



FCC RF Test Report

APPLICANT : Lenovo (Shanghai) Electronics Technology Co., Ltd.
EQUIPMENT : Portable Tablet Computer
BRAND NAME : Lenovo
MODEL NAME : TB352XU
FCC ID : O57TB352XU
STANDARD : 47 CFR Part 22(H), 24(E), 27(L), , 27(M)
CLASSIFICATION : PCS Licensed Transmitter (PCB)
TEST DATE(S) : Aug. 02, 2024 ~ Aug. 24, 2024

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

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

Jason Jia

Approved by: Jason Jia



Sporton International Inc. (ShenZhen)

1/F, 2/F, Bldg 5, Shiling Industrial Zone, Xinwei Village, Xili, Nanshan, Shenzhen, 518055

People's Republic of China



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SUMMARY OF TEST RESULT

Report Section	FCC Rule	Description	Limit	Result	Remark
3.4	§2.1046	Conducted Output Power	-	PASS	-
	§22.913(a)(5)	Effective Radiated Power (Band 5) (Band 26)	ERP < 7 Watt		-
	§24.232(c) §27.50(h)(2)	Equivalent Isotropic Radiated Power (Band 2) (Band 7) (Band 38) (Band 41)	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	-
3.6	§2.1049	Occupied Bandwidth	-	Report Only	-
3.7	§2.1051 §22.917(a) §24.238(a) §27.53(h)	Conducted Band Edge Measurement (Band 2) (Band 4) (Band 5) (Band 26)	< 43+10log ₁₀ (P[Watts])	PASS	-
	§27.53(m)(4)	Conducted Band Edge Measurement (Band 7) (Band 38) (Band 41)	§27.53(m)(4)		
3.8	§2.1051 §22.917(a) §24.238(a) §27.53(h)	Conducted Spurious Emission (Band 2) (Band 4) (Band 5) (Band 26)	< 43+10log ₁₀ (P[Watts])	PASS	-
	§2.1051 §27.53(m)(4)	Conducted Spurious Emission (Band 7) (Band 38) (Band 41)	< 55+10log ₁₀ (P[Watts])		
3.9	§2.1055 §22.355	Frequency Stability Temperature & Voltage	< 2.5 ppm for Part 22	PASS	-
	§2.1055 §24.235 §27.54		Within Authorized Band		
4.4	§2.1053 §22.917(a) §24.238(a) §27.53(h)	Radiated Spurious Emission (Band 2) (Band 4) (Band 5) (Band 26)	< 43+10log ₁₀ (P[Watts])	PASS	Under limit 27.35 dB at 10336.00 MHz
	§2.1053 §27.53(m)(4)	Radiated Spurious Emission (Band 7) (Band 38) (Band 41)	< 55+10log ₁₀ (P[Watts])		

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/manufacturer 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

Lenovo (Shanghai) Electronics Technology Co., Ltd.
Section 304-305, Building No. 4, # 222, Meiyue Road,China (Shanghai) Pilot Free Trade Zone

1.2 Manufacturer

Lenovo PC HK Limited
23/F, Lincoln House, Taikoo Place979 King's Road, Quarry Bay, Hong Kong, China

1.3 Product Feature of Equipment Under Test

Product Feature	
Equipment	Portable Tablet Computer
Brand Name	Lenovo
Model Name	TB352XU
FCC ID	O57TB352XU
IMEI Code	Conducted: 868752070004053 Radiation: 868752070009508
HW Version	TB352XU
SW Version	TB352XU_RF01_20240729
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 7 : 2500 MHz ~ 2570 MHz LTE Band 26 : 824 MHz ~ 849 MHz LTE Band 38 : 2570 MHz ~ 2620 MHz LTE Band 41 : 2496 MHz ~ 2690 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 7 : 2620 MHz ~ 2690 MHz LTE Band 26 : 869 MHz ~ 894 MHz LTE Band 38 : 2570 MHz ~ 2620 MHz LTE Band 41 : 2496 MHz ~ 2690 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 7 : 5MHz / 10MHz / 15MHz / 20MHz LTE Band 26 : 1.4MHz / 3MHz / 5MHz / 10MHz / 15MHz LTE Band 38 : 5MHz / 10MHz / 15MHz / 20MHz LTE Band 41 : 5MHz / 10MHz / 15MHz / 20MHz
Maximum Output Power to Antenna	LTE Band 2 : 22.75 dBm LTE Band 4 : 22.73 dBm LTE Band 5 : 22.89 dBm LTE Band 7 : 23.02 dBm LTE Band 26 : 23.16 dBm LTE Band 38 : 23.50 dBm LTE Band 41 : 23.86 dBm
Antenna Gain	LTE Band 2 : 0.5 dBi LTE Band 4 : 0.5 dBi LTE Band 5 : -0.5 dBi LTE Band 7 : 1.0 dBi LTE Band 26 : -0.5 dBi LTE Band 38 : 1.0 dBi LTE Band 41 : 1.0 dBi
Type of Modulation	QPSK / 16QAM / 64QAM

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/64QAM	
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	0.2094	1M09G7D	0.1641	1M09W7D
3	1851.5 ~ 1908.5	0.2109	2M74G7D	0.1849	2M71W7D
5	1852.5 ~ 1907.5	0.2084	4M51G7D	0.1820	4M51W7D
10	1855.0 ~ 1905.0	0.2084	9M01G7D	0.1795	8M99W7D
15	1857.5 ~ 1902.5	0.2042	13M5G7D	0.1791	13M5W7D
20	1860.0 ~ 1900.0	0.2113	17M9G7D	0.1854	17M9W7D
LTE Band 4		QPSK		16QAM/64QAM	
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	0.2080	1M08G7D	0.1563	1M09W7D
3	1711.5 ~ 1753.5	0.2084	2M72G7D	0.1750	2M73W7D
5	1712.5 ~ 1752.5	0.2070	4M50G7D	0.1750	4M47W7D
10	1715.0 ~ 1750.0	0.2061	9M03G7D	0.1778	8M99W7D
15	1717.5 ~ 1747.5	0.2075	13M4G7D	0.1738	13M5W7D
20	1720.0 ~ 1745.0	0.2104	17M9G7D	0.1791	17M9W7D
LTE Band 5		QPSK		16QAM/64QAM	
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	0.1045	1M10G7D	0.0791	1M09W7D
3	825.5 ~ 847.5	0.1045	2M73G7D	0.0879	2M73W7D
5	826.5 ~ 846.5	0.1033	4M48G7D	0.0877	4M50W7D
10	829.0 ~ 844.0	0.1057	9M03G7D	0.0906	9M01W7D
LTE Band 7		QPSK		16QAM/64QAM	
BW (MHz)	Frequency Range (MHz)	Maximum EIRP(W)	Emission Designator (99%OBW)	Maximum EIRP(W)	Emission Designator (99%OBW)
5	2502.5 ~ 2567.5	0.2518	4M49G7D	0.2046	4M49W7D
10	2505.0 ~ 2565.0	0.2460	8M99G7D	0.2023	8M97W7D
15	2507.5 ~ 2562.5	0.2506	13M4G7D	0.2028	13M4W7D
20	2510.0 ~ 2560.0	0.2523	17M8G7D	0.2075	17M9W7D



LTE Band 26		QPSK		16QAM/64QAM	
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	0.1112	1M10G7D	0.0843	1M09W7D
3	825.5 ~ 847.5	0.1112	2M73G7D	0.0912	2M73W7D
5	826.5 ~ 846.5	0.1096	4M48G7D	0.0904	4M50W7D
10	829.0 ~ 844.0	0.1096	9M03G7D	0.0906	9M01W7D
15	831.5 ~ 841.5	0.1125	13M4G7D	0.0914	13M5W7D
CH26790	824.0	0.1107	13M5G7D	0.0889	13M5W7D
LTE Band 38		QPSK		16QAM/64QAM	
BW (MHz)	Frequency Range (MHz)	Maximum EIRP(W)	Emission Designator (99%OBW)	Maximum EIRP(W)	Emission Designator (99%OBW)
5	2572.5 ~ 2617.5	0.2793	4M50G7D	0.2128	4M51W7D
10	2575.0 ~ 2615.0	0.2812	9M13G7D	0.2113	9M05W7D
15	2577.5 ~ 2612.5	0.2805	13M4G7D	0.2138	13M4W7D
20	2580.0 ~ 2610.0	0.2818	17M8G7D	0.2153	17M9W7D
LTE Band 41		QPSK		16QAM/64QAM	
BW (MHz)	Frequency Range (MHz)	Maximum EIRP(W)	Emission Designator (99%OBW)	Maximum EIRP(W)	Emission Designator (99%OBW)
5	2498.5 ~ 2687.5	0.3013	4M50G7D	0.2355	4M51W7D
10	2501.0 ~ 2685.0	0.2972	9M13G7D	0.2371	9M05W7D
15	2503.5 ~ 2682.5	0.2979	13M4G7D	0.2350	13M4W7D
20	2506.0 ~ 2680.0	0.3062	17M8G7D	0.2415	17M9W7D

Note:

1. LTE Band 26 overlaps the entire frequency range of LTE Band 5. Therefore, the test results provided in this report covers Band 5 and the portion of Band 26 subject to Part 22.
2. LTE Band 41 overlaps the entire frequency range of LTE Band 38. Therefore, the test results provided in this report covers Band 41 as well as Band 38.



1.7 Testing Location

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

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

Test Firm	Sporton International Inc. (ShenZhen)		
Test Site Location	101, 1st Floor, Block B, Building 1, No. 2, Tengfeng 4th Road, Fenghuang Community, Fuyong Street, Baoan District, Shenzhen City, Guangdong Province 518103 People's Republic of China TEL: +86-755-86066985		
Test Site No.	Sporton Site No.	FCC Designation No.	FCC Test Firm Registration No.
	03CH03-SZ	CN1256	421272

1.8 Test Software

Item	Site	Manufacture	Name	Version
1.	03CH03-SZ	AUDIX	E3	6.2009-8-24



1.9 Applicable Standards

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

- ♦ 47 CFR Part 22(H), 24(E), 27(L),27(M)
- ♦ 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.

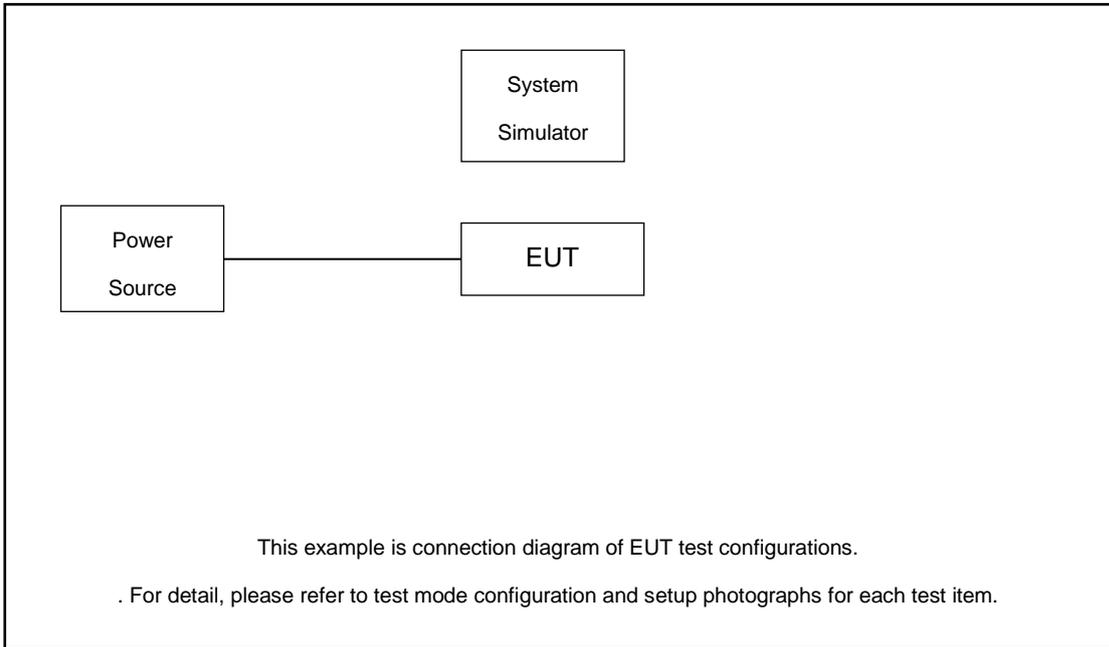
Radiated measurements are performed by rotating the EUT in three different orthogonal test planes to find the maximum emission. (X Plane)

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



Test Items	Band	Bandwidth (MHz)						Modulation				RB #			Test Channel			
		1.4	3	5	10	15	20	QPSK	16 QAM	64 QAM	256 QAM	1	Half	Full	L	M	H	
Conducted Spurious Emission	2	v	v	v	v	v	v	v			-	v			v	v	v	
	4	v	v	v	v	v	v	v			-	v			v	v	v	
	7	-	-	v	v	v	v	v			-	v			v	v	v	
	26	v	v	v	v	v	-	v			-	v			v	v	v	
	41	-	-	v	v	v	v	v			-	v			v	v	v	
Frequency Stability	2				v			v			-			v		v		
	4				v			v			-			v		v		
	7	-	-		v			v			-			v		v		
	26				v		-	v			-			v		v		
	41	-	-		v			v			-			v		v		
E.R.P / E.I.R.P	2	v	v	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	v	v	
	5	v	v	v	v	-	-	v	v	v	-	v	v	v	v	v	v	
	7	-	-	v	v	v	v	v	v	v	-	v	v	v	v	v	v	
	26	v	v	v	v	v	-	v	v	v	-	v	v	v	v	v	v	
	38	-	-	v	v	v	v	v	v	v	-	v	v	v	v	v	v	
	41	-	-	v	v	v	v	v	v	v	-	v	v	v	v	v	v	
Radiated Spurious Emission	2	Worst Case															v	
	4	Worst Case															v	
	7	Worst Case															v	
	26	Worst Case															v	
	41	Worst Case															v	
Note	<p>1. The mark "v " means that this configuration is chosen for testing</p> <p>2. The mark "- " means that this bandwidth is not supported.</p> <p>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.</p>																	

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.	Power Supply	GWINSTEK	PSS-2002	N/A	N/A	Unshielded, 1.8 m
2.	LTE Base Station	Anritsu	MT8820C	N/A	N/A	Unshielded, 1.8 m

2.4 Measurement Results Explanation Example

For all conducted test items:

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

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

$$\text{Offset} = \text{RF cable loss} + \text{attenuator factor}.$$

Following shows an offset computation example with cable loss 4.5 dB and 10dB attenuator.

Example :

$$\begin{aligned} \text{Offset(dB)} &= \text{RF cable loss(dB)} + \text{attenuator factor(dB)}. \\ &= 4.5 + 10 = 14.5 \text{ (dB)} \end{aligned}$$



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 7 Channel and Frequency List				
BW [MHz]	Channel/Frequency(MHz)	Lowest	Middle	Highest
20	Channel	20850	21100	21350
	Frequency	2510	2535	2560
15	Channel	20825	21100	21375
	Frequency	2507.5	2535	2562.5
10	Channel	20800	21100	21400
	Frequency	2505	2535	2565
5	Channel	20775	21100	21425
	Frequency	2502.5	2535	2567.5



LTE Band 26 Channel and Frequency List				
BW [MHz]	Channel/Frequency(MHz)	Lowest	Middle	Highest
15	Channel	26865	26915	26965
	Frequency	831.5	836.5	841.5
10	Channel	26840	26915	26990
	Frequency	829	836.5	844
5	Channel	26815	26915	27015
	Frequency	826.5	836.5	846.5
3	Channel	26805	26915	27025
	Frequency	825.5	836.5	847.5
1.4	Channel	26797	26915	27033
	Frequency	824.7	836.5	848.3

LTE Band 38 Channel and Frequency List				
BW [MHz]	Channel/Frequency(MHz)	Lowest	Middle	Highest
20	Channel	37850	38000	38150
	Frequency	2580	2595	2610
15	Channel	37825	38000	38175
	Frequency	2577.5	2595	2612.5
10	Channel	37800	38000	38200
	Frequency	2575	2595	2615
5	Channel	37775	38000	38225
	Frequency	2572.5	2595	2617.5

LTE Band 41 Channel and Frequency List				
BW [MHz]	Channel/Frequency(MHz)	Lowest	Middle	Highest
20	Channel	39750	40620	41490
	Frequency	2506	2593	2680
15	Channel	39725	40620	41515
	Frequency	2503.5	2593	2682.5
10	Channel	39700	40620	41540
	Frequency	2501	2593	2685
5	Channel	39675	40620	41565
	Frequency	2498.5	2593	2687.5

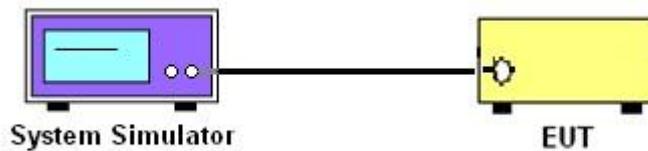
3 Conducted Test Items

3.1 Measuring Instruments

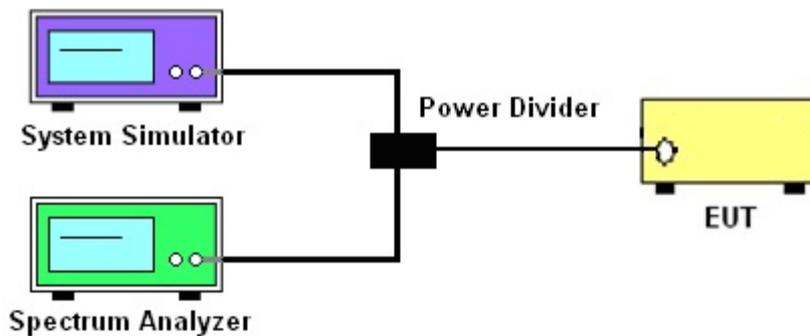
See list of measuring instruments of this test report.

3.2 Test Setup

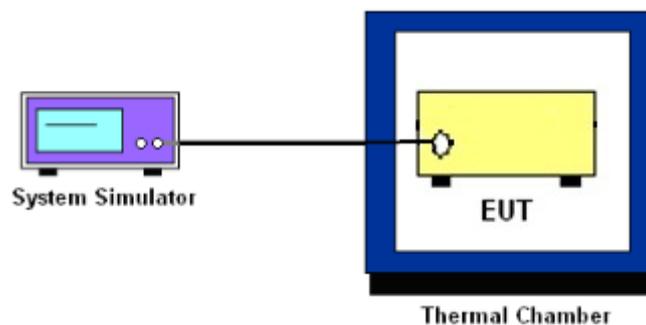
3.2.1 Conducted Output Power



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 and Band 26.

The EIRP of mobile transmitters must not exceed 2 Watts for LTE Band 2 and Band 7 and Band 38 and Band 41.

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 (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.

27.53(m)(4)

For mobile digital stations, the attenuation factor shall be not less than $40 + 10 \log (P)$ dB on all frequencies between the channel edge and 5 megahertz from the channel edge, $43 + 10 \log (P)$ dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and $55 + 10 \log (P)$ dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section. In addition, the attenuation factor shall not be less that $43 + 10 \log (P)$ dB on all frequencies between 2490.5 MHz and 2496 MHz and $55 + 10 \log (P)$ dB at or below 2490.5 MHz. Mobile Satellite Service licensees operating on frequencies below 2495 MHz may also submit a documented interference complaint against BRS licensees operating on channel BRS Channel 1 on the same terms and conditions as adjacent channel BRS or EBS licensees.



3.7.2 Test Procedures

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

Example:

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

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

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

8. For LTE Band 7, 38, 41, the other 40 dB, and 55 dB have additionally applied same calculation above.
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.

For Band 7,38,41:

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 $55 + 10 \log (P)$ 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)
= -13dBm.
11. For Band 7, 38, 41
The limit line is derived from $55 + 10\log(P)$ dB below the transmitter power P(Watts)
= $P(W) - [55 + 10\log(P)]$ (dB)
= $[30 + 10\log(P)]$ (dBm) - $[55 + 10\log(P)]$ (dB)
= -25dBm.



3.9 Frequency Stability

3.9.1 Description of Frequency Stability Measurement

The frequency stability shall be measured by variation of ambient temperature and variation of primary supply voltage to ensure that the fundamental emission stays within the authorized frequency block. The frequency stability of the transmitter shall be maintained within $\pm 0.00025\%$ ($\pm 2.5\text{ppm}$) of the center frequency.

3.9.2 Test Procedures for Temperature Variation

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

3.9.3 Test Procedures for Voltage Variation

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

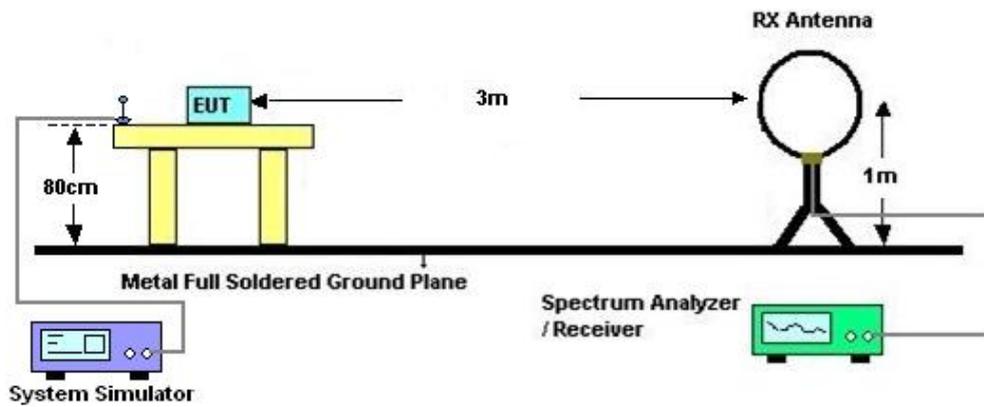
4 Radiated Test Items

4.1 Measuring Instruments

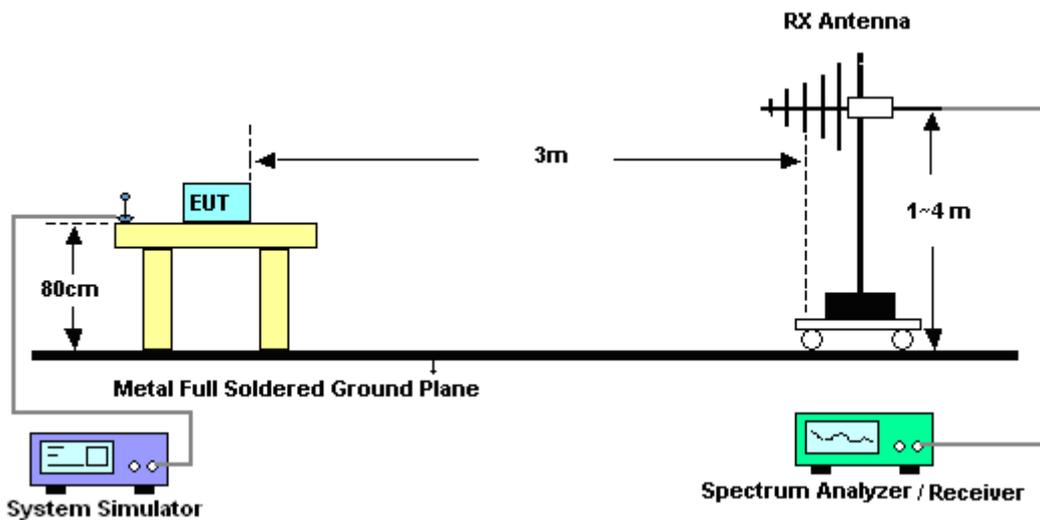
See list of measuring instruments of this test report.

4.2 Test Setup

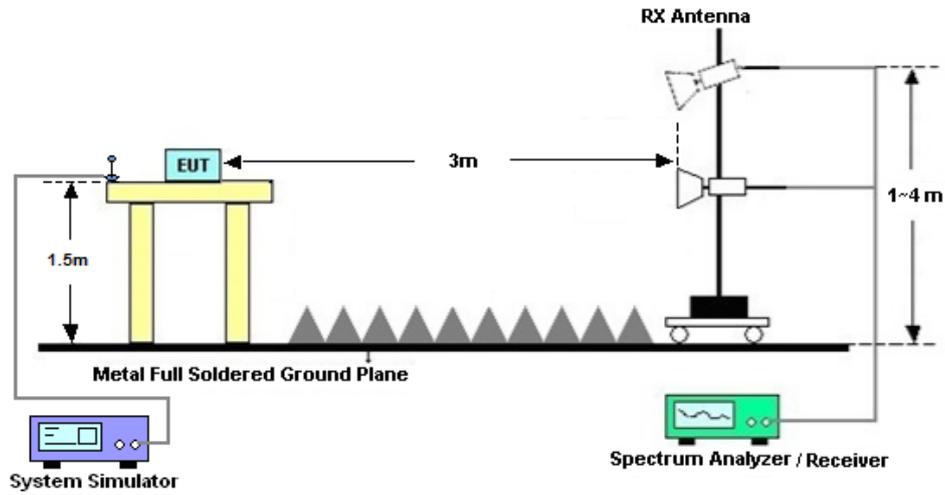
4.2.1 For radiated test below 30MHz



4.2.2 For radiated test from 30MHz to 1GHz



4.2.3 For radiated test above 1GHz



4.3 Test Result of Radiated Test

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

Please refer to Appendix B.



4.4 Radiated Spurious Emission

4.4.1 Description of Radiated Spurious Emission

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

For Band 7, 38, 41

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 $55 + 10 \log (P)$ dB.

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

4.4.2 Test Procedures

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

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

13. For Band 7, 38, 41:

The limit line is derived from $55 + 10\log(P)$ dB below the transmitter power P(Watts)



5 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Spectrum Analyzer	R&S	FSV40	101078	10Hz~40GHz	Apr. 09, 2024	Aug. 16, 2024~ Aug. 24, 2024	Apr. 08, 2025	Conducted (TH01-SZ)
DC Power Supply	TTI	PL330P	290070	Max 32V , 3A	Oct. 16, 2023	Aug. 16, 2024~ Aug. 24, 2024	Oct. 15, 2024	Conducted (TH01-SZ)
Power Divider	TOJOIN	PS-2SM-04265	60.06.020.0077	0.4GHz~26.5GHz	Dec. 25, 2023	Aug. 16, 2024~ Aug. 24, 2024	Dec. 24, 2024	Conducted (TH01-SZ)
Thermal Chamber	Ten Billion Hongzhangroup	LP-150U	H2014081803	-40~+150°C	Jul. 03, 2024	Aug. 16, 2024~ Aug. 24, 2024	Jul. 02, 2025	Conducted (TH01-SZ)
EMI Test Receiver&SA	KEYSIGHT	N9038A	MY54450083	20Hz~8.4GHz	Apr. 09, 2024	Aug. 02, 2024~ Aug. 15, 2024	Apr. 08, 2025	Radiation (03CH03-SZ)
Loop Antenna	R&S	HFH2-Z2E	101141	9kHz~30MHz	Dec. 29, 2023	Aug. 02, 2024~ Aug. 15, 2024	Dec. 28, 2024	Radiation (03CH03-SZ)
EXA Spectrum Analyzer	KEYSIGHT	N9010A	MY55150246	10Hz~44GHz;	Apr. 09, 2024	Aug. 02, 2024~ Aug. 15, 2024	Apr. 08, 2025	Radiation (03CH03-SZ)
Bilog Antenna	TeseQ	CBL6112D	35408	30MHz-2GHz	Aug. 20, 2023	Aug. 02, 2024~ Aug. 15, 2024	Aug. 19, 2025	Radiation (03CH03-SZ)
Double Ridge Horn Antenna	SCHWARZBECK	BBHA9120D	9120D-1355	1GHz~18GHz	Apr. 09, 2024	Aug. 02, 2024~ Aug. 15, 2024	Apr. 08, 2025	Radiation (03CH03-SZ)
Amplifier	Burgeon	BPA-530	102211	0.01Hz~3000MHz	Oct. 18, 2023	Aug. 02, 2024~ Aug. 15, 2024	Oct. 17, 2024	Radiation (03CH03-SZ)
HF Amplifier	MITEQ	TTA1840-35-HG	1871923	18GHz~40GHz	Jul. 03, 2024	Aug. 02, 2024~ Aug. 15, 2024	Jul.02, 2025	Radiation (03CH03-SZ)
SHF-EHF Horn	com-power	AH-840	101071	18GHz-40GHz	Apr. 09, 2024	Aug. 02, 2024~ Aug. 15, 2024	Apr. 08, 2025	Radiation (03CH03-SZ)
Amplifier	Agilent Technologies	83017A	MY39501302	500MHz~26.5GHz	Dec. 27, 2023	Aug. 02, 2024~ Aug. 15, 2024	Dec. 26, 2024	Radiation (03CH03-SZ)
AC Power Source	Chroma	61601	616010002729	N/A	Oct. 18, 2023	Aug. 02, 2024~ Aug. 15, 2024	Oct. 17, 2024	Radiation (03CH03-SZ)
Turn Table	EM	EM1000	N/A	0~360 degree	NCR	Aug. 02, 2024~ Aug. 15, 2024	NCR	Radiation (03CH03-SZ)
Antenna Mast	EM	EM1000	N/A	1 m~4 m	NCR	Aug. 02, 2024~ Aug. 15, 2024	NCR	Radiation (03CH03-SZ)

NCR: No Calibration Required



6 Measurement Uncertainty

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

Uncertainty of Conducted Measurement

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

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	3.0dB
---------------------------------------------------------------------	-------

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	3.6 dB
---------------------------------------------------------------------	--------

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	3.8 dB
---------------------------------------------------------------------	--------

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



Appendix A. Test Results of Conducted Test

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

Conducted Output Power(Average power) and ERP/EIRP

LTE Band 2:

BW [MHz]	Modulation	RB Size	RB Offset	Power	Power	Power	EIRP(W)		
				Low Ch. / Freq.	Middle Ch. / Freq.	High Ch. / Freq.			
Channel				18700	18900	19100			
Frequency (MHz)				1860	1880	1900	L	M	H
20	QPSK	1	0	22.61	22.75	22.74	0.2046	0.2113	0.2109
20	QPSK	1	49	22.45	22.68	22.60	0.1972	0.2080	0.2042
20	QPSK	1	99	22.30	22.35	22.32	0.1905	0.1928	0.1914
20	QPSK	50	0	21.65	21.68	21.66	0.1641	0.1652	0.1644
20	QPSK	50	24	21.64	21.63	21.61	0.1637	0.1633	0.1626
20	QPSK	50	50	21.40	21.48	21.46	0.1549	0.1578	0.1570
20	QPSK	100	0	21.51	21.60	21.59	0.1589	0.1622	0.1618
20	16QAM	1	0	21.84	22.18	22.03	0.1714	0.1854	0.1791
20	64QAM	1	0	20.75	20.75	20.87	0.1334	0.1334	0.1371
Channel				18675	18900	19125	EIRP(W)		
Frequency (MHz)				1857.5	1880	1902.5	L	M	H
15	QPSK	1	0	22.60	22.74	22.71	0.2042	0.2109	0.2094
15	16QAM	1	0	21.70	22.03	21.98	0.1660	0.1791	0.1770
Channel				18650	18900	19150	EIRP(W)		
Frequency (MHz)				1855	1880	1905	L	M	H
10	QPSK	1	0	22.54	22.65	22.69	0.2014	0.2065	0.2084
10	16QAM	1	0	21.71	22.04	22.01	0.1663	0.1795	0.1782
Channel				18625	18900	19175	EIRP(W)		
Frequency (MHz)				1852.5	1880	1907.5	L	M	H
5	QPSK	1	0	22.60	22.69	22.65	0.2042	0.2084	0.2065
5	16QAM	1	0	21.75	22.10	21.93	0.1679	0.1820	0.1750
Channel				18615	18900	19185	EIRP(W)		



Frequency (MHz)				1851.5	1880	1908.5	L	M	H
3	QPSK	1	0	22.58	22.74	22.59	0.2032	0.2109	0.2037
3	16QAM	1	0	21.70	22.17	21.92	0.1660	0.1849	0.1746
Channel				18607	18900	19193	EIRP(W)		
Frequency (MHz)				1850.7	1880	1909.3	L	M	H
1.4	QPSK	1	0	22.51	22.67	22.71	0.2000	0.2075	0.2094
1.4	16QAM	1	0	21.52	21.53	21.65	0.1592	0.1596	0.1641



LTE Band 4:

BW [MHz]	Modulation	RB Size	RB Offset	Power	Power	Power	EIRP(W)		
				Low Ch. / Freq.	Middle Ch. / Freq.	High Ch. / Freq.			
Channel				20050	20175	20300			
Frequency (MHz)				1720	1732.5	1745	L	M	H
20	QPSK	1	0	22.71	22.73	22.45	0.2094	0.2104	0.1972
20	QPSK	1	49	22.68	22.69	22.31	0.2080	0.2084	0.1910
20	QPSK	1	99	22.68	22.55	22.44	0.2080	0.2018	0.1968
20	QPSK	50	0	21.53	21.55	21.53	0.1596	0.1603	0.1596
20	QPSK	50	24	21.43	21.52	21.42	0.1560	0.1592	0.1556
20	QPSK	50	50	21.51	21.45	21.50	0.1589	0.1567	0.1585
20	QPSK	100	0	21.52	21.53	21.44	0.1592	0.1596	0.1563
20	16QAM	1	0	22.03	21.75	21.72	0.1791	0.1679	0.1667
20	64QAM	1	0	20.78	20.81	20.81	0.1343	0.1352	0.1352
Channel				20025	20175	20325	EIRP(W)		
Frequency (MHz)				1717.5	1732.5	1747.5	L	M	H
15	QPSK	1	0	22.67	22.65	22.39	0.2075	0.2065	0.1945
15	16QAM	1	0	21.90	21.62	21.63	0.1738	0.1629	0.1633
Channel				20000	20175	20350	EIRP(W)		
Frequency (MHz)				1715	1732.5	1750	L	M	H
10	QPSK	1	0	22.57	22.64	22.33	0.2028	0.2061	0.1919
10	16QAM	1	0	22.00	21.74	21.66	0.1778	0.1675	0.1644
Channel				19975	20175	20375	EIRP(W)		
Frequency (MHz)				1712.5	1732.5	1752.5	L	M	H
5	QPSK	1	0	22.66	22.58	22.41	0.2070	0.2032	0.1954
5	16QAM	1	0	21.93	21.68	21.69	0.1750	0.1652	0.1656
Channel				19965	20175	20385	EIRP(W)		
Frequency (MHz)				1711.5	1732.5	1753.5	L	M	H
3	QPSK	1	0	22.69	22.59	22.33	0.2084	0.2037	0.1919
3	16QAM	1	0	21.93	21.69	21.58	0.1750	0.1656	0.1614
Channel				19950	20175	20393	EIRP(W)		
Frequency (MHz)				1710	1732.5	1754.3	L	M	H
1.4	QPSK	1	0	22.68	22.64	22.41	0.2080	0.2061	0.1954
1.4	16QAM	1	0	21.40	21.43	21.44	0.1549	0.1560	0.1563



LTE Band 5:

BW [MHz]	Modulation	RB Size	RB Offset	Power	Power	Power	ERP(W)		
				Low Ch. / Freq.	Middle Ch. / Freq.	High Ch. / Freq.			
Channel				20450	20525	20600			
Frequency (MHz)				829	836.5	844	L	M	H
10	QPSK	1	0	22.87	22.89	22.86	0.1052	0.1057	0.1050
10	QPSK	1	25	22.53	22.46	22.72	0.0973	0.0957	0.1016
10	QPSK	1	49	22.85	22.74	22.85	0.1047	0.1021	0.1047
10	QPSK	25	0	21.68	21.75	21.71	0.0800	0.0813	0.0805
10	QPSK	25	12	21.51	21.55	21.53	0.0769	0.0776	0.0773
10	QPSK	25	25	21.63	21.56	21.67	0.0791	0.0778	0.0798
10	QPSK	50	0	21.59	21.62	21.61	0.0783	0.0789	0.0787
10	16QAM	1	0	21.83	21.88	22.22	0.0828	0.0838	0.0906
10	64QAM	1	0	21.05	20.98	20.69	0.0692	0.0681	0.0637
Channel				20425	20525	20625	ERP(W)		
Frequency (MHz)				826.5	836.5	846.5	L	M	H
5	QPSK	1	0	22.79	22.75	22.71	0.1033	0.1023	0.1014
5	16QAM	1	0	21.76	21.74	22.08	0.0815	0.0811	0.0877
Channel				20415	20525	20635	ERP(W)		
Frequency (MHz)				825.5	836.5	847.5	L	M	H
3	QPSK	1	0	22.84	22.74	22.79	0.1045	0.1021	0.1033
3	16QAM	1	0	21.82	21.74	22.09	0.0826	0.0811	0.0879
Channel				20407	20525	20643	ERP(W)		
Frequency (MHz)				824.7	836.5	848.3	L	M	H
1.4	QPSK	1	0	22.84	22.76	22.75	0.1045	0.1026	0.1023
1.4	16QAM	1	0	21.59	21.63	21.61	0.0783	0.0791	0.0787



LTE Band 7:

BW [MHz]	Modulation	RB Size	RB Offset	Power	Power	Power	EIRP(W)		
				Low Ch. / Freq.	Middle Ch. / Freq.	High Ch. / Freq.			
Channel				20850	20850	21350			
Frequency (MHz)				2510	2535	2560	L	M	H
20	QPSK	1	0	22.80	23.02	22.93	0.2399	0.2523	0.2472
20	QPSK	1	49	22.78	22.95	22.92	0.2388	0.2483	0.2466
20	QPSK	1	99	22.63	23.01	22.88	0.2307	0.2518	0.2443
20	QPSK	50	0	21.78	21.95	21.90	0.1897	0.1972	0.1950
20	QPSK	50	24	21.75	21.94	21.89	0.1884	0.1968	0.1945
20	QPSK	50	50	21.66	21.88	21.86	0.1845	0.1941	0.1932
20	QPSK	100	0	21.66	21.93	21.83	0.1845	0.1963	0.1919
20	16QAM	1	0	21.81	21.92	22.17	0.1910	0.1959	0.2075
20	64QAM	1	0	20.95	20.76	21.04	0.1567	0.1500	0.1600
Channel				20825	21100	21375	EIRP(W)		
Frequency (MHz)				2507.5	2535	2562.5	L	M	H
15	QPSK	1	0	22.75	22.99	22.85	0.2371	0.2506	0.2427
15	16QAM	1	0	21.76	21.80	22.07	0.1888	0.1905	0.2028
Channel				20800	21100	21400	EIRP(W)		
Frequency (MHz)				2505	2535	2565	L	M	H
10	QPSK	1	0	22.75	22.87	22.91	0.2371	0.2438	0.2460
10	16QAM	1	0	21.94	21.86	22.06	0.1968	0.1932	0.2023
Channel				20775	21100	21425	EIRP(W)		
Frequency (MHz)				2502.5	2535	2567.5	L	M	H
5	QPSK	1	0	22.74	23.01	22.86	0.2366	0.2518	0.2432
5	16QAM	1	0	21.71	21.89	22.11	0.1866	0.1945	0.2046



LTE Band 26:

BW [MHz]	Modulation	RB Size	RB Offset	Power	Power	Power	Power	ERP(W)			
				Low Ch. / Freq.	Low Ch. / Freq.	Middle Ch. / Freq.	High Ch. / Freq.				
Channel				26790	26865	26915	26965				
Frequency (MHz)				824	831.5	836.5	841.5	Straddle Ch	L	M	H
15	QPSK	1	0	23.09	23.15	23.16	22.85	0.1107	0.1122	0.1125	0.1047
15	QPSK	1	37	23.00	23.13	22.84	22.73	0.1084	0.1117	0.1045	0.1019
15	QPSK	1	74	22.74	22.85	22.99	22.82	0.1021	0.1047	0.1081	0.1040
15	QPSK	36	0	21.72	21.86	21.95	21.93	0.0807	0.0834	0.0851	0.0847
15	QPSK	36	20	21.46	21.58	21.66	21.69	0.0760	0.0782	0.0796	0.0802
15	QPSK	36	39	21.53	21.59	21.53	21.47	0.0773	0.0783	0.0773	0.0762
15	QPSK	75	0	21.58	21.68	21.70	21.65	0.0782	0.0800	0.0804	0.0794
15	16QAM	1	0	22.14	22.26	22.00	22.24	0.0889	0.0914	0.0861	0.0910
15	64QAM	1	0	21.12	21.15	21.35	20.98	0.0703	0.0708	0.0741	0.0681
Channel				26790	26840	26915	26990	ERP(W)			
Frequency (MHz)				824	829	836.5	844	Straddle Ch	L	M	H
10	QPSK	1	0	22.97	23.05	23.03	22.77	0.1076	0.1096	0.1091	0.1028
10	16QAM	1	0	21.93	22.19	21.97	22.22	0.0847	0.0899	0.0855	0.0906
Channel				26790	26815	26915	27015	ERP(W)			
Frequency (MHz)				824	826.5	836.5	846.5	Straddle Ch	L	M	H
5	QPSK	1	0	22.90	23.05	23.02	22.74	0.1059	0.1096	0.1089	0.1021
5	16QAM	1	0	21.89	22.21	21.98	22.16	0.0839	0.0904	0.0857	0.0893
Channel				26790	26815	26915	27025	ERP(W)			
Frequency (MHz)				824	825.5	836.5	847.5	Straddle Ch	L	M	H
3	QPSK	1	0	22.92	23.05	23.11	22.84	0.1064	0.1096	0.1112	0.1045
3	16QAM	1	0	21.95	22.25	21.96	22.15	0.0851	0.0912	0.0853	0.0891
Channel				26790	26797	26915	27033	ERP(W)			
Frequency (MHz)				824	824.7	836.5	848.3	Straddle Ch	L	M	H
1.4	QPSK	1	0	22.92	23.09	23.11	22.78	0.1064	0.1107	0.1112	0.1030



1.4	16QAM	1	0	21.89	21.73	21.90	21.91	0.0839	0.0809	0.0841	0.0843
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LTE Band 38:

BW [MHz]	Modulation	RB Size	RB Offset	Power	Power	Power	EIRP(W)		
				Low Ch. / Freq.	Middle Ch. / Freq.	High Ch. / Freq.			
Channel				37850	38000	38150			
Frequency (MHz)				2580	2595	2610	L	M	H
20	QPSK	1	0	23.50	23.25	23.15	0.2818	0.2661	0.2600
20	QPSK	1	49	23.37	23.17	23.13	0.2735	0.2612	0.2588
20	QPSK	1	99	23.49	23.24	23.11	0.2812	0.2655	0.2576
20	QPSK	50	0	22.55	22.53	22.45	0.2265	0.2254	0.2213
20	QPSK	50	24	22.36	22.51	22.41	0.2168	0.2244	0.2193
20	QPSK	50	50	22.47	22.25	22.35	0.2223	0.2113	0.2163
20	QPSK	100	0	22.41	22.37	22.30	0.2193	0.2173	0.2138
20	16QAM	1	0	22.20	22.33	22.10	0.2089	0.2153	0.2042
20	64QAM	1	0	20.84	20.85	20.87	0.1528	0.1531	0.1538
Channel				37825	38000	38175	EIRP(W)		
Frequency (MHz)				2577.5	2595	2612.5	L	M	H
15	QPSK	1	0	23.48	23.14	23.07	0.2805	0.2594	0.2553
15	16QAM	1	0	22.19	22.30	22.00	0.2084	0.2138	0.1995
Channel				37800	38000	38200	EIRP(W)		
Frequency (MHz)				2575	2595	2615	L	M	H
10	QPSK	1	0	23.49	23.22	23.13	0.2812	0.2642	0.2588
10	16QAM	1	0	22.05	22.25	22.04	0.2018	0.2113	0.2014
Channel				37775	38000	38225	EIRP(W)		
Frequency (MHz)				2572.5	2595	2617.5	L	M	H
5	QPSK	1	0	23.46	23.19	23.09	0.2793	0.2624	0.2564
5	16QAM	1	0	22.16	22.28	22.05	0.2070	0.2128	0.2018



LTE Band 41:

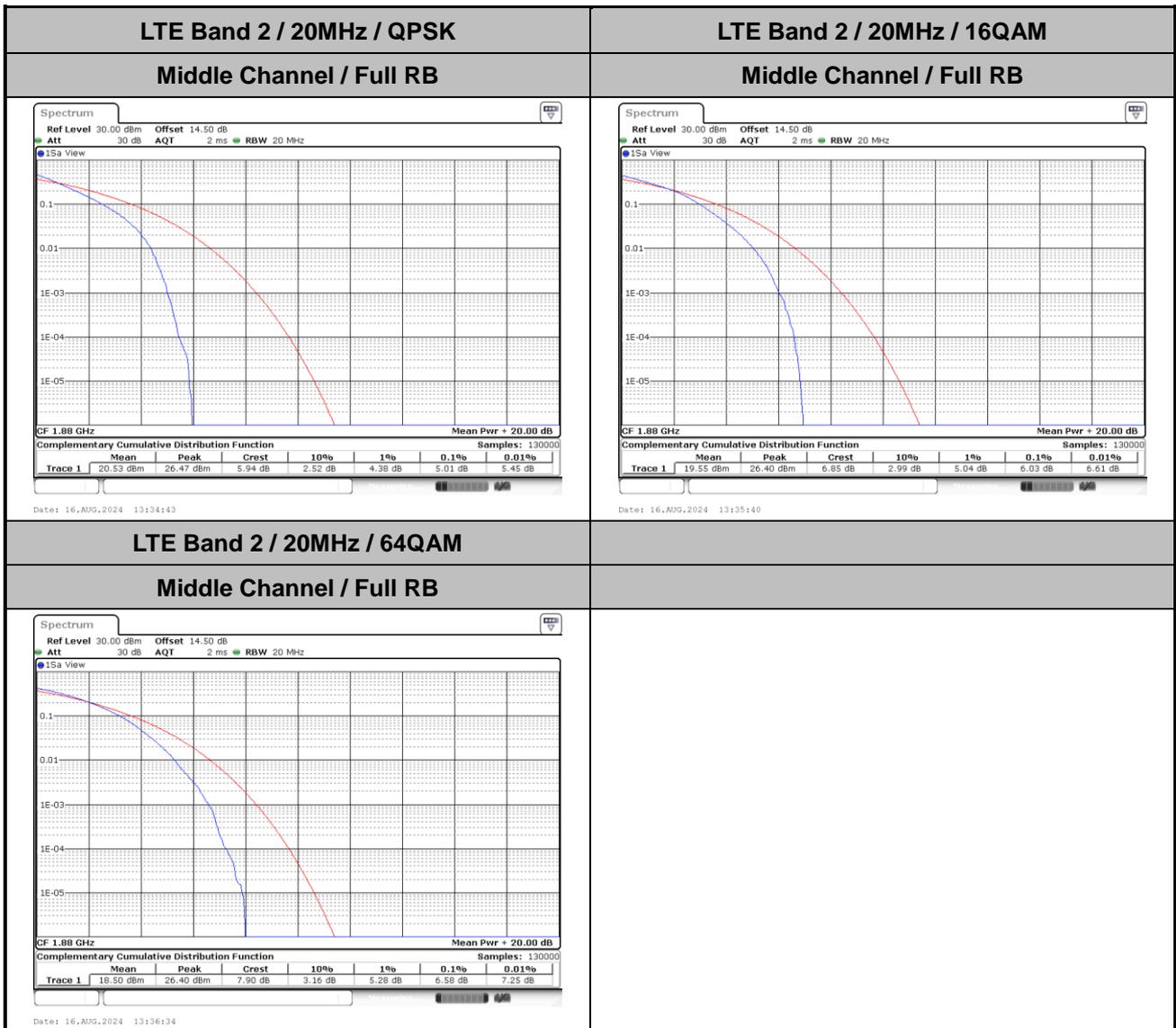
BW [MHz]	Modulation	RB Size	RB Offset	Power	Power	Power	EIRP(W)		
				Low Ch. / Freq.	Middle Ch. / Freq.	High Ch. / Freq.			
Channel				39750	40620	41490			
Frequency (MHz)				2506	2593	2680	L	M	H
20	QPSK	1	0	23.40	23.61	23.86	0.2754	0.2891	0.3062
20	QPSK	1	49	22.90	23.24	23.00	0.2455	0.2655	0.2512
20	QPSK	1	99	23.01	23.47	23.35	0.2518	0.2799	0.2723
20	QPSK	50	0	22.45	22.66	22.84	0.2213	0.2323	0.2421
20	QPSK	50	24	22.43	22.51	22.02	0.2203	0.2244	0.2004
20	QPSK	50	50	22.19	22.50	22.08	0.2084	0.2239	0.2032
20	QPSK	100	0	22.17	22.53	22.55	0.2075	0.2254	0.2265
20	16QAM	1	0	21.77	22.11	22.83	0.1892	0.2046	0.2415
20	64QAM	1	0	21.10	21.10	21.41	0.1622	0.1622	0.1742
Channel				39725	40620	41515	EIRP(W)		
Frequency (MHz)				2503.5	2593	2682.5	L	M	H
15	QPSK	1	0	23.30	23.60	23.74	0.2692	0.2884	0.2979
15	16QAM	1	0	21.75	22.01	22.71	0.1884	0.2000	0.2350
Channel				39700	40620	41540	EIRP(W)		
Frequency (MHz)				2501	2593	2685	L	M	H
10	QPSK	1	0	23.37	23.54	23.73	0.2735	0.2844	0.2972
10	16QAM	1	0	21.65	22.04	22.75	0.1841	0.2014	0.2371
Channel				39675	40620	41565	EIRP(W)		
Frequency (MHz)				2498.5	2593	2687.5	L	M	H
5	QPSK	1	0	23.32	23.59	23.79	0.2704	0.2877	0.3013
5	16QAM	1	0	21.66	22.02	22.72	0.1845	0.2004	0.2355



LTE Band 2

Peak-to-Average Ratio

Mode	LTE Band 2 / 20MHz			
Mod.	QPSK	16QAM	64QAM	Limit: 13dB
RB Size	Full RB	Full RB	Full RB	Result
Middle CH	5.01	6.03	6.58	PASS



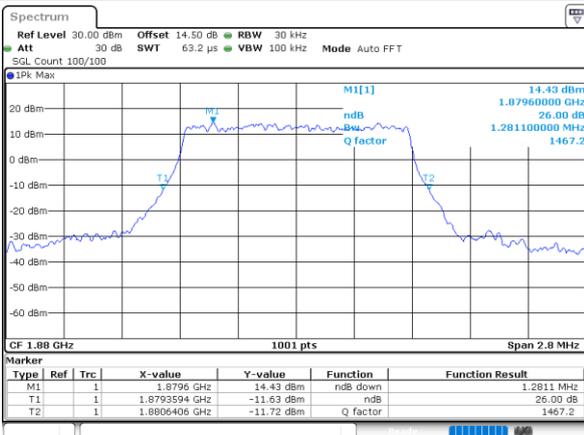


26dB Bandwidth

Mode	LTE Band 2 : 26dB BW(MHz)											
BW	1.4MHz		3MHz		5MHz		10MHz		15MHz		20MHz	
Mod.	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM
Middle CH	1.28	1.27	2.99	3.02	4.86	4.94	9.87	9.81	14.18	14.27	19.06	19.18

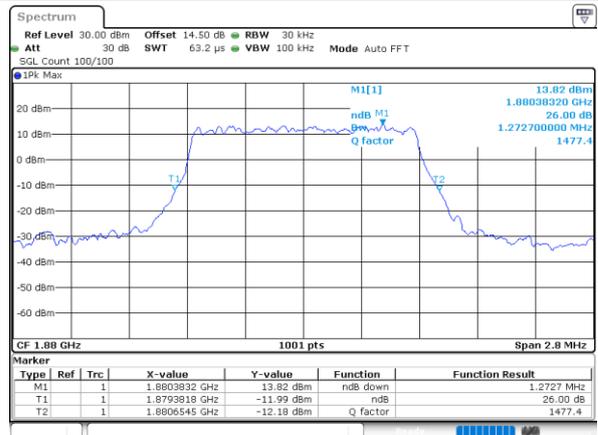
LTE Band 2

Middle Channel / 1.4MHz / QPSK



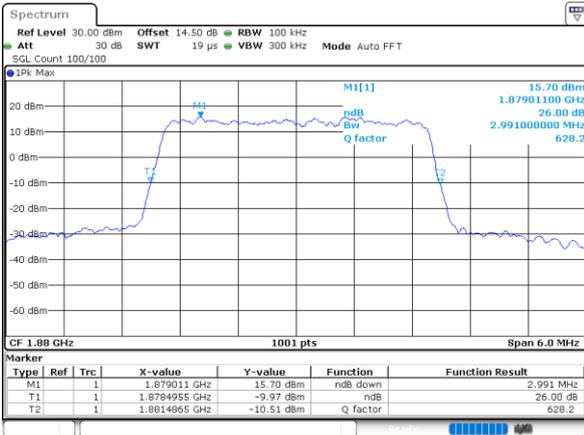
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Middle Channel / 1.4MHz / 16QAM



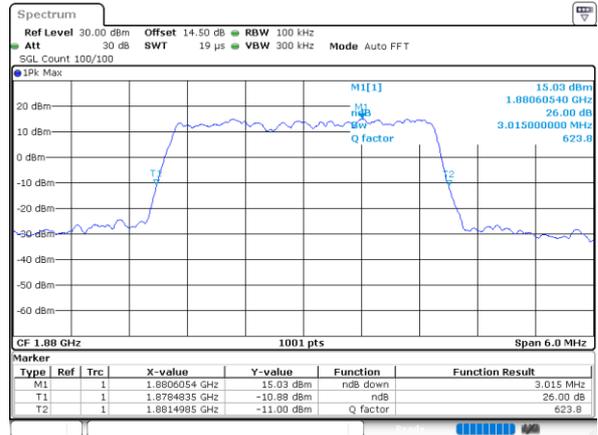
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Middle Channel / 3MHz / QPSK

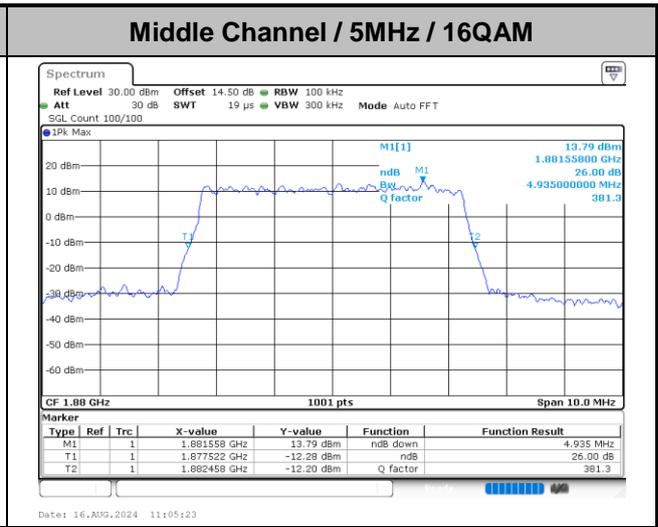
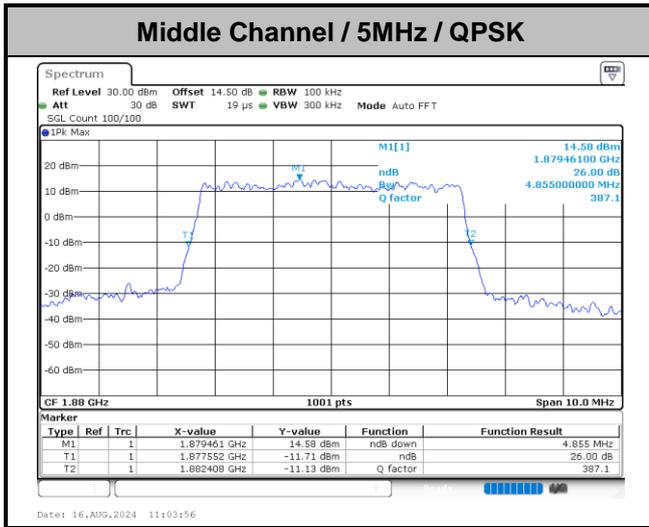


Date: 16_AUG_2024 10:29:37

Middle Channel / 3MHz / 16QAM



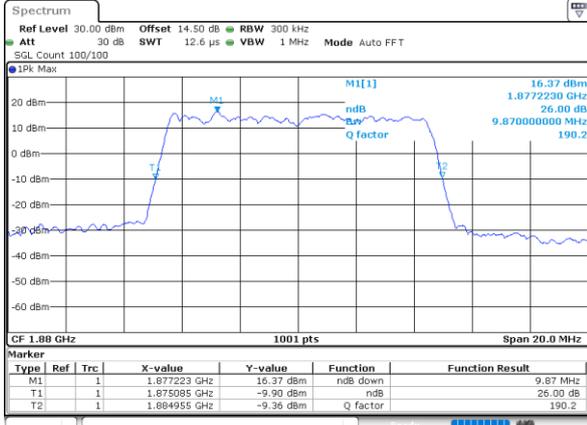
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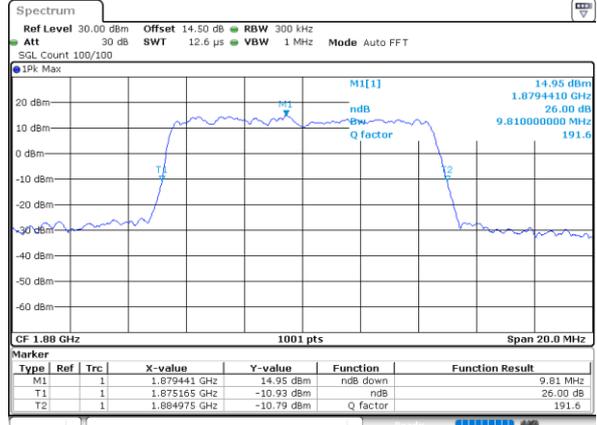
LTE Band 2

Middle Channel / 10MHz / QPSK



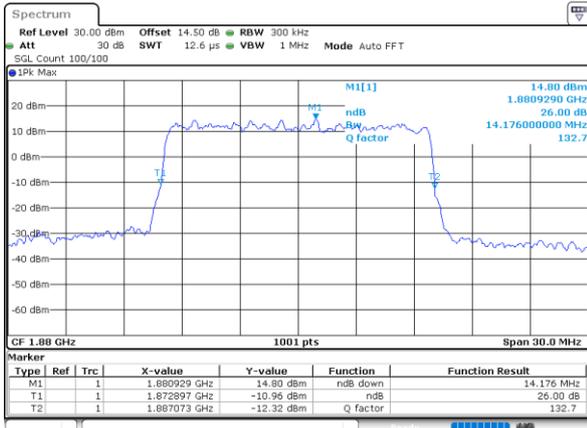
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Middle Channel / 10MHz / 16QAM



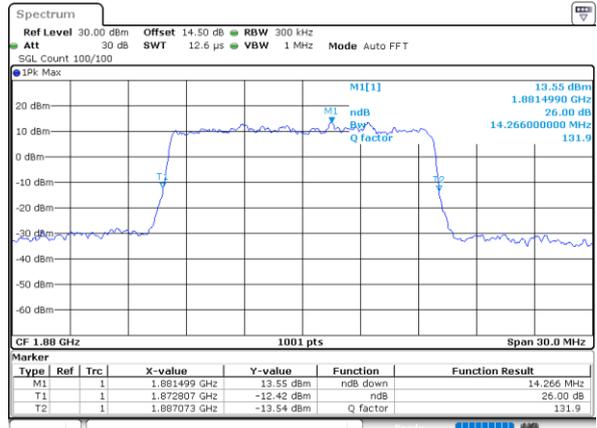
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Middle Channel / 15MHz / QPSK



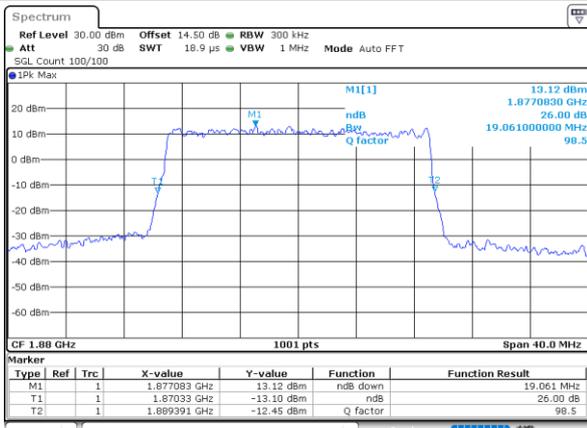
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Middle Channel / 15MHz / 16QAM



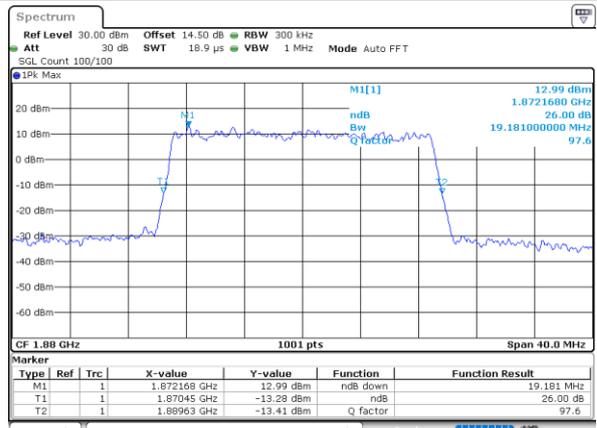
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Middle Channel / 20MHz / QPSK



Date: 16.AUG.2024 13:24:26

Middle Channel / 20MHz / 16QAM

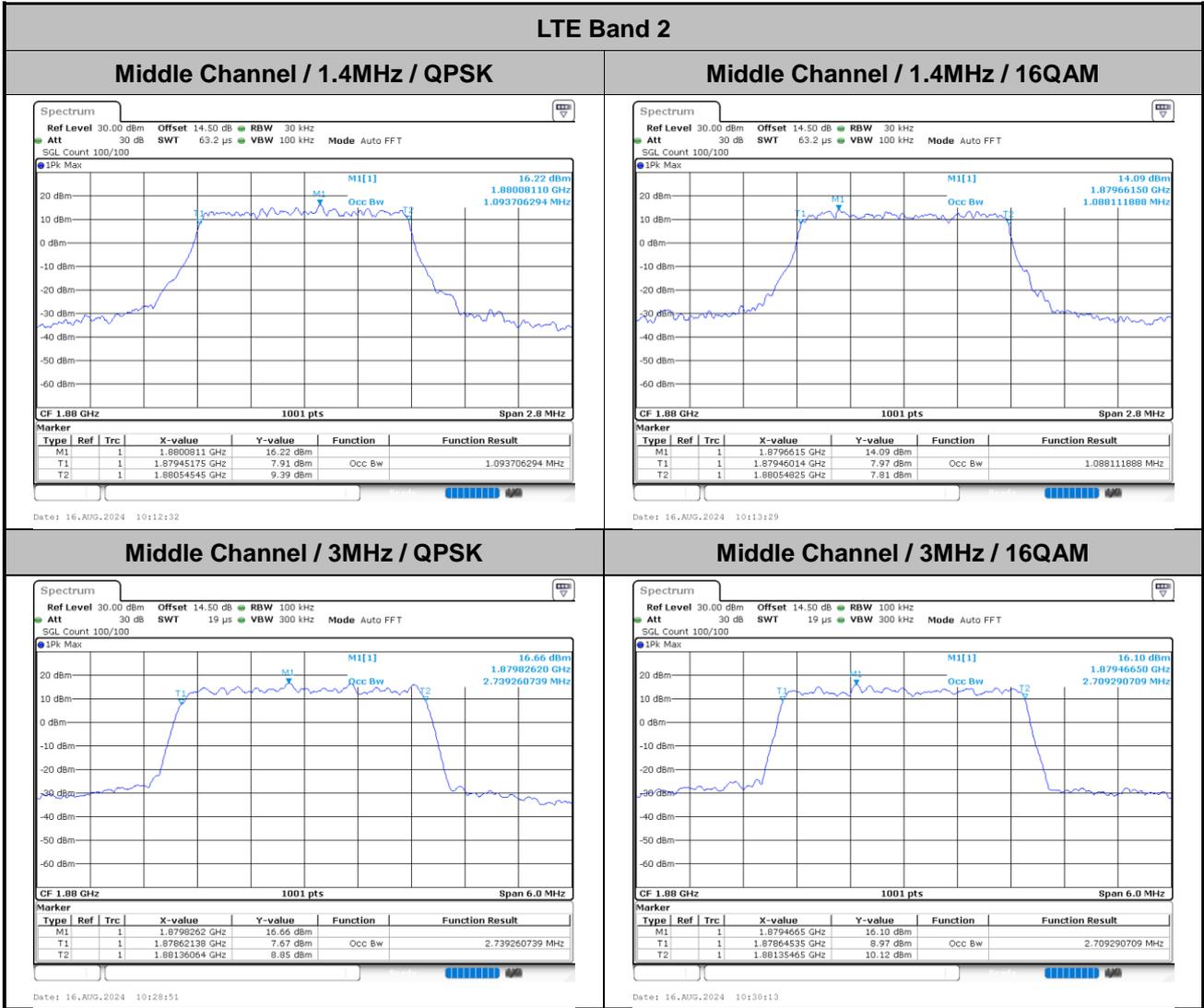


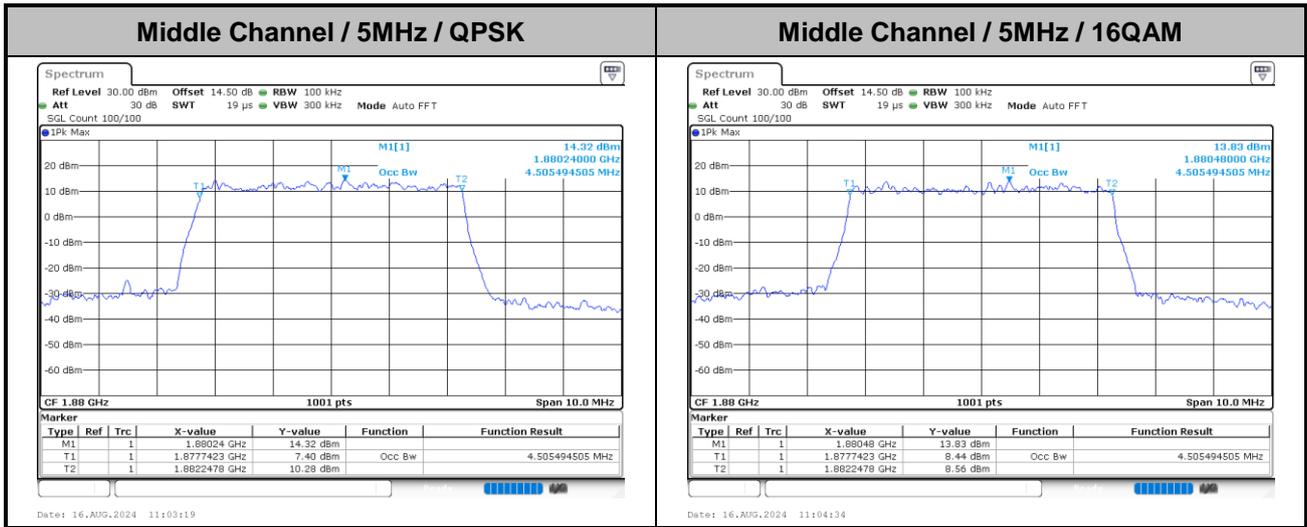
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Occupied Bandwidth

Mode	LTE Band 2 : 99%OBW(MHz)											
BW	1.4MHz		3MHz		5MHz		10MHz		15MHz		20MHz	
Mod.	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM
Middle CH	1.09	1.09	2.74	2.71	4.51	4.51	9.01	8.99	13.46	13.46	17.86	17.86

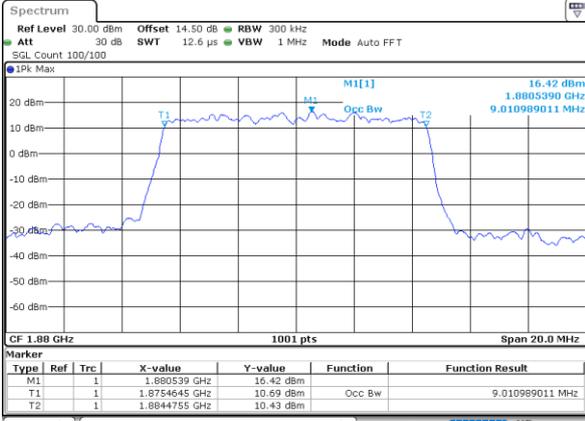






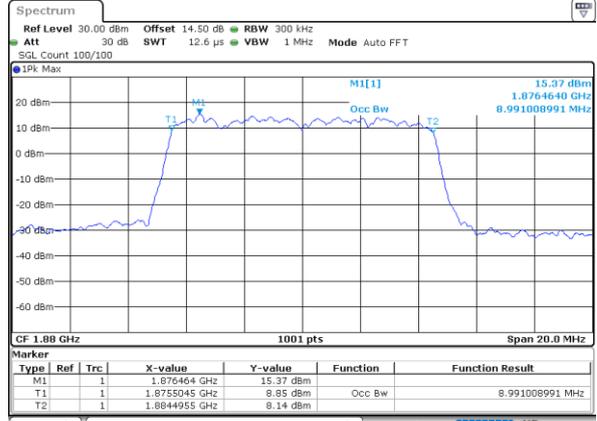
LTE Band 2

Middle Channel / 10MHz / QPSK



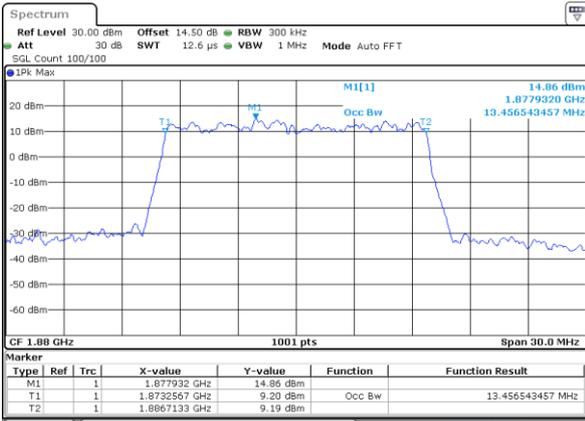
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Middle Channel / 10MHz / 16QAM



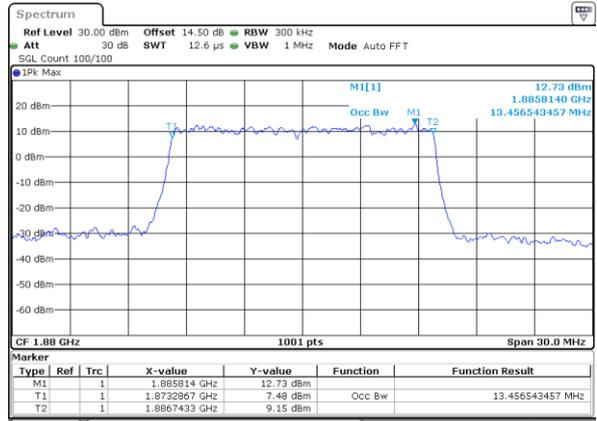
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Middle Channel / 15MHz / QPSK



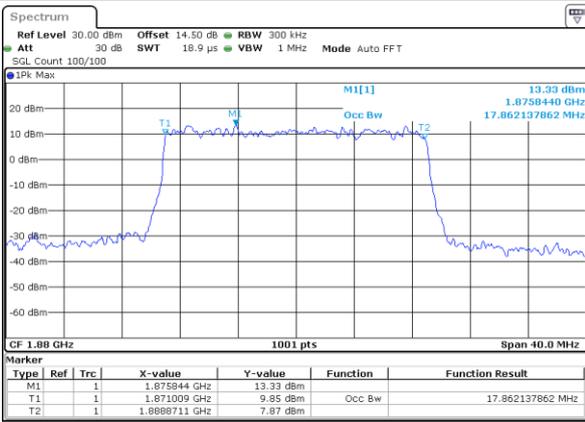
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Middle Channel / 15MHz / 16QAM



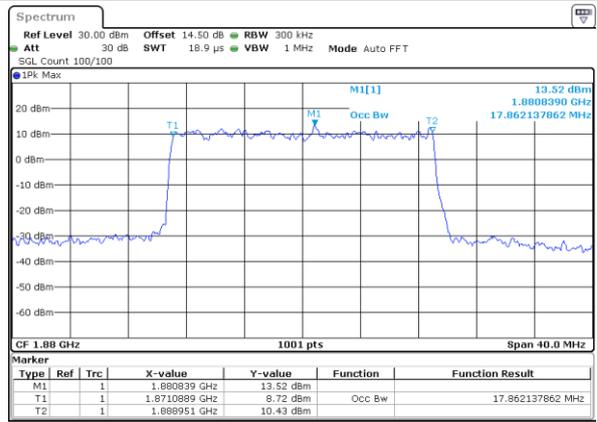
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Middle Channel / 20MHz / QPSK



Date: 16_AUG.2024 13:24:55

Middle Channel / 20MHz / 16QAM



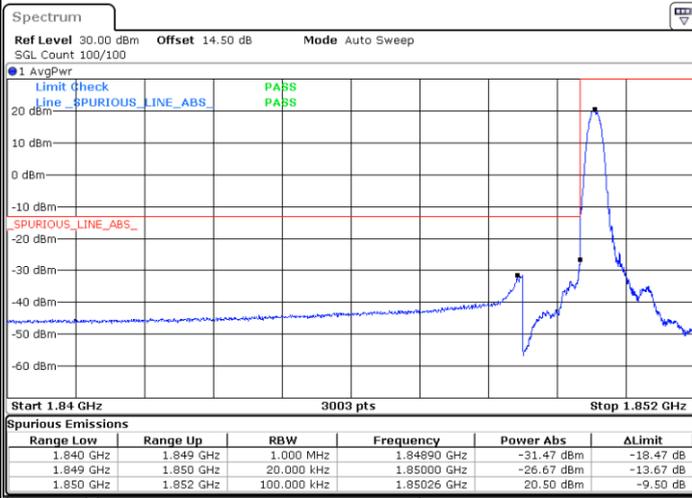
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Conducted Band Edge

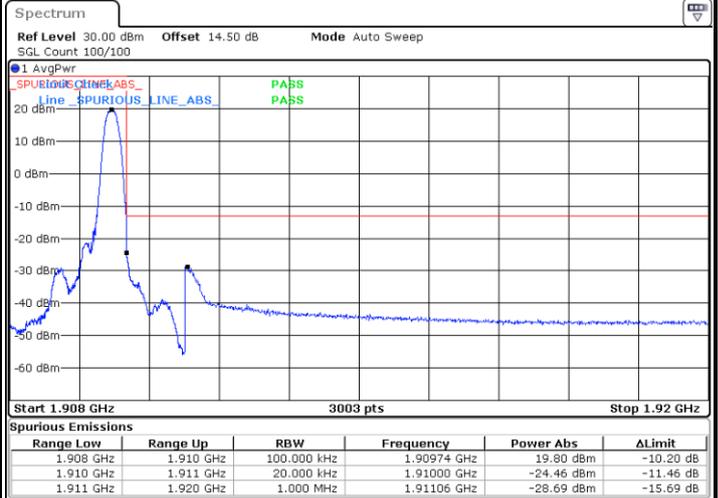
LTE Band 2 / 1.4MHz / QPSK

Lowest Band Edge / 1RB



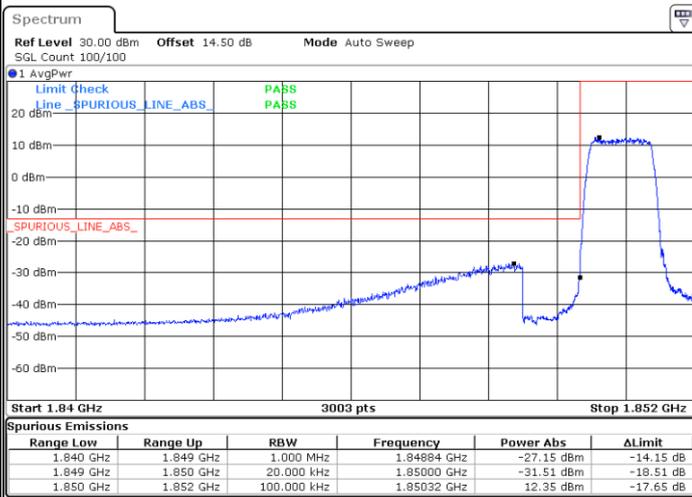
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Highest Band Edge / 1RB



Date: 16.AUG.2024 10:17:10

Lowest Band Edge / Full RB



Date: 16.AUG.2024 10:08:42

Highest Band Edge / Full RB

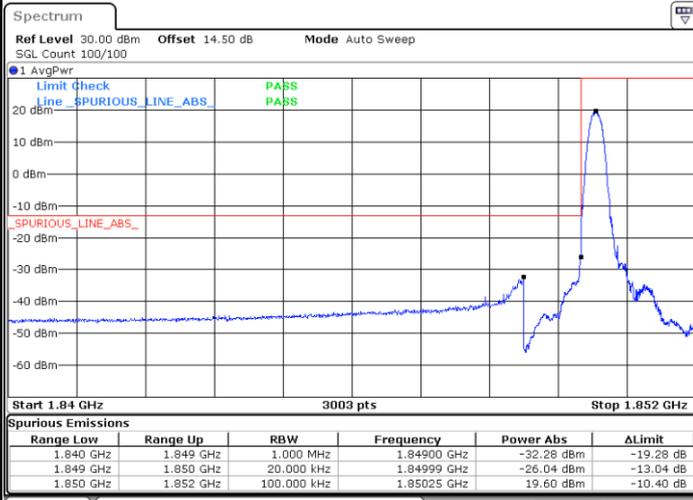


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LTE Band 2 / 1.4MHz / 16QAM

Lowest Band Edge / 1 RB



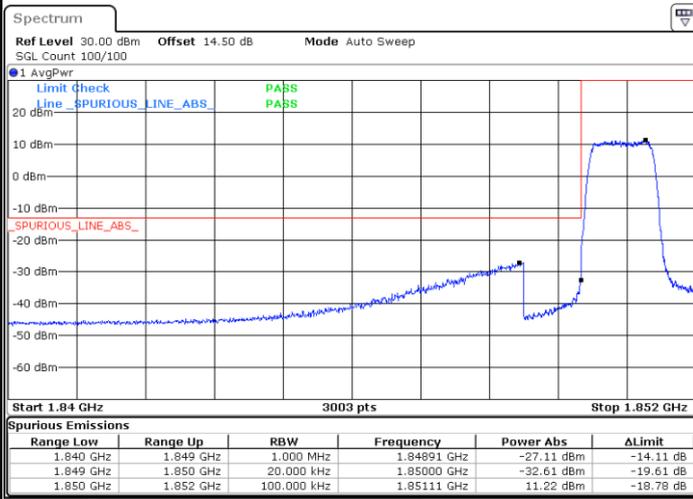
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Highest Band Edge / 1 RB



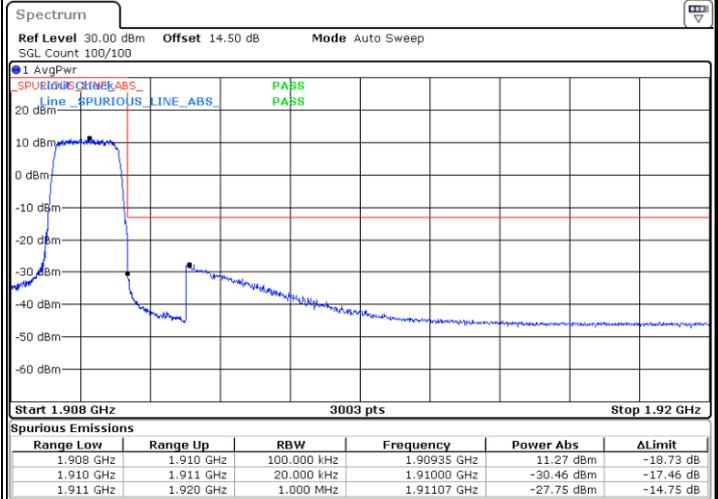
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Lowest Band Edge / Full RB



Date: 16.AUG.2024 10:09:19

Highest Band Edge / Full RB

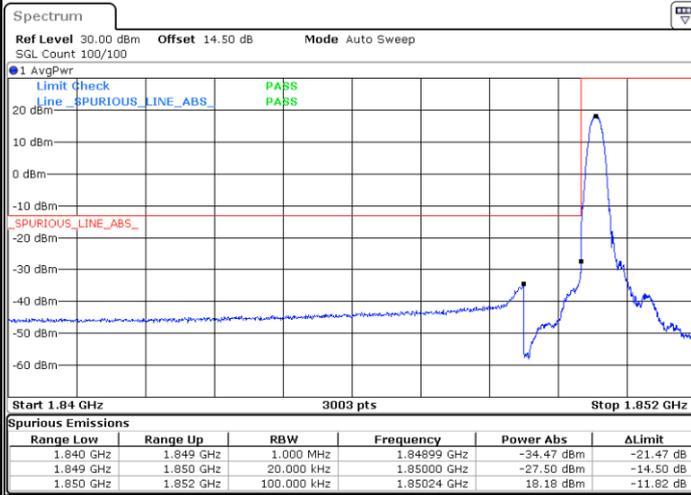


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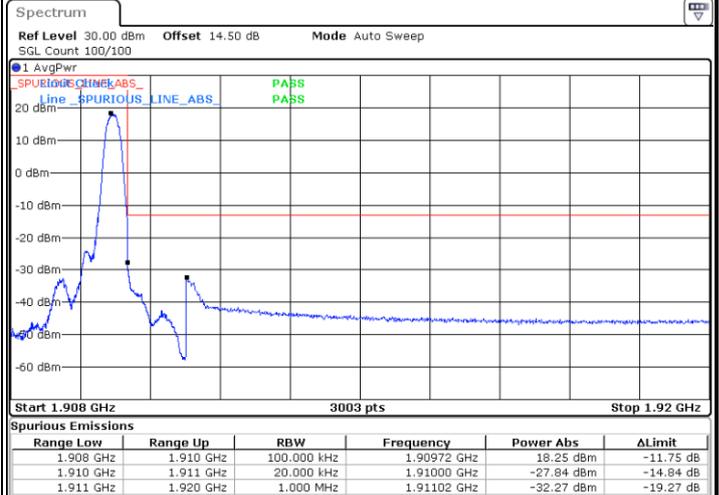
LTE Band 2 / 1.4MHz / 64QAM

Lowest Band Edge / 1 RB



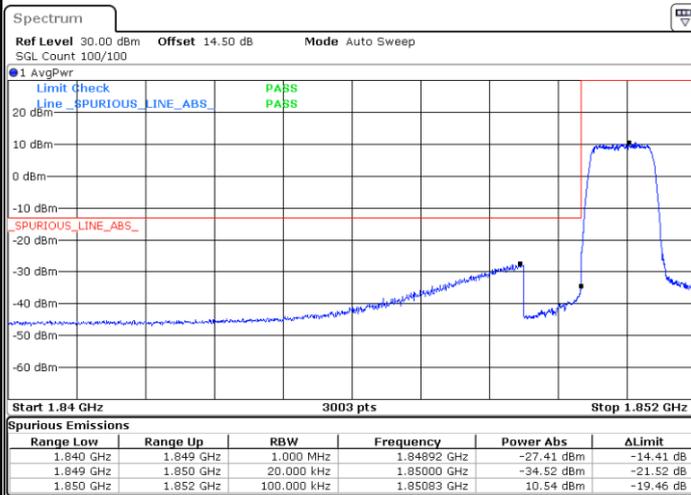
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Highest Band Edge / 1 RB



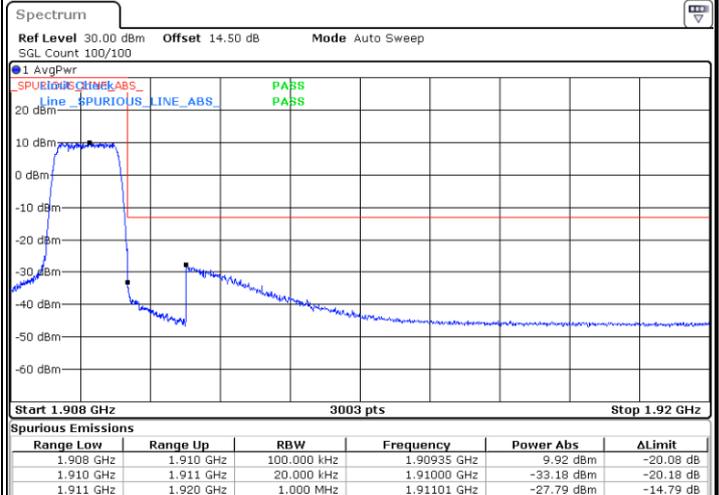
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Lowest Band Edge / Full RB



Date: 16.AUG.2024 10:09:55

Highest Band Edge / Full RB

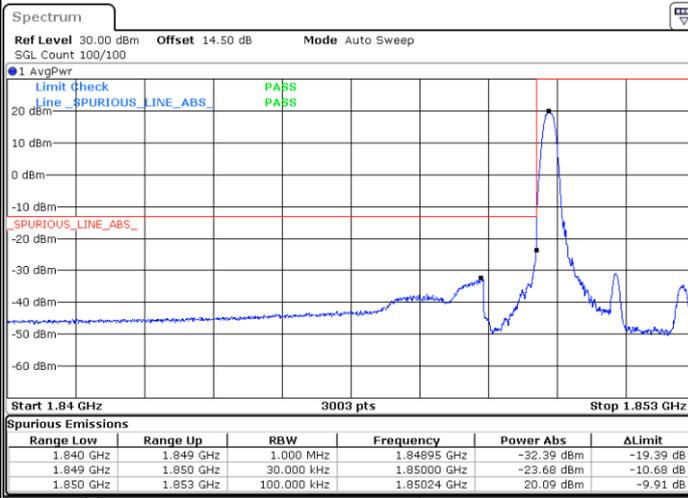


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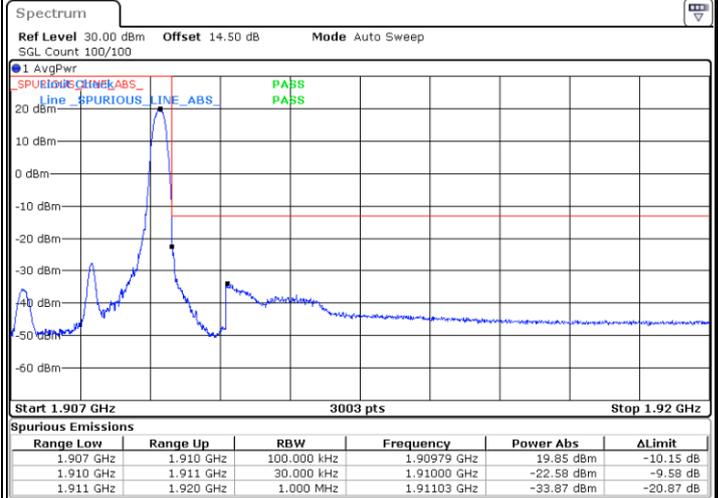
LTE Band 2 / 3MHz / QPSK

Lowest Band Edge / 1RB



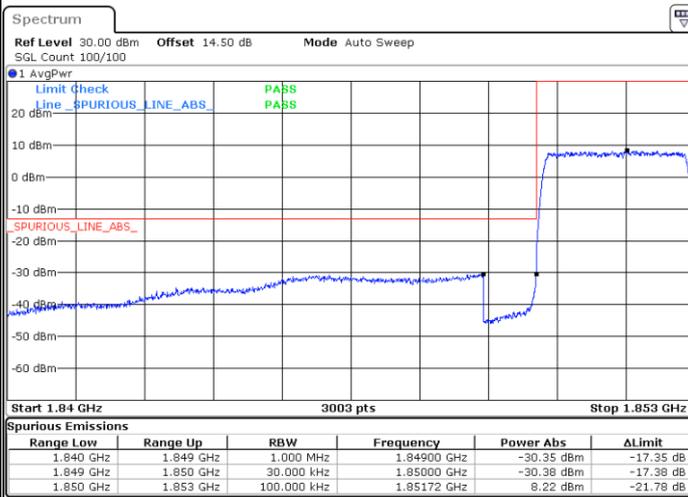
Date: 16.AUG.2024 10:22:27

Highest Band Edge / 1RB



Date: 16.AUG.2024 10:32:55

Lowest Band Edge / Full RB



Date: 16.AUG.2024 10:24:44

Highest Band Edge / Full RB

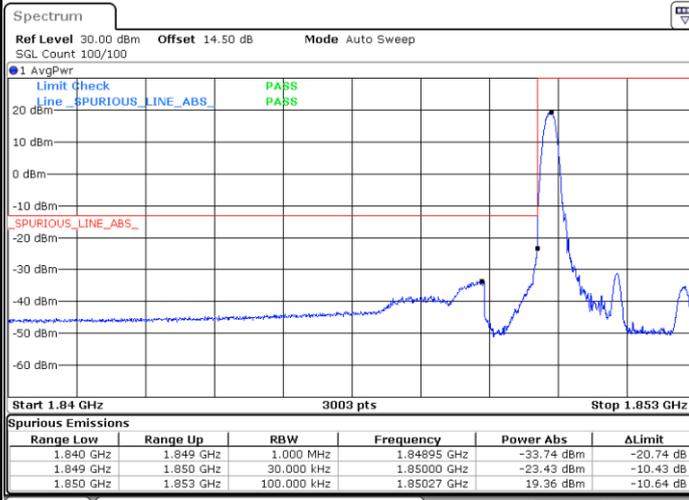


Date: 16.AUG.2024 10:35:04



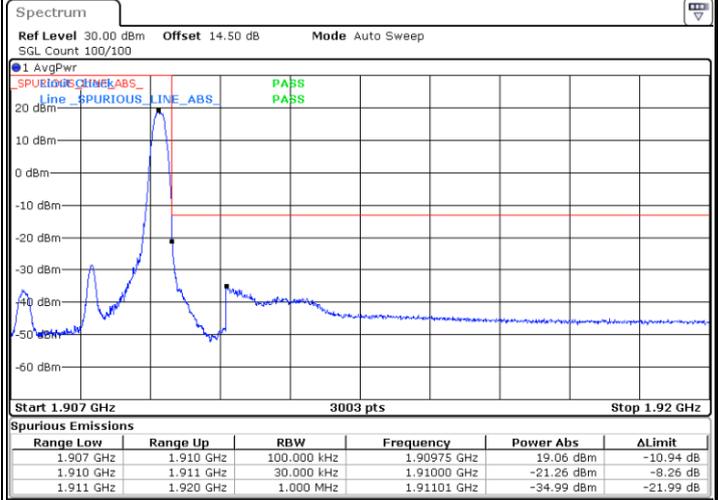
LTE Band 2 / 3MHz / 16QAM

Lowest Band Edge / 1 RB



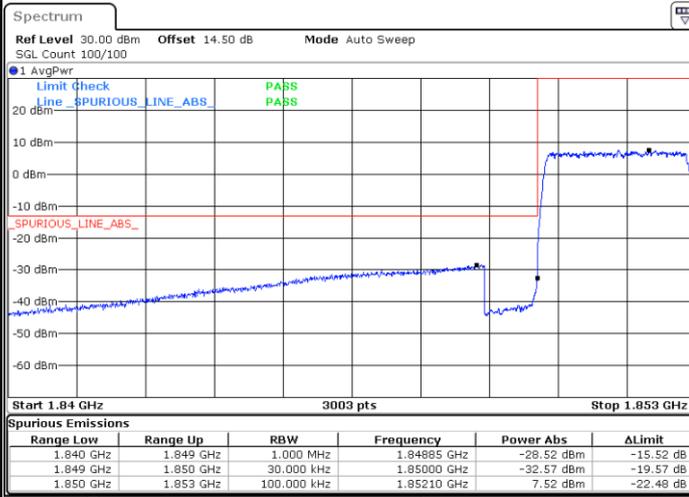
Date: 16.AUG.2024 10:23:15

Highest Band Edge / 1 RB



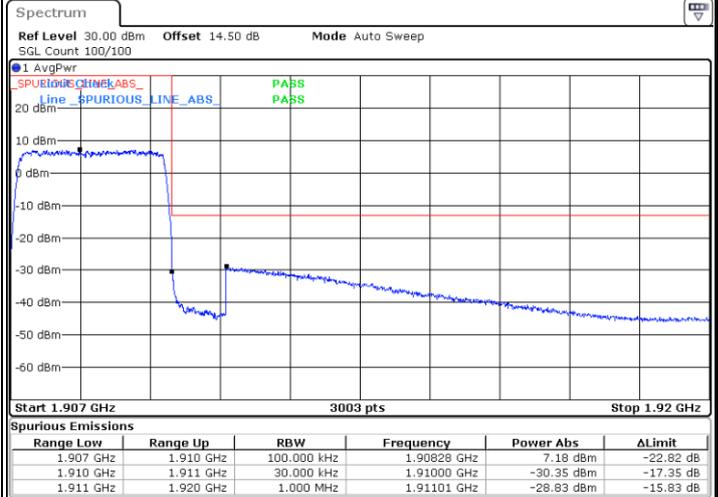
Date: 16.AUG.2024 10:33:31

Lowest Band Edge / Full RB



Date: 16.AUG.2024 10:25:26

Highest Band Edge / Full RB

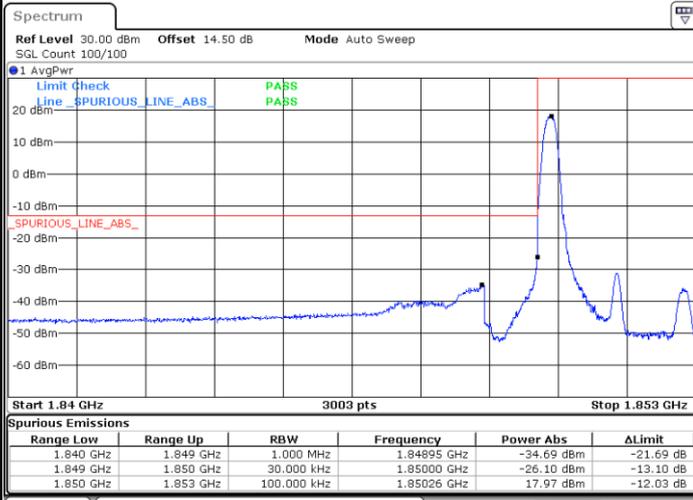


Date: 16.AUG.2024 10:48:49



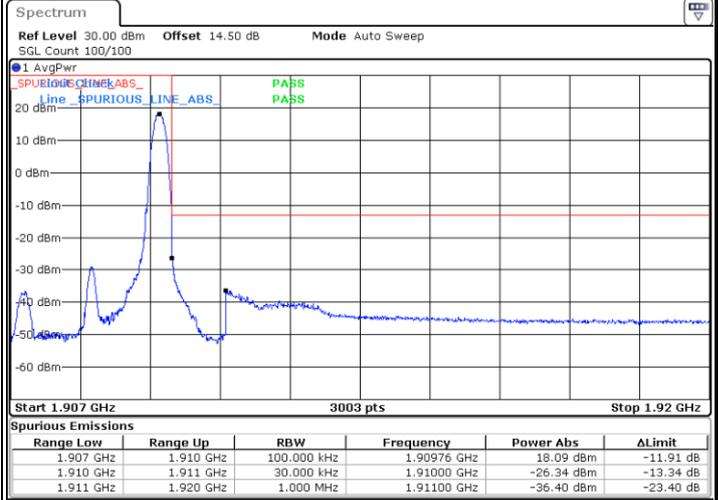
LTE Band 2 / 3MHz / 64QAM

Lowest Band Edge / 1 RB



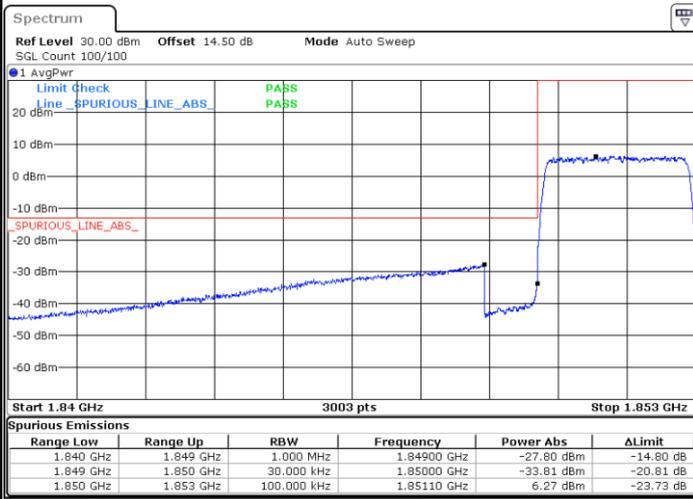
Date: 16.AUG.2024 10:24:08

Highest Band Edge / 1 RB



Date: 16.AUG.2024 10:34:03

Lowest Band Edge / Full RB



Date: 16.AUG.2024 10:26:23

Highest Band Edge / Full RB

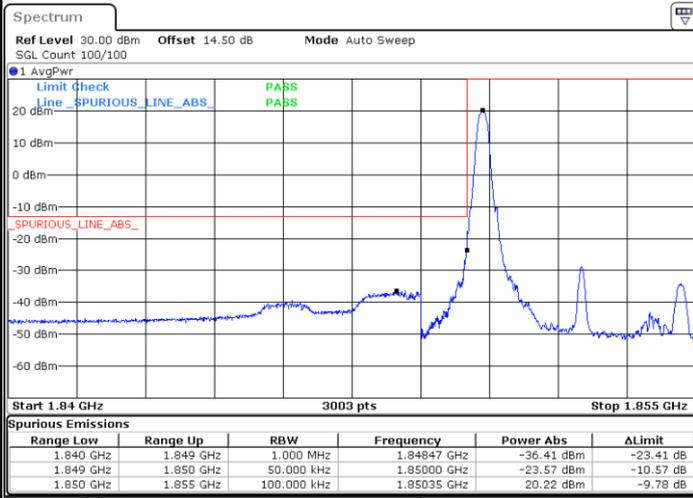


Date: 16.AUG.2024 10:49:24



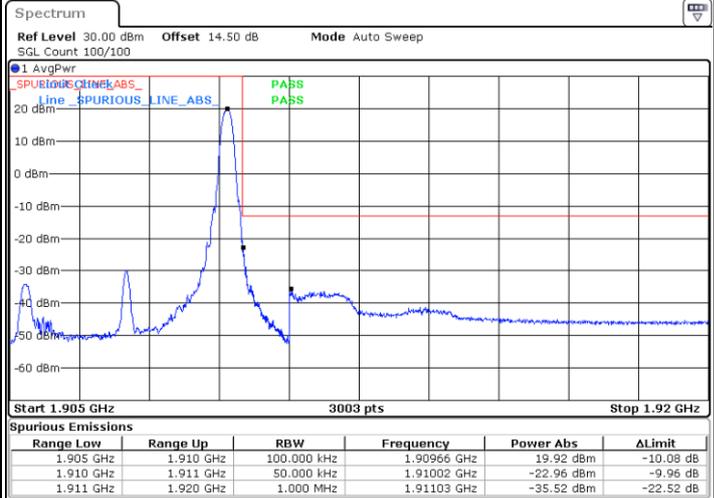
LTE Band 2 / 5MHz / QPSK

Lowest Band Edge / 1RB



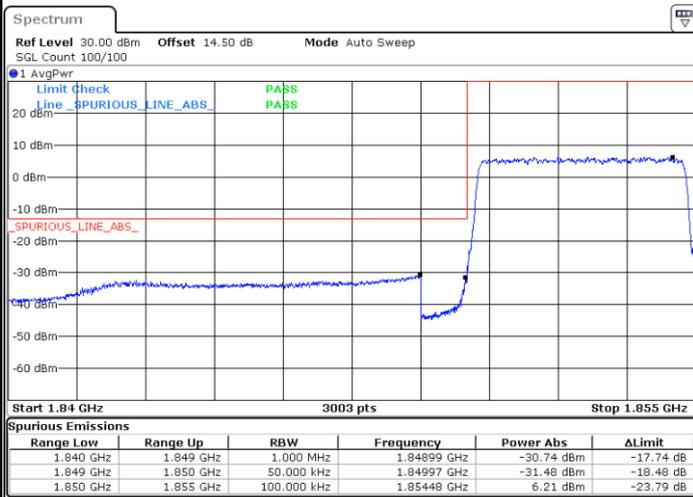
Date: 16.AUG.2024 10:52:36

Highest Band Edge / 1RB



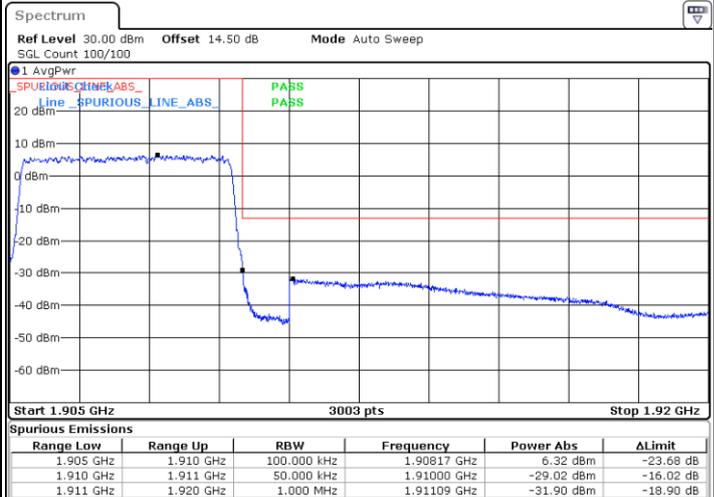
Date: 16.AUG.2024 11:07:23

Lowest Band Edge / Full RB



Date: 16.AUG.2024 10:57:53

Highest Band Edge / Full RB

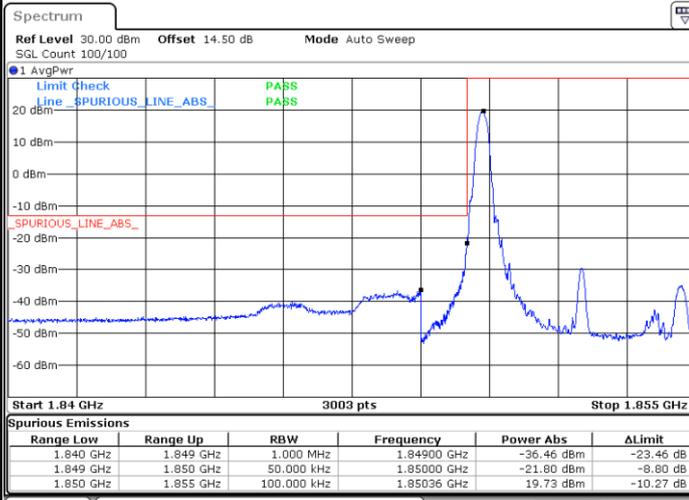


Date: 16.AUG.2024 11:10:20



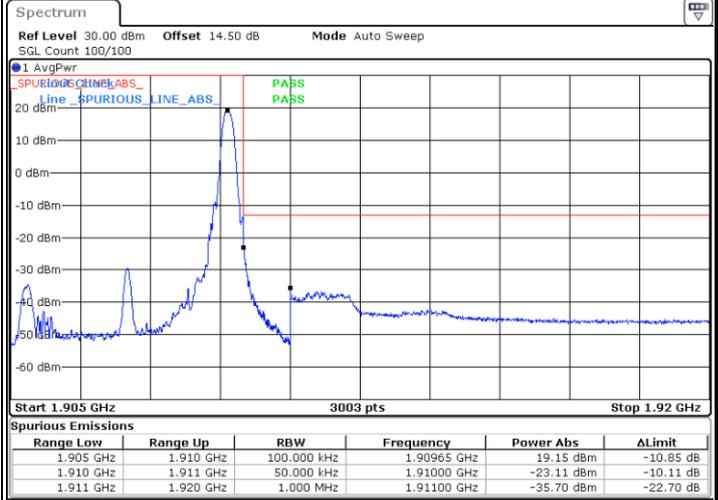
LTE Band 2 / 5MHz / 16QAM

Lowest Band Edge / 1 RB



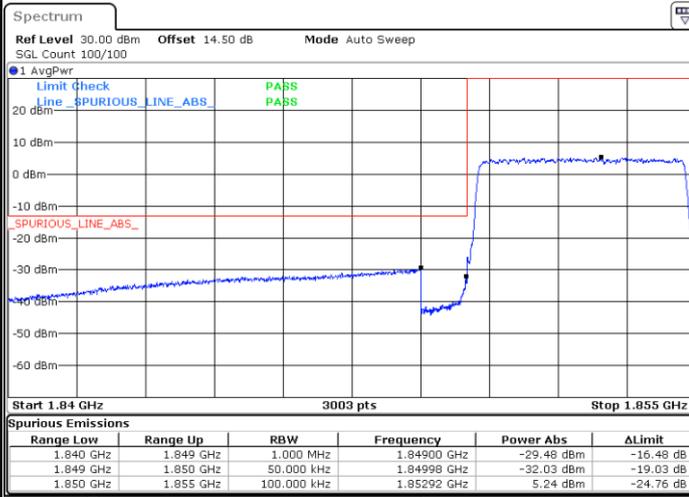
Date: 16.AUG.2024 10:54:17

Highest Band Edge / 1 RB



Date: 16.AUG.2024 11:08:48

Lowest Band Edge / Full RB



Date: 16.AUG.2024 10:59:53

Highest Band Edge / Full RB

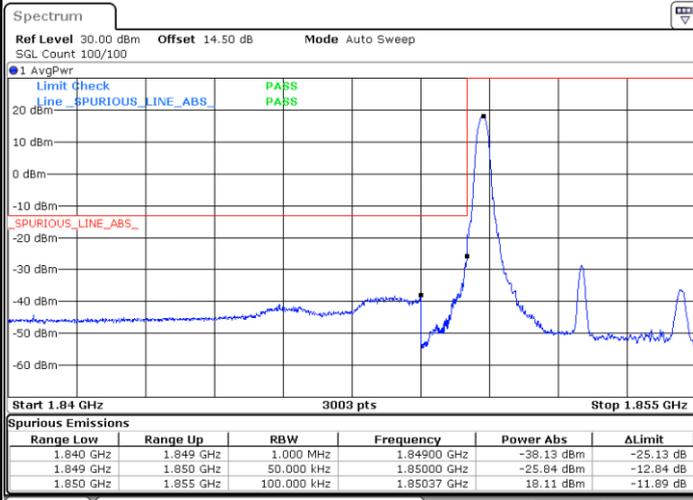


Date: 16.AUG.2024 11:11:36



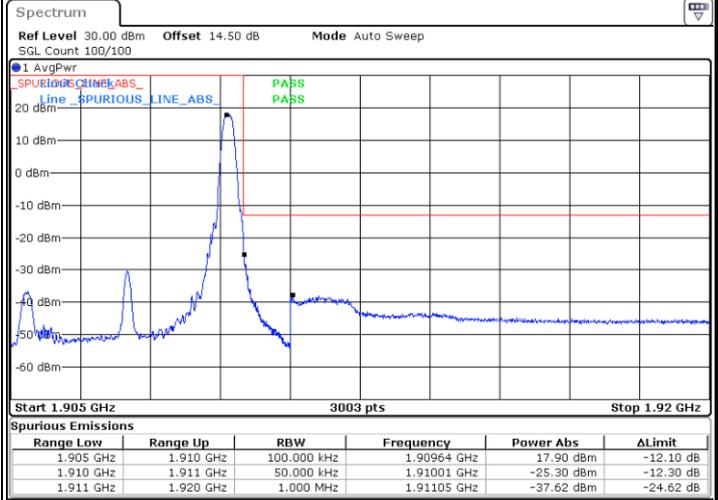
LTE Band 2 / 5MHz / 64QAM

Lowest Band Edge / 1 RB



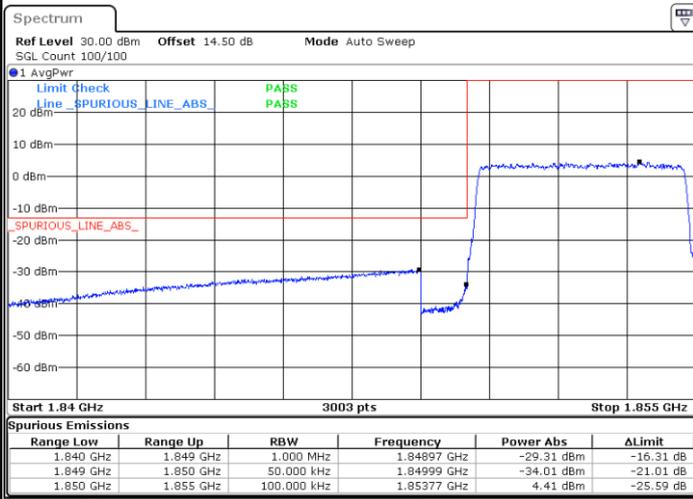
Date: 16.AUG.2024 10:56:26

Highest Band Edge / 1 RB



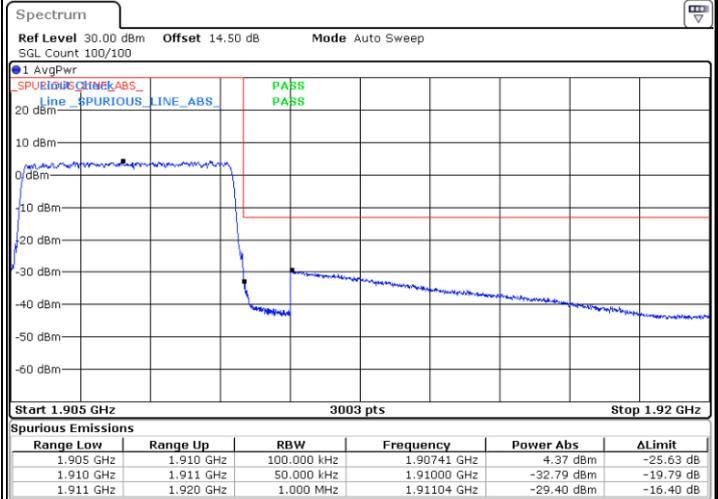
Date: 16.AUG.2024 11:09:25

Lowest Band Edge / Full RB



Date: 16.AUG.2024 11:00:28

Highest Band Edge / Full RB

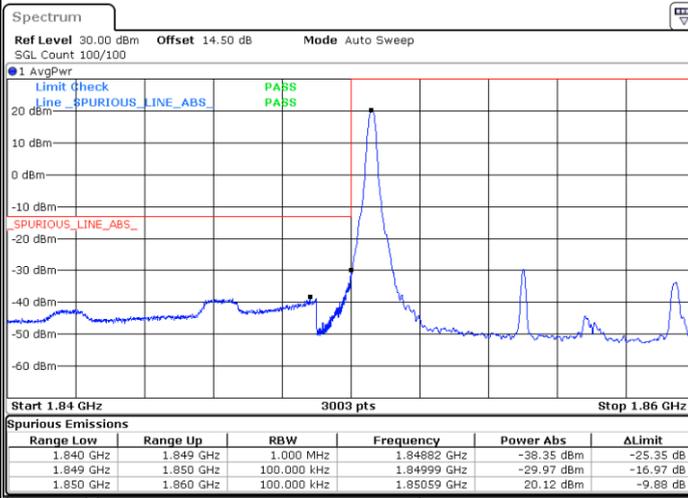


Date: 16.AUG.2024 11:12:15



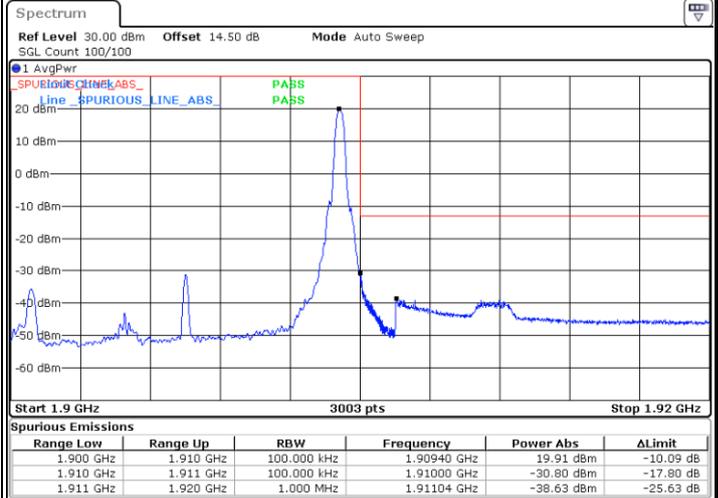
LTE Band 2 / 10MHz / QPSK

Lowest Band Edge / 1RB



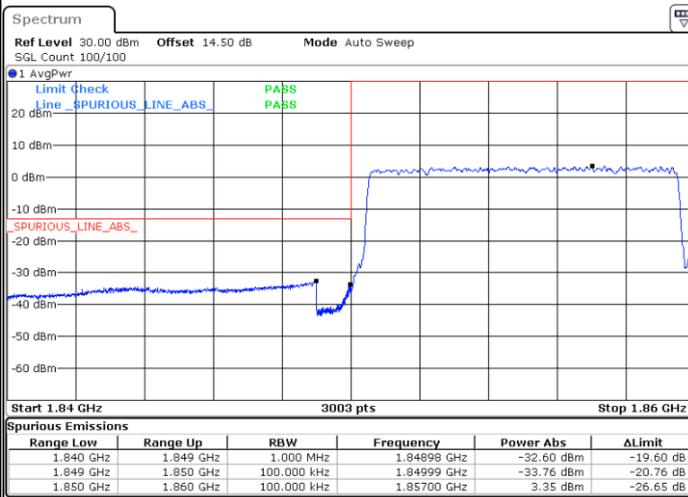
Date: 16.AUG.2024 11:22:47

Highest Band Edge / 1RB



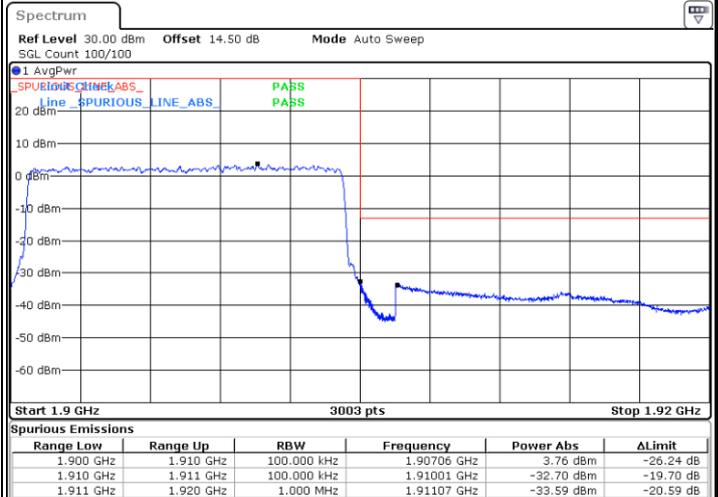
Date: 16.AUG.2024 11:31:52

Lowest Band Edge / Full RB



Date: 16.AUG.2024 11:20:07

Highest Band Edge / Full RB

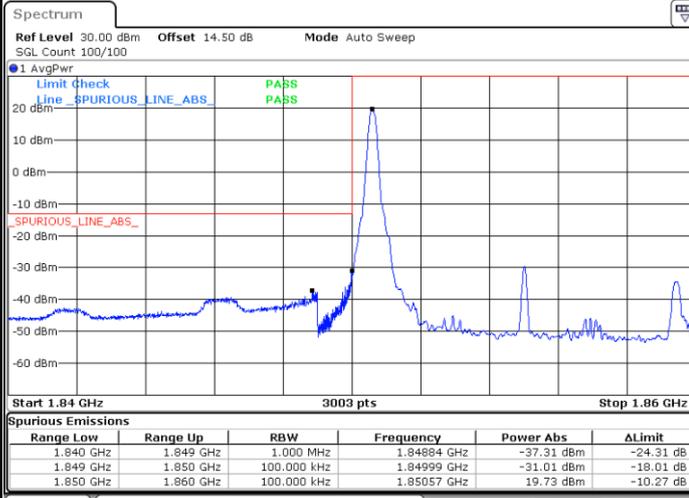


Date: 16.AUG.2024 11:34:41



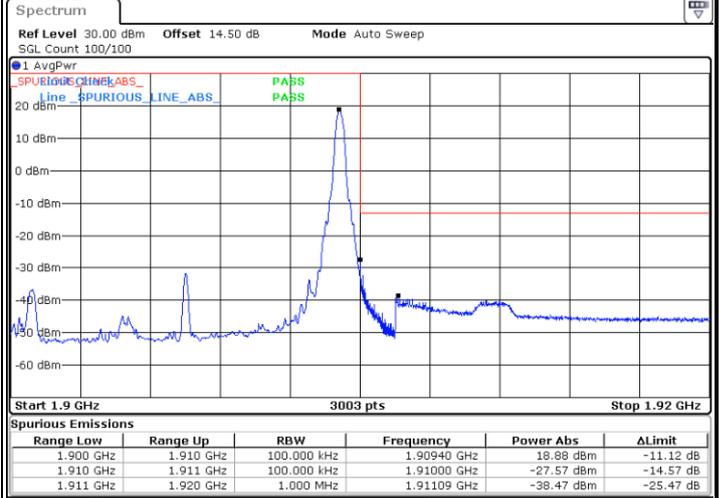
LTE Band 2 / 10MHz / 16QAM

Lowest Band Edge / 1 RB



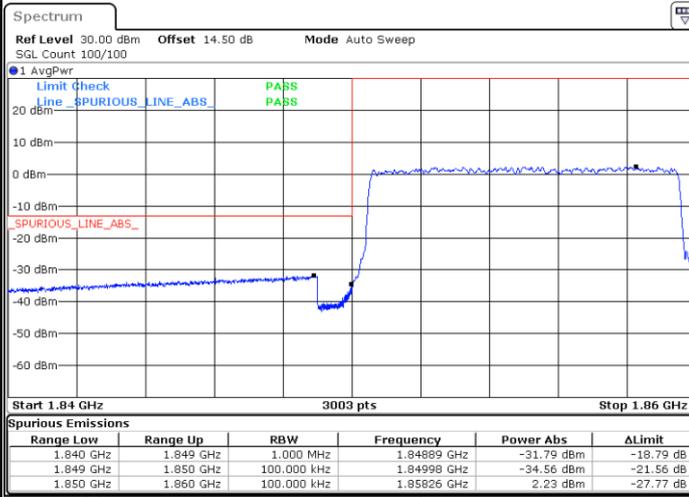
Date: 16.AUG.2024 11:18:37

Highest Band Edge / 1 RB



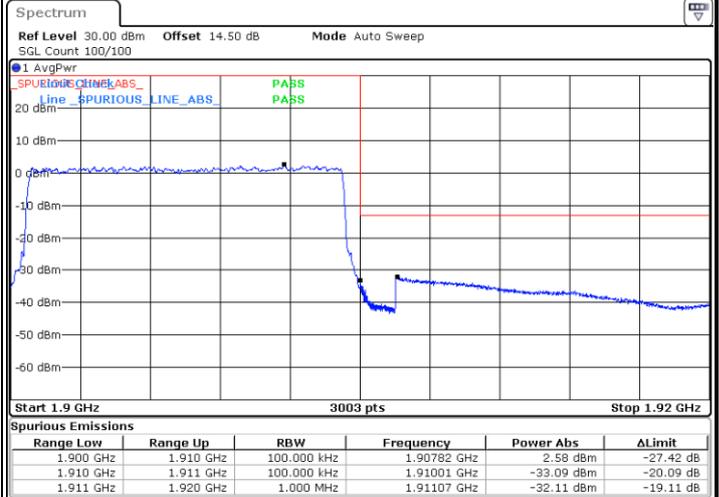
Date: 16.AUG.2024 11:32:54

Lowest Band Edge / Full RB



Date: 16.AUG.2024 11:21:03

Highest Band Edge / Full RB

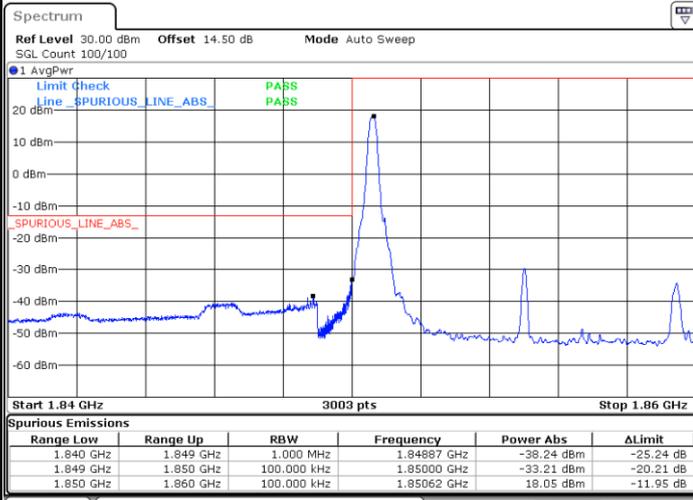


Date: 16.AUG.2024 11:35:27



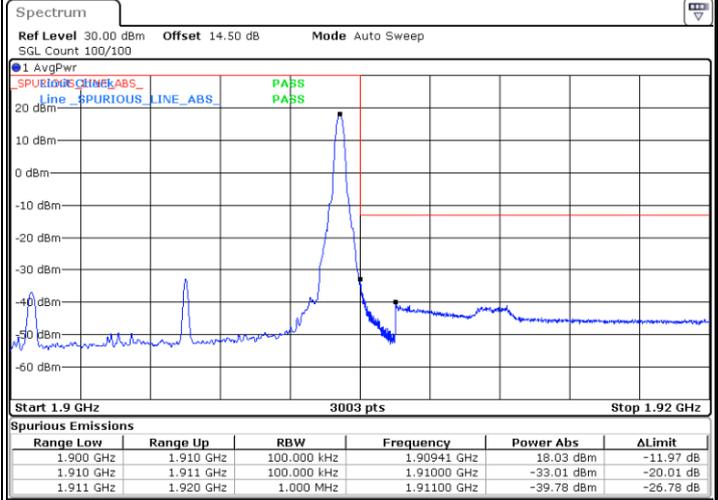
LTE Band 2 / 10MHz / 64QAM

Lowest Band Edge / 1 RB



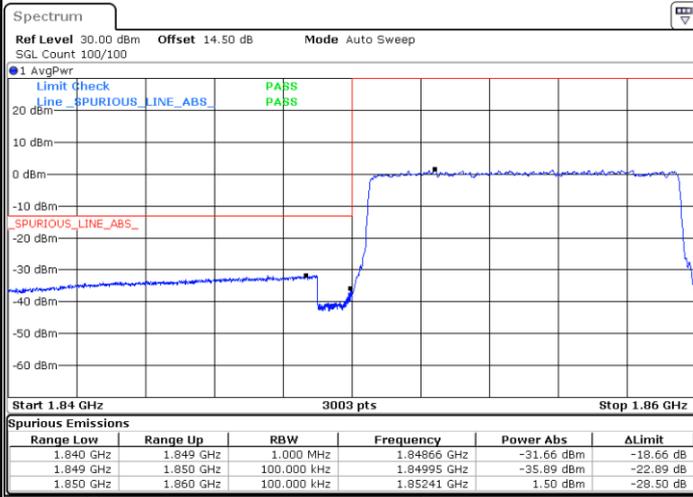
Date: 16.AUG.2024 11:19:19

Highest Band Edge / 1 RB



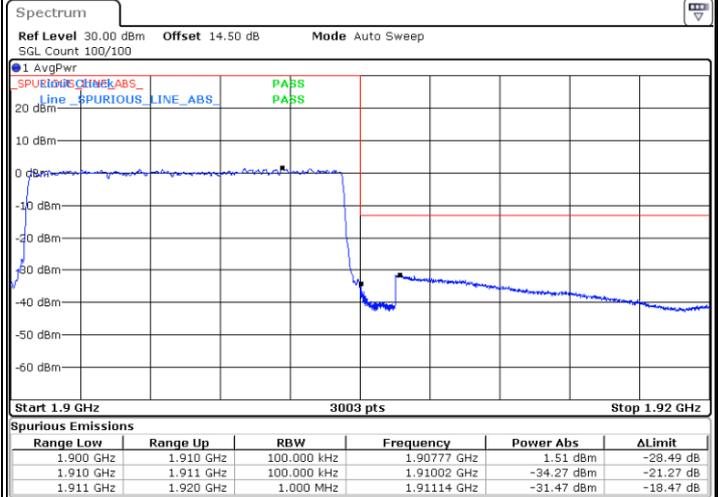
Date: 16.AUG.2024 11:33:48

Lowest Band Edge / Full RB



Date: 16.AUG.2024 11:21:43

Highest Band Edge / Full RB

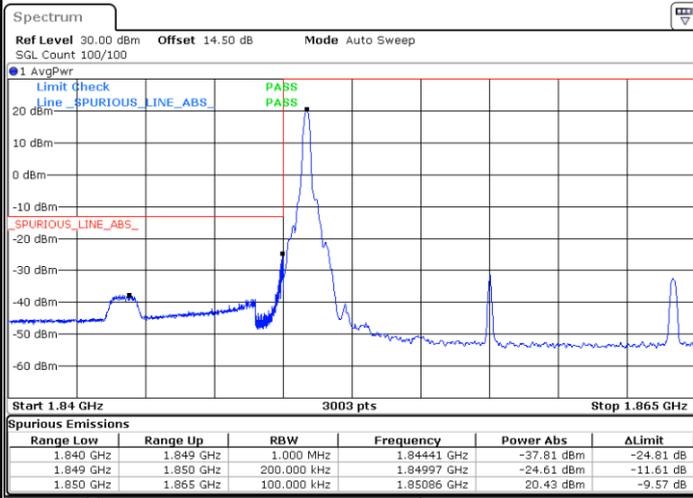


Date: 16.AUG.2024 11:36:33



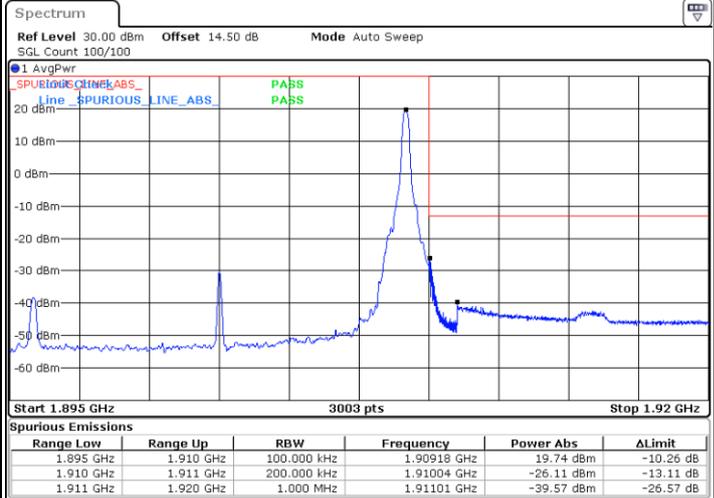
LTE Band 2 / 15MHz / QPSK

Lowest Band Edge / 1RB



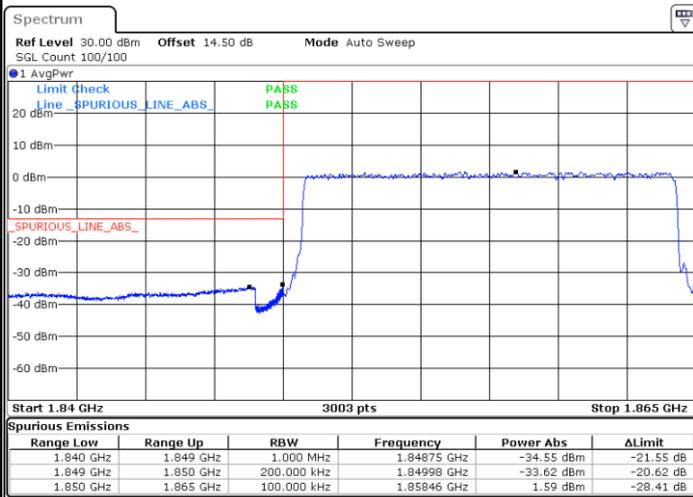
Date: 16.AUG.2024 11:40:28

Highest Band Edge / 1RB



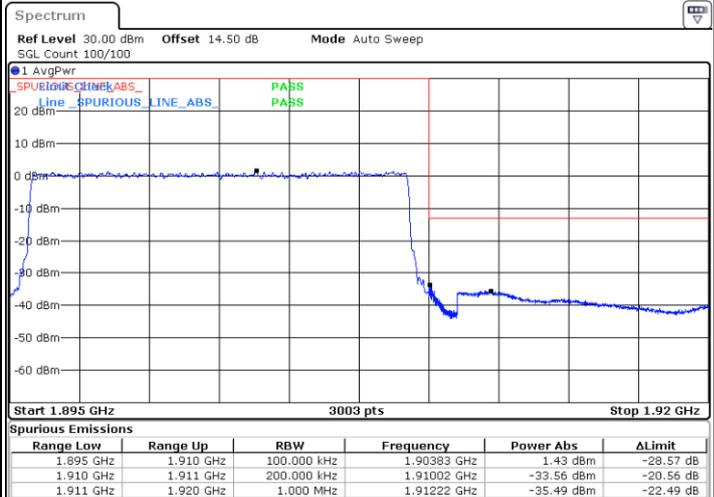
Date: 16.AUG.2024 13:09:37

Lowest Band Edge / Full RB



Date: 16.AUG.2024 11:42:28

Highest Band Edge / Full RB

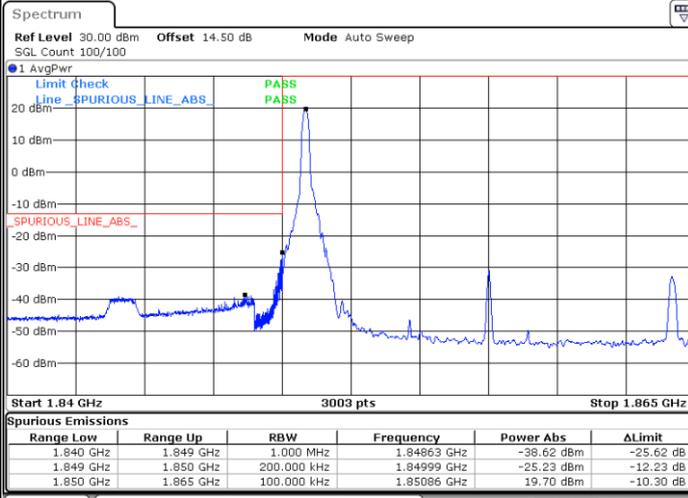


Date: 16.AUG.2024 13:10:59



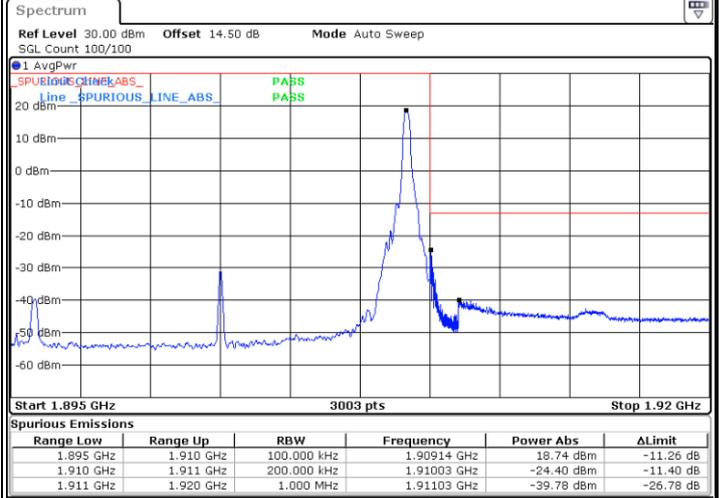
LTE Band 2 / 15MHz / 16QAM

Lowest Band Edge / 1 RB



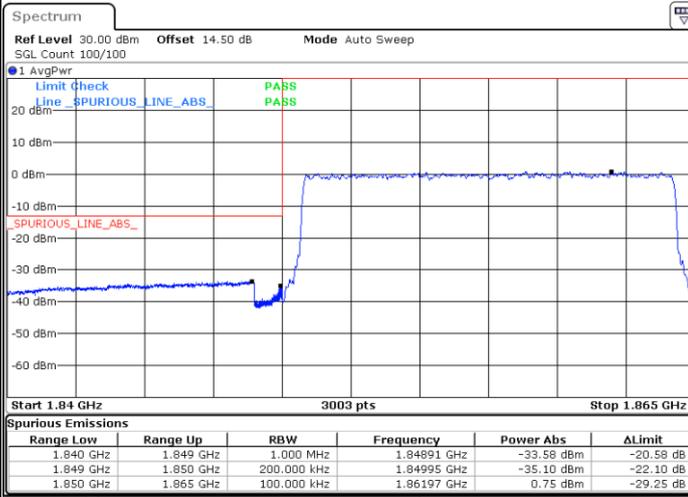
Date: 16.AUG.2024 11:41:14

Highest Band Edge / 1 RB



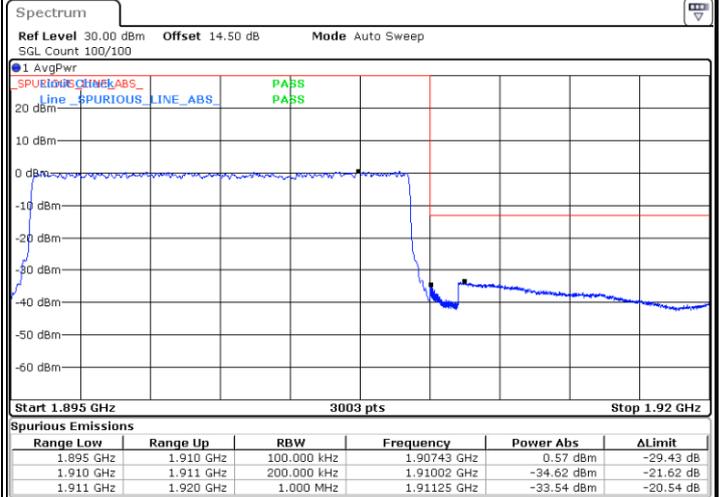
Date: 16.AUG.2024 13:08:45

Lowest Band Edge / Full RB



Date: 16.AUG.2024 11:43:28

Highest Band Edge / Full RB

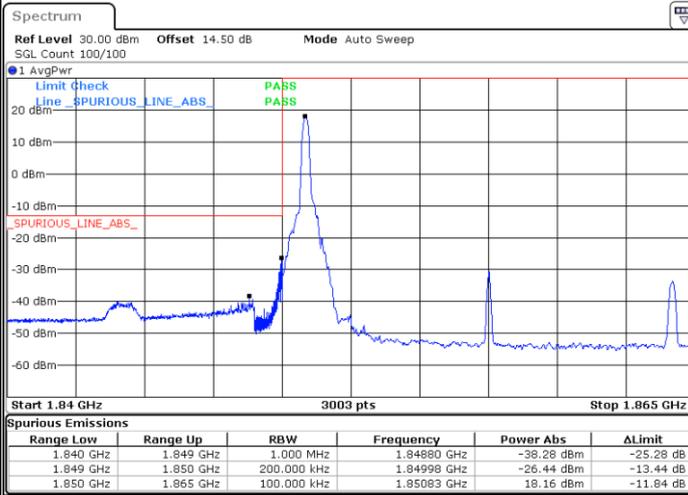


Date: 16.AUG.2024 13:11:31



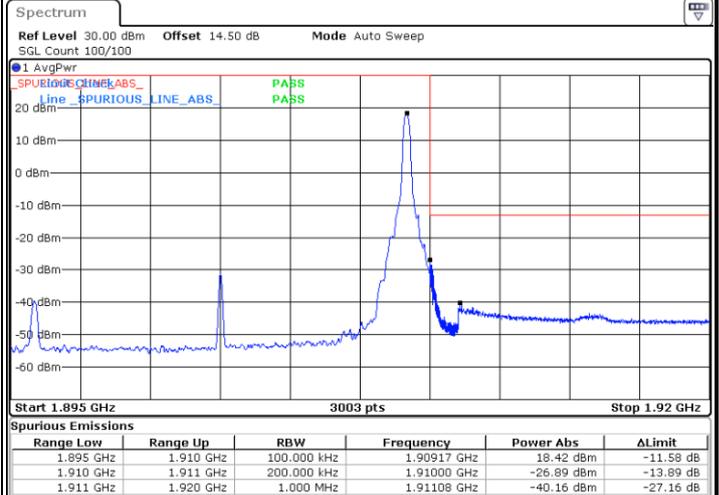
LTE Band 2 / 15MHz / 64QAM

Lowest Band Edge / 1 RB



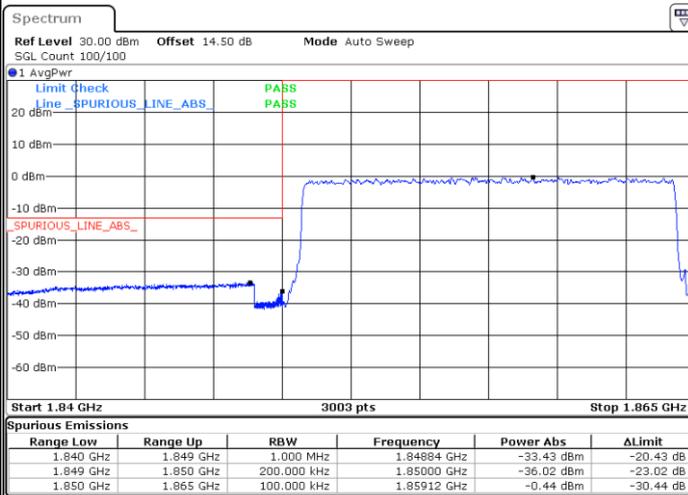
Date: 16.AUG.2024 11:41:48

Highest Band Edge / 1 RB



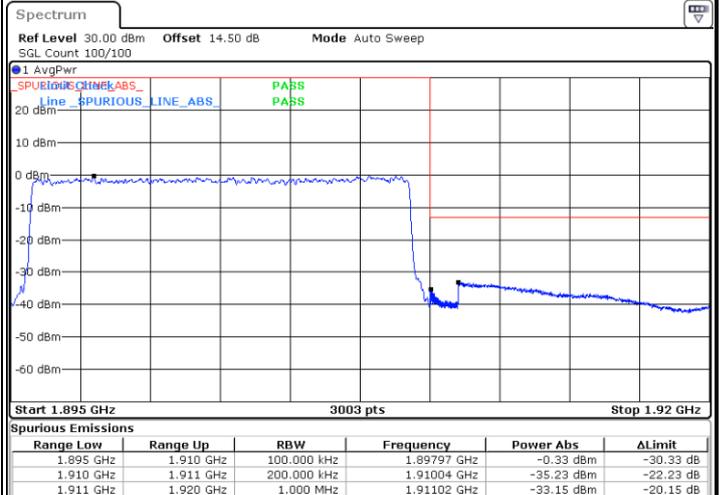
Date: 16.AUG.2024 13:10:19

Lowest Band Edge / Full RB



Date: 16.AUG.2024 11:44:20

Highest Band Edge / Full RB

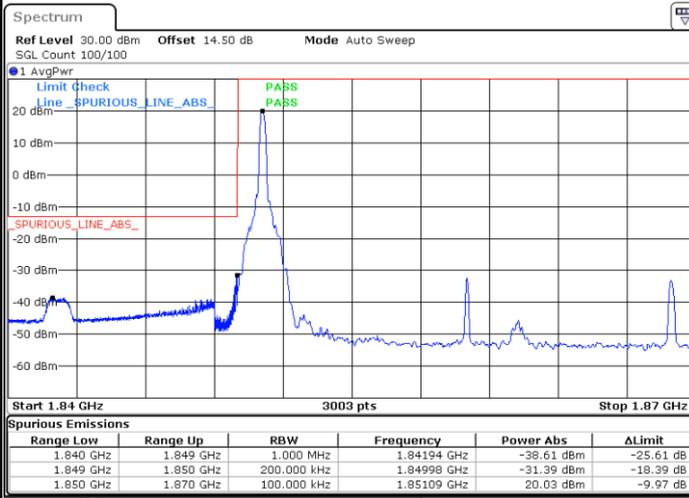


Date: 16.AUG.2024 13:12:04



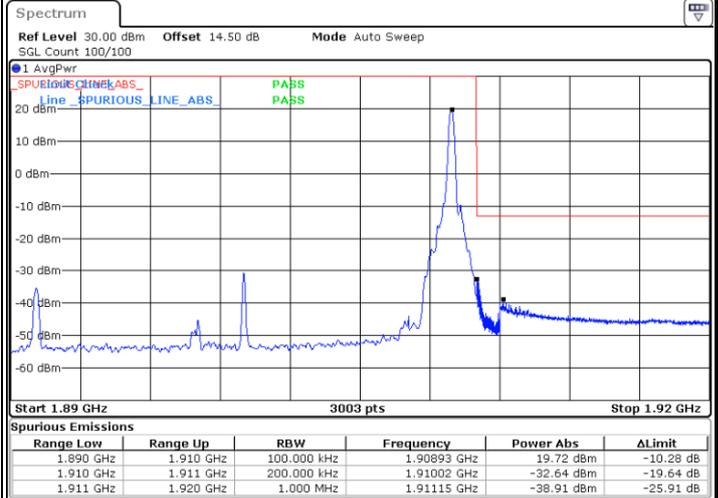
LTE Band 2 / 20MHz / QPSK

Lowest Band Edge / 1RB



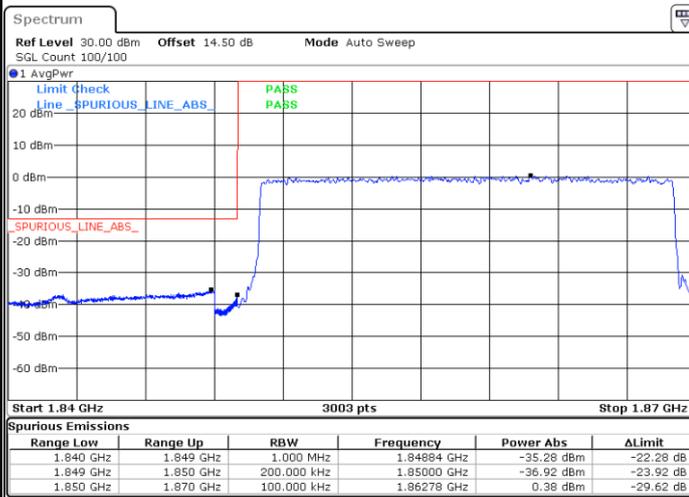
Date: 16.AUG.2024 13:15:18

Highest Band Edge / 1RB



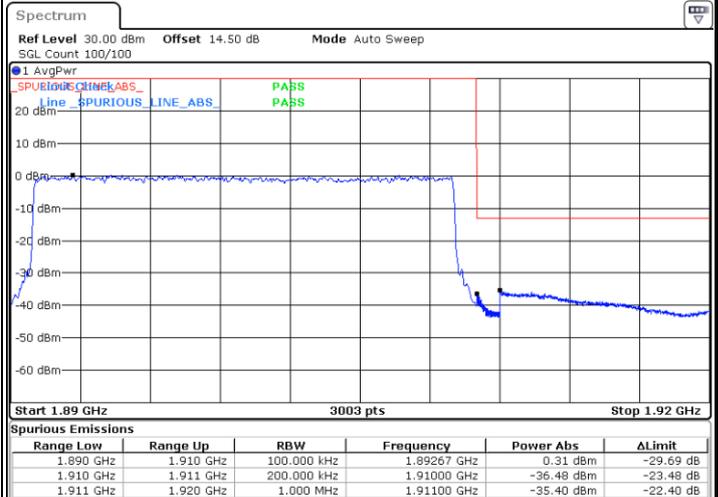
Date: 16.AUG.2024 13:27:38

Lowest Band Edge / Full RB



Date: 16.AUG.2024 13:17:51

Highest Band Edge / Full RB

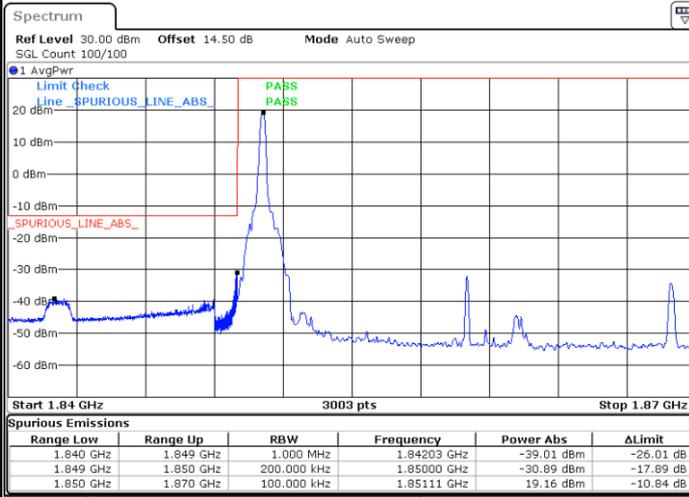


Date: 16.AUG.2024 13:29:36



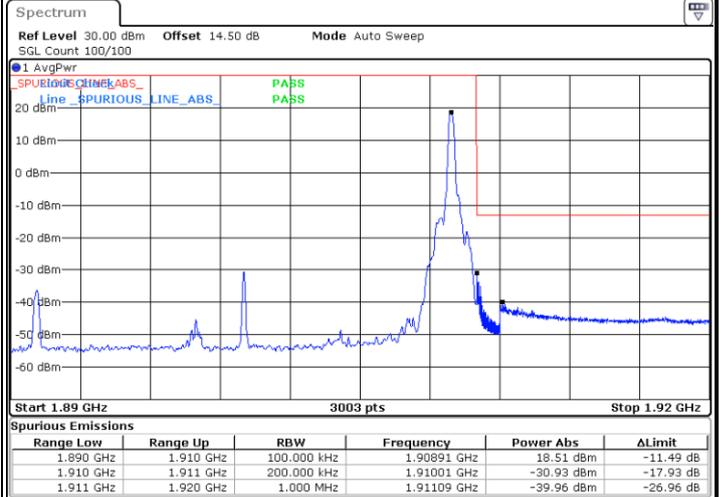
LTE Band 2 / 20MHz / 16QAM

Lowest Band Edge / 1 RB



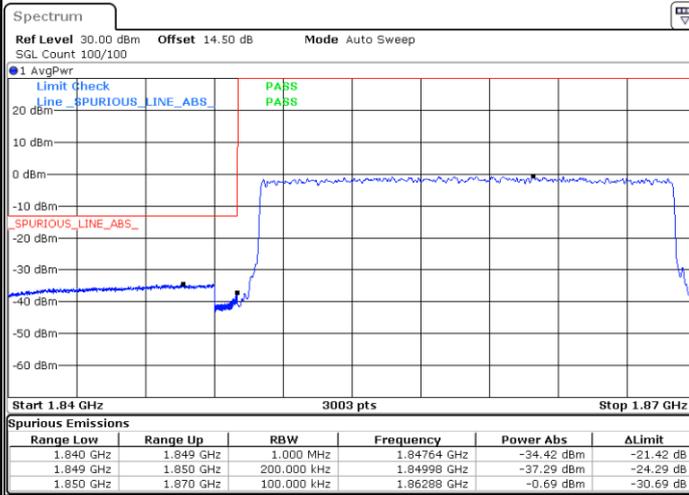
Date: 16.AUG.2024 13:15:55

Highest Band Edge / 1 RB



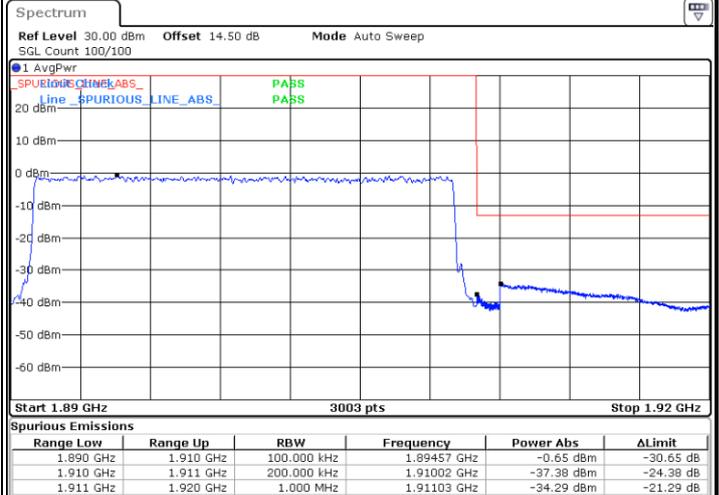
Date: 16.AUG.2024 13:28:14

Lowest Band Edge / Full RB



Date: 16.AUG.2024 13:18:23

Highest Band Edge / Full RB



Date: 16.AUG.2024 13:30:15