920
5	16QAM	1	0	21.91	21.85	21.93	0.0735	0.0724	0.0738



LTE Band 2

Peak-to-Average Ratio

Mode	LTE Band 2 / 20MHz	
Mod.	16QAM	Limit: 13dB
RB Size	Full RB	Result
Middle CH	5.59	PASS

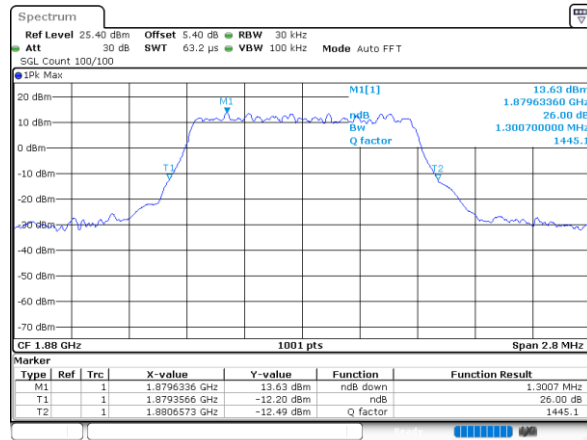


**26dB Bandwidth**

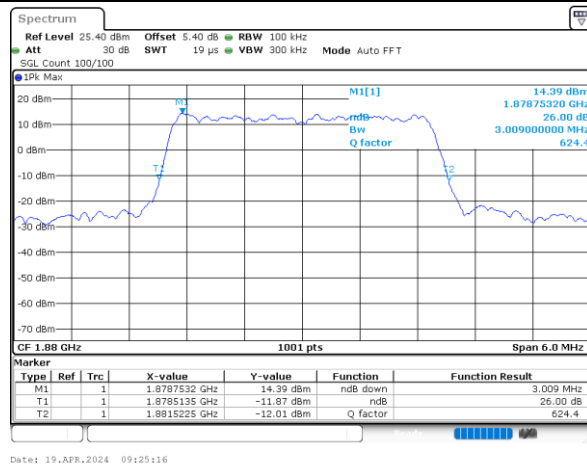
Mode	LTE Band 2 : 26dB BW(MHz)
BW	1.4MHz
Mod.	16QAM
Middle CH	1.30
BW	3MHz
Mod.	16QAM
Middle CH	3.01
BW	5MHz
Mod.	16QAM
Middle CH	4.86
BW	10MHz
Mod.	16QAM
Middle CH	5.56
BW	15MHz
Mod.	16QAM
Middle CH	5.93
BW	20MHz
Mod.	16QAM
Middle CH	5.67



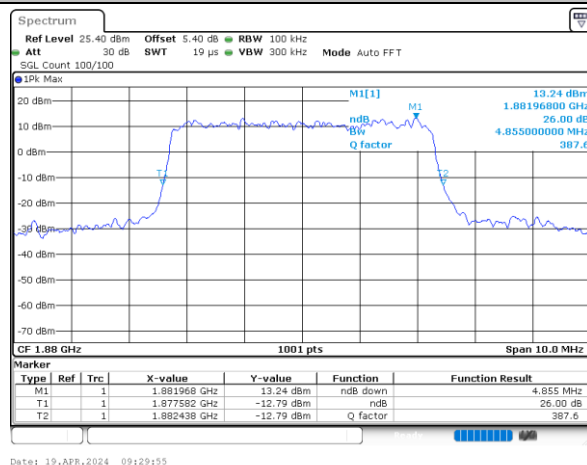
Middle Channel / 1.4MHz / 16QAM



Middle Channel / 3MHz / 16QAM

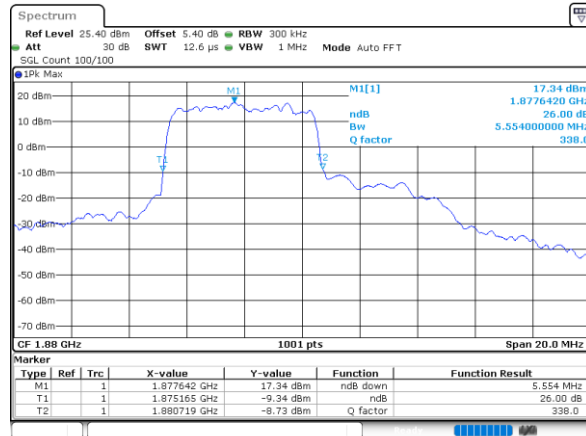


Middle Channel / 5MHz / 16QAM



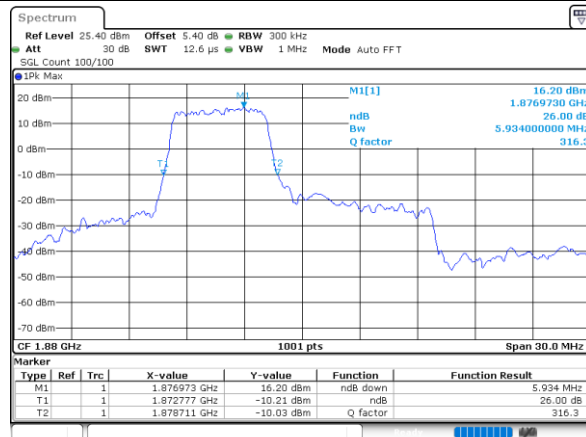


Middle Channel / 10MHz / 16QAM



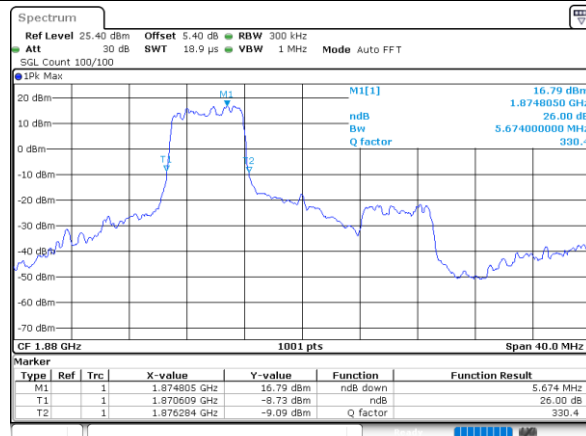
Date: 19.APR.2024 08:57:51

Middle Channel /15MHz / 16QAM



Date: 19.APR.2024 09:06:22

Middle Channel / 20MHz / 16QAM



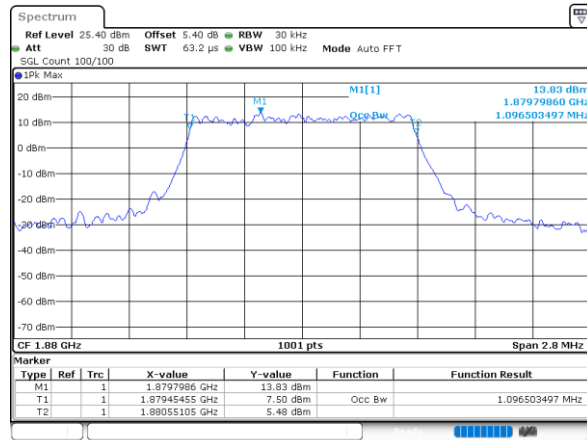
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**Occupied Bandwidth**

Mode	LTE Band 2 : 99%OBW(MHz)
BW	1.4MHz
Mod.	16QAM
Middle CH	1.10
BW	3MHz
Mod.	16QAM
Middle CH	2.75
BW	5MHz
Mod.	16QAM
Middle CH	4.48
BW	10MHz
Mod.	16QAM
Middle CH	5.01
BW	15MHz
Mod.	16QAM
Middle CH	5.00
BW	20MHz
Mod.	16QAM
Middle CH	5.07

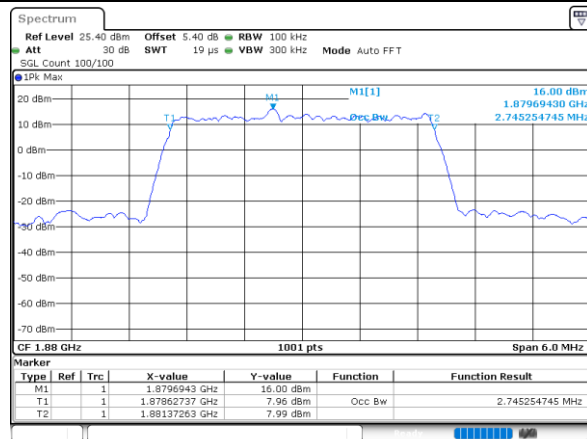


Middle Channel / 1.4MHz / 16QAM



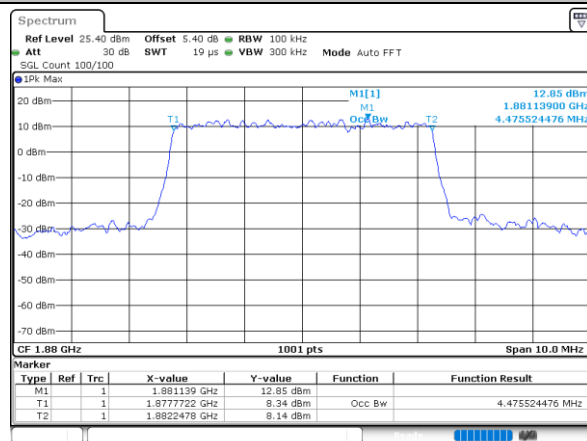
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Middle Channel / 3MHz / 16QAM



Date: 19.APR.2024 09:25:02

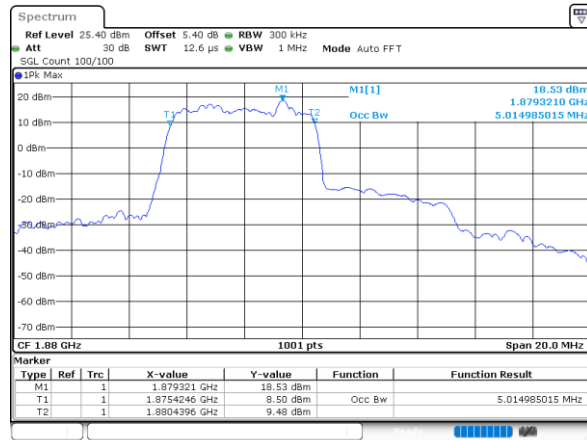
Middle Channel / 5MHz / 16QAM



Date: 19.APR.2024 09:29:41

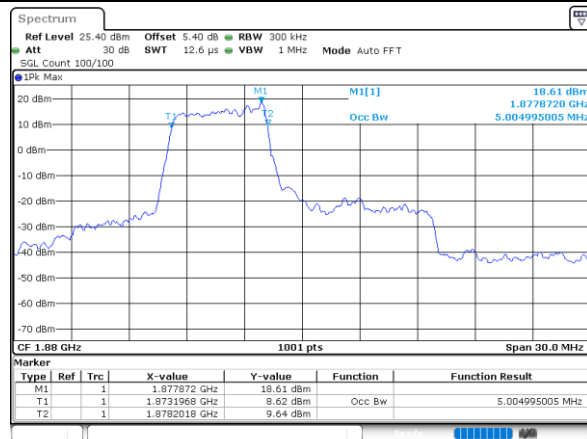


Middle Channel / 10MHz / 16QAM



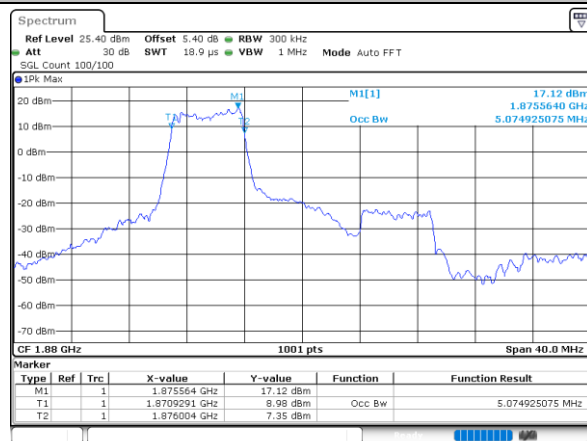
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Middle Channel /15MHz / 16QAM



Date: 19.APR.2024 09:06:01

Middle Channel / 20MHz / 16QAM



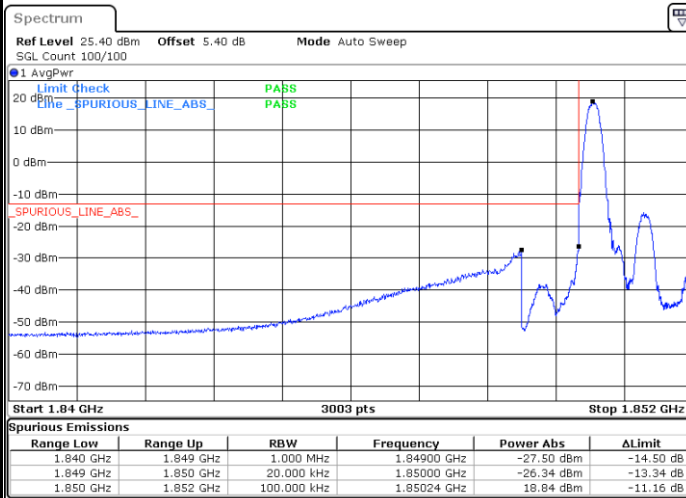
Date: 19.APR.2024 09:12:20



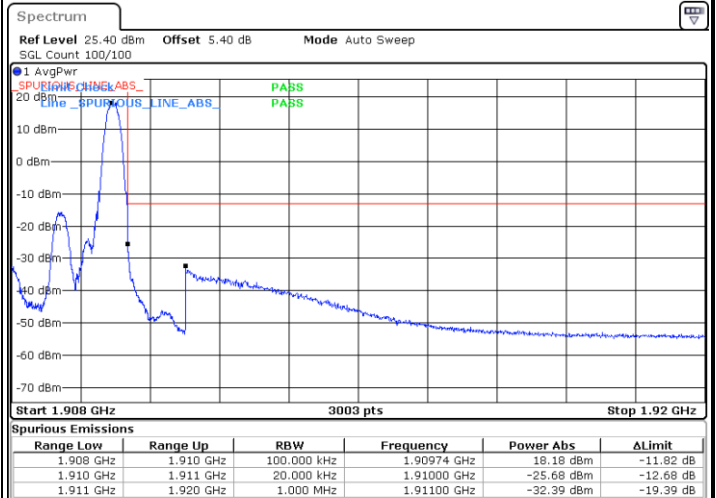
Conducted Band Edge

LTE Band 2 / 1.4MHz / 16QAM

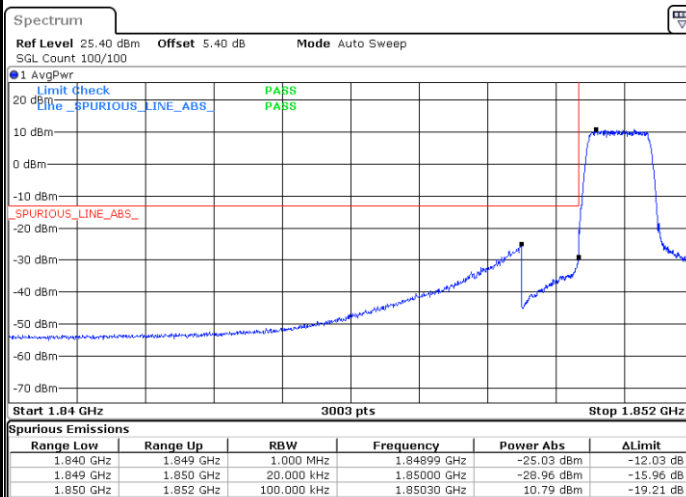
Lowest Band Edge / 1 RB



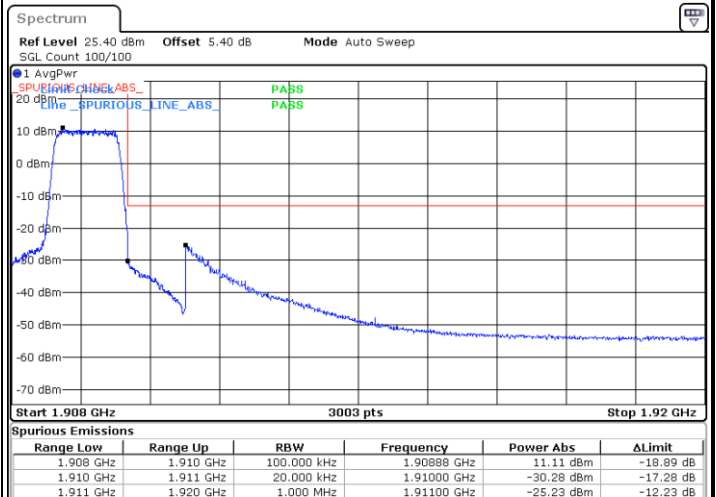
Highest Band Edge / 1 RB



Lowest Band Edge / Full RB



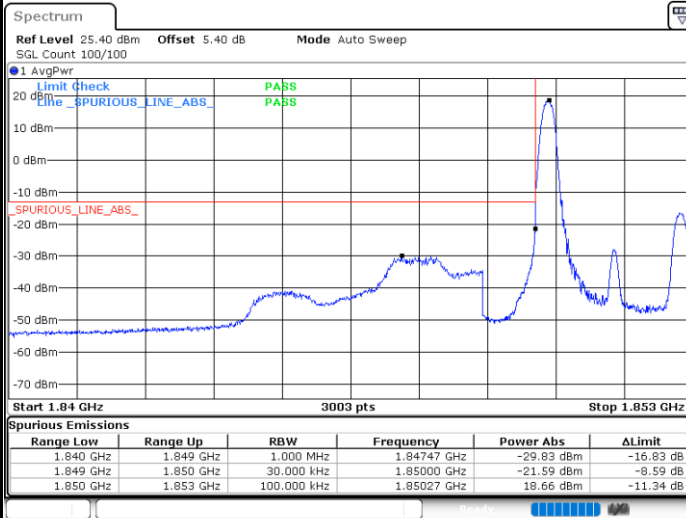
Highest Band Edge / Full RB



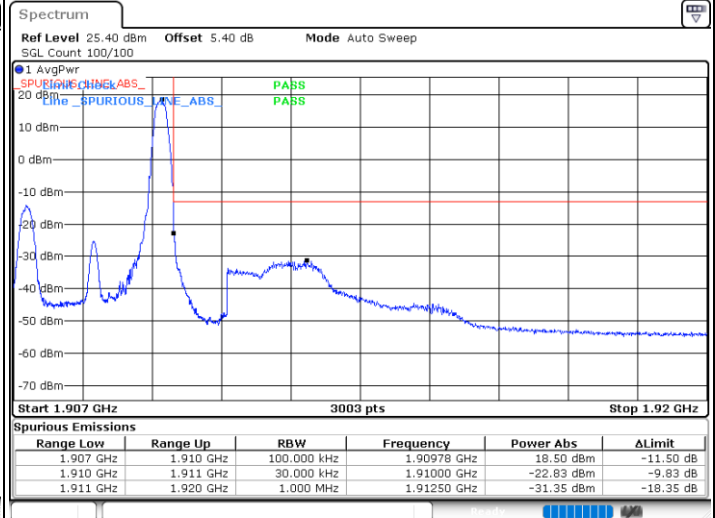


LTE Band 2 / 3MHz / 16QAM

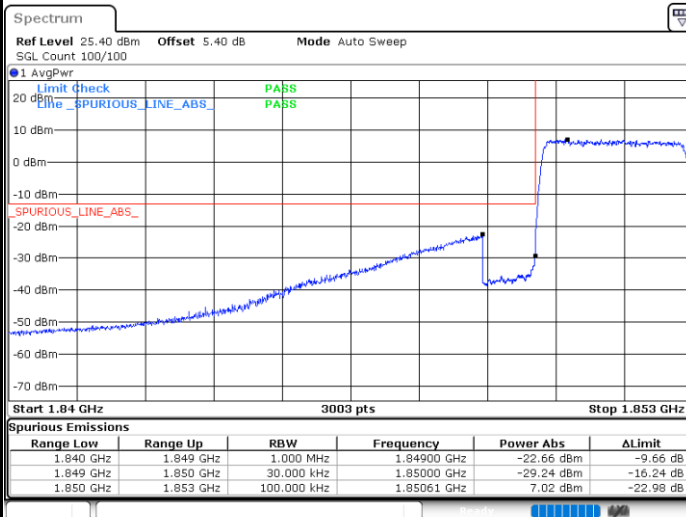
Lowest Band Edge / 1 RB



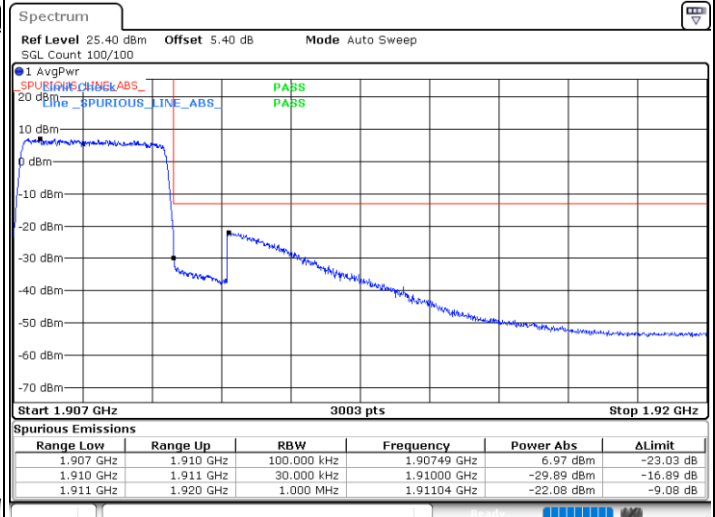
Highest Band Edge / 1 RB



Lowest Band Edge / Full RB



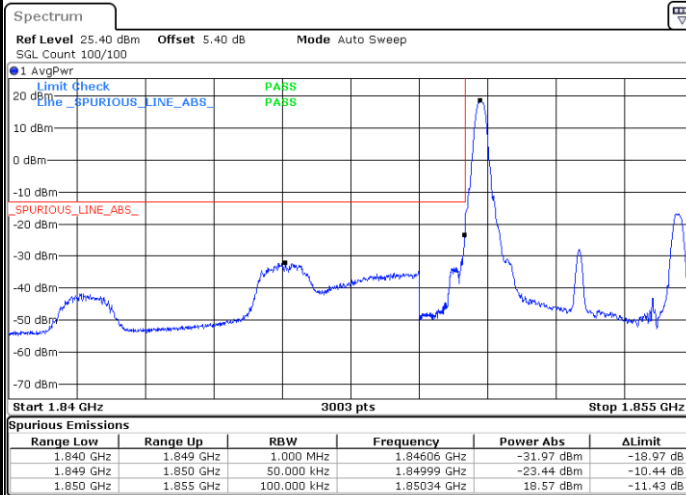
Highest Band Edge / Full RB



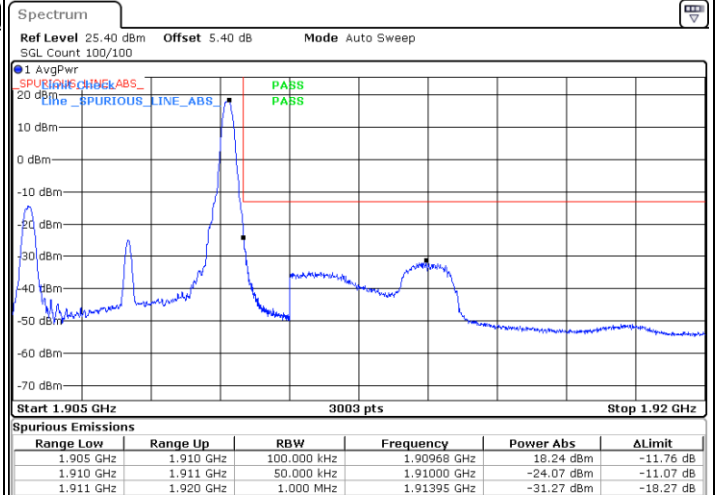


LTE Band 2 / 5MHz / 16QAM

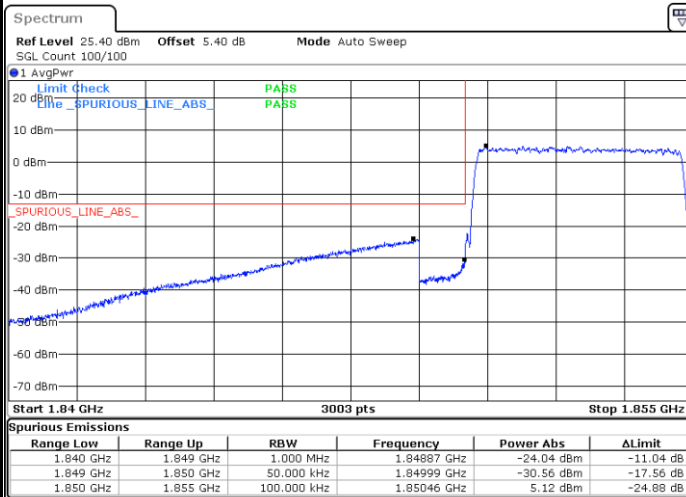
Lowest Band Edge / 1RB



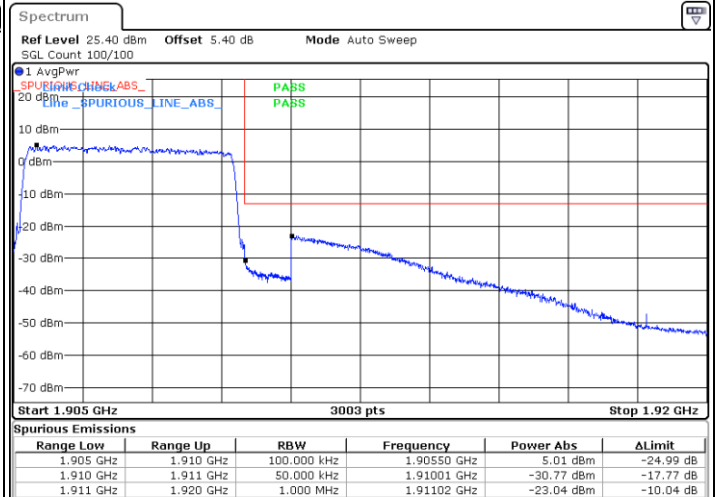
Highest Band Edge / 1 RB



Lowest Band Edge / Full RB



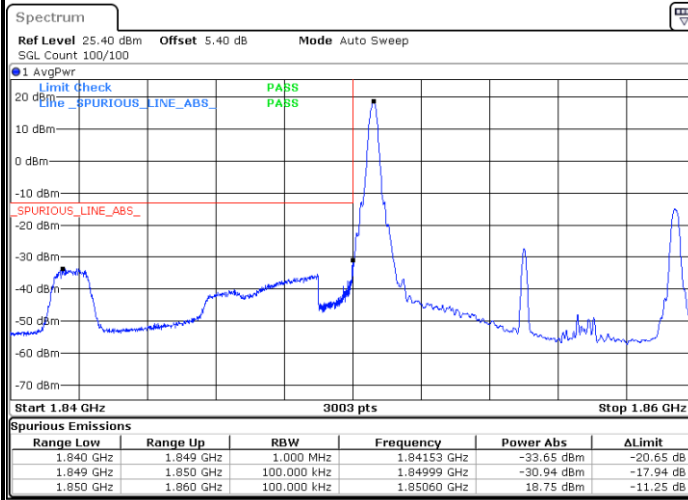
Highest Band Edge / Full RB



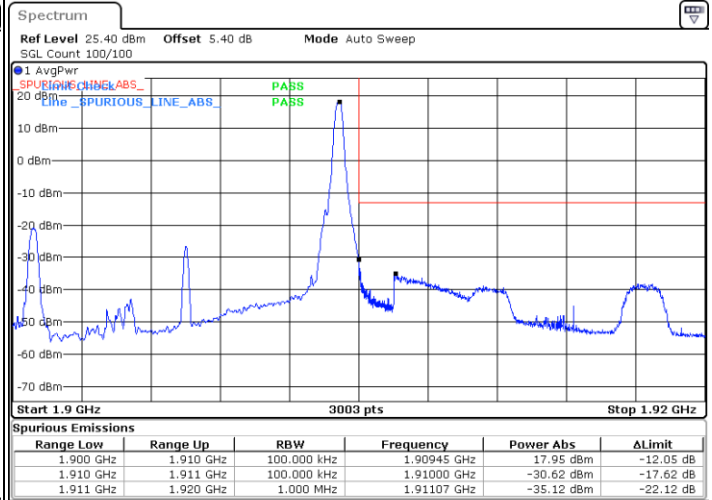


LTE Band 2 / 10MHz / 16QAM

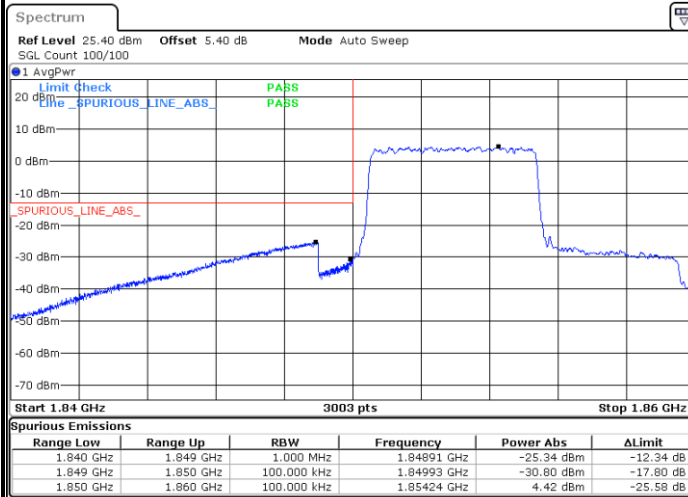
Lowest Band Edge / 1 RB



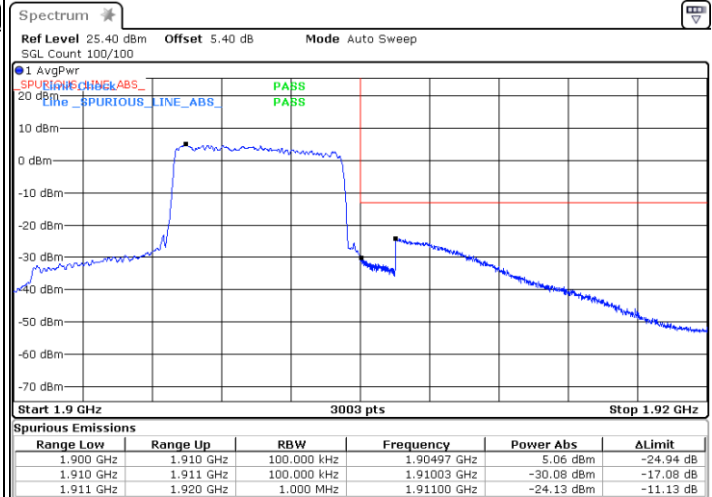
Highest Band Edge / 1 RB



Lowest Band Edge / Full RB



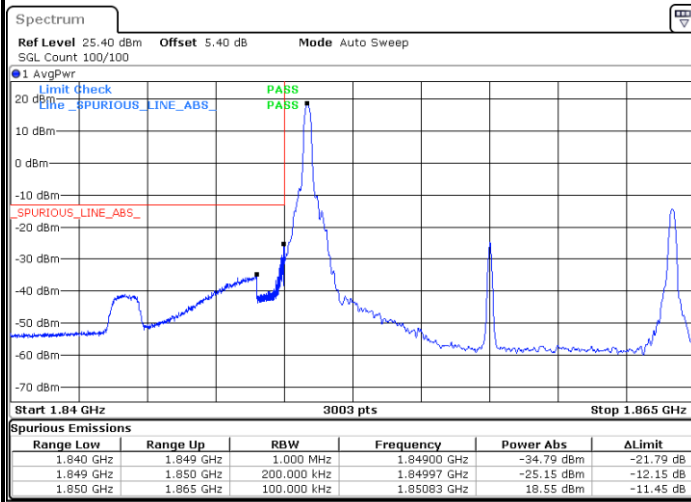
Highest Band Edge / Full RB



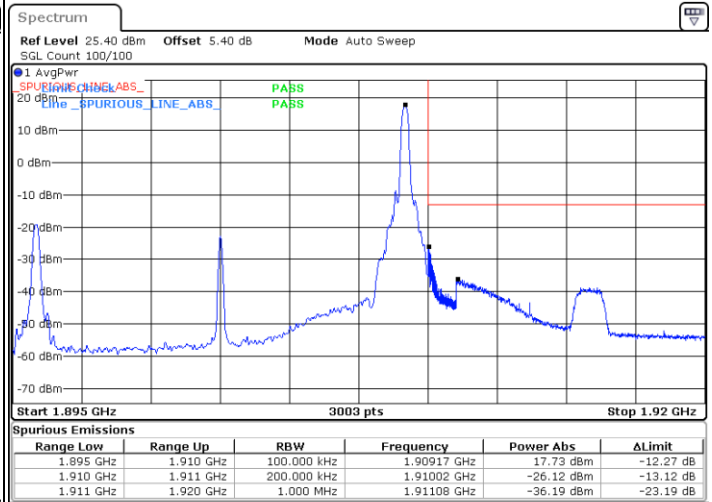


LTE Band 2 / 15MHz / 16QAM

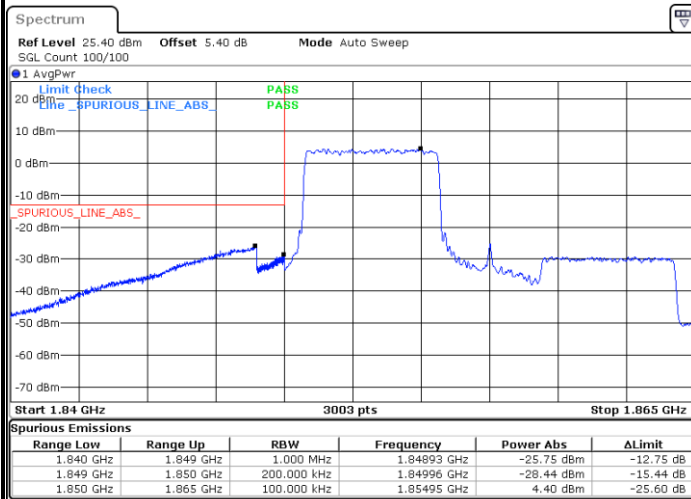
Lowest Band Edge / 1 RB



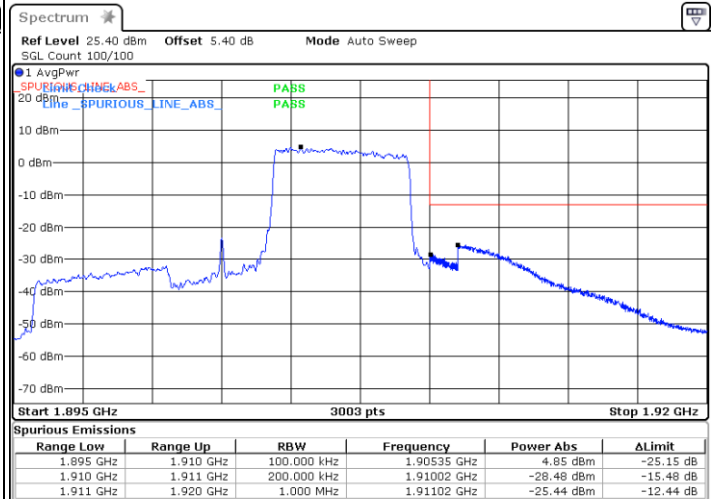
Highest Band Edge / 1 RB



Lowest Band Edge / Full RB



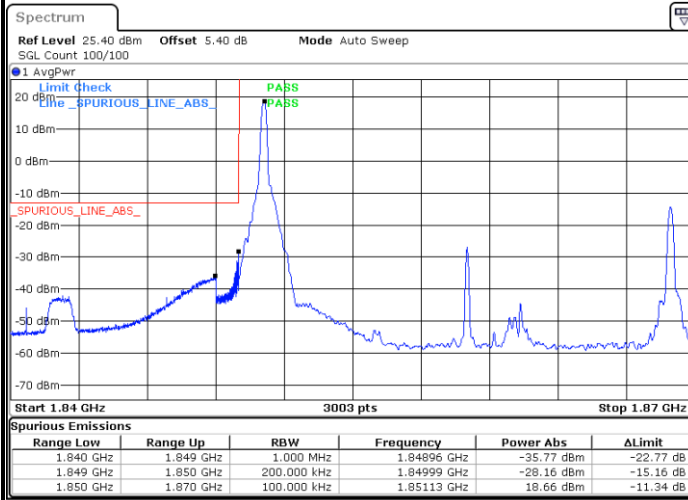
Highest Band Edge / Full RB



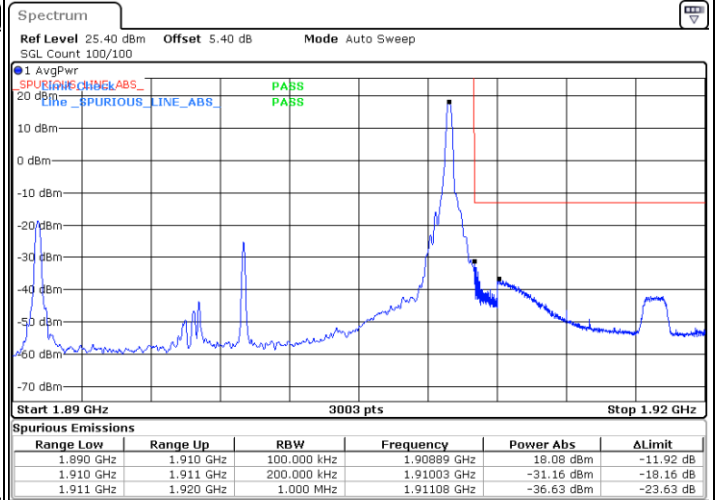


LTE Band 2 / 20MHz / 16QAM

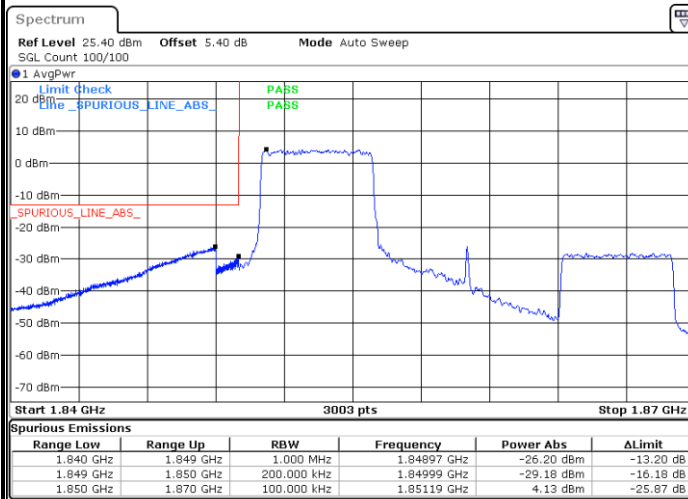
Lowest Band Edge / 1 RB



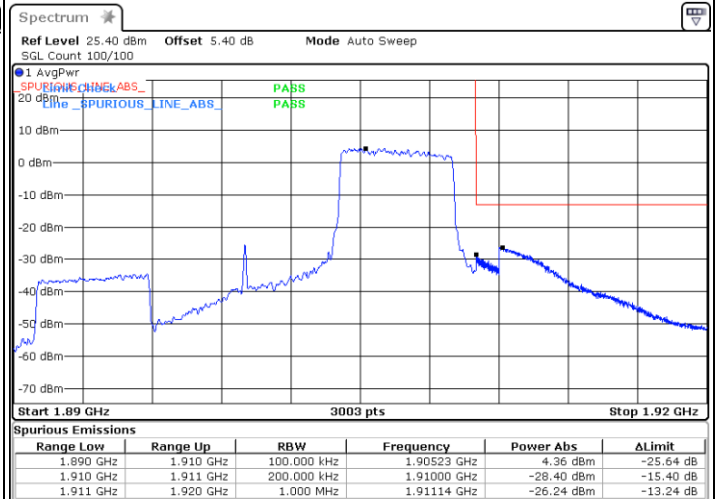
Highest Band Edge / 1 RB



Lowest Band Edge / Full RB



Highest Band Edge / Full RB

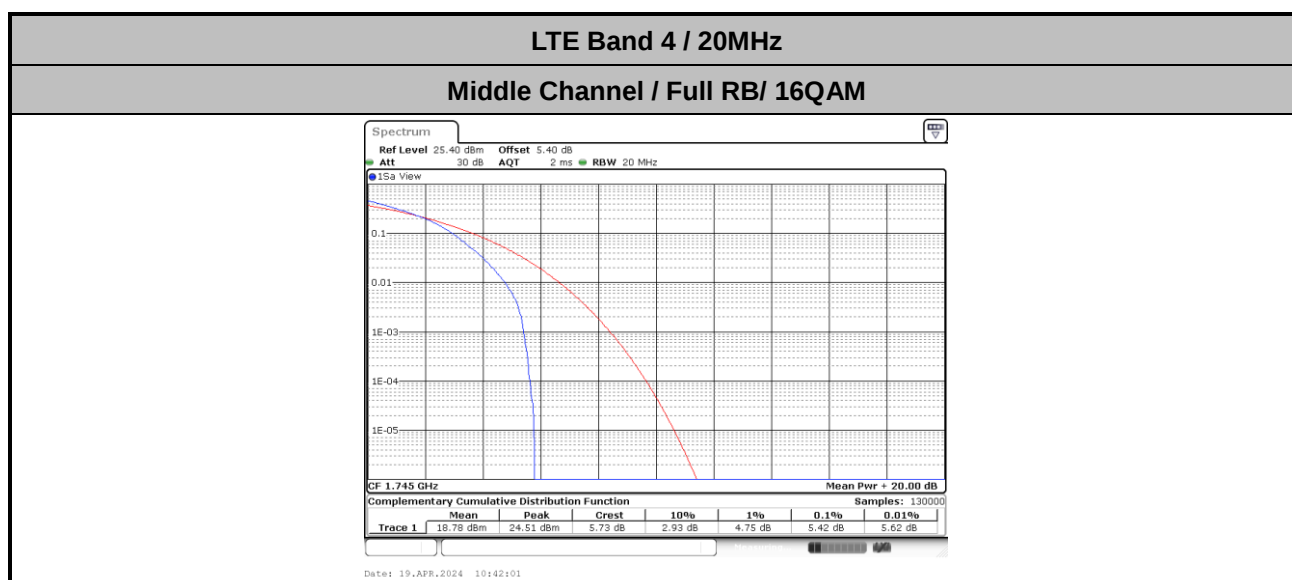




LTE Band 4

Peak-to-Average Ratio

Mode	LTE Band 4 / 20MHz	
Mod.	16QAM	Limit: 13dB
RB Size	Full RB	Result
Middle CH	5.42	PASS

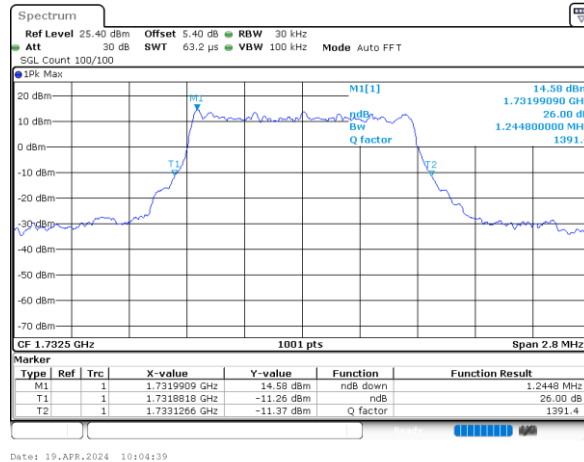


**26dB Bandwidth**

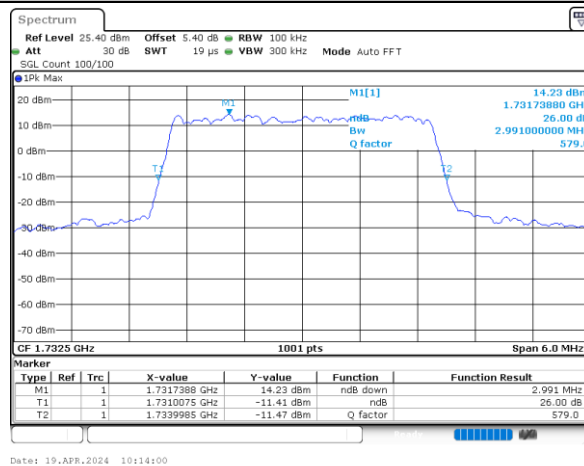
Mode	LTE Band 4 : 26dB BW(MHz)
BW	1.4MHz
Mod.	16QAM
Middle CH	1.24
BW	3MHz
Mod.	16QAM
Middle CH	2.99
BW	5MHz
Mod.	16QAM
Middle CH	4.94
BW	10MHz
Mod.	16QAM
Middle CH	5.53
BW	15MHz
Mod.	16QAM
Middle CH	6.02
BW	20MHz
Mod.	16QAM
Middle CH	5.75



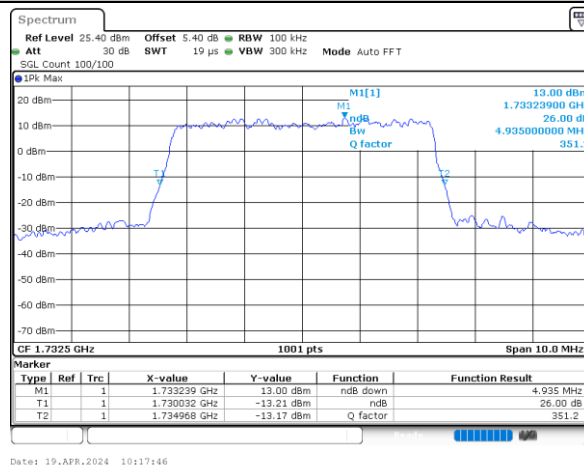
Middle Channel / 1.4MHz / 16QAM



Middle Channel / 3MHz / 16QAM

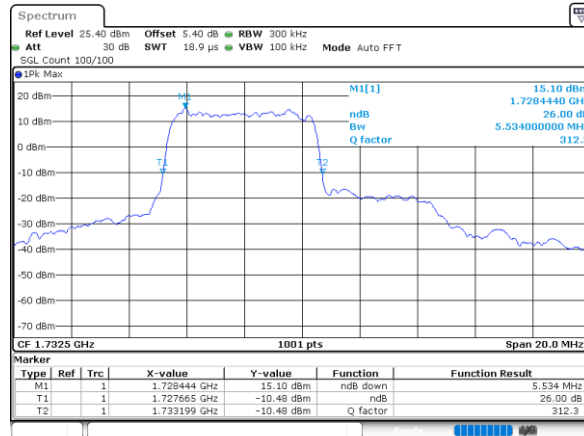


Middle Channel / 5MHz / 16QAM



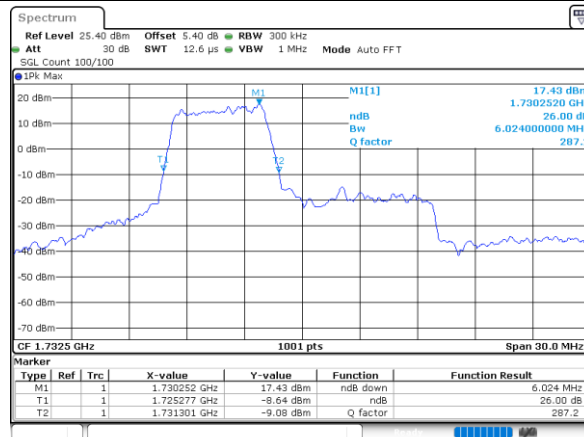


Middle Channel / 10MHz / 16QAM



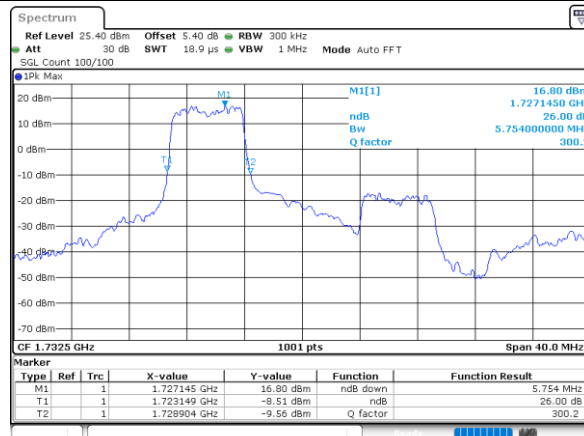
Date: 19.APR.2024 10:20:00

Middle Channel / 15MHz / 16QAM



Date: 19.APR.2024 10:30:53

Middle Channel / 20MHz / 16QAM



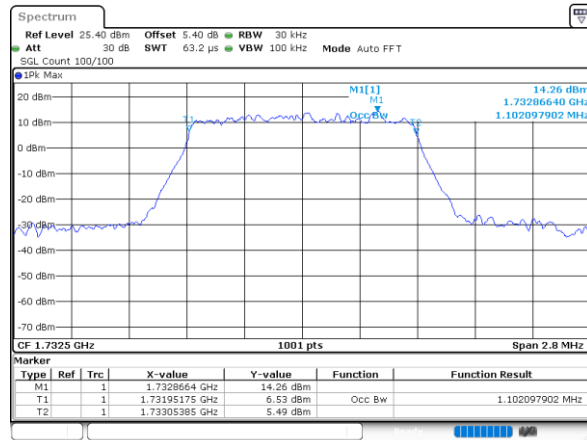
Date: 19.APR.2024 10:37:29

**Occupied Bandwidth**

Mode	LTE Band 4 : 99%OBW(MHz)
BW	1.4MHz
Mod.	16QAM
Middle CH	1.10
BW	3MHz
Mod.	16QAM
Middle CH	2.73
BW	5MHz
Mod.	16QAM
Middle CH	4.48
BW	10MHz
Mod.	16QAM
Middle CH	5.03
BW	15MHz
Mod.	16QAM
Middle CH	5.06
BW	20MHz
Mod.	16QAM
Middle CH	5.03

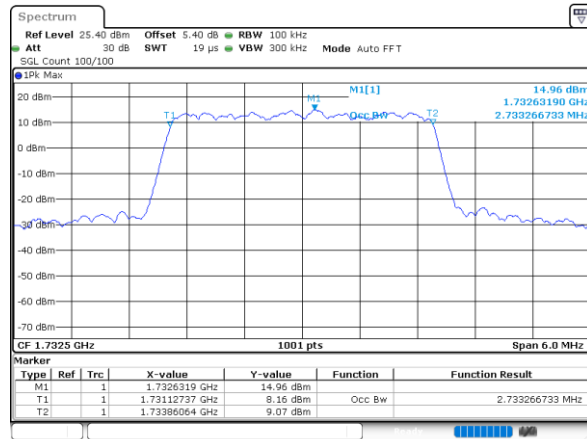


Middle Channel / 1.4MHz / 16QAM



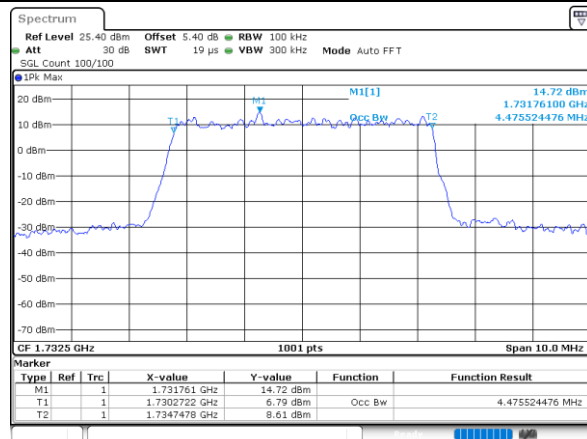
Date: 19.APR.2024 10:04:25

Middle Channel / 3MHz / 16QAM



Date: 19.APR.2024 10:13:37

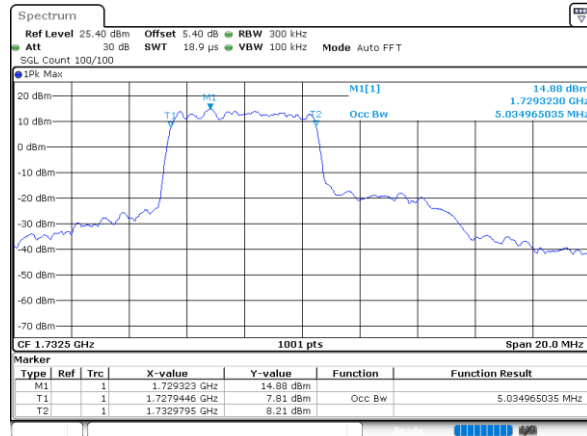
Middle Channel / 5MHz / 16QAM



Date: 19.APR.2024 10:17:28

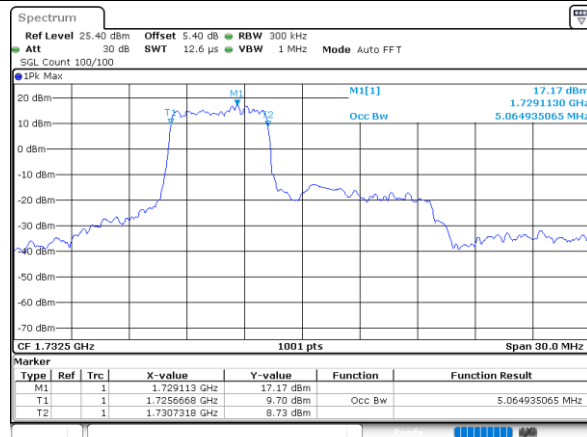


Middle Channel / 10MHz / 16QAM



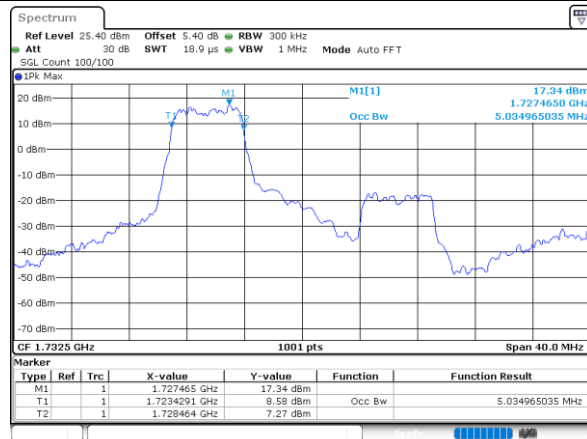
Date: 19.APR.2024 10:19:47

Middle Channel / 15MHz / 16QAM



Date: 19.APR.2024 10:30:28

Middle Channel / 20MHz / 16QAM



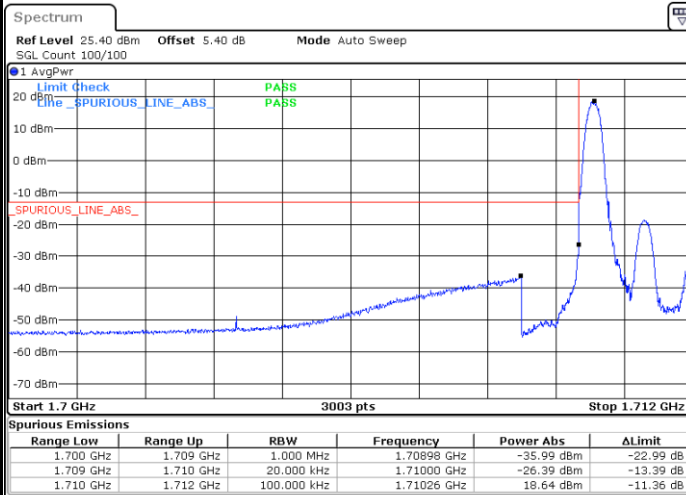
Date: 19.APR.2024 10:37:13



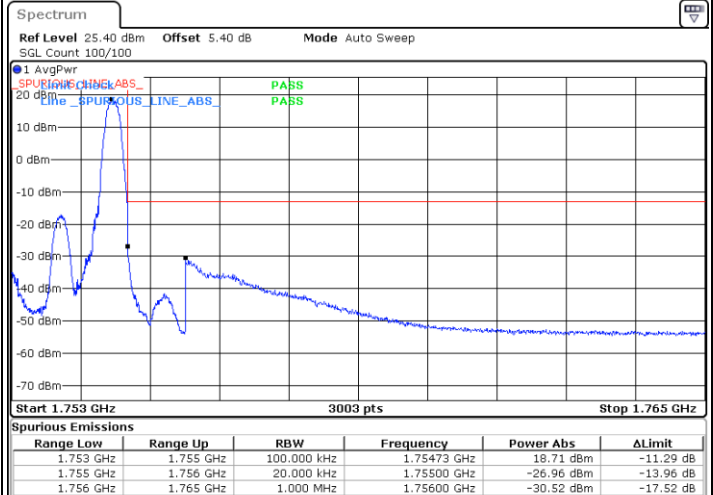
Conducted Band Edge

LTE Band 4 / 1.4MHz / 16QAM

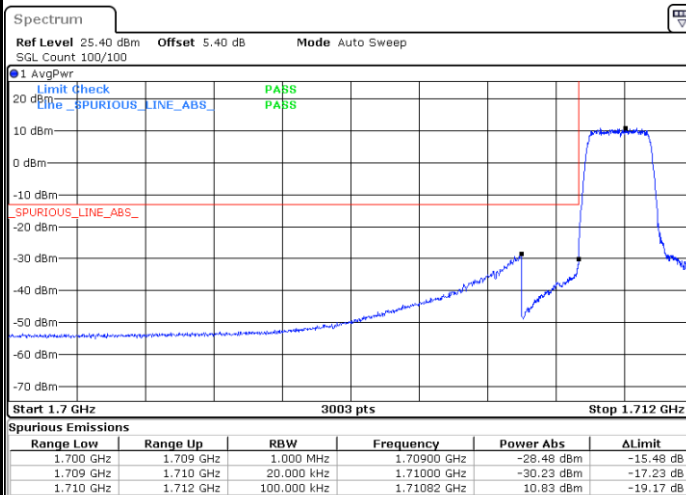
Lowest Band Edge / 1 RB



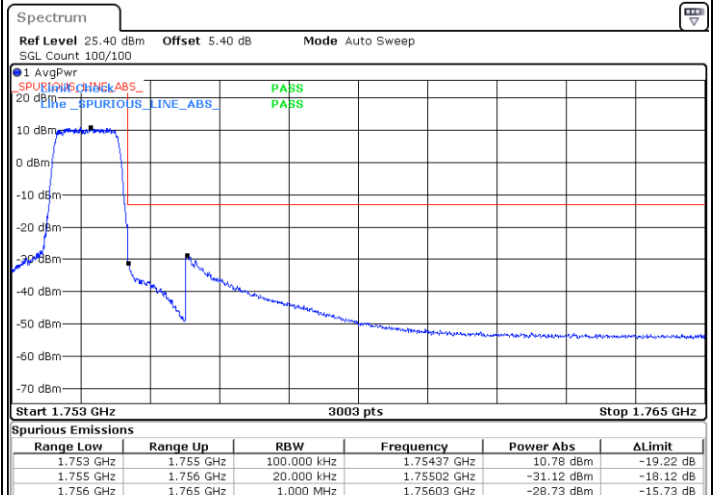
Highest Band Edge / 1 RB



Lowest Band Edge / Full RB



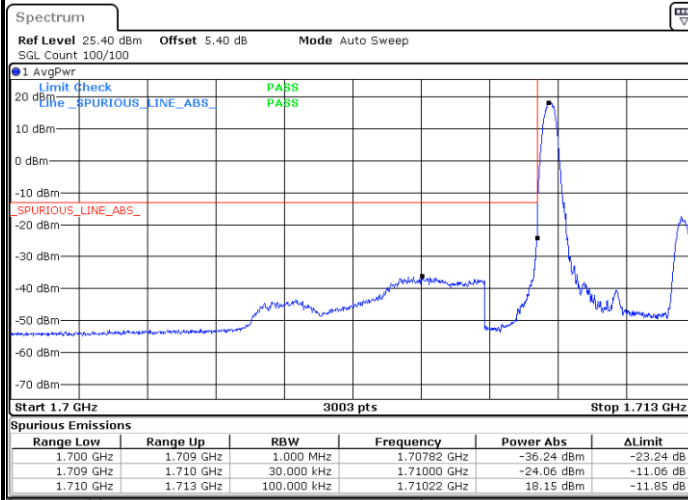
Highest Band Edge / Full RB



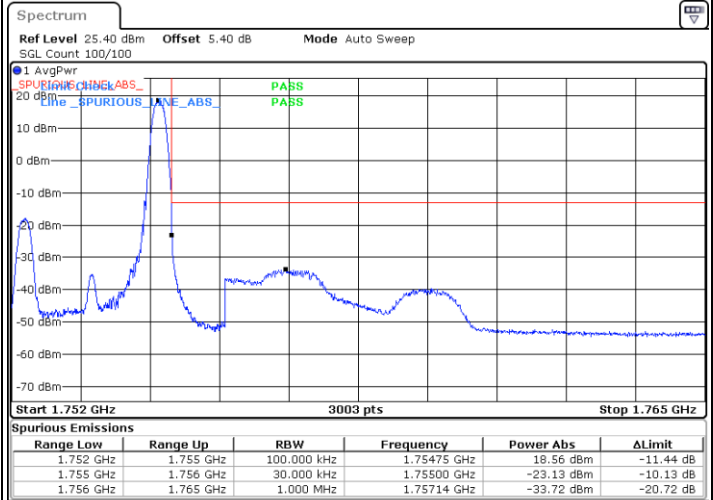


LTE Band 4 / 3MHz / 16QAM

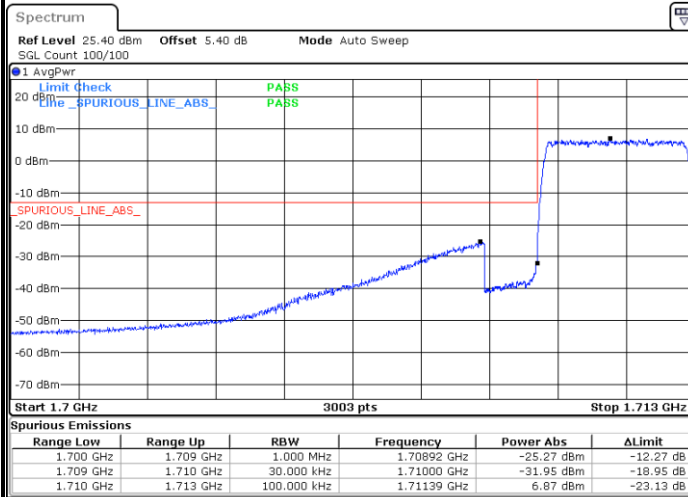
Lowest Band Edge / 1 RB



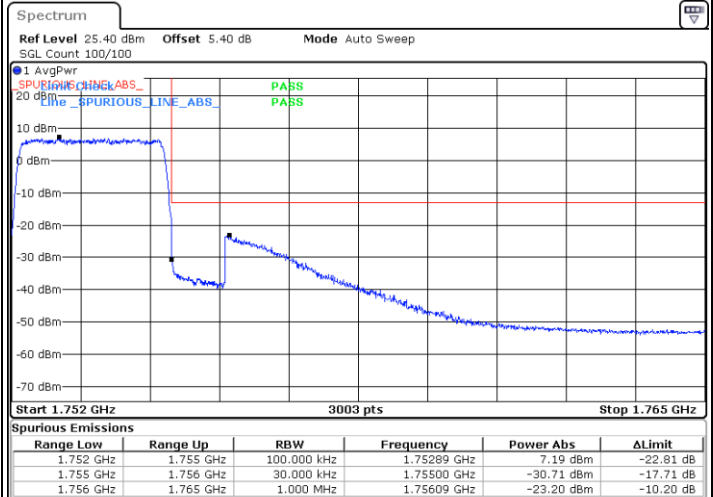
Highest Band Edge / 1 RB



Lowest Band Edge / Full RB



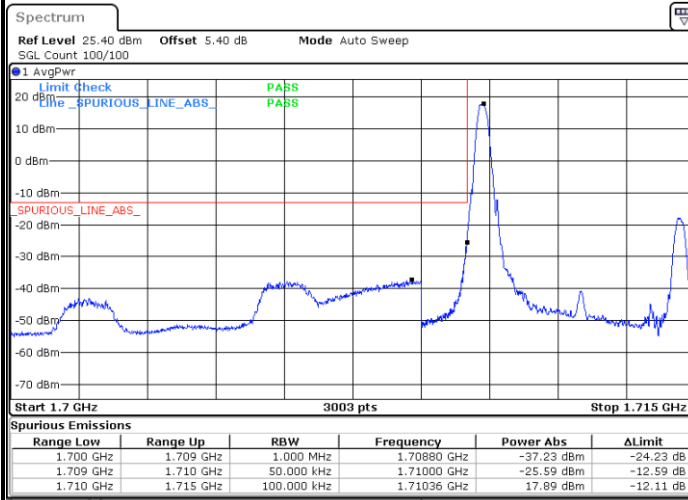
Highest Band Edge / Full RB



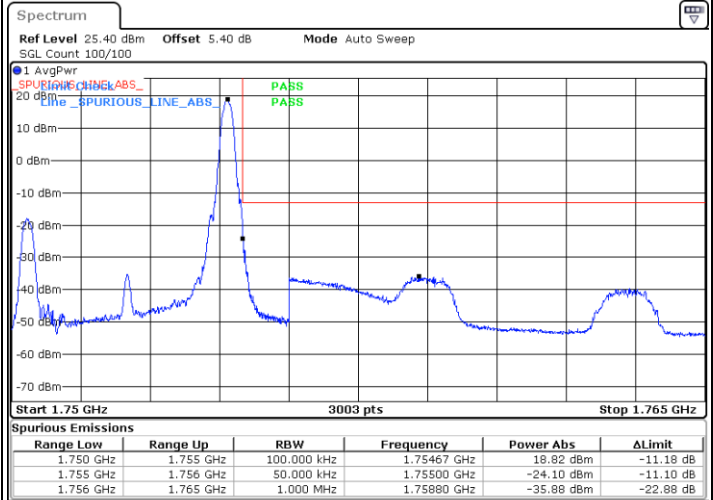


LTE Band 4 / 5MHz / 16QAM

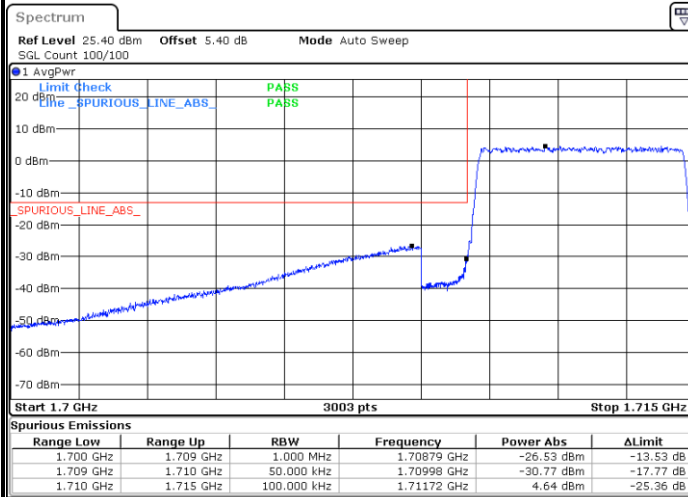
Lowest Band Edge / 1RB



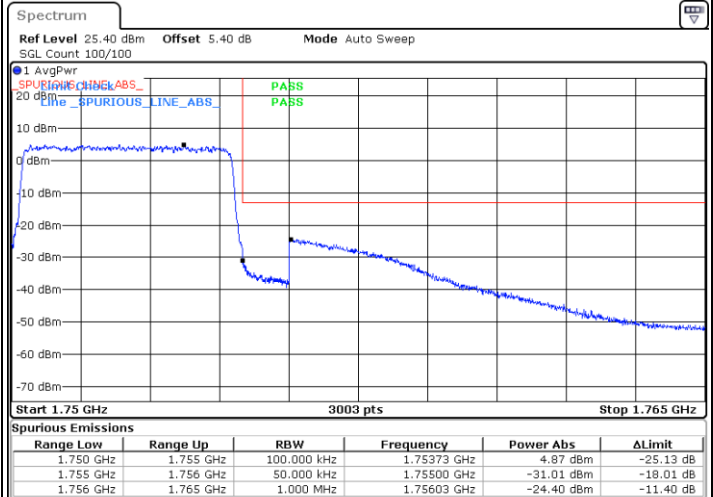
Highest Band Edge / 1 RB



Lowest Band Edge / Full RB



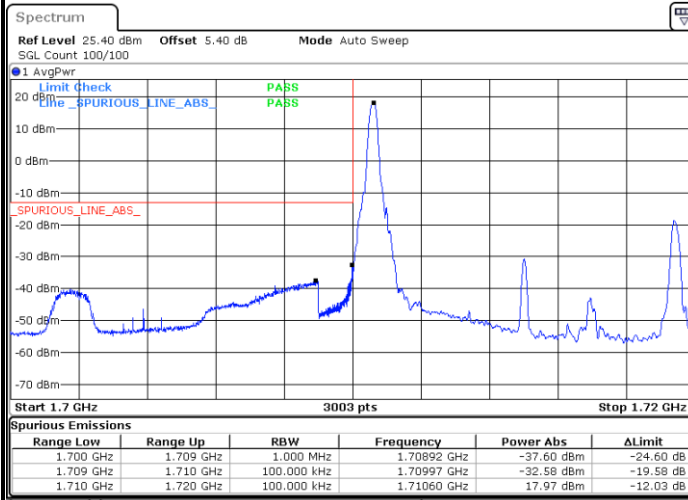
Highest Band Edge / Full RB



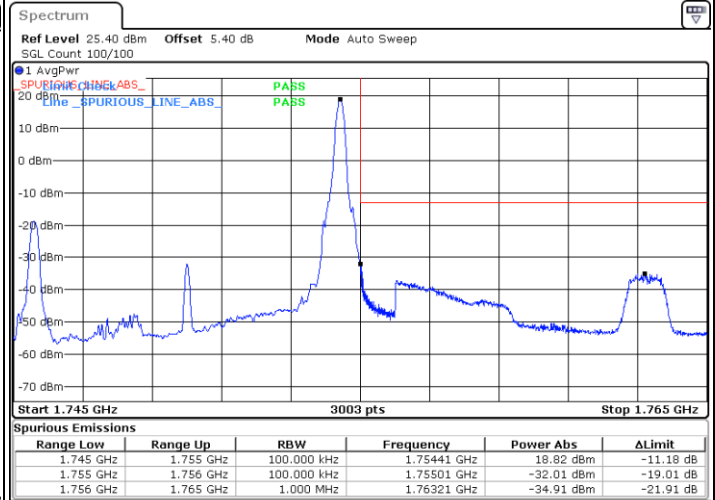


LTE Band 4 / 10MHz / 16QAM

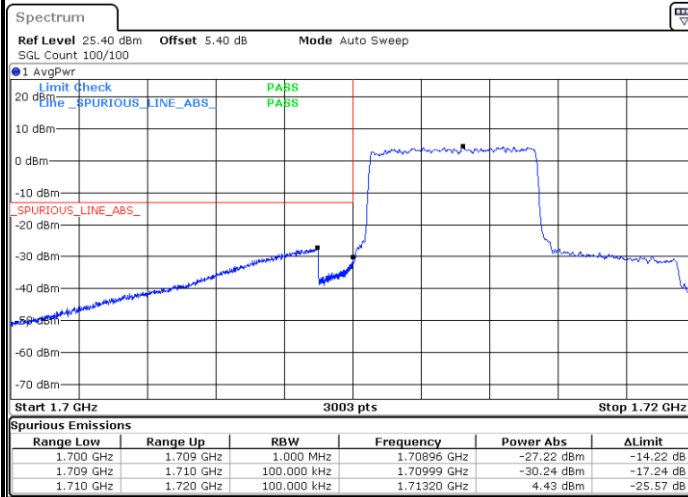
Lowest Band Edge / 1 RB



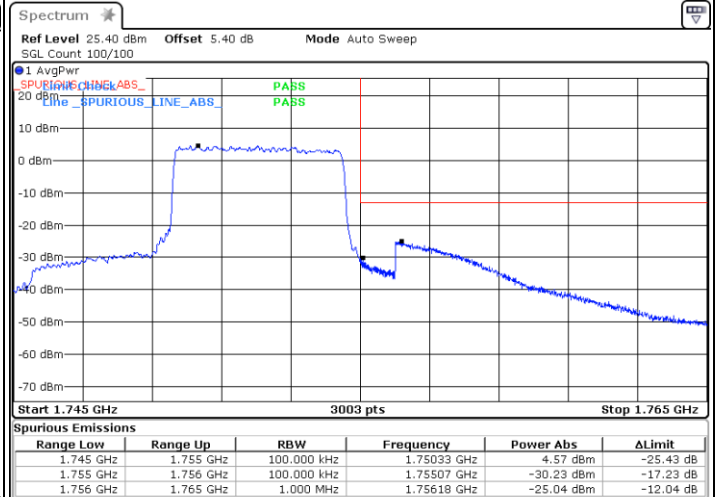
Highest Band Edge / 1 RB



Lowest Band Edge / Full RB



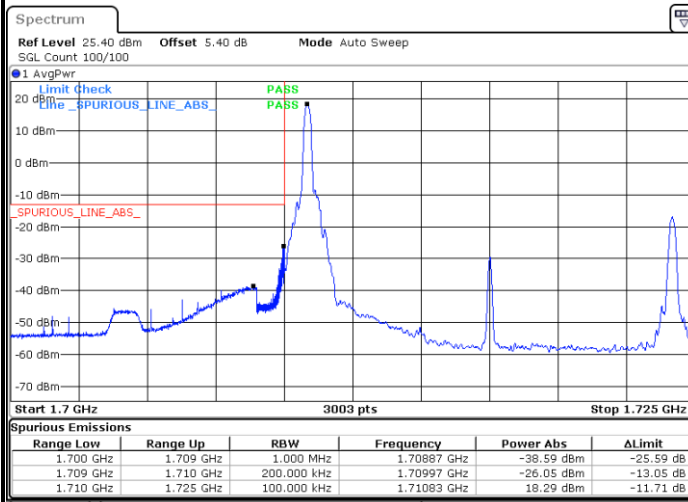
Highest Band Edge / Full RB



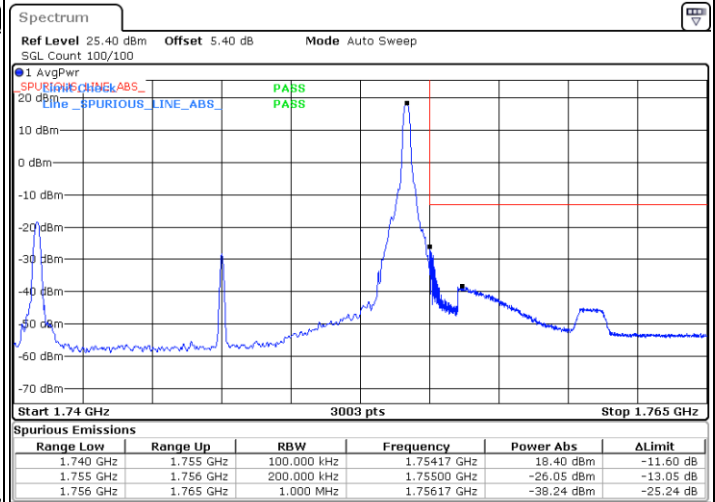


LTE Band 4 / 15MHz / 16QAM

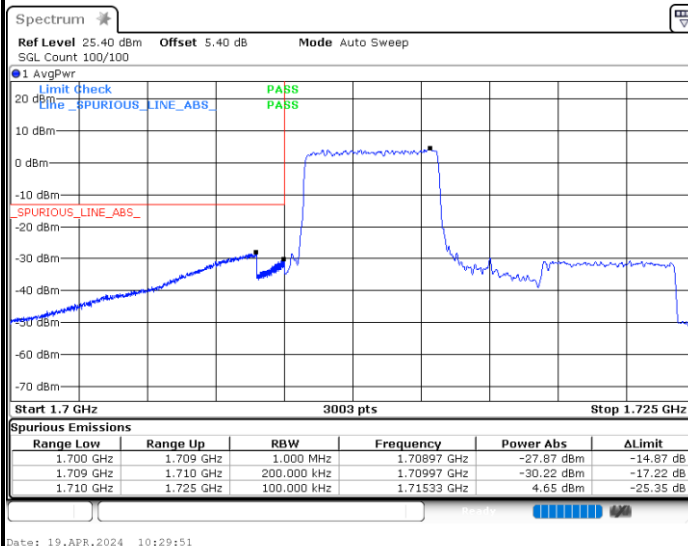
Lowest Band Edge / 1 RB



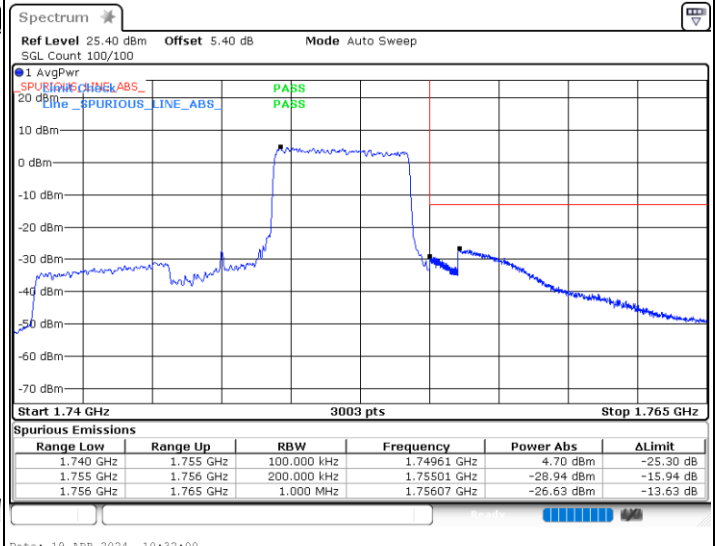
Highest Band Edge / 1 RB



Lowest Band Edge / Full RB



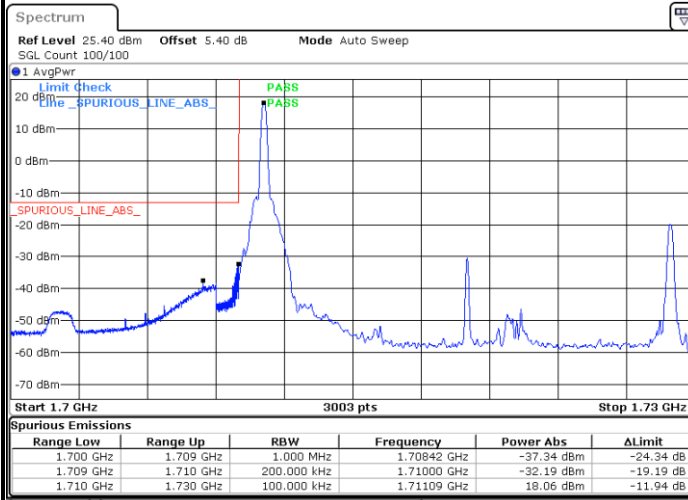
Highest Band Edge / Full RB



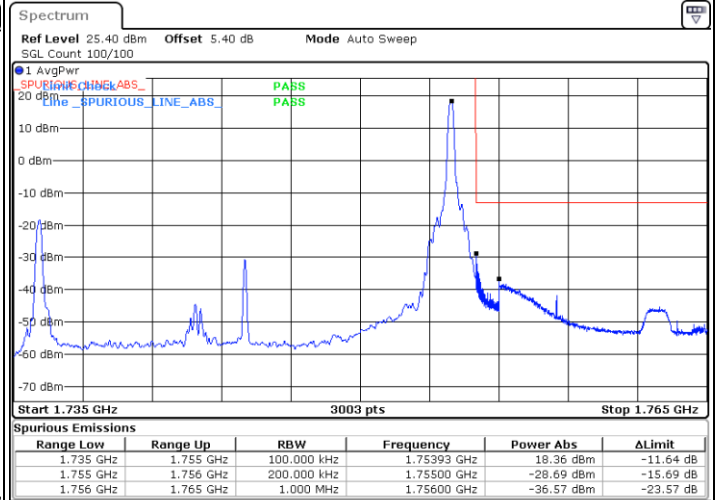


LTE Band 4 / 20MHz / 16QAM

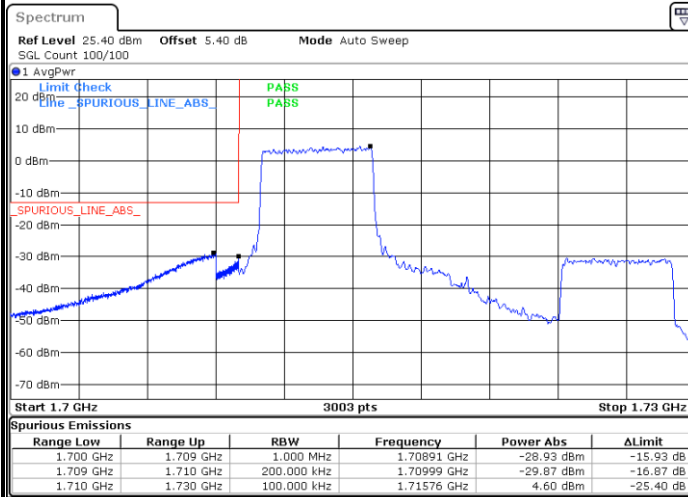
Lowest Band Edge / 1 RB



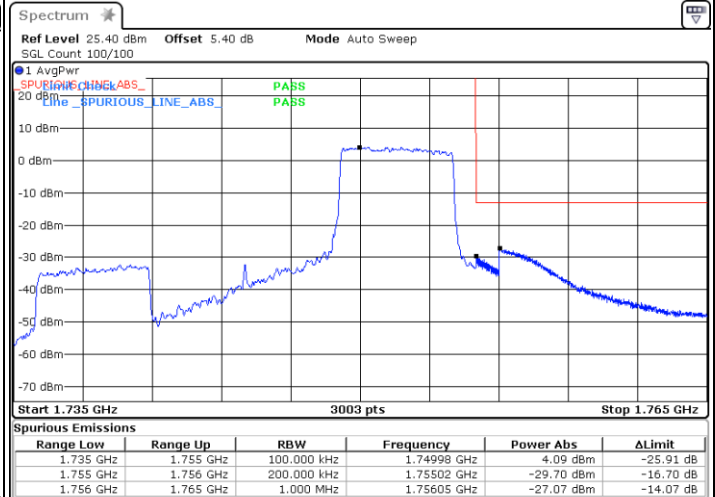
Highest Band Edge / 1 RB



Lowest Band Edge / Full RB



Highest Band Edge / Full RB

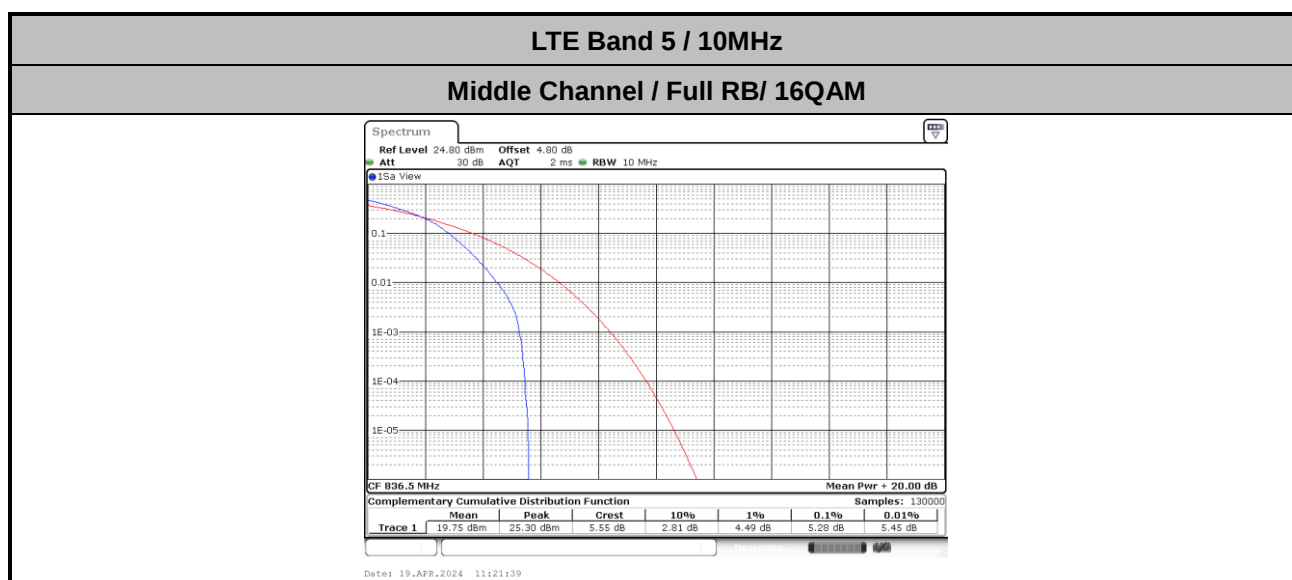




LTE Band 5

Peak-to-Average Ratio

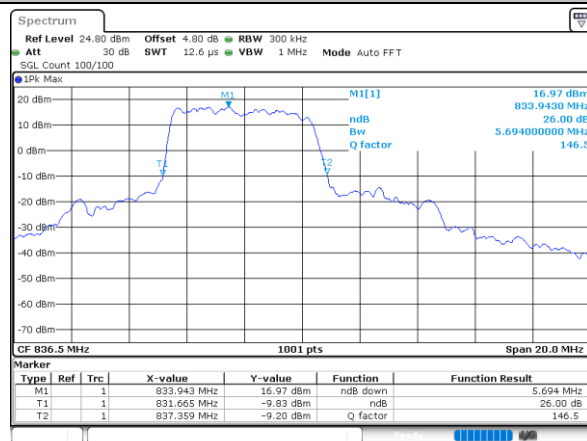
Mode	LTE Band 5 / 10MHz	
Mod.	16QAM	Limit: 13dB
RB Size	Full RB	Result
Middle CH	5.28	PASS



26dB Bandwidth

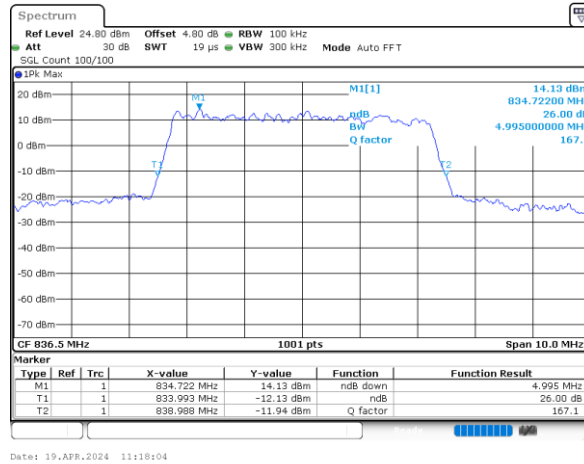
Mode	LTE Band 5 : 26dB BW(MHz)
BW	10MHz
Mod.	16QAM
Middle CH	5.69
BW	5MHz
Mod.	16QAM
Middle CH	5.00
BW	3MHz
Mod.	16QAM
Middle CH	3.07
BW	1.4MHz
Mod.	16QAM
Middle CH	1.28

Middle Channel / 10MHz / 16QAM

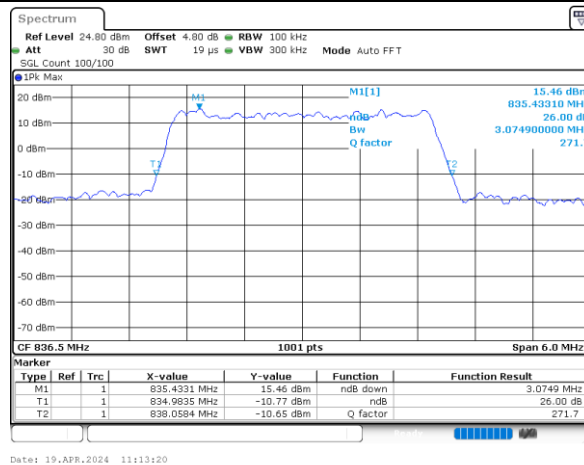




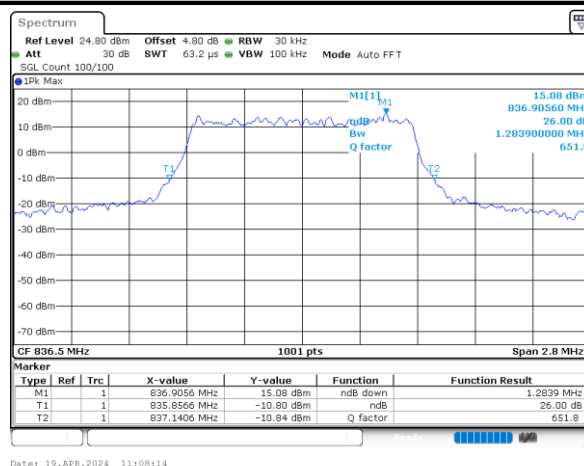
Middle Channel / 5MHz / 16QAM



Middle Channel / 3MHz / 16QAM



Middle Channel / 1.4MHz / 16QAM

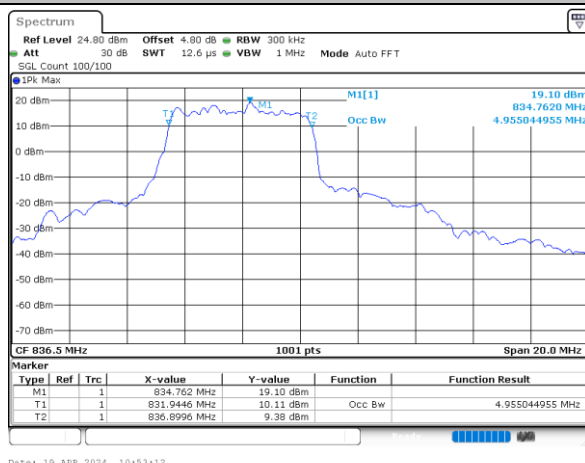




Occupied Bandwidth

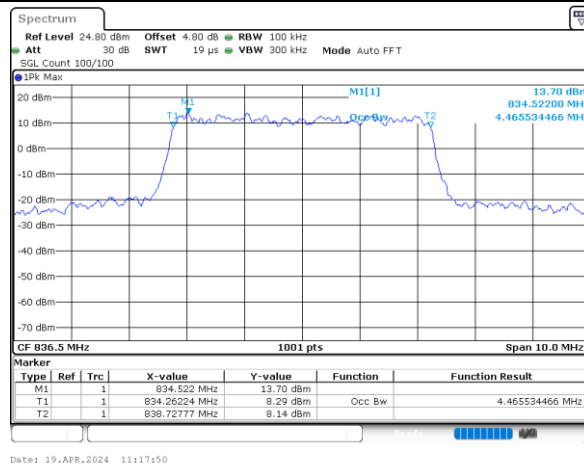
Mode	LTE Band 5 : 99%OBW(MHz)
BW	10MHz
Mod.	16QAM
Middle CH	4.96
BW	5MHz
Mod.	16QAM
Middle CH	4.47
BW	3MHz
Mod.	16QAM
Middle CH	2.72
BW	1.4MHz
Mod.	16QAM
Middle CH	1.10

Middle Channel / 10MHz / 16QAM

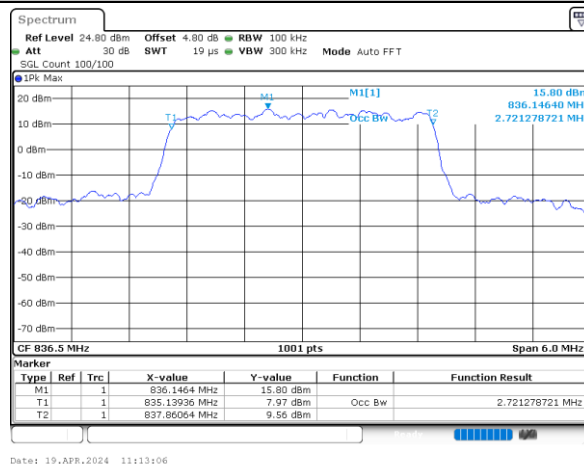




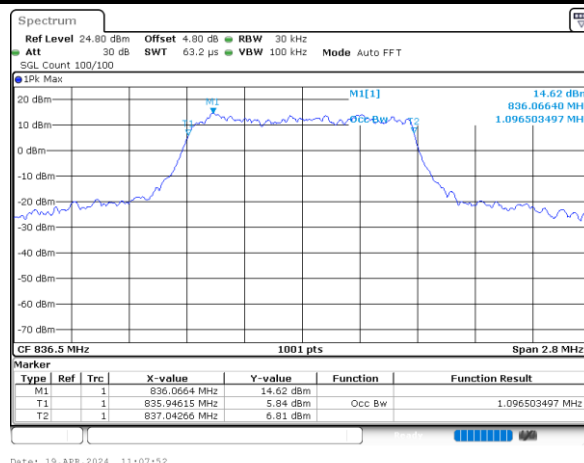
Middle Channel / 5MHz / 16QAM



Middle Channel / 3MHz / 16QAM



Middle Channel / 1.4MHz / 16QAM

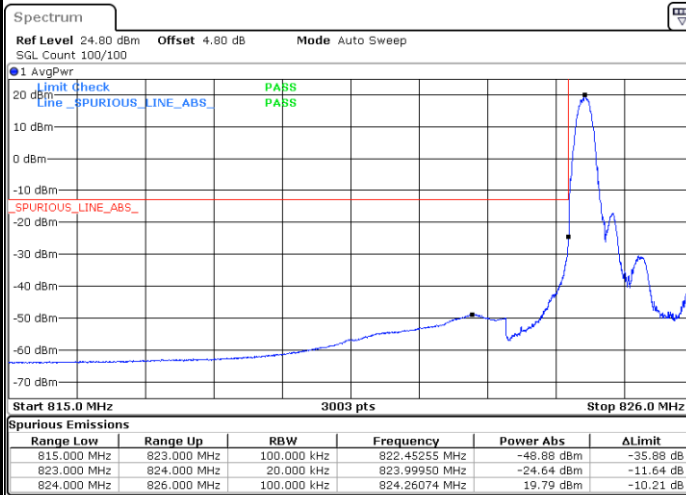




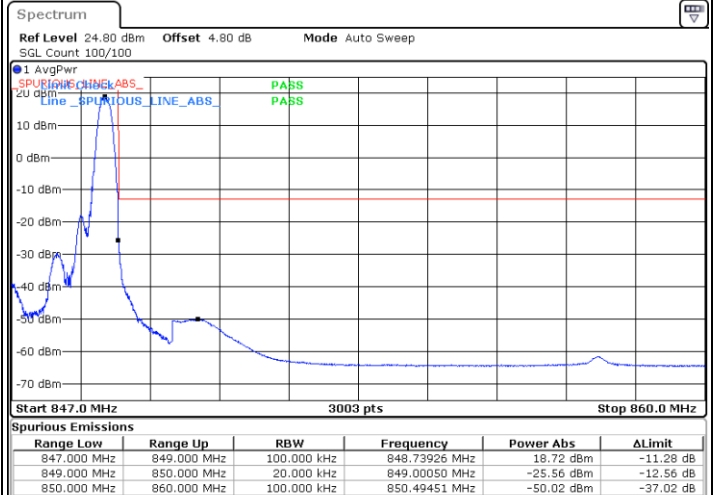
Conducted Band Edge

LTE Band 5 / 1.4MHz / 16QAM

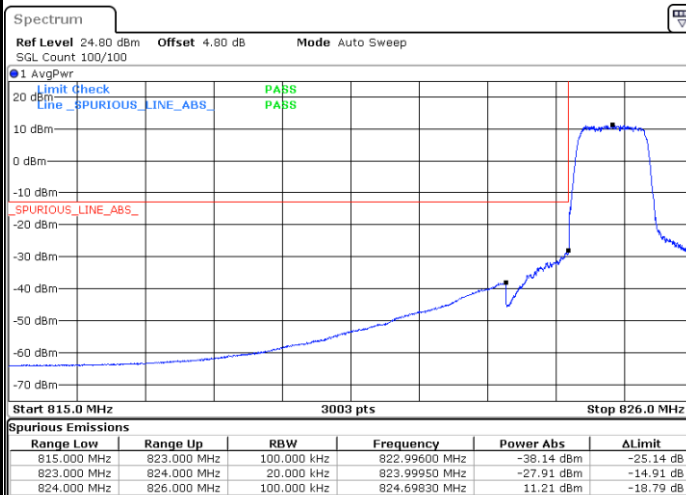
Lowest Band Edge / 1 RB



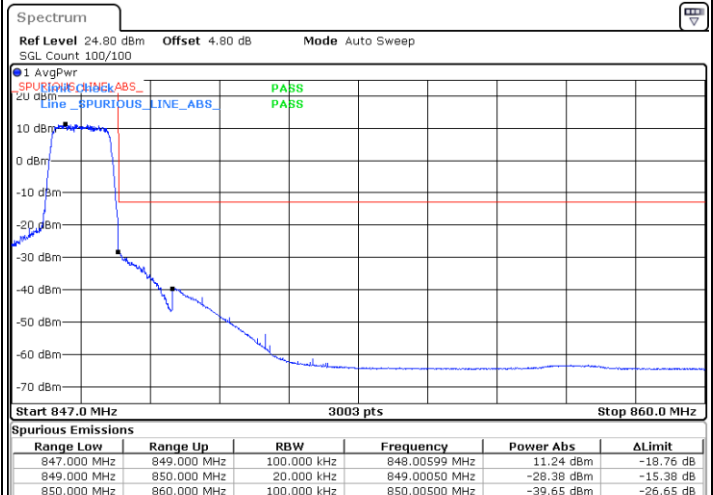
Highest Band Edge / 1 RB



Lowest Band Edge / Full RB



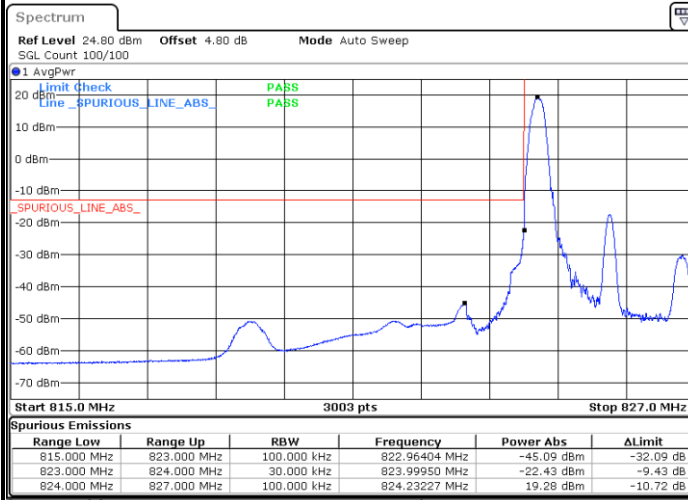
Highest Band Edge / Full RB



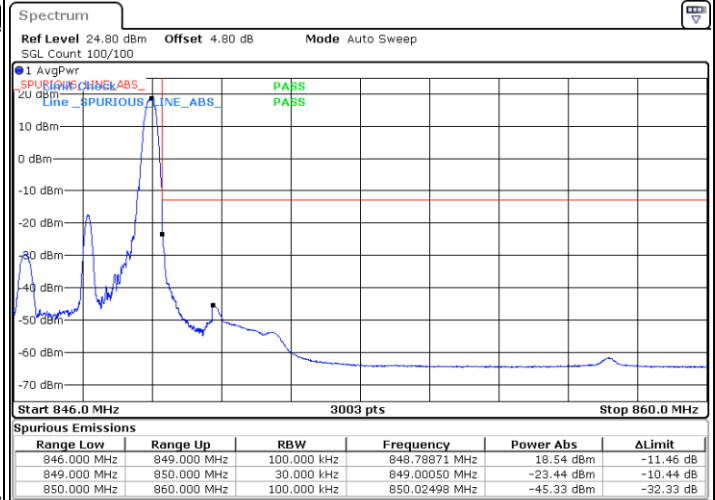


LTE Band 5 / 3MHz / 16QAM

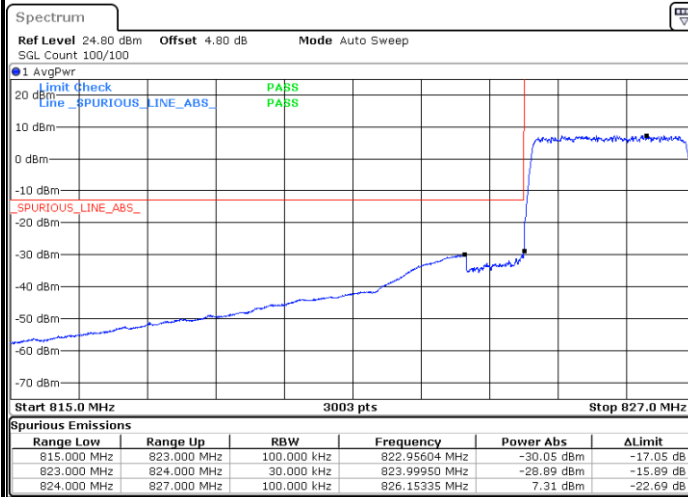
Lowest Band Edge / 1 RB



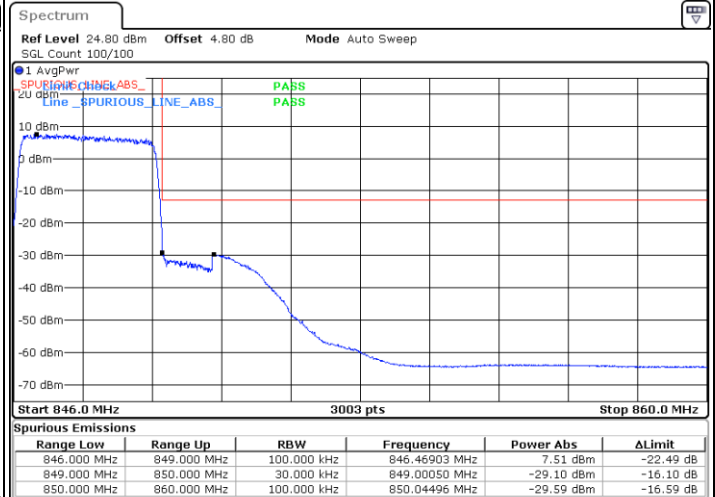
Highest Band Edge / 1 RB



Lowest Band Edge / Full RB



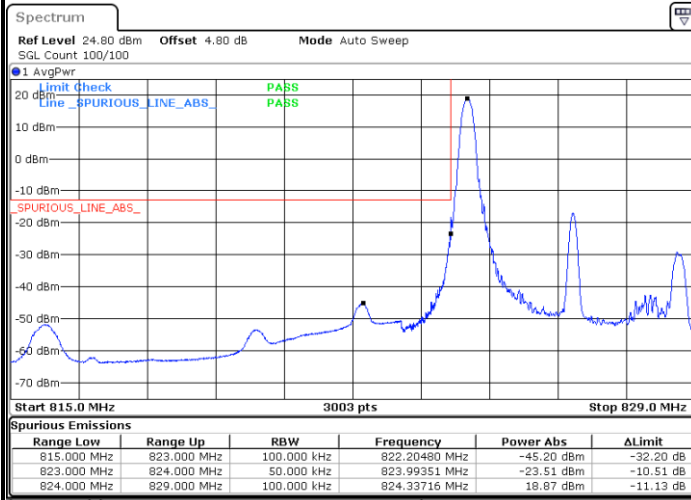
Highest Band Edge / Full RB



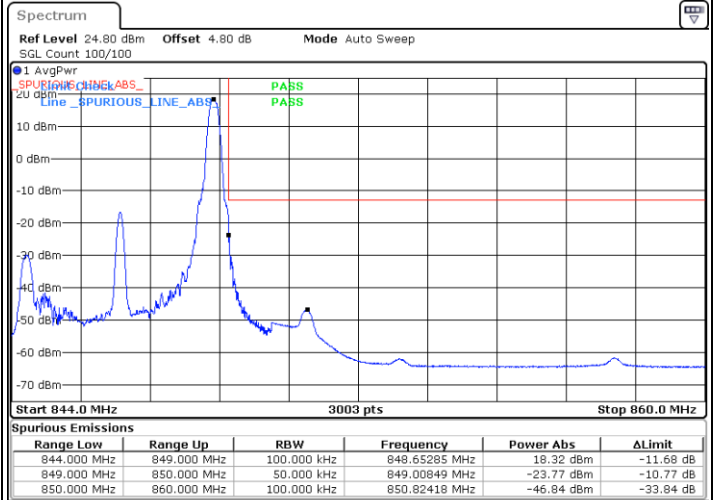


LTE Band 5 / 5MHz / 16QAM

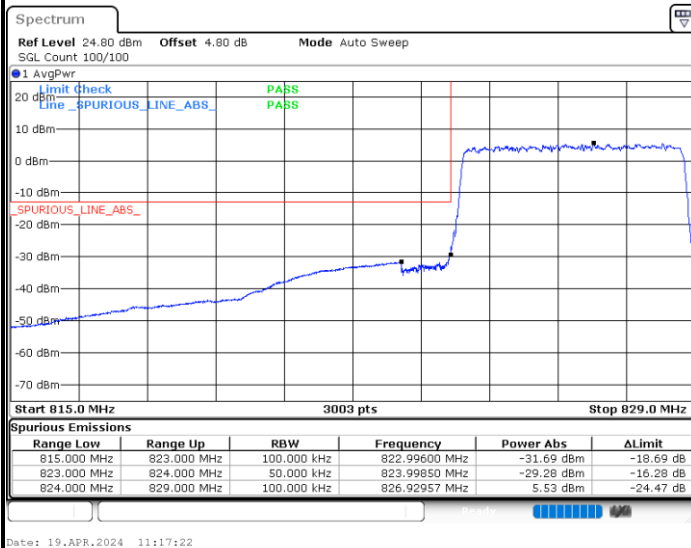
Lowest Band Edge / 1RB



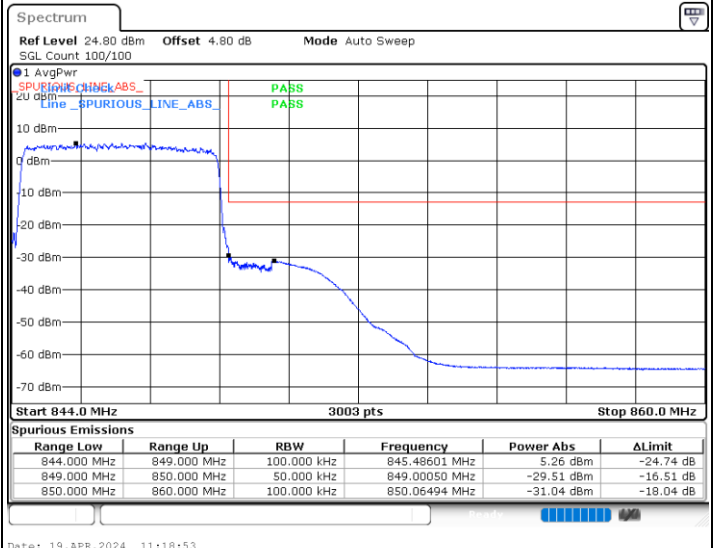
Highest Band Edge / 1 RB



Lowest Band Edge / Full RB



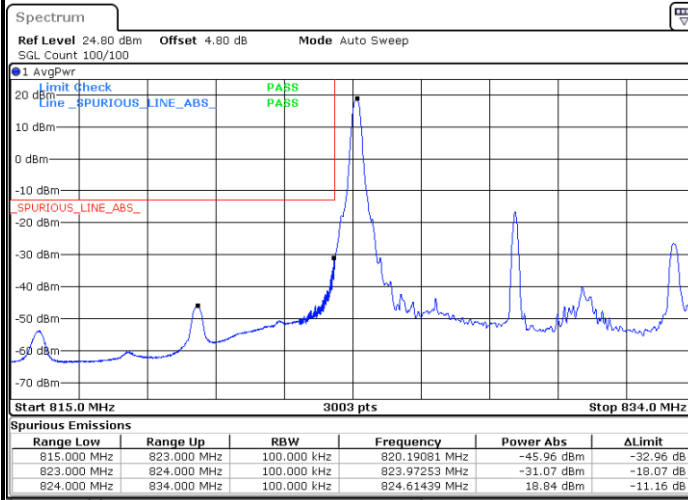
Highest Band Edge / Full RB



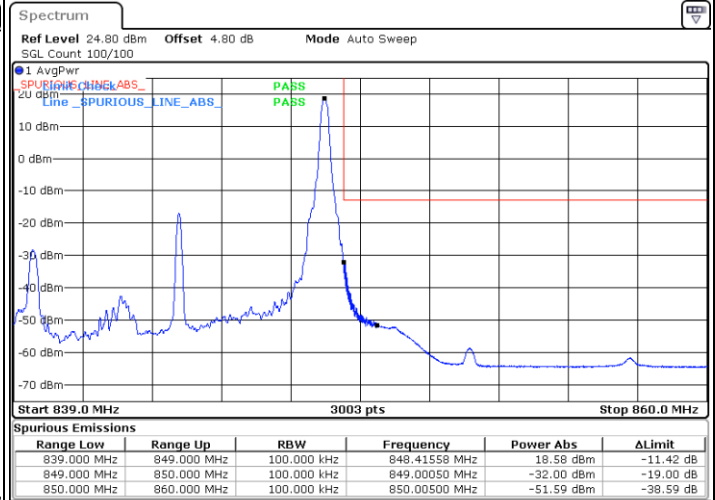


LTE Band 5 / 10MHz / 16QAM

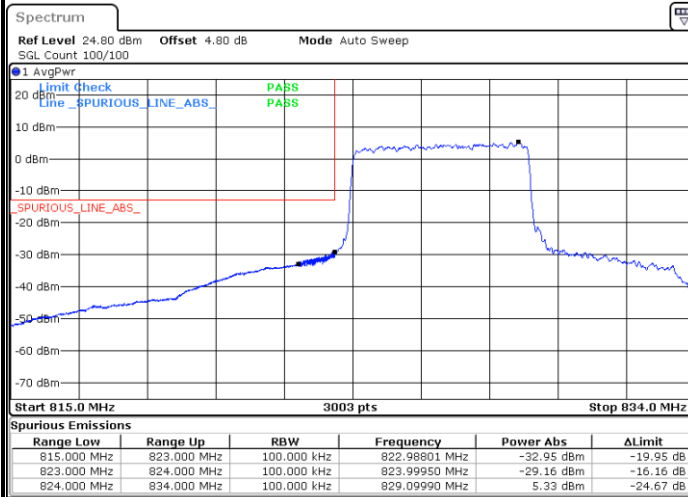
Lowest Band Edge / 1 RB



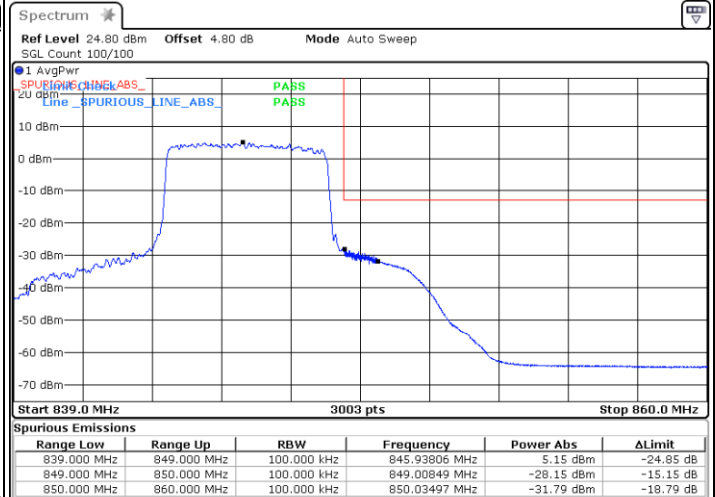
Highest Band Edge / 1 RB



Lowest Band Edge / Full RB



Highest Band Edge / Full RB





LTE Band 12

Peak-to-Average Ratio

Mode	LTE Band 12 / 10MHz	
Mod.	16QAM	Limit: 13dB
RB Size	Full RB	Result
Middle CH	6.09	PASS

