



FCC RADIO TEST REPORT

FCC ID : 2ABZ2-EF136
Equipment : Smart Phone
Brand Name : ONEPLUS
Model Name : LE2117
Applicant : OnePlus Technology (Shenzhen) Co., Ltd.
18C02, 18C03, 18C04 and 18C05, Shum Yip
Terra Building, Binhe Avenue North, Futian
District, Shenzhen
Manufacturer : OnePlus Technology (Shenzhen) Co., Ltd.
18C02, 18C03, 18C04 and 18C05, Shum Yip
Terra Building, Binhe Avenue North, Futian
District, Shenzhen
Standard : FCC 47 CFR Part 2, 96

The product was received on Dec. 15, 2020 and testing was started from Dec. 20, 2020 and completed on Jan. 05, 2021. We, SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory, would like to declare that the tested sample has been evaluated in accordance with the test procedures given in ANSI / TIA-603-E and has been in compliance with the applicable technical standards.

The test results in this partial report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory, the test report shall not be reproduced except in full.

Louis Wu

Approved by: Louis Wu

SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory
No. 52, Huaya 1st Rd., Guishan Dist., Taoyuan City, Taiwan (R.O.C.)



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History of this test report

Report No.	Version	Description	Issued Date
FG002626-02E	01	Initial issue of report	Feb. 04, 2021

Summary of Test Result

Report Clause	Ref Std. Clause	Test Items	Result (PASS/FAIL)	Remark
3.2	§2.1046	Conducted Output Power	Reporting only	-
3.3	§96.41	Effective Isotropic Radiated Power	Pass	-
3.4	§2.1049 §96.41	Occupied Bandwidth	Reporting only	-
3.5	§2.1051 §96.41	Conducted Band Edge Measurement	Pass	-
3.6	§2.1051 §96.41	Conducted Spurious Emission	Pass	-

Declaration of Conformity:

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

Comments and Explanations:

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

Reviewed by: Wii Chang

Report Producer: Dara Chiu

1 General Description

1.1 Product Feature of Equipment Under Test

GSM/CDMA/WCDMA/LTE/5G NR, Bluetooth, Wi-Fi 2.4GHz 802.11b/g/n/ac/ax, Wi-Fi 5GHz 802.11a/n/ac/ax, NFC, GNSS, ANT+, and WPC/WPT

Product Specification subjective to this standard	
Antenna Type	WWAN: <Down Antenna>: Coupling type (LDS) Antenna <Upper Antenna>: Coupling type (LDS) Antenna Bluetooth: PIFA Antenna WLAN: <Ant. 4>: PIFA Antenna <Ant. 6>: PIFA Antenna NFC: Loop Antenna BDS/Galileo/GLONASS/GPS/SBAS: PIFA Antenna ANT+: PIFA Antenna WPC/WPT: Loop Antenna
Antenna Gain	<Upper Antenna>: -2 dBi

Remark: The above EUT's information was declared by manufacturer. Please refer to Comments and Explanations in report summary.

1.2 Modification of EUT

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

1.3 Testing Location

Test Site	SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory
Test Site Location	No.52, Huaya 1st Rd., Guishan Dist., Taoyuan City, Taiwan (R.O.C.) TEL: +886-3-327-3456 FAX: +886-3-328-4978
Test Site No.	Sporton Site No. TH05-HY
Test Engineer	Bryant Liu
Temperature (°C)	22~24
Relative Humidity (%)	55~56

FCC Designation No.: TW1190



1.4 Applied Standards

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

- ♦ ANSI C63.26-2015
- ♦ ANSI / TIA-603-E
- ♦ FCC 47 CFR Part 2, 96
- ♦ FCC KDB 971168 D01 Power Meas. License Digital Systems v03r01
- ♦ FCC KDB 940660 D01 Part 96 CBRS Eqpt v01
- ♦ 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.
3. The TAF code is not including all the FCC KDB listed without accreditation.

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.

Test Items	Band	Bandwidth (MHz)										Modulation				RB #			Test Channel		
		20+20	20+15	15+20	20+10	10+20	20+5	5+20	15+15	15+10	10+15	QPSK	16 QAM	64 AM	256 QAM	1	Half	Full	L	M	H
Max. Output Power	48C	v	v	v	v	v	v	v	-	-	-	v	v	v	v	v	v	v	v	v	v
26dB and 99% Bandwidth	48C	v	v	v	v	v	v	v	-	-	-	v	v	v	v			v		v	
Conducted Band Edge	48C	v	v	v	v	v	v	v	-	-	-	v	v	v	v	v	v	v	v	v	v
Conducted Spurious Emission	48C	v	v	v	v	v	v	v	-	-	-	v	v	v	v	v	v	v	v	v	v
E.I.R.P.	48C	v	v	v	v	v	v	v	-	-	-	v	v	v	v	Max. Power					
Remark	1. The mark “v ” means that this configuration is chosen for testing 2. The mark “-“ means that this bandwidth is not supported.																				

2.2 Measurement Results Explanation Example

For all conducted test items:

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

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

Offset = RF cable loss + attenuator factor.

Following shows an offset computation example with cable loss 4.2 dB and 10dB attenuator.

Example :

$$\begin{aligned}
 \text{Offset(dB)} &= \text{RF cable loss(dB)} + \text{attenuator factor(dB)} \\
 &= 4.2 + 10 = 14.2 \text{ (dB)}
 \end{aligned}$$

2.3 Frequency List of Low/Middle/High Channels

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

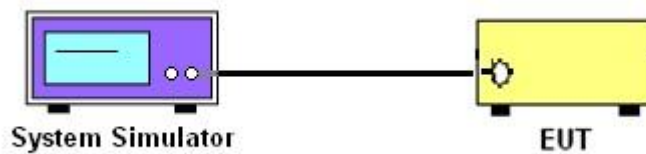
3 Conducted Test Items

3.1 Measuring Instruments

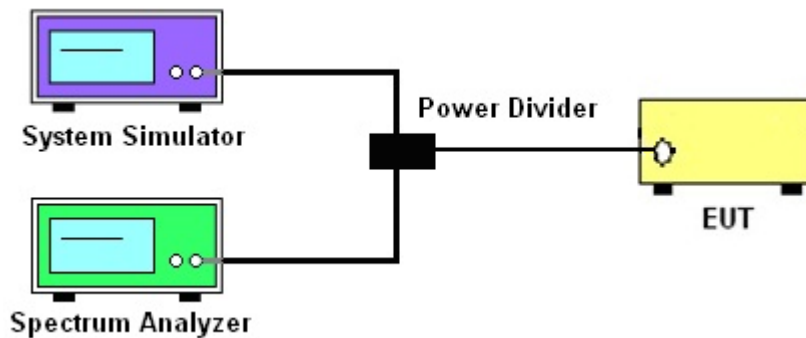
See list of measuring instruments of this test report.

3.1.1 Test Setup

3.1.2 Conducted Output Power



3.1.3 EIRP, Occupied Bandwidth, Conducted Band-Edge and Conducted Spurious Emission



3.1.4 Test Result of Conducted Test

Please refer to Appendix A.



3.2 Conducted Output Power

3.2.1 Description of the Conducted Output Power Measurement

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

3.2.2 Test Procedures

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



3.3 EIRP

3.3.1 Description of the EIRP Measurement

The EIRP of mobile transmitters must not exceed 23 dBm /10 megahertz for LTE Band 48.

The testing follows ANSI C63.26-2015 Section 5.2.5.5

According to KDB 412172 D01 Power Approach,

$EIRP = P_T + G_T - L_C$, where

P_T = transmitter output power in dBm

G_T = gain of the transmitting antenna in dBi

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

EIRP for CBRS equipment as below tabel:

Device	Maximum EIRP (dBm/10 MHz)
End User Device	23

3.3.2 Test Procedures

The testing follows procedure in Section 5.2 of ANSI C63.26-2015 and KDB 940660 D01 Part 96 Eqpt v02 Section 3.2(b)(2)

Determine the EIRP by adding the effective antenna gain to the measured average conducted power level.



3.4 Occupied Bandwidth

3.4.1 Description of Occupied Bandwidth Measurement

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

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

3.4.2 Test Procedures

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

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

3.5 Conducted Band Edge

3.5.1 Description of Conducted Band Edge Measurement

The conducted power of any End User Device emission outside the fundamental emission (whether in or outside of the authorized band) shall not exceed -13 dBm/MHz within 0 to B megahertz (where B is the bandwidth in megahertz of the assigned channel or multiple contiguous channels of the End User Device) above the upper CBSD-assigned channel edge and within 0 to B megahertz below the lower CBSD-assigned channel edge. At all frequencies greater than B megahertz above the upper CBSD assigned channel edge and less than B megahertz below the lower CBSD-assigned channel edge, the conducted power of any End User Device emission shall not exceed -25 dBm/MHz. Notwithstanding the emission limits in this paragraph, the Adjacent Channel Leakage Ratio for End User Devices shall be at least 30 dB.

3.5.2 Test Procedures

The testing follows FCC KDB 971168 D01 v03r01 Section 6.1.

1. The EUT was connected to spectrum analyzer and system simulator via a power divider.
2. The band edges of low and high channels for the highest RF powers were measured.
3. Set RBW $\geq 1\%$ EBW in the 1MHz band immediately outside and adjacent to the band edge.
4. Beyond the 1 MHz band from the band edge, RBW=1MHz was used
5. Set spectrum analyzer with RMS detector.
6. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.

For Adjacent Channel Leakage Ratio (ACLR) measurement,

1. The Adjacent Channel Leakage Ratio (ACLR) is the ratio of the average power in the assigned aggregated channel bandwidth to the average power over the equivalent adjacent channel bandwidth.
2. The option ACLR of spectrum analyzer is used and measures the ACLR ratio by setting equivalent channel bandwidth.
3. The measured ACLR ratio shall be at least 30 dB.



3.6 Conducted Spurious Emission

3.6.1 Description of Conducted Spurious Emission Measurement

Emission and interference limits: the device satisfies the emission limits specified in Section FCC Part 96.41 e) 1) ii) & e) 2) at the lowest and highest edges of the band, and in the middle of the band.

3.6.2 Test Procedures

The testing follows FCC KDB 971168 D01 v03r01 Section 6.1.

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



4 List of Measuring Equipment

Instrument	Brand Name	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Base Station (Measure)	Anritsu	MT8821C	6201664755	N/A	Jul. 12, 2020	Dec. 20, 2020 ~ Jan. 05, 2021	Jul. 11, 2021	Conducted (TH05-HY)
Spectrum Analyzer	Rohde & Schwarz	FSV40	101397	10Hz~40GHz	Nov. 27, 2020	Dec. 20, 2020 ~ Jan. 05, 2021	Nov. 26, 2021	Conducted (TH05-HY)
Temperature Chamber	ESPEC	SU-241	92003713	-30℃~95℃	May 15, 2020	Dec. 20, 2020 ~ Jan. 05, 2021	May 14, 2021	Conducted (TH05-HY)
Programmable Power Supply	GW Instek	PSS-2005	EL890089	1V~20V 0.5A~5A	Feb. 21, 2020	Dec. 20, 2020 ~ Jan. 05, 2021	Feb. 20, 2021	Conducted (TH05-HY)
Coupler	Warison	20dB 25W SMA Directional Coupler	#A	1-18GHz	Jan. 13, 2020	Dec. 20, 2020 ~ Jan. 05, 2021	Jan. 12, 2021	Conducted (TH05-HY)



Appendix A. Test Results of Conducted and EIRP Test

Conducted Output Power (Average power) and EIRP

<Upper Antenna>

LTE Band 48C_CA Maximum Average Power [dBm] (GT - LC = -2 dB)										
BW [MHz]	PCC		SCC		Mod	Lowest	Middle	Highest	EIRP (dBm)	EIRP (W)
	RB Size	RB Offset	RB Size	RB Offset						
20+20	1	0	1	0	QPSK	18.02	22.86	17.49	22.49	0.1774
20+20	1	99	1	0		6.25	16.32	10.61		
20+20	0	0	1	99		24.28	24.49	24.47		
20+20	1	0	1	0	16-QAM	16.69	21.87	17.54	22.23	0.1671
20+20	1	99	1	0		1.26	16.89	8.65		
20+20	0	0	1	99		23.92	24.14	24.23		
20+20	1	0	1	0	64-QAM	16.69	21.95	16.95	21.07	0.1279
20+20	1	99	1	0		0.96	16.56	8.41		
20+20	0	0	1	99		23.07	23.01	22.92		
20+20	1	0	1	0	256-QAM	19.87	20.03	20.19	18.19	0.0659
20+20	1	99	1	0		16.31	16.55	16.58		
20+20	0	0	1	99		19.54	19.79	19.82		
20+15	100	0	75	0	QPSK	16.75	22.89	18.66	22.51	0.1782
20+15	1	0	1	74		6.20	16.38	10.62		
20+15	1	74	1	0		24.26	24.51	24.47		
20+15	100	0	75	0	16-QAM	16.72	21.86	18.42	22.18	0.1652
20+15	1	0	1	74		6.80	16.91	10.14		
20+15	1	74	1	0		23.96	24.18	24.04		
20+15	100	0	75	0	64-QAM	16.70	21.89	18.39	21.02	0.1265
20+15	1	0	1	74		6.55	16.55	9.84		
20+15	1	74	1	0		22.76	23.02	22.54		
20+15	100	0	75	0	256-QAM	19.80	20.00	20.05	18.05	0.0638
20+15	1	0	1	74		16.33	16.56	16.62		
20+15	1	74	1	0		19.58	19.84	19.82		
15+20	75	0	100	0	QPSK	13.71	22.86	18.82	22.49	0.1774
15+20	1	0	1	99		6.68	16.35	10.60		
15+20	1	74	1	0		24.24	24.49	24.39		
15+20	75	0	100	0	16-QAM	13.82	21.88	18.44	22.14	0.1637
15+20	1	0	1	99		7.23	16.88	10.16		
15+20	1	74	1	0		23.97	24.14	24.12		
15+20	75	0	100	0	64-QAM	14.26	21.88	18.42	21.00	0.1259
15+20	1	0	1	99		7.00	16.56	9.89		
15+20	1	74	1	0		22.76	22.96	23.00		
15+20	75	0	100	0	256-QAM	19.86	20.01	19.92	18.01	0.0632
15+20	1	0	1	99		16.29	16.58	16.62		
15+20	1	74	1	0		19.59	19.83	19.82		
Limit	EIRP < 23dBm/10MHz					Result			Pass	



LTE Band 48C_CA Maximum Average Power [dBm] (GT - LC = -2 dB)										
BW [MHz]	PCC		SCC		Mod	Lowest	Middle	Highest	EIRP (dBm)	EIRP (W)
	RB Size	RB Offset	RB Size	RB Offset						
20+10	100	0	50	0	QPSK	17.61	22.82	18.28	22.56	0.1803
20+10	1	0	1	49		6.69	16.32	10.08		
20+10	1	99	1	0		24.21	24.56	24.46		
20+10	100	0	50	0	16-QAM	17.58	21.84	17.78	22.25	0.1679
20+10	1	0	1	49		6.79	16.90	9.14		
20+10	1	99	1	0		24.00	24.16	24.25		
20+10	100	0	50	0	64-QAM	17.55	21.88	17.88	21.07	0.1279
20+10	1	0	1	49		6.50	16.58	8.84		
20+10	1	99	1	0		22.82	23.07	22.99		
20+10	100	0	50	0	256-QAM	19.83	20.07	20.19	18.19	0.0659
20+10	1	0	1	49		16.33	16.62	16.61		
20+10	1	99	1	0		19.62	19.86	19.84		
10+20	50	0	100	0	QPSK	16.69	22.86	19.91	22.63	0.1832
10+20	1	0	1	99		6.73	16.38	10.59		
10+20	1	49	1	0		24.47	24.63	24.62		
10+20	50	0	100	0	16-QAM	16.21	21.85	19.55	22.25	0.1679
10+20	1	0	1	99		0.24	17.04	9.72		
10+20	1	49	1	0		23.94	24.25	24.25		
10+20	50	0	100	0	64-QAM	16.15	21.89	19.42	21.01	0.1262
10+20	1	0	1	99		-0.02	16.59	9.36		
10+20	1	49	1	0		22.67	22.89	23.01		
10+20	50	0	100	0	256-QAM	19.85	19.97	20.10	18.10	0.0646
10+20	1	0	1	99		16.30	16.60	16.66		
10+20	1	49	1	0		19.52	19.86	19.86		
20+5	100	0	25	0	QPSK	18.56	22.80	18.28	22.55	0.1799
20+5	1	0	1	24		6.66	16.30	10.45		
20+5	1	99	1	0		24.35	24.55	24.44		
20+5	100	0	25	0	16-QAM	18.49	21.82	17.95	22.16	0.1644
20+5	1	0	1	24		6.72	16.84	7.56		
20+5	1	99	1	0		23.82	24.16	24.05		
20+5	100	0	25	0	64-QAM	18.44	21.86	17.85	21.31	0.1352
20+5	1	0	1	24		6.98	16.56	7.33		
20+5	1	99	1	0		22.56	23.08	23.31		
20+5	100	0	25	0	256-QAM	19.80	20.07	20.19	18.19	0.0659
20+5	1	0	1	24		16.28	16.58	16.61		
20+5	1	99	1	0		19.65	19.89	19.90		
Limit	EIRP < 23dBm/10MHz					Result			Pass	



LTE Band 48C_CA Maximum Average Power [dBm] (GT - LC = -2 dB)										
BW [MHz]	PCC		SCC		Mod	Lowest	Middle	Highest	EIRP (dBm)	EIRP (W)
	RB Size	RB Offset	RB Size	RB Offset						
5+20	25	0	100	0	QPSK	17.92	22.83	20.88	22.57	0.1807
5+20	1	0	1	99		7.20	16.13	10.97		
5+20	1	24	1	0		24.45	24.49	24.57		
5+20	25	0	100	0	16-QAM	17.63	21.91	20.19	22.45	0.1758
5+20	1	0	1	99		7.54	17.09	10.32		
5+20	1	24	1	0		23.68	24.45	24.21		
5+20	25	0	100	0	64-QAM	17.73	21.70	20.88	21.13	0.1297
5+20	1	0	1	99		7.41	16.57	10.03		
5+20	1	24	1	0		22.49	23.06	23.13		
5+20	25	0	100	0	256-QAM	19.96	20.14	20.06	18.14	0.0652
5+20	1	0	1	99		16.28	16.59	16.58		
5+20	1	24	1	0		19.72	19.95	20.04		
Limit	EIRP < 23dBm/10MHz					Result			Pass	

LTE Band 48C

26dB Bandwidth

Mode	LTE Band 48C : 26dB BW(MHz)			
QPSK				
BW	5MHz+20MHz	10MHz+20MHz	15MHz+20MHz	20MHz+5MHz
Middle CH	24.93	29.97	34.97	24.78
BW	20MHz+10MHz	20MHz+15MHz	20MHz+20MHz	N/A
Middle CH	29.97	34.90	39.88	-

Mode	LTE Band 48C : 26dB BW(MHz)			
16QAM				
BW	5MHz+20MHz	10MHz+20MHz	15MHz+20MHz	20MHz+5MHz
Middle CH	24.83	29.91	34.83	25.03
BW	20MHz+10MHz	20MHz+15MHz	20MHz+20MHz	N/A
Middle CH	30.03	34.83	39.64	-

Mode	LTE Band 48C : 26dB BW(MHz)			
64QAM				
BW	5MHz+20MHz	10MHz+20MHz	15MHz+20MHz	20MHz+5MHz
Middle CH	24.73	29.91	24.76	24.83
BW	20MHz+10MHz	20MHz+15MHz	20MHz+20MHz	N/A
Middle CH	29.91	34.83	39.72	-

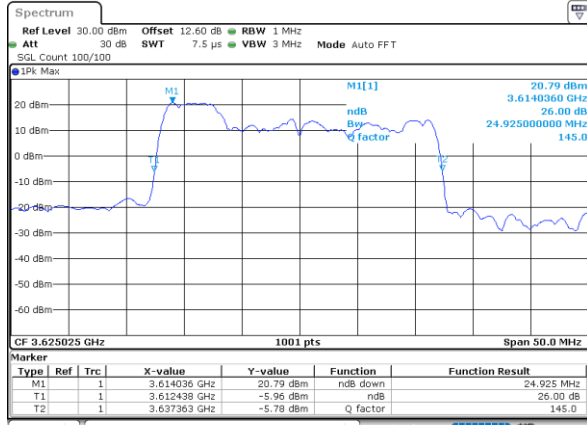
Mode	LTE Band 48C : 26dB BW(MHz)			
256QAM				
BW	5MHz+20MHz	10MHz+20MHz	15MHz+20MHz	20MHz+5MHz
Middle CH	24.73	29.79	34.93	24.88
BW	20MHz+10MHz	20MHz+15MHz	20MHz+20MHz	N/A
Middle CH	30.09	34.90	39.88	-



LTE Band 48C

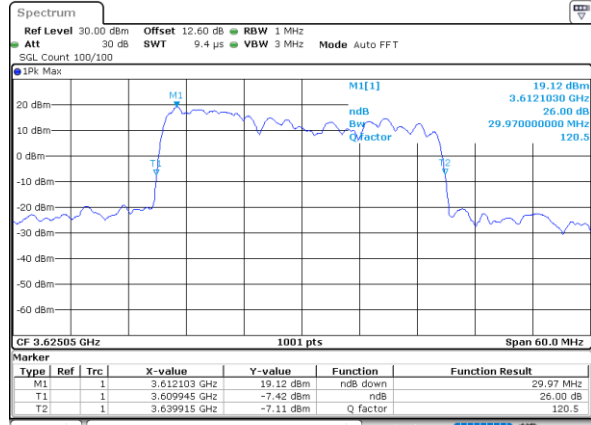
QPSK

Middle Channel / 5MHz+20MHz



Date: 19, DEC, 2020 17:09:51

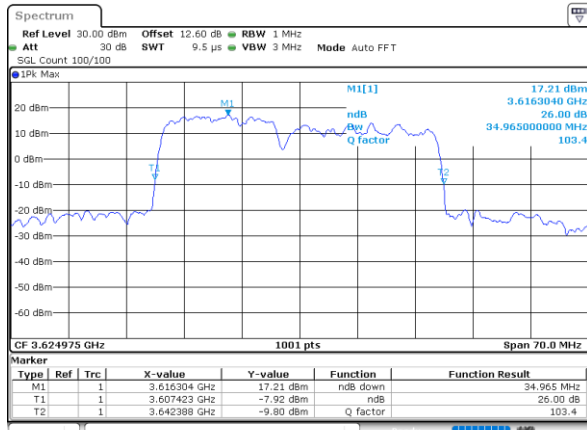
Middle Channel / 10MHz+20MHz



Date: 20, DEC, 2020 10:07:26

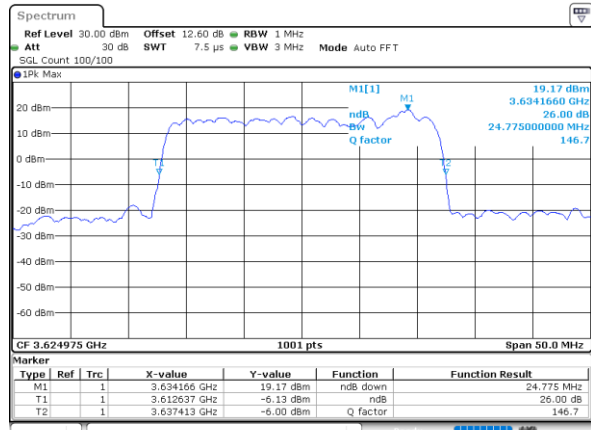
QPSK

Middle Channel / 15MHz+20MHz



Date: 20, DEC, 2020 11:38:38

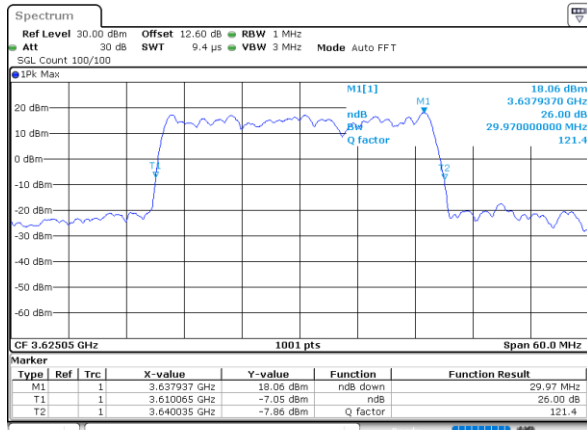
Middle Channel / 20MHz+5MHz



Date: 20, DEC, 2020 09:15:30

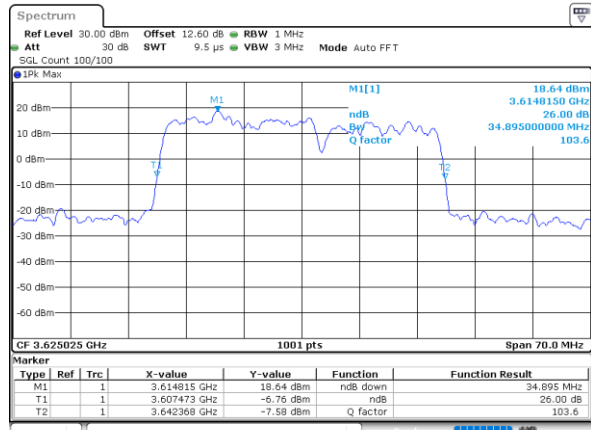
QPSK

Middle Channel / 20MHz+10MHz



Date: 20, DEC, 2020 10:38:07

Middle Channel / 20MHz+15MHz



Date: 20, DEC, 2020 12:12:11

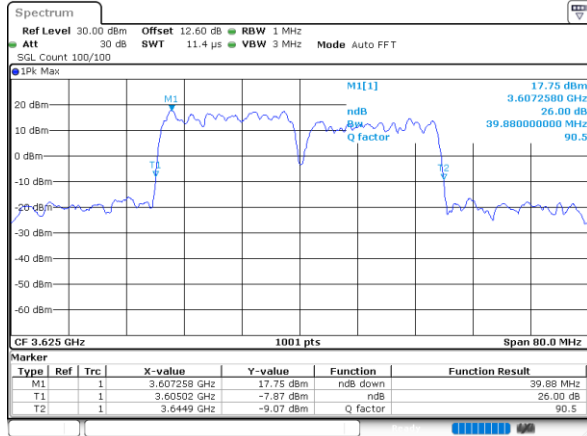


LTE Band 48C

QPSK

Middle Channel / 20MHz+20MHz

N/A



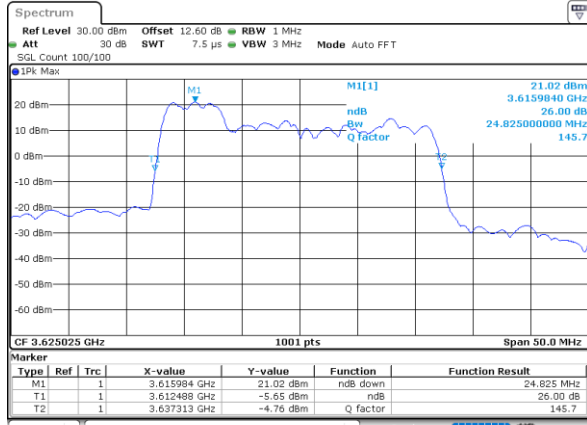
Date: 20, DEC, 2020 13:26:18



LTE Band 48C

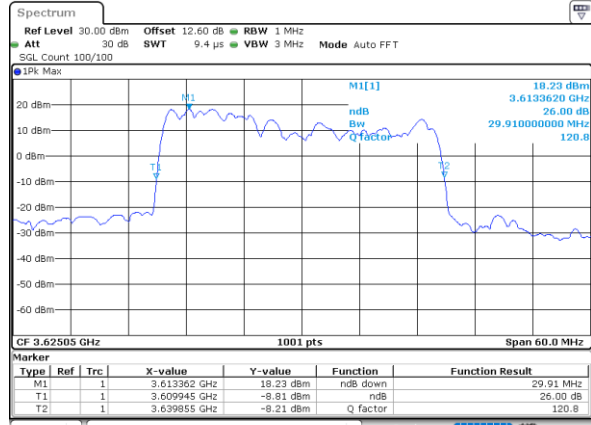
16QAM

Middle Channel / 5MHz+20MHz



Date: 19, DEC, 2020 17:09:26

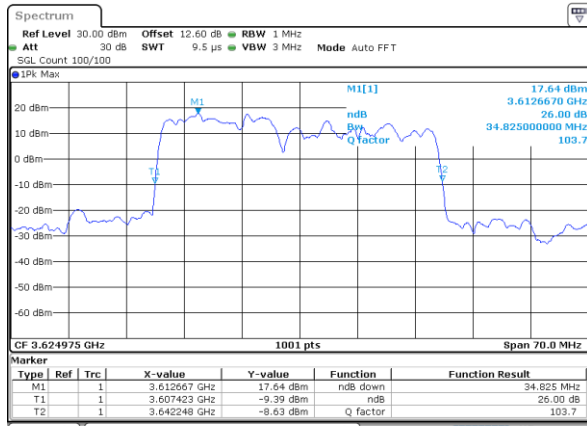
Middle Channel / 10MHz+20MHz



Date: 20, DEC, 2020 10:07:02

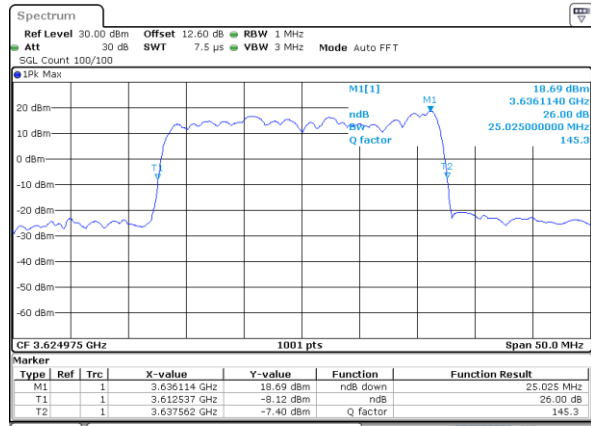
16QAM

Middle Channel / 15MHz+20MHz



Date: 20, DEC, 2020 11:38:14

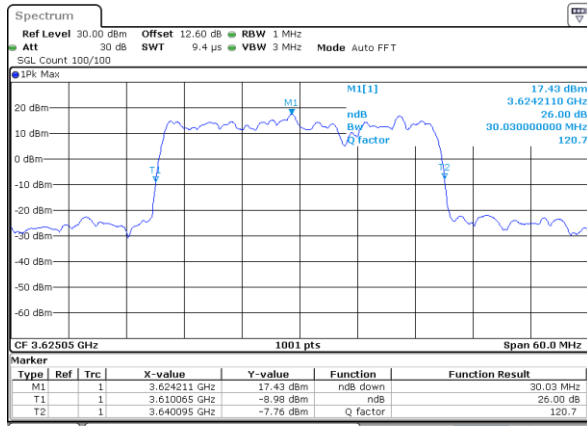
Middle Channel / 20MHz+5MHz



Date: 20, DEC, 2020 09:15:06

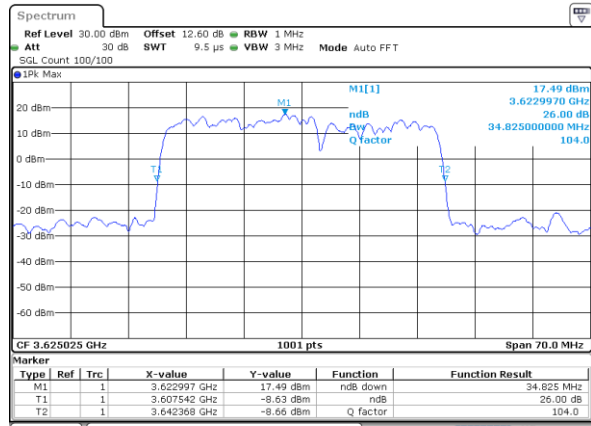
16QAM

Middle Channel / 20MHz+10MHz



Date: 20, DEC, 2020 10:37:43

Middle Channel / 20MHz+15MHz



Date: 20, DEC, 2020 12:11:47

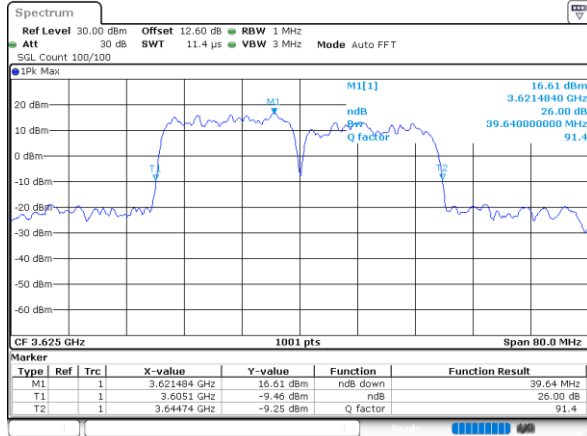


LTE Band 48C

16QAM

Middle Channel / 20MHz+20MHz

N/A



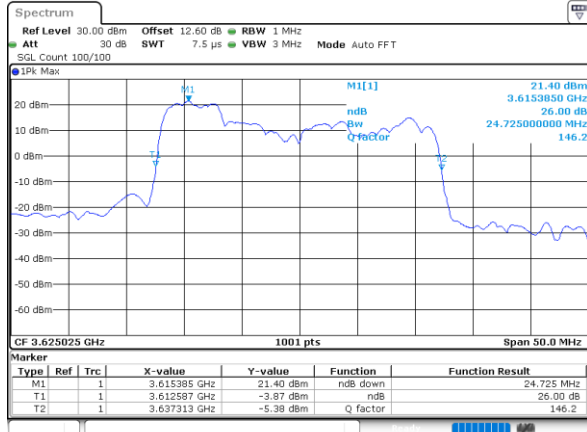
Date: 20, DEC, 2020 13:25:54



LTE Band 48C

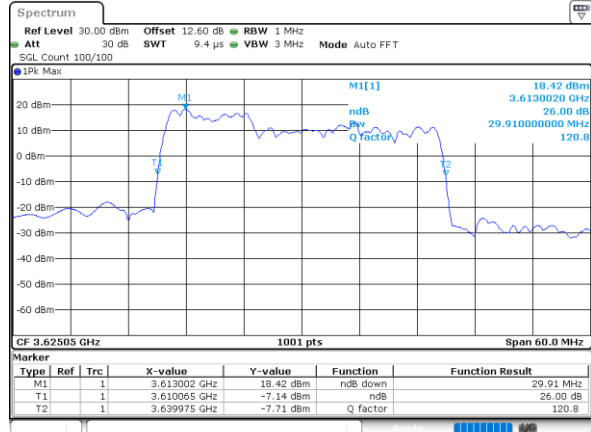
64QAM

Middle Channel / 5MHz+20MHz



Date: 19, DEC, 2020 17:09:02

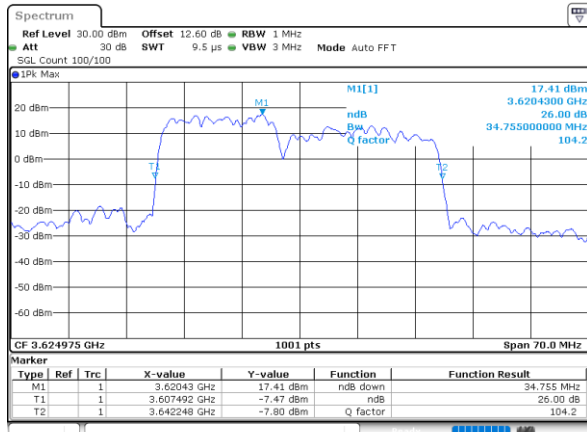
Middle Channel / 10MHz+20MHz



Date: 20, DEC, 2020 10:06:38

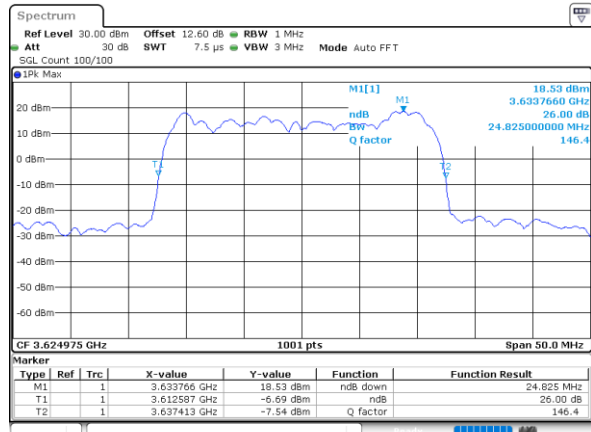
64QAM

Middle Channel / 15MHz+20MHz



Date: 20, DEC, 2020 11:37:50

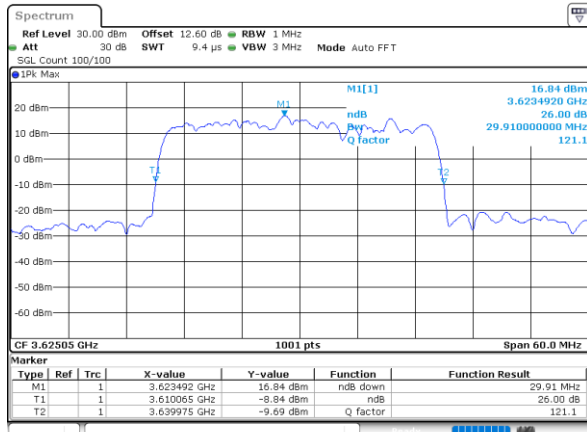
Middle Channel / 20MHz+5MHz



Date: 20, DEC, 2020 09:14:42

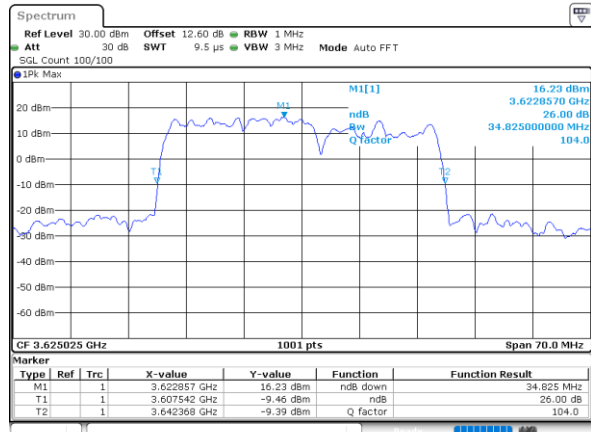
64QAM

Middle Channel / 20MHz+10MHz



Date: 20, DEC, 2020 10:37:19

Middle Channel / 20MHz+15MHz



Date: 20, DEC, 2020 12:11:23

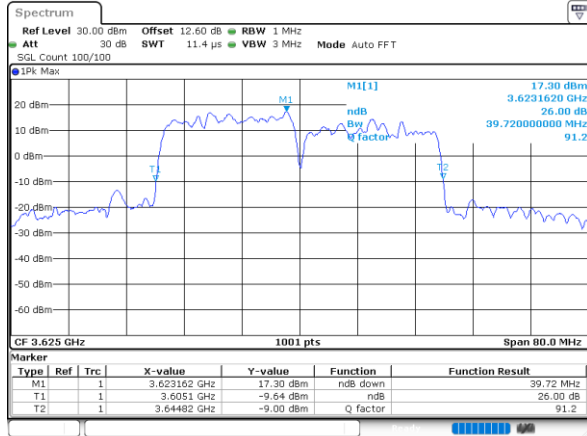


LTE Band 48C

64QAM

Middle Channel / 20MHz+20MHz

N/A



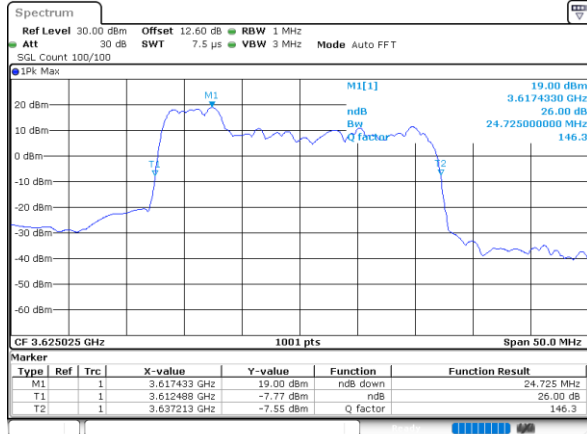
Date: 20, DEC, 2020 13:25:30



LTE Band 48C

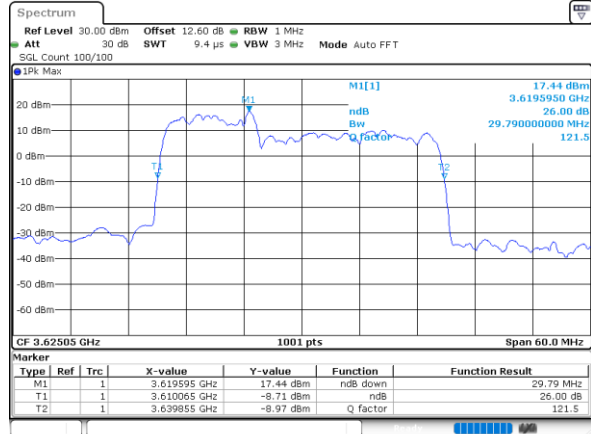
256QAM

Middle Channel / 5MHz+20MHz



Date: 4.JAN.2021 11:35:14

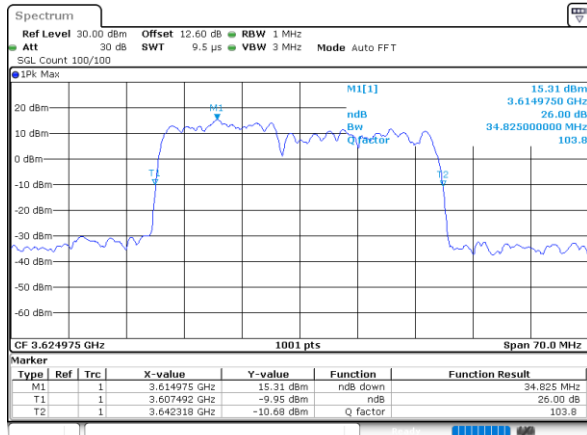
Middle Channel / 10MHz+20MHz



Date: 4.JAN.2021 11:43:31

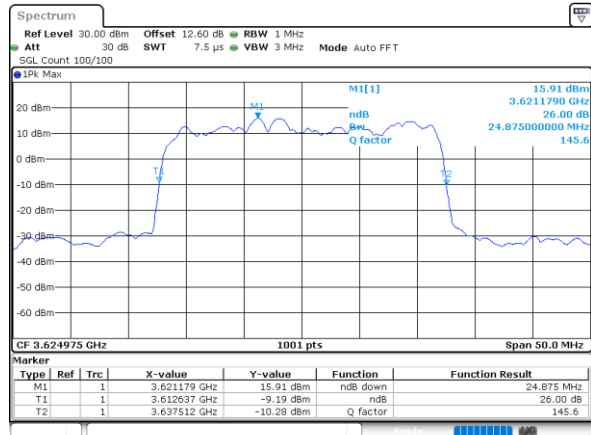
256QAM

Middle Channel / 15MHz+20MHz



Date: 4.JAN.2021 11:51:28

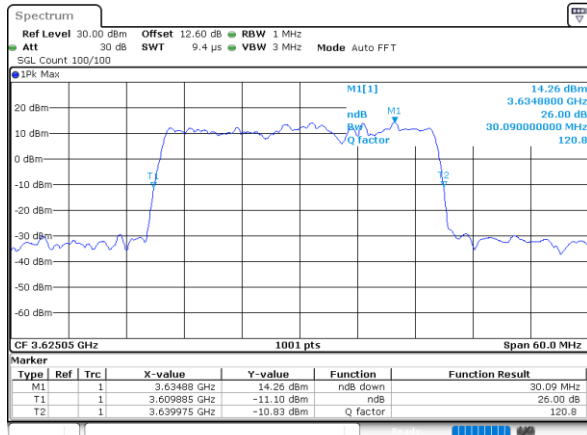
Middle Channel / 20MHz+5MHz



Date: 4.JAN.2021 11:40:12

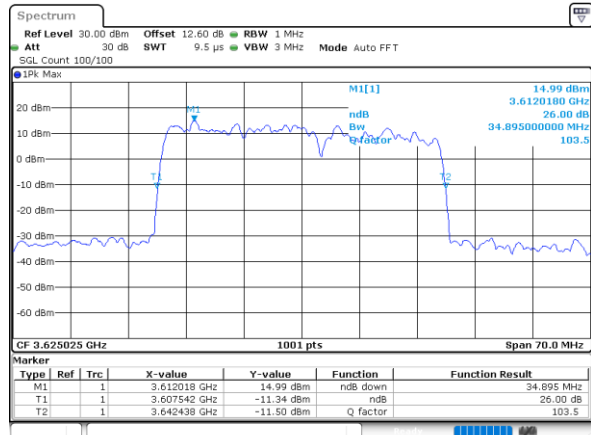
256QAM

Middle Channel / 20MHz+10MHz



Date: 4.JAN.2021 11:47:55

Middle Channel / 20MHz+15MHz



Date: 4.JAN.2021 11:56:06

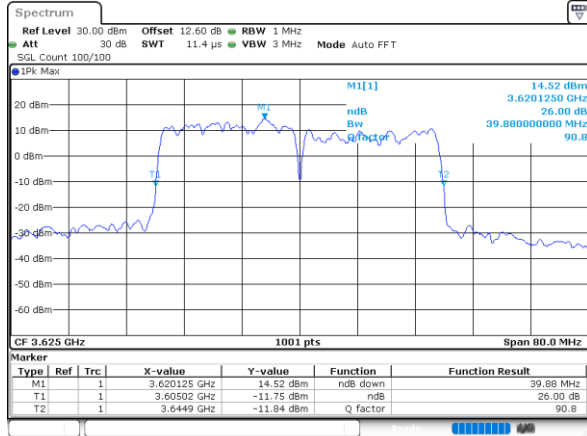


LTE Band 48C

256QAM

Middle Channel / 20MHz+20MHz

N/A



Date: 4-JAN-2023 11:59:11

Occupied Bandwidth

Mode	LTE Band 48C : 99%OBW(MHz)			
QPSK				
BW	5MHz+20MHz	10MHz+20MHz	15MHz+20MHz	20MHz+5MHz
Middle CH	23.13	27.93	32.66	23.43
BW	20MHz+10MHz	20MHz+15MHz	20MHz+20MHz	N/A
Middle CH	27.69	32.73	37.64	-

Mode	LTE Band 48C : 99%OBW(MHz)			
16QAM				
BW	5MHz+20MHz	10MHz+20MHz	15MHz+20MHz	20MHz+5MHz
Middle CH	23.13	28.11	32.87	23.33
BW	20MHz+10MHz	20MHz+15MHz	20MHz+20MHz	N/A
Middle CH	27.99	32.80	37.56	-

Mode	LTE Band 48C : 99%OBW(MHz)			
64QAM				
BW	5MHz+20MHz	10MHz+20MHz	15MHz+20MHz	20MHz+5MHz
Middle CH	23.08	27.51	32.73	22.83
BW	20MHz+10MHz	20MHz+15MHz	20MHz+20MHz	N/A
Middle CH	27.87	32.66	37.96	-

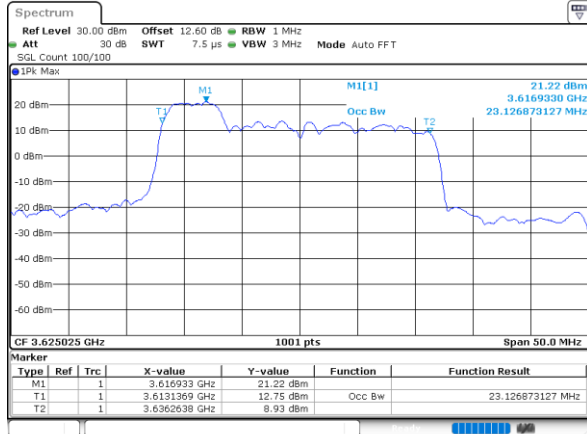
Mode	LTE Band 48C : 99%OBW(MHz)			
256QAM				
BW	5MHz+20MHz	10MHz+20MHz	15MHz+20MHz	20MHz+5MHz
Middle CH	23.08	28.05	32.80	23.03
BW	20MHz+10MHz	20MHz+15MHz	20MHz+20MHz	N/A
Middle CH	27.87	32.66	37.56	-



LTE Band 48C

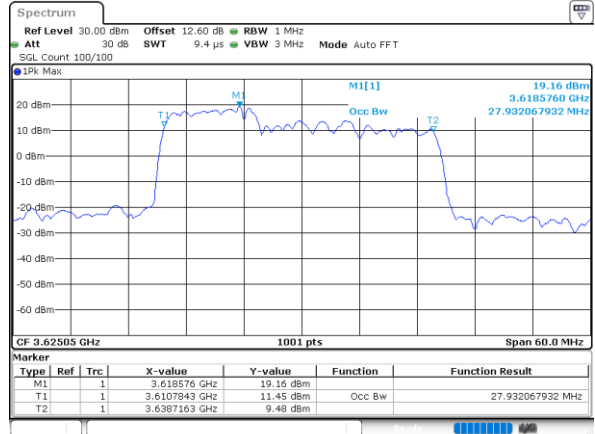
QPSK

Middle Channel / 5MHz+20MHz



Date: 19, DEC, 2020 17:07:50

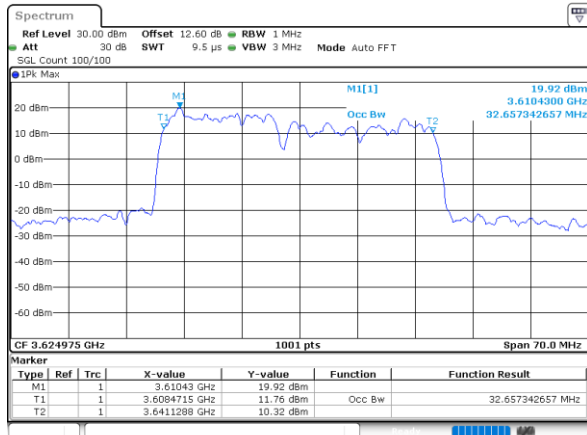
Middle Channel / 10MHz+20MHz



Date: 20, DEC, 2020 10:05:26

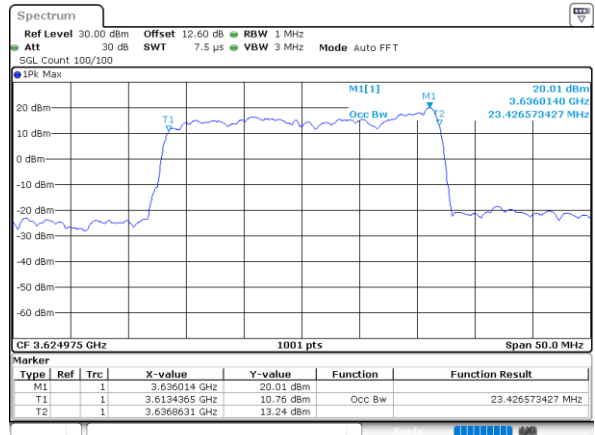
QPSK

Middle Channel / 15MHz+20MHz



Date: 20, DEC, 2020 11:36:39

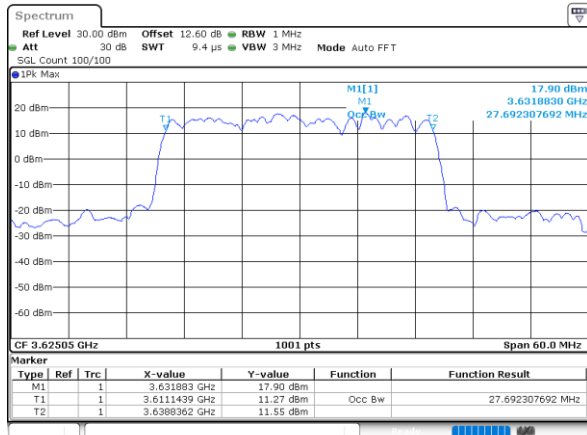
Middle Channel / 20MHz+5MHz



Date: 20, DEC, 2020 09:13:30

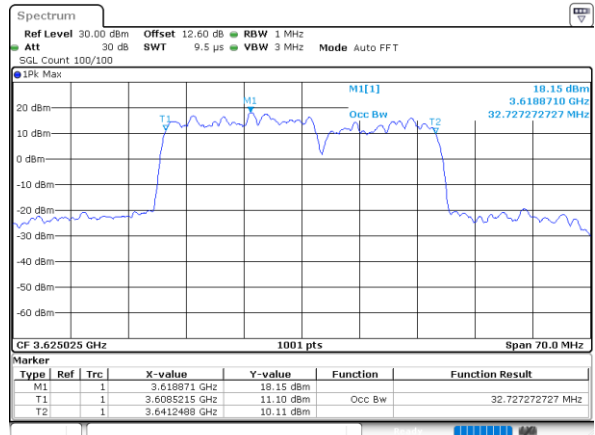
QPSK

Middle Channel / 20MHz+10MHz



Date: 20, DEC, 2020 10:36:07

Middle Channel / 20MHz+15MHz



Date: 20, DEC, 2020 12:10:11

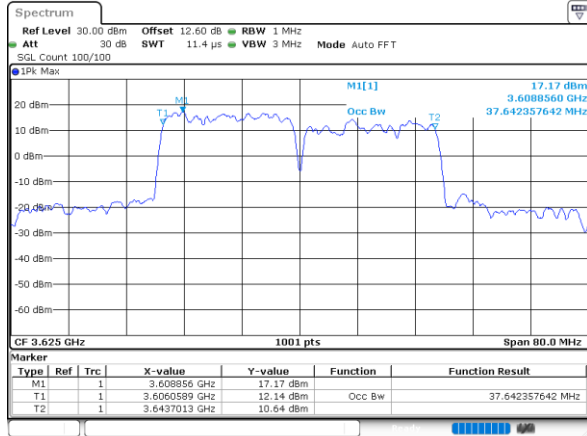


LTE Band 48C

QPSK

Middle Channel / 20MHz+20MHz

N/A



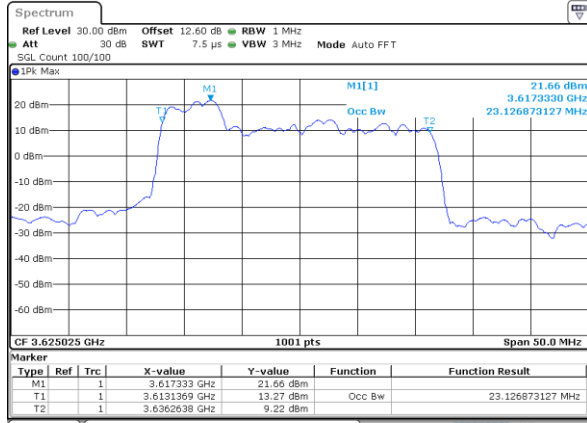
Date: 20, DEC, 2020 13:24:18



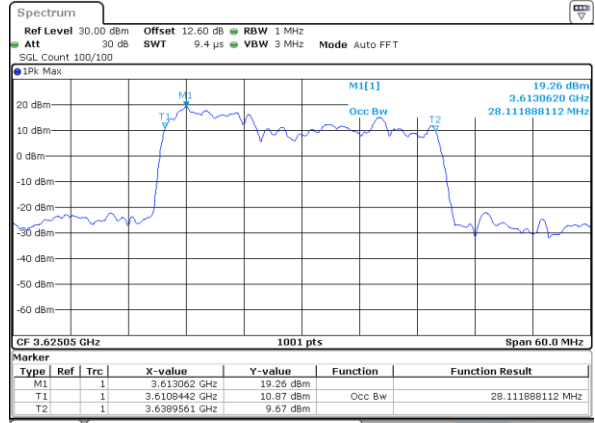
LTE Band 48C

16QAM

Middle Channel / 5MHz+20MHz

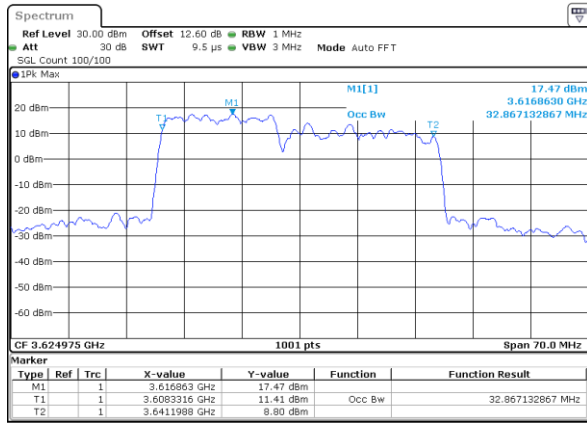


Middle Channel / 10MHz+20MHz

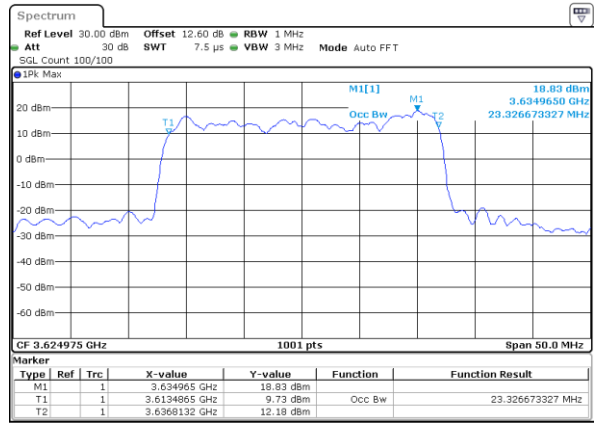


16QAM

Middle Channel / 15MHz+20MHz

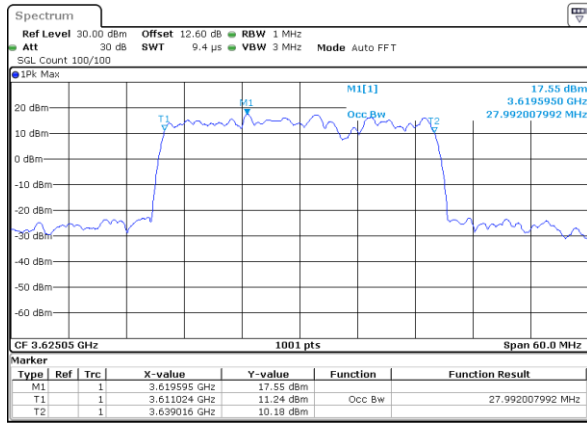


Middle Channel / 20MHz+5MHz

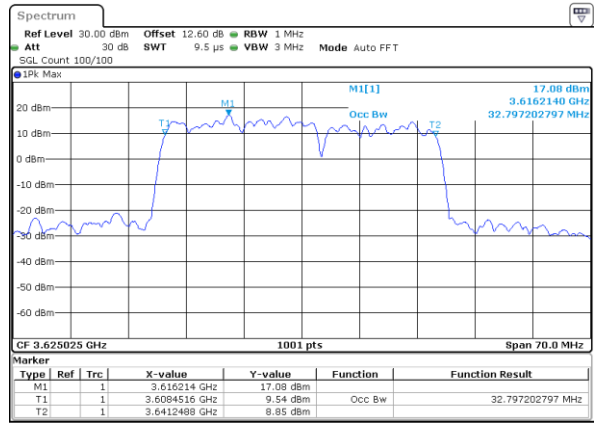


16QAM

Middle Channel / 20MHz+10MHz



Middle Channel / 20MHz+15MHz



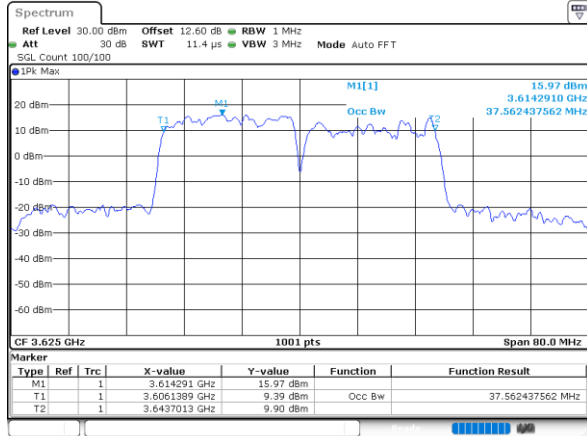


LTE Band 48C

16QAM

Middle Channel / 20MHz+20MHz

N/A



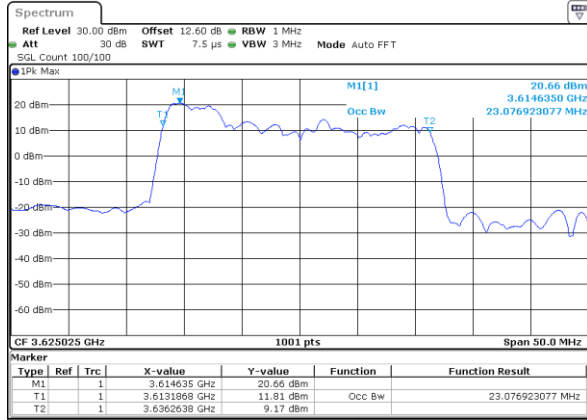
Date: 20, DEC, 2020 13:24:42



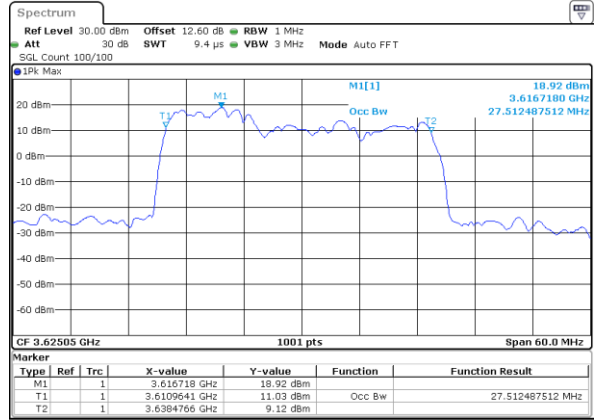
LTE Band 48C

64QAM

Middle Channel / 5MHz+20MHz

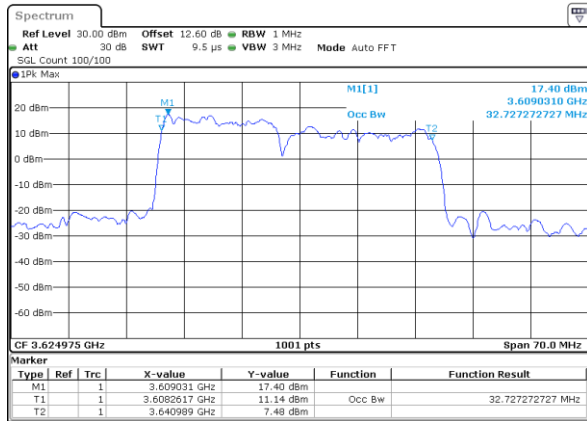


Middle Channel / 10MHz+20MHz

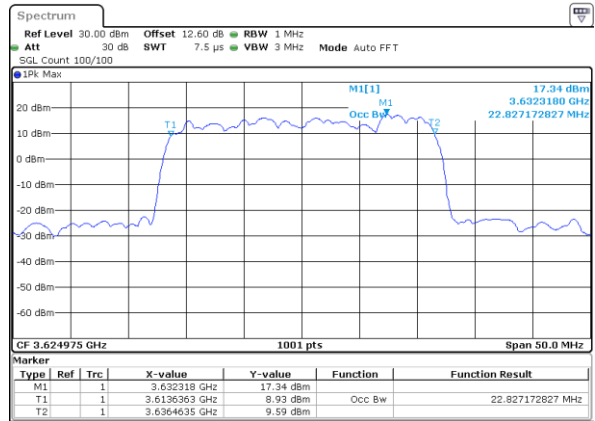


64QAM

Middle Channel / 15MHz+20MHz

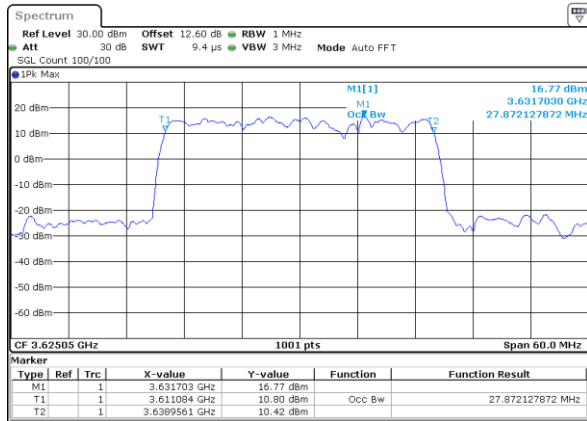


Middle Channel / 20MHz+5MHz

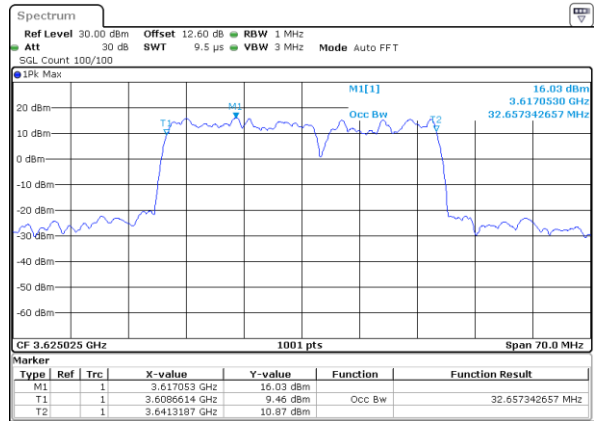


64QAM

Middle Channel / 20MHz+10MHz



Middle Channel / 20MHz+15MHz



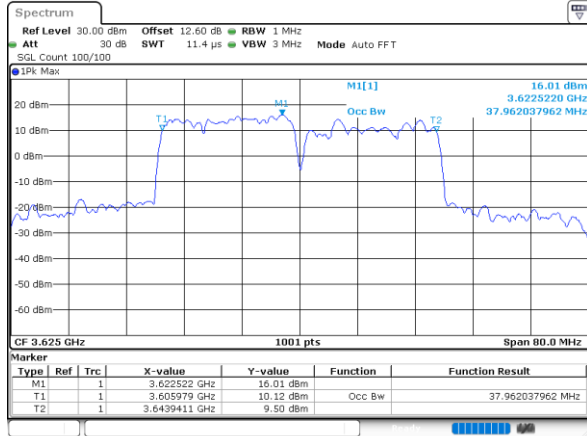


LTE Band 48C

64QAM

Middle Channel / 20MHz+20MHz

N/A



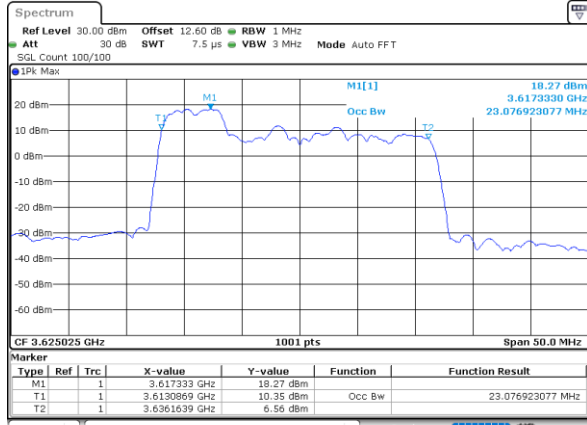
Date: 20, DEC, 2020 13:25:06



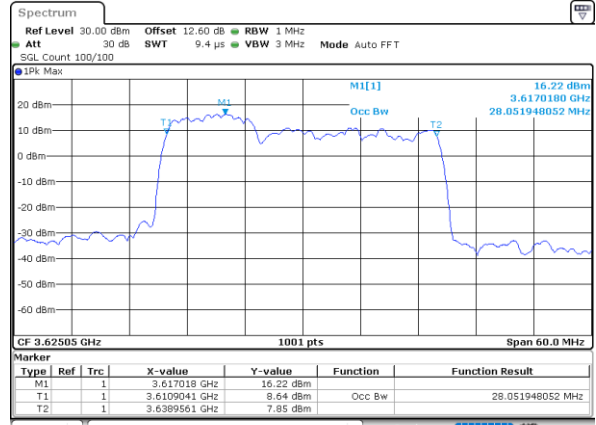
LTE Band 48C

256QAM

Middle Channel / 5MHz+20MHz

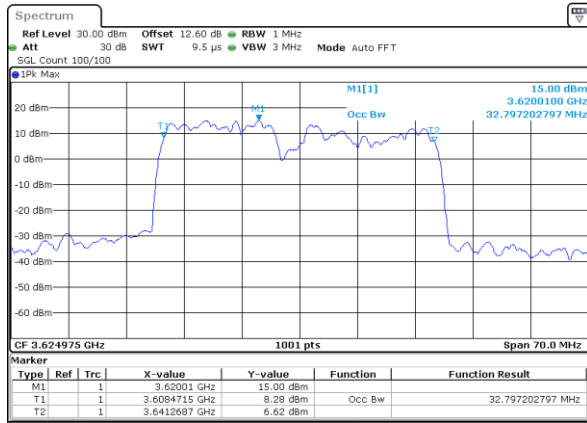


Middle Channel / 10MHz+20MHz

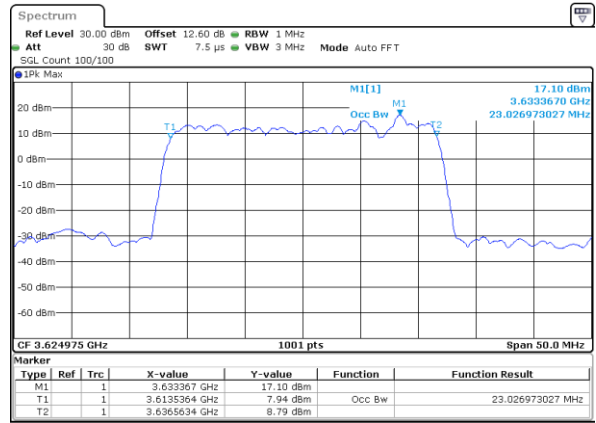


256QAM

Middle Channel / 15MHz+20MHz

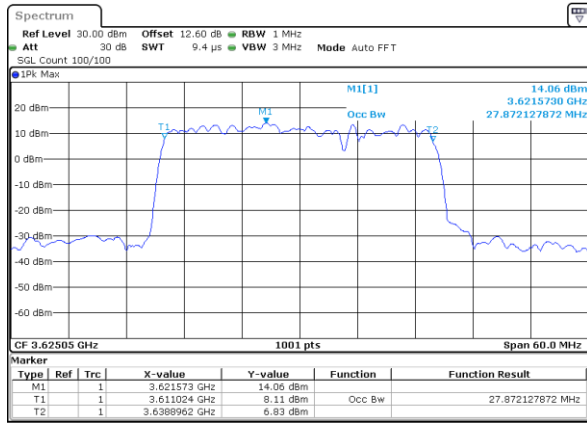


Middle Channel / 20MHz+5MHz

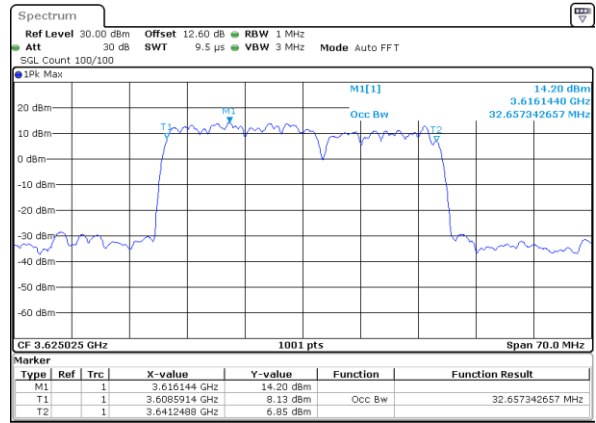


256QAM

Middle Channel / 20MHz+10MHz



Middle Channel / 20MHz+15MHz



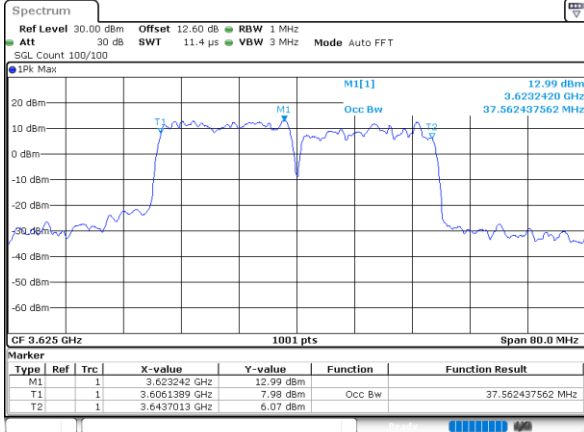


LTE Band 48C

256QAM

Middle Channel / 20MHz+20MHz

N/A



Date: 4-JAN-2023 11:59:56



ACLR

LTE Band 48C / 5MHz+20MHz

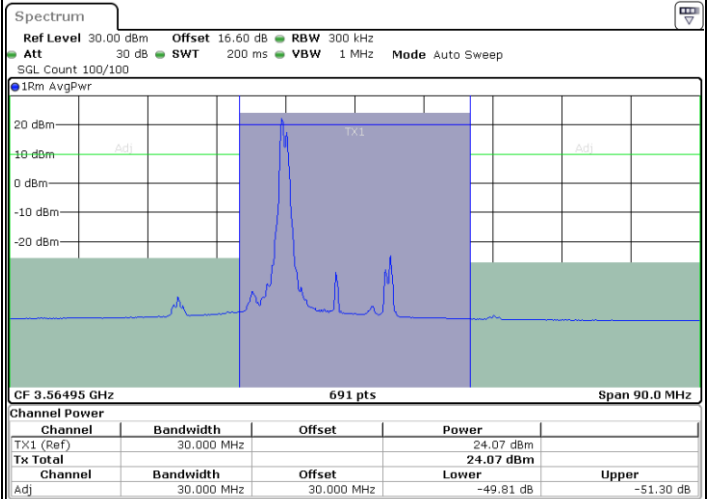
QPSK

Lowest Channel / 1RB0 and 1RB99

Lowest Channel / 1RB24 and 1RB0



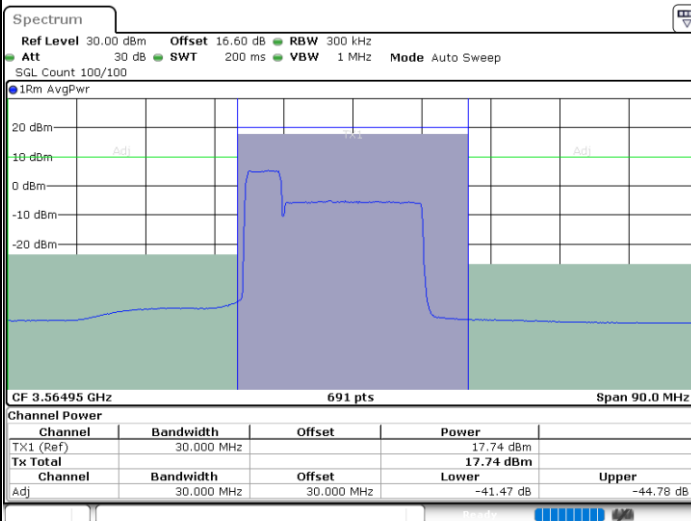
Date: 20.DEC.2020 13:45:54



Date: 20.DEC.2020 13:46:35

Lowest Channel / FullIRB

N/A



Date: 20.DEC.2020 13:42:30

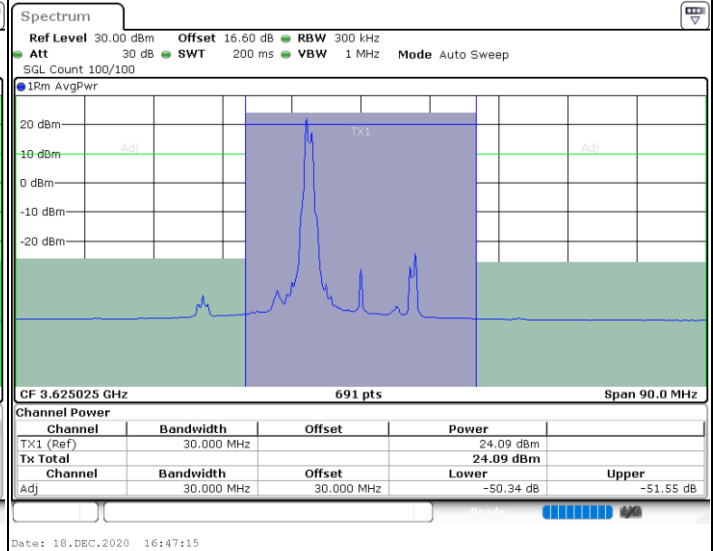
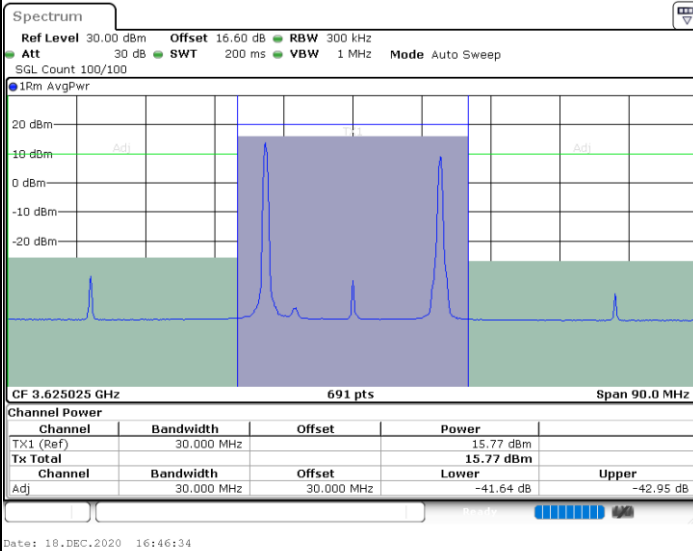


LTE Band 48C / 5MHz+20MHz

QPSK

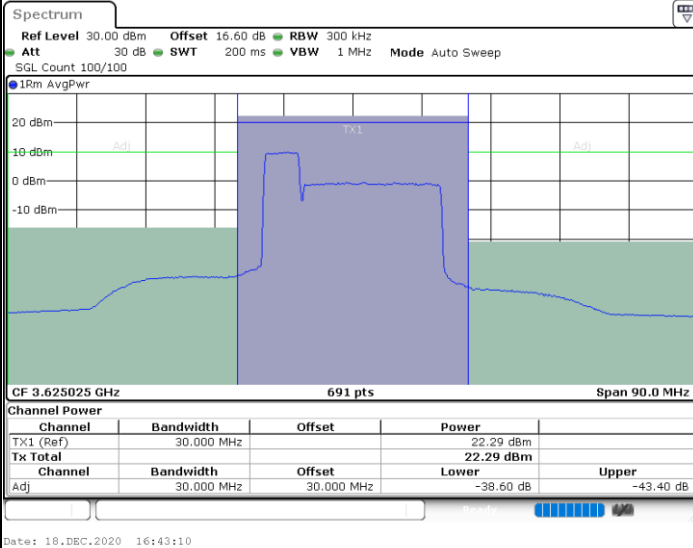
Middle Channel / 1RB0 and 1RB99

Middle Channel / 1RB24 and 1RB0



Middle Channel / FullRB

N/A



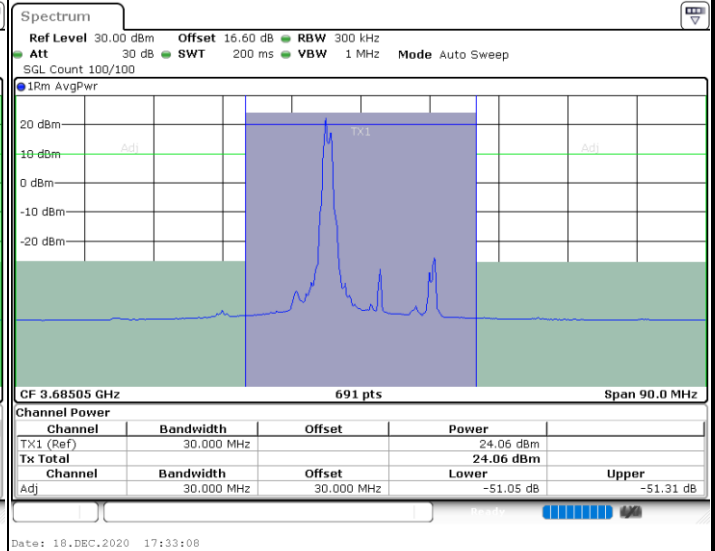
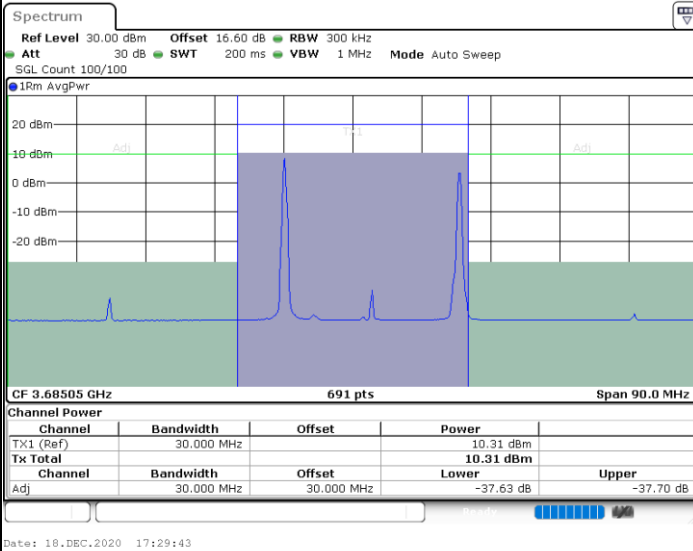


LTE Band 48C / 5MHz+20MHz

QPSK

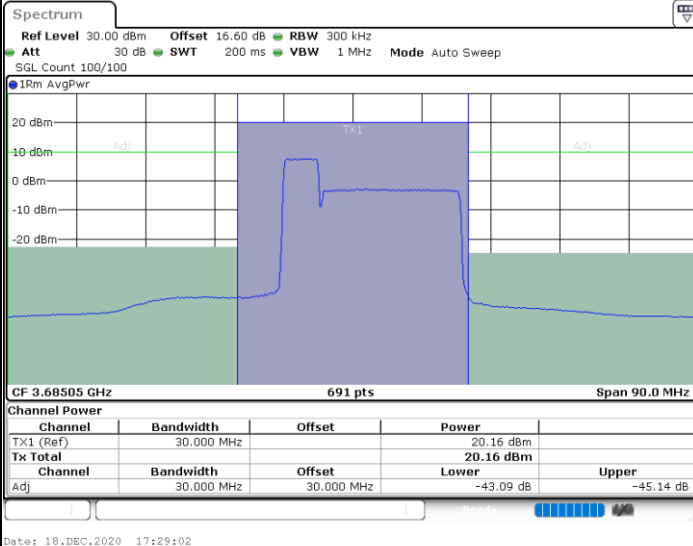
Highest Channel / 1RB0 and 1RB99

Highest Channel / 1RB24 and 1RB0



Highest Channel / FullIRB

N/A



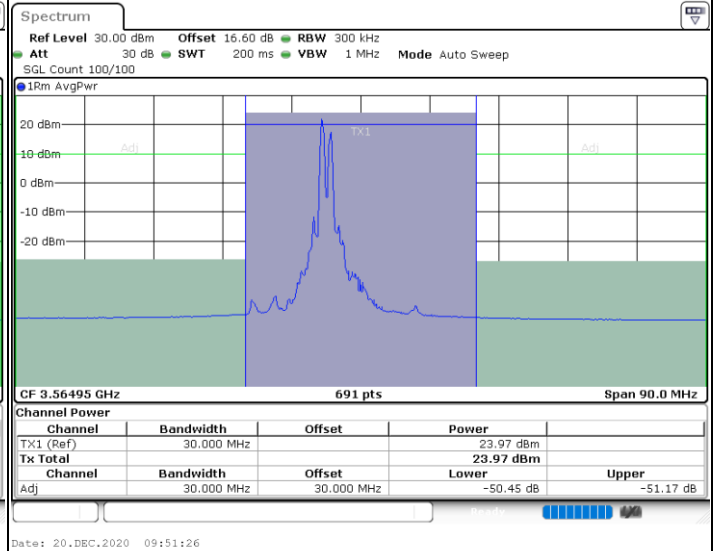
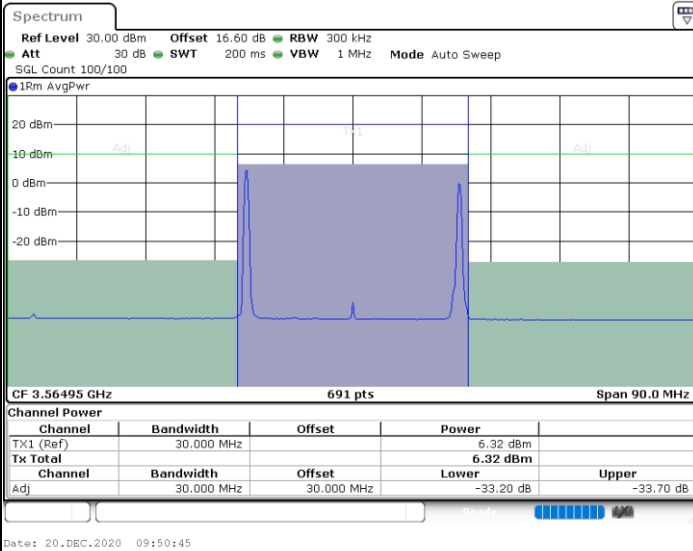


LTE Band 48C / 10MHz+20MHz

QPSK

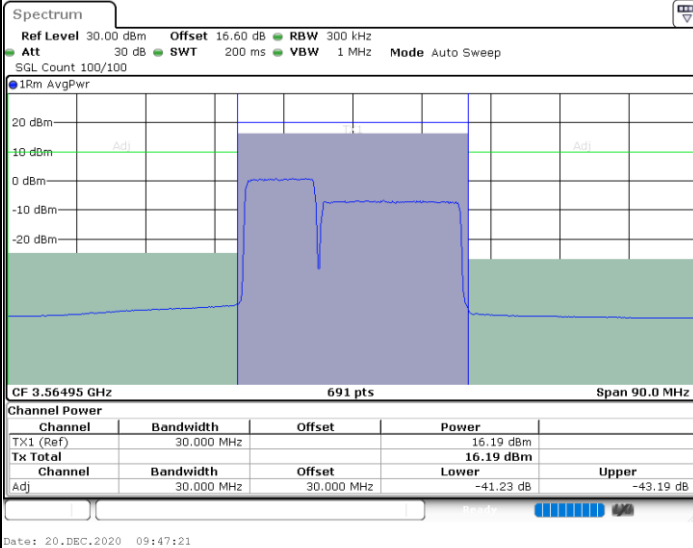
Lowest Channel / 1RB0 and 1RB99

Lowest Channel / 1RB49 and 1RB0



Lowest Channel / FullIRB

N/A



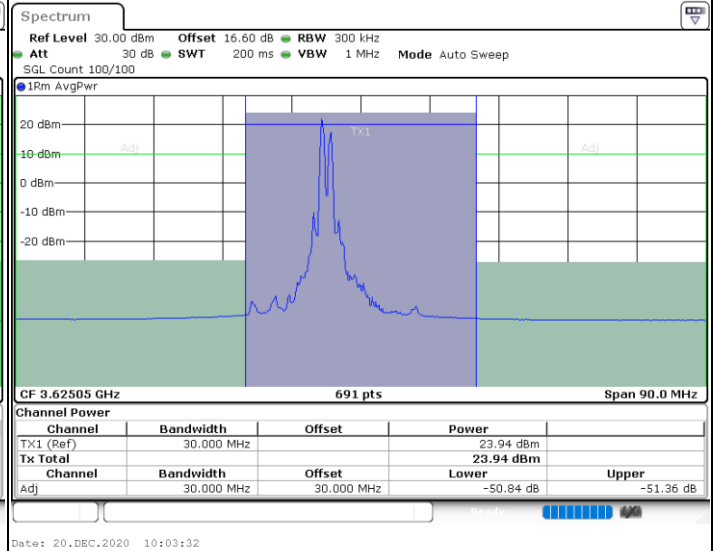
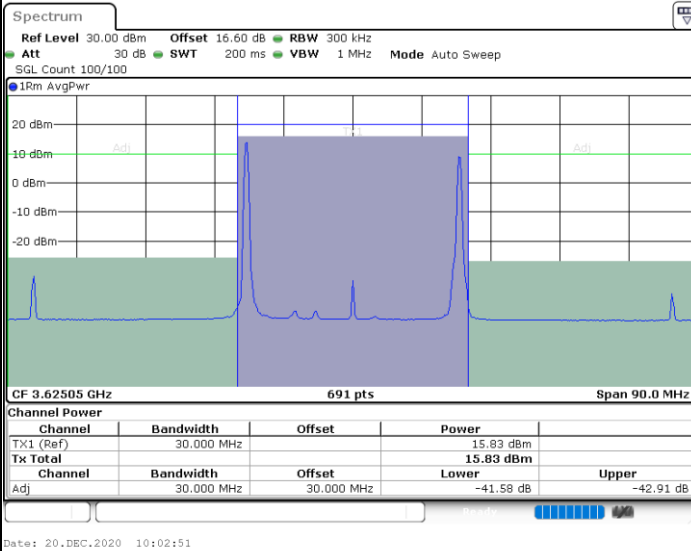


LTE Band 48C / 10MHz+20MHz

QPSK

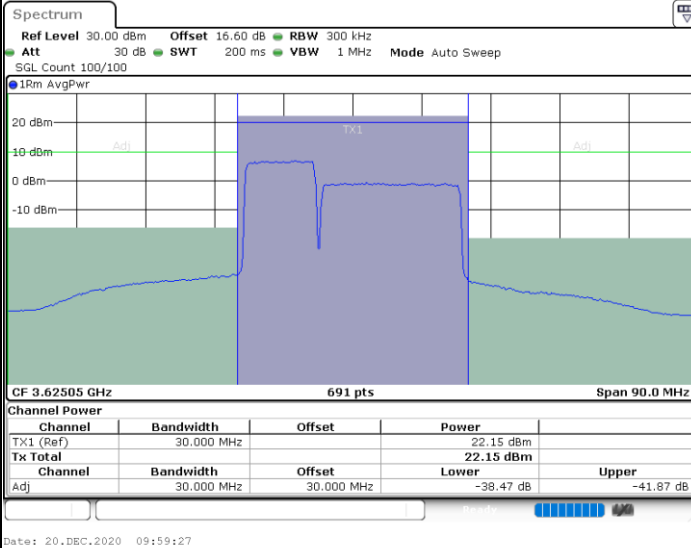
Middle Channel / 1RB0 and 1RB99

Middle Channel / 1RB49 and 1RB0



Middle Channel / FullRB

N/A



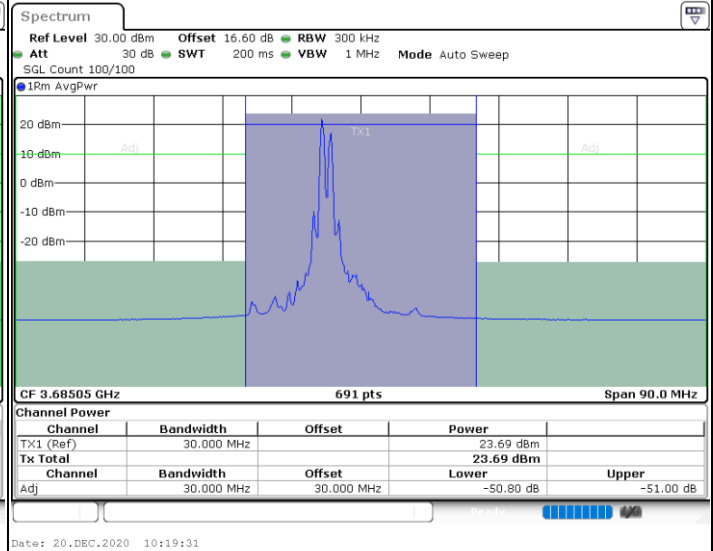
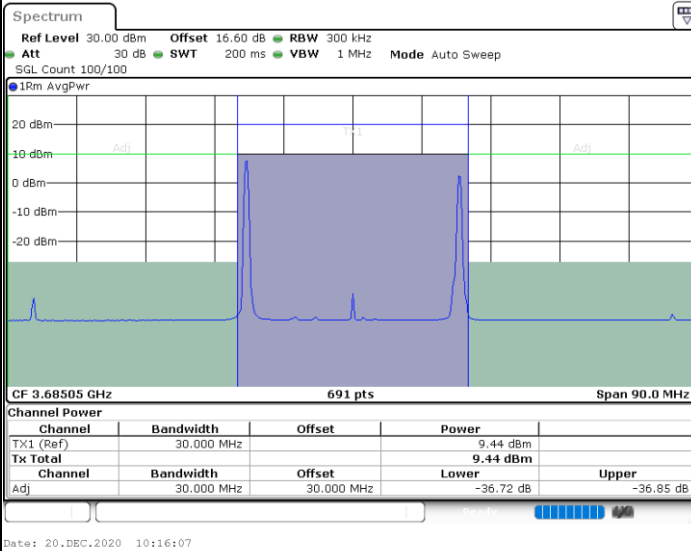


LTE Band 48C / 10MHz+20MHz

QPSK

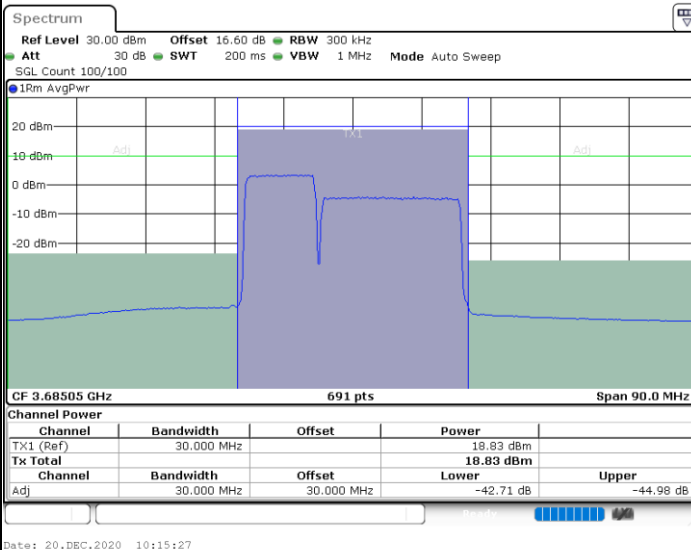
Highest Channel / 1RB0 and 1RB99

Highest Channel / 1RB49 and 1RB0



Highest Channel / FullIRB

N/A



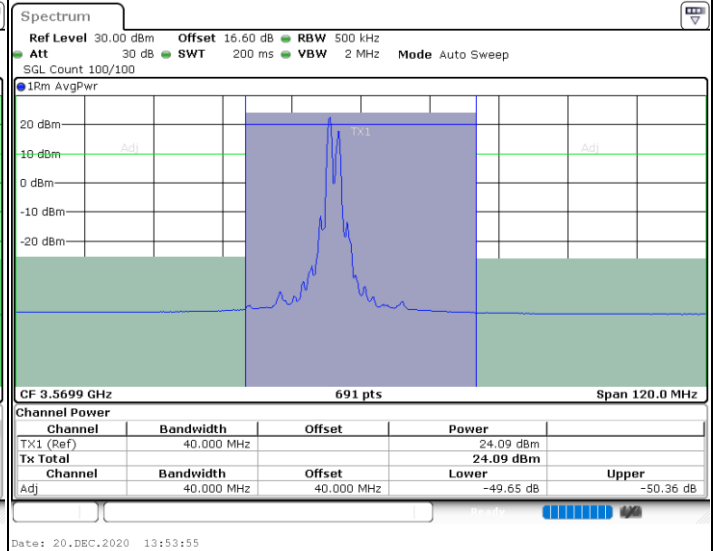
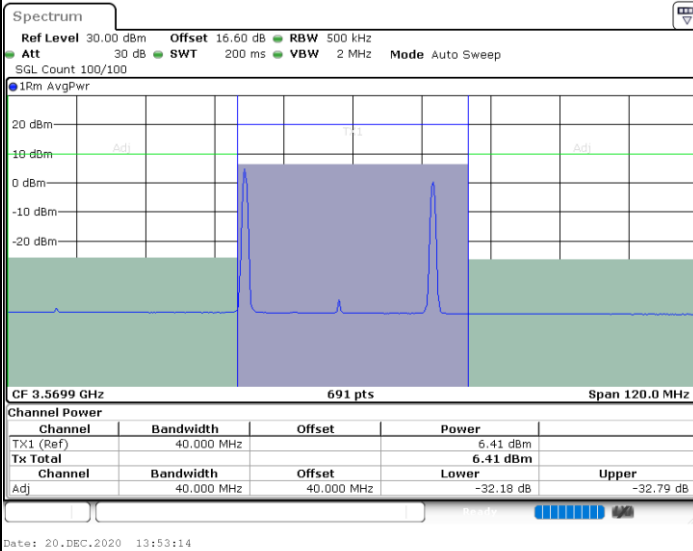


LTE Band 48C / 15MHz+20MHz

QPSK

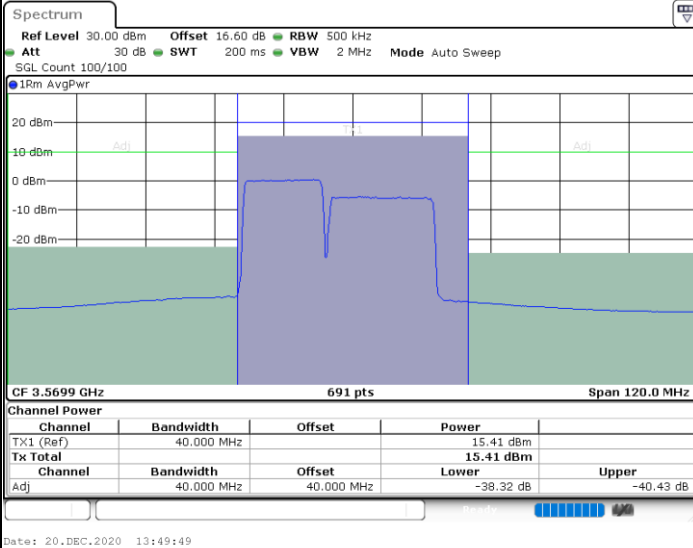
Lowest Channel / 1RB0 and 1RB99

Lowest Channel / 1RB74 and 1RB0



Lowest Channel / FullIRB

N/A



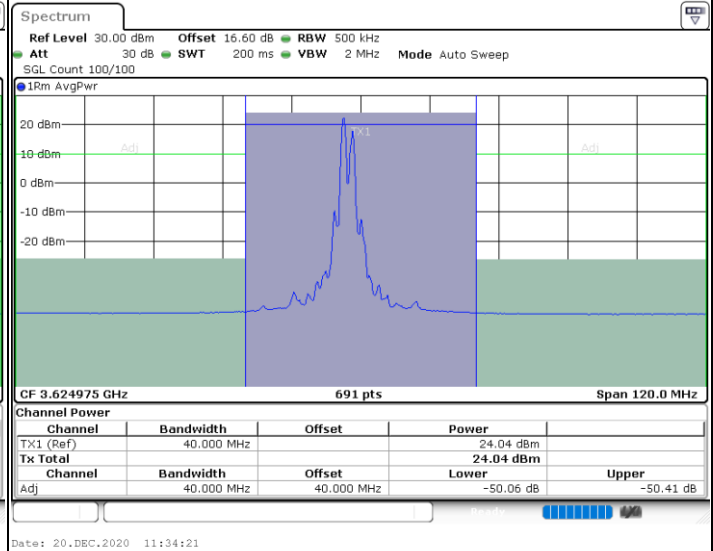
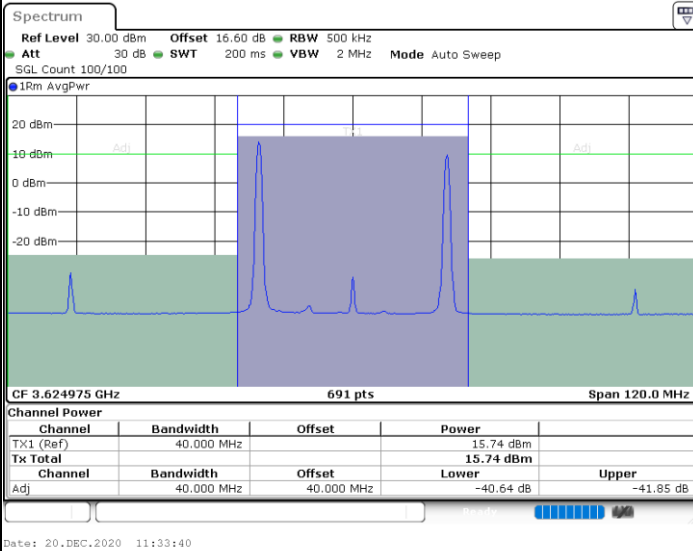


LTE Band 48C / 15MHz+20MHz

QPSK

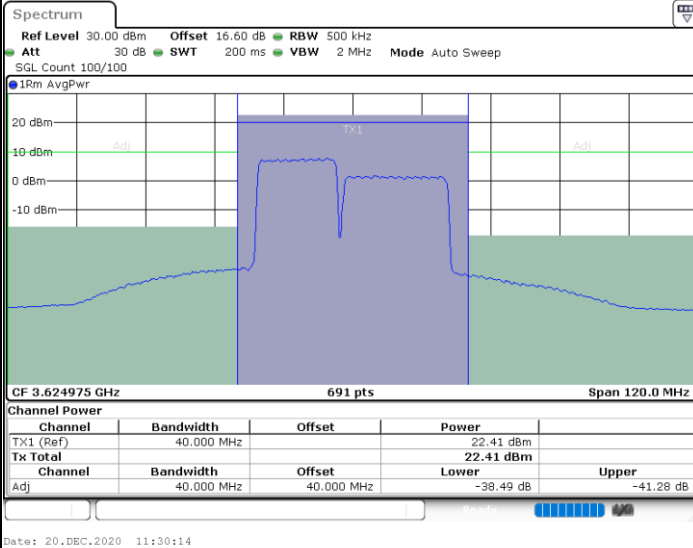
Middle Channel / 1RB0 and 1RB99

Middle Channel / 1RB74 and 1RB0



Middle Channel / FullRB

N/A



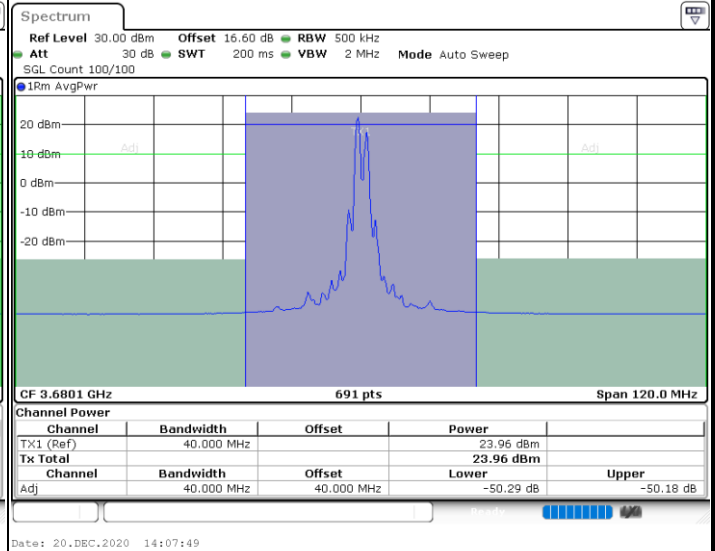
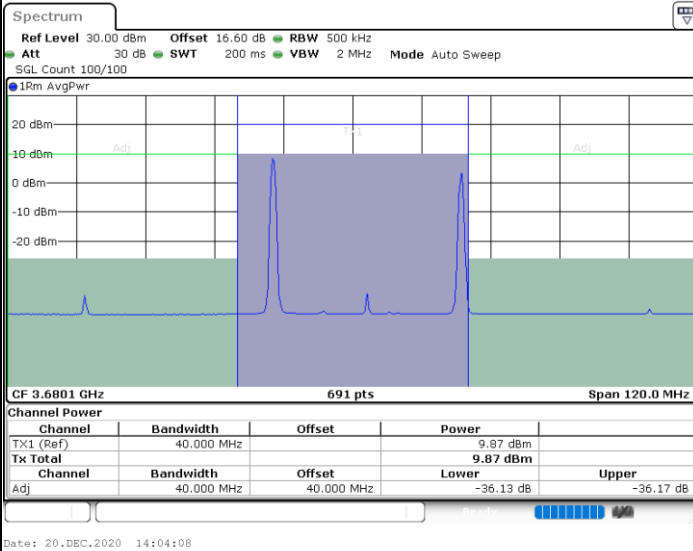


LTE Band 48C / 15MHz+20MHz

QPSK

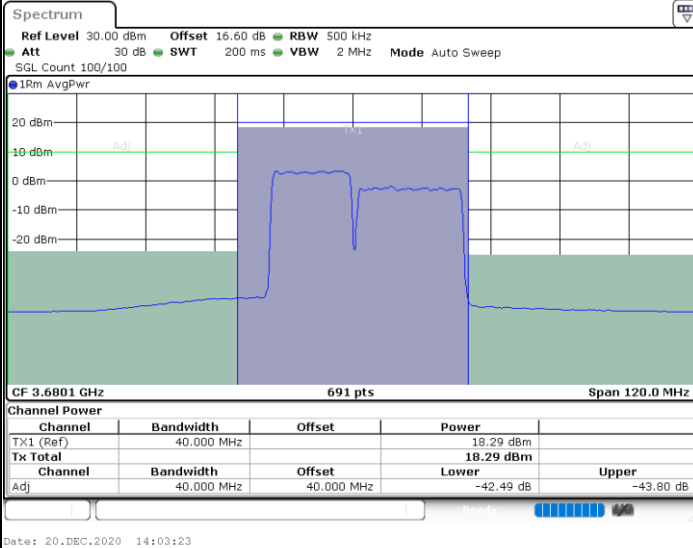
Highest Channel / 1RB0 and 1RB99

Highest Channel / 1RB74 and 1RB0



Highest Channel / FullIRB

N/A



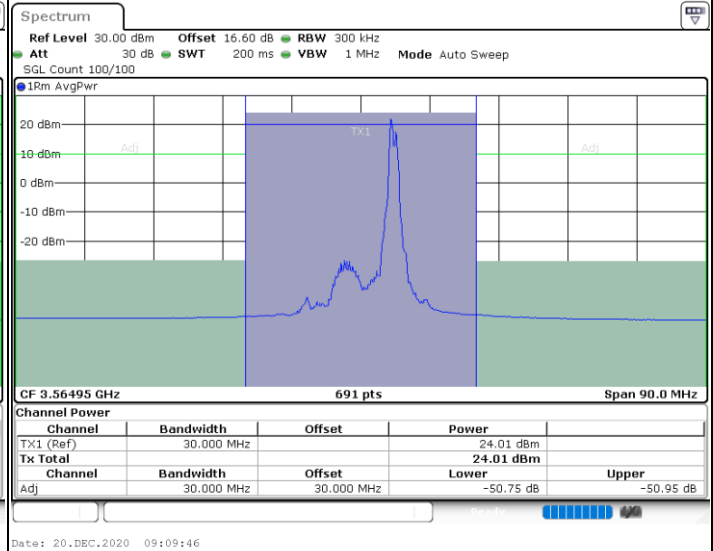
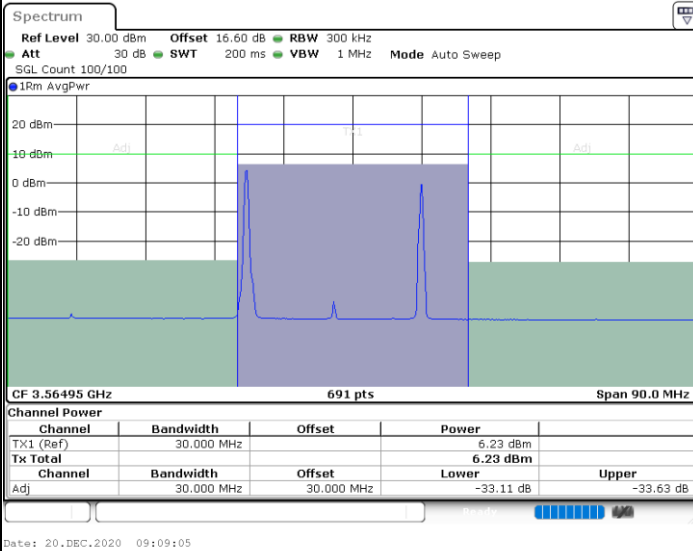


LTE Band 48C / 20MHz+5MHz

QPSK

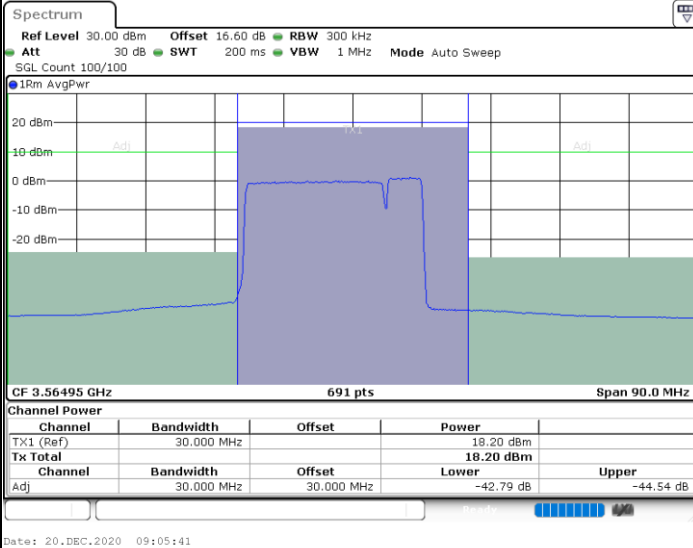
Lowest Channel / 1RB0 and 1RB24

Lowest Channel / 1RB99 and 1RB0



Lowest Channel / FullIRB

N/A



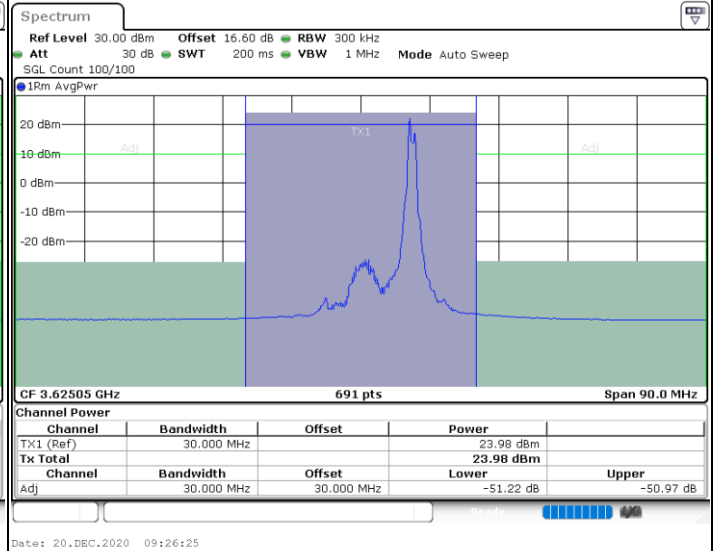
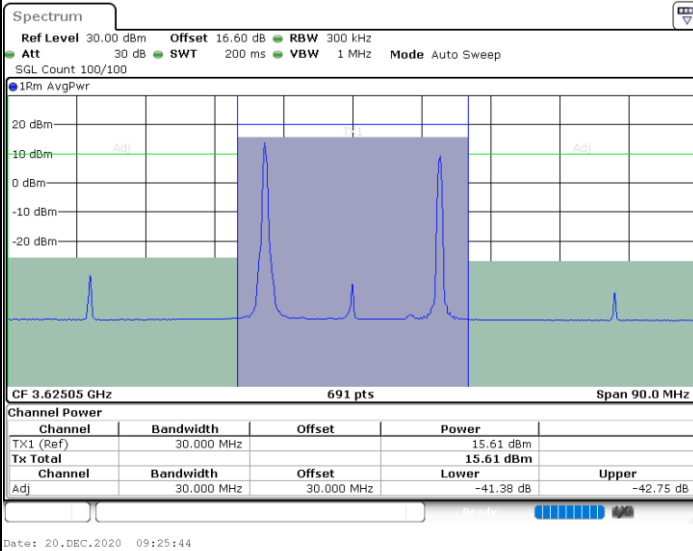


LTE Band 48C / 20MHz+5MHz

QPSK

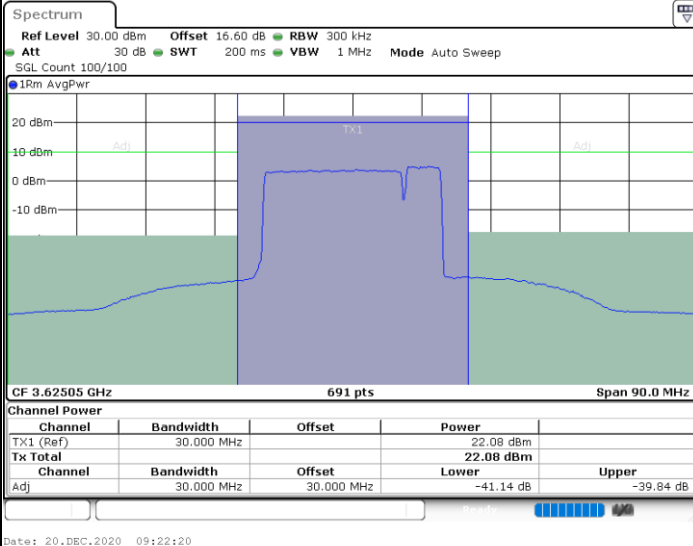
Middle Channel / 1RB0 and 1RB24

Middle Channel / 1RB99 and 1RB0



Middle Channel / FullRB

N/A



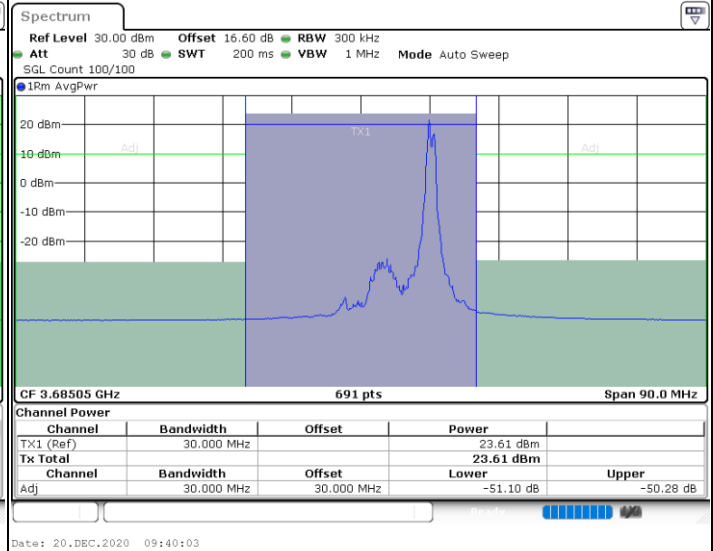
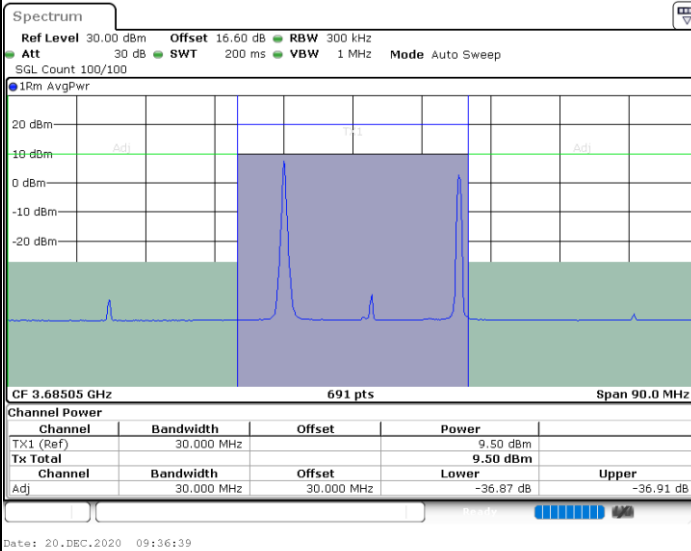


LTE Band 48C / 20MHz+5MHz

QPSK

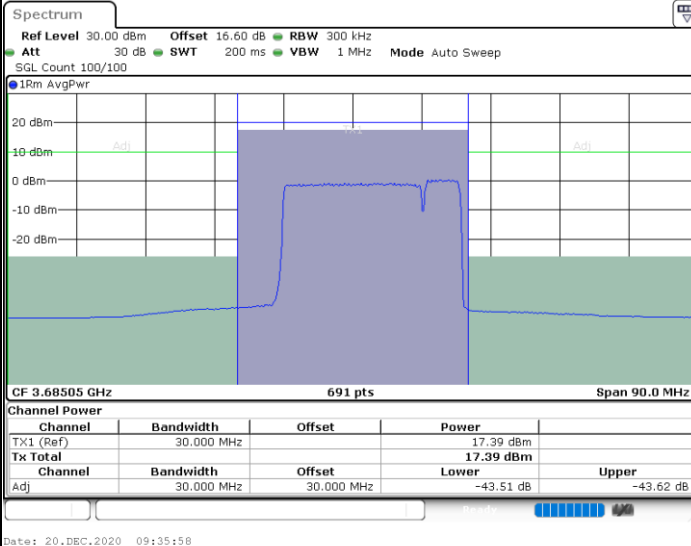
Highest Channel / 1RB0 and 1RB24

Highest Channel / 1RB99 and 1RB0



Highest Channel / FullIRB

N/A



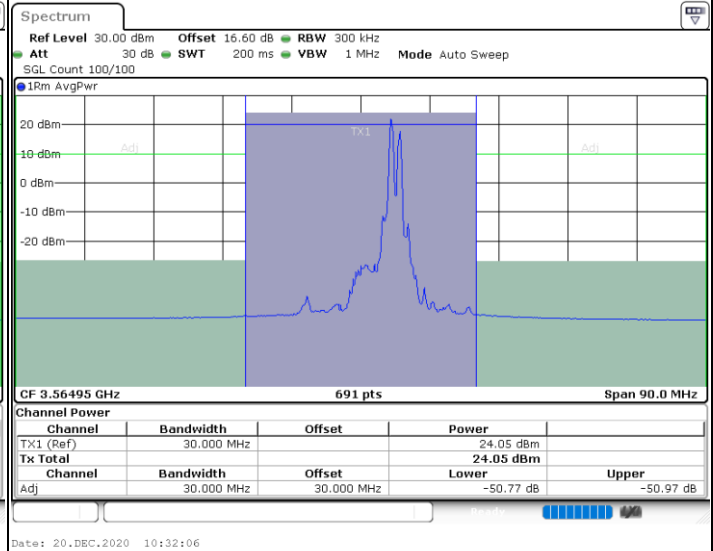
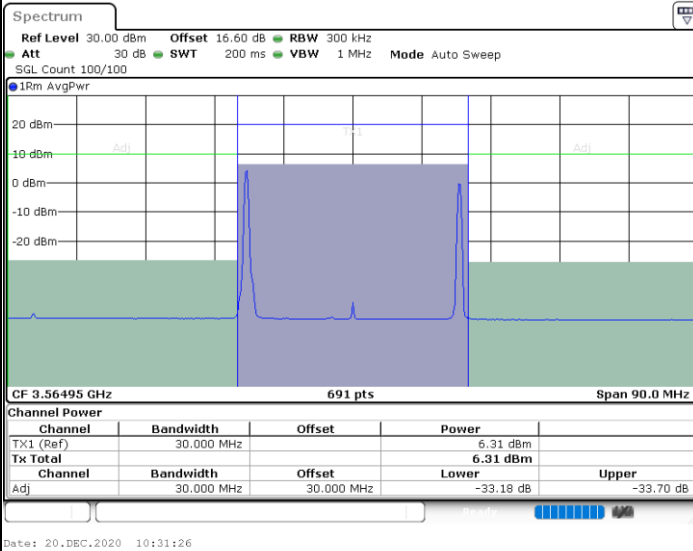


LTE Band 48C / 20MHz+10MHz

QPSK

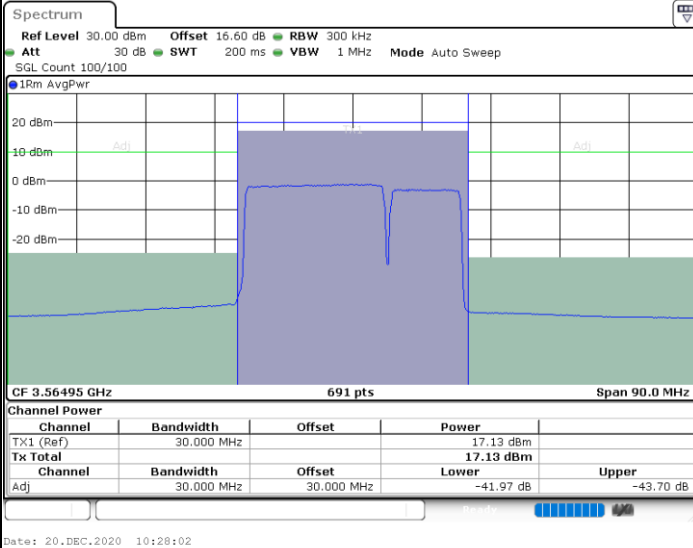
Lowest Channel / 1RB0 and 1RB49

Lowest Channel / 1RB99 and 1RB0



Lowest Channel / FullIRB

N/A



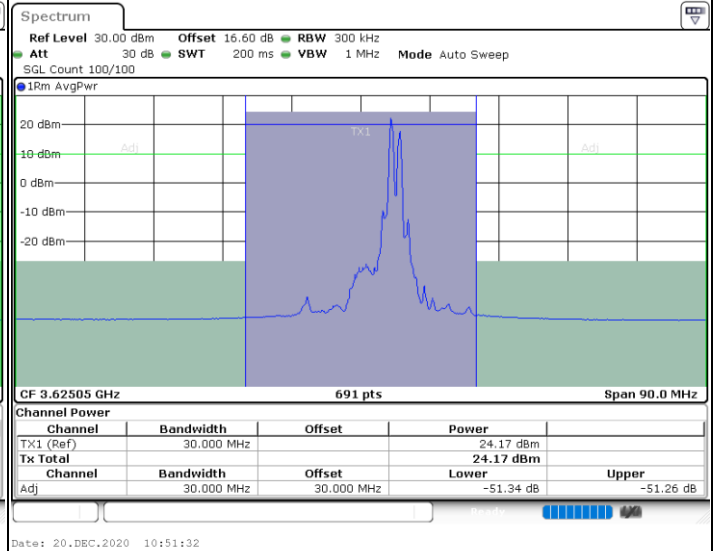
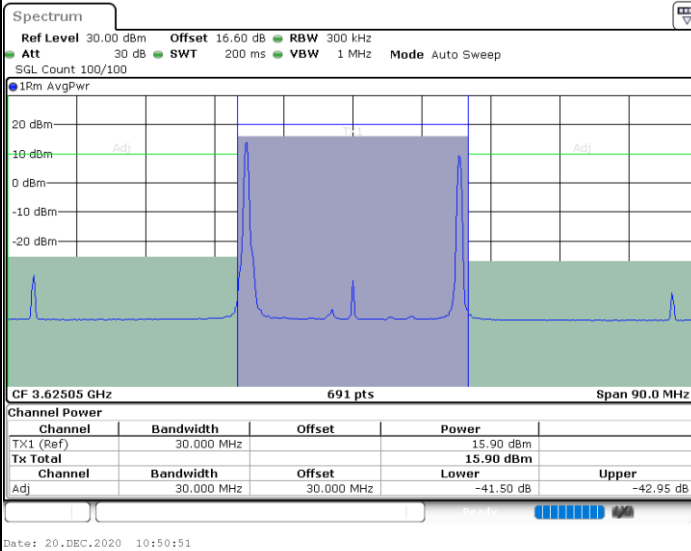


LTE Band 48C / 20MHz+10MHz

QPSK

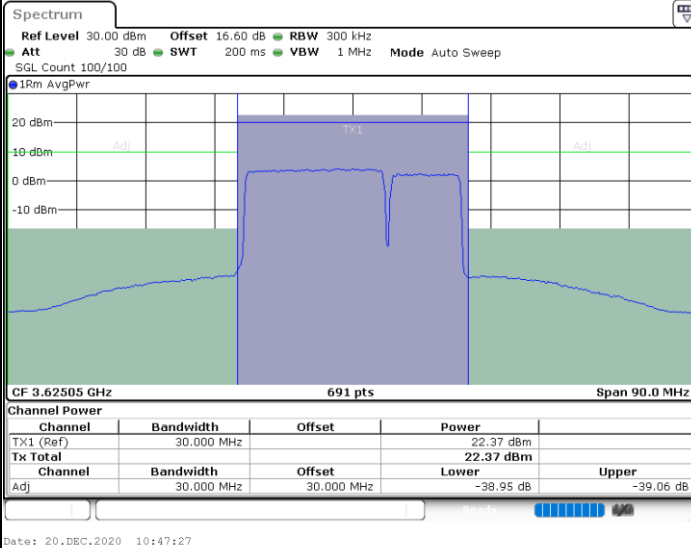
Middle Channel / 1RB0 and 1RB49

Middle Channel / 1RB99 and 1RB0



Middle Channel / FullRB

N/A



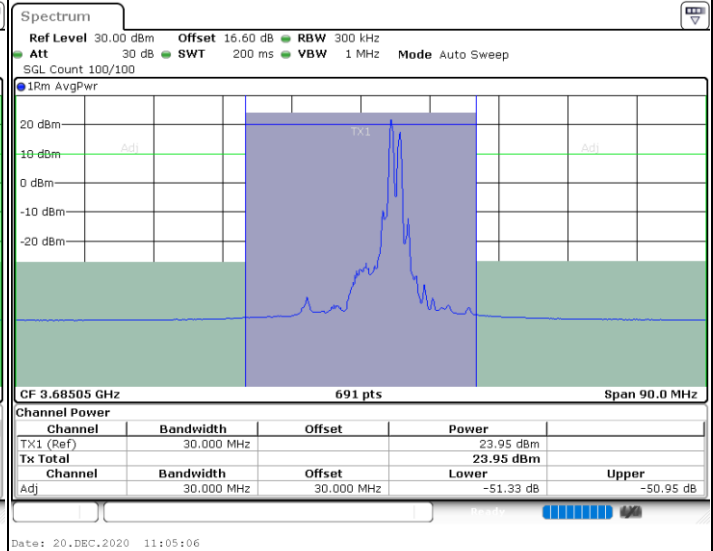
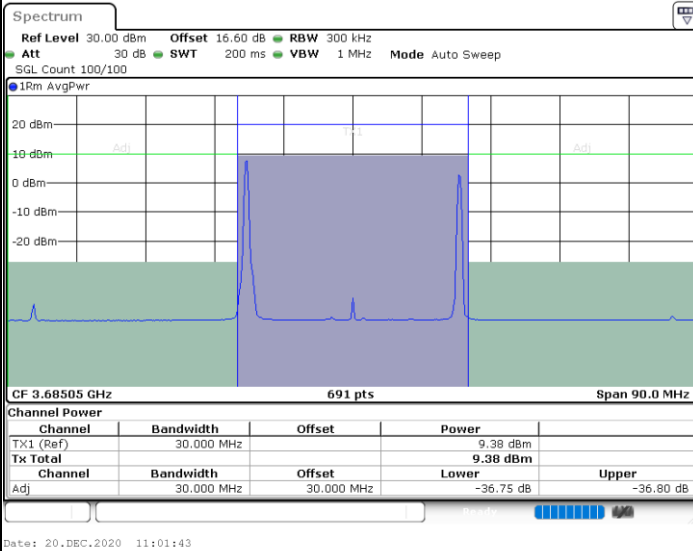


LTE Band 48C / 20MHz+10MHz

QPSK

Highest Channel / 1RB0 and 1RB49

Highest Channel / 1RB99 and 1RB0



Highest Channel / FullIRB

N/A



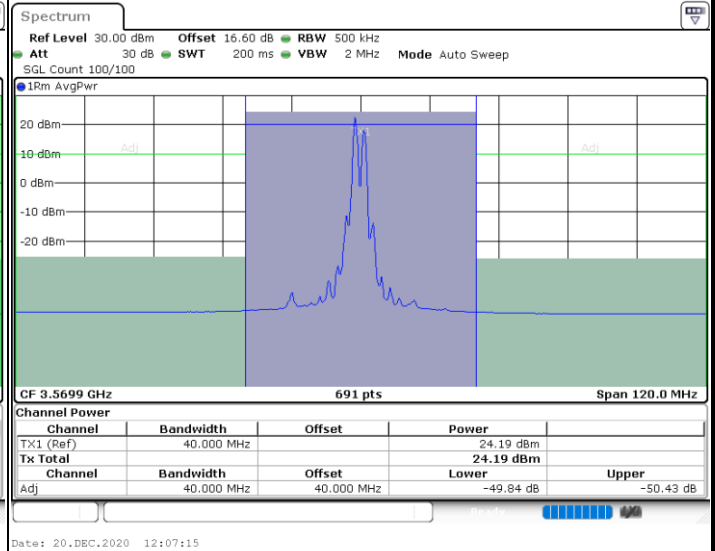
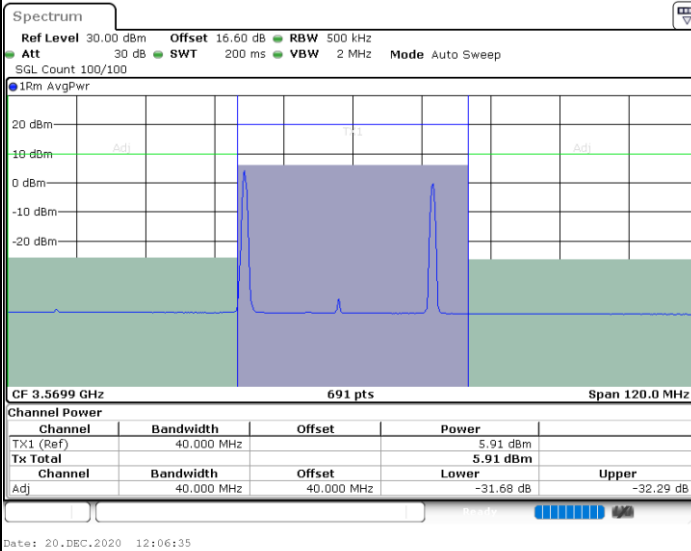


LTE Band 48C / 20MHz+15MHz

QPSK

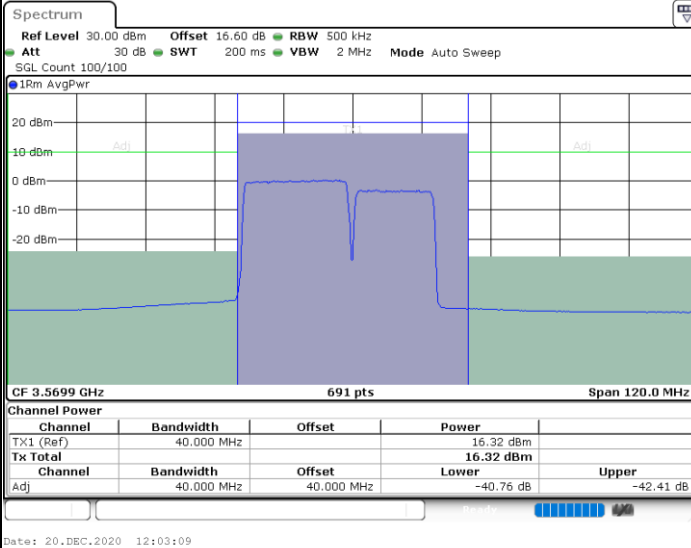
Lowest Channel / 1RB0 and 1RB74

Lowest Channel / 1RB99 and 1RB0



Lowest Channel / FullIRB

N/A



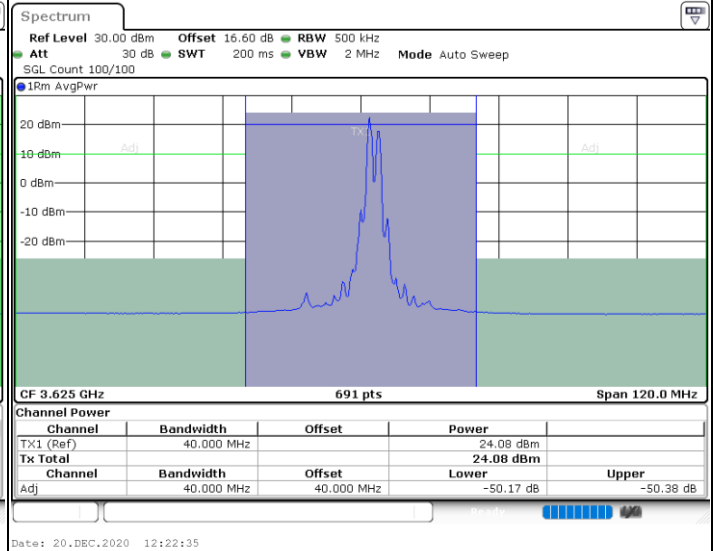
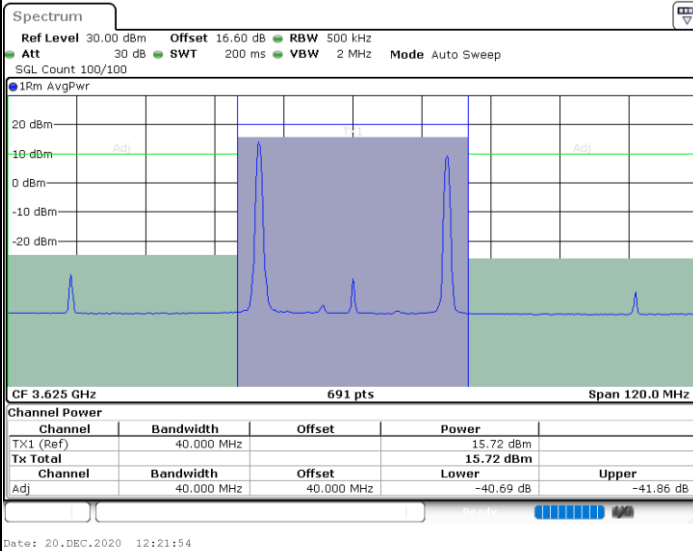


LTE Band 48C / 20MHz+15MHz

QPSK

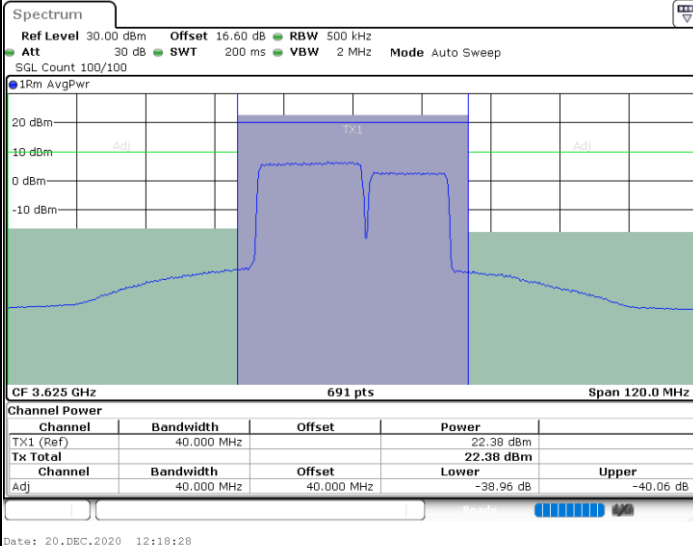
Middle Channel / 1RB0 and 1RB74

Middle Channel / 1RB99 and 1RB0



Middle Channel / FullRB

N/A



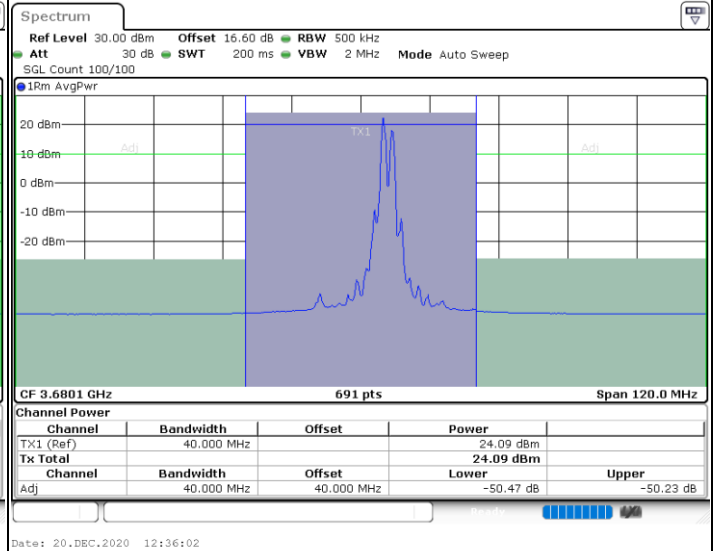
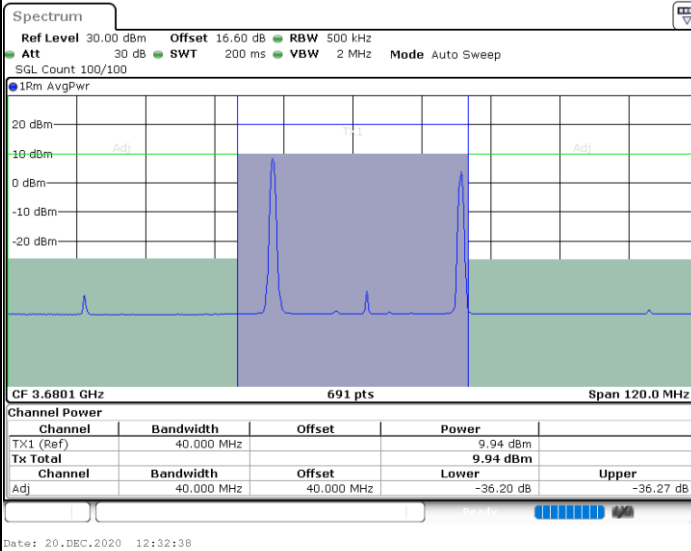


LTE Band 48C / 20MHz+15MHz

QPSK

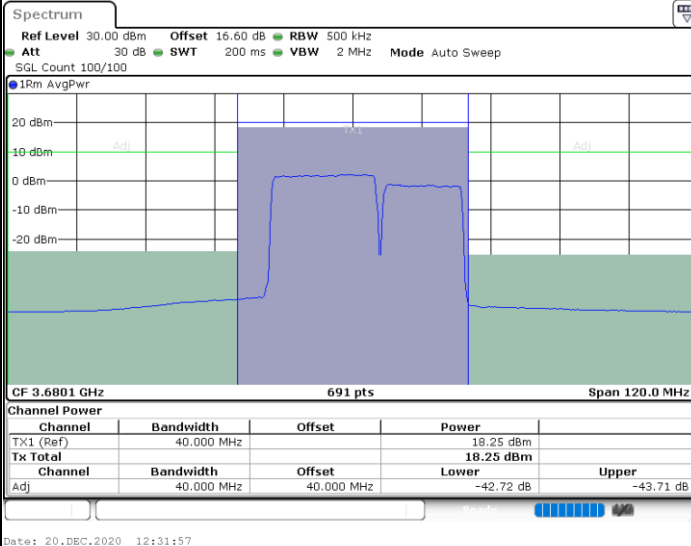
Highest Channel / 1RB0 and 1RB74

Highest Channel / 1RB99 and 1RB0



Highest Channel / FullIRB

N/A



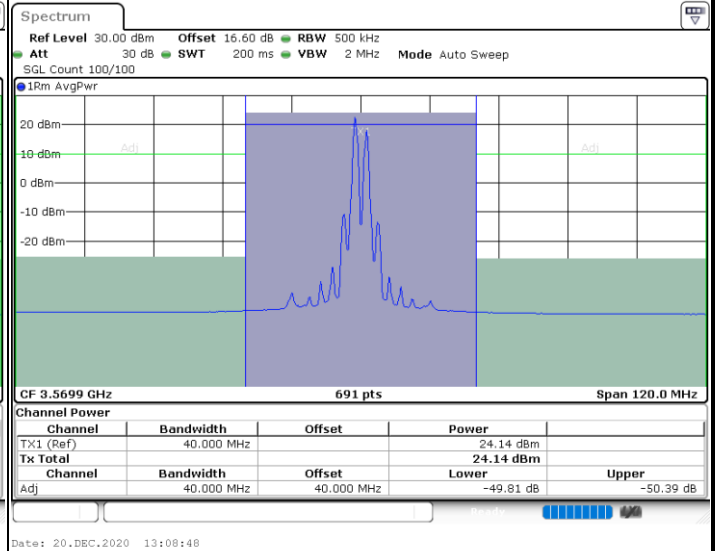
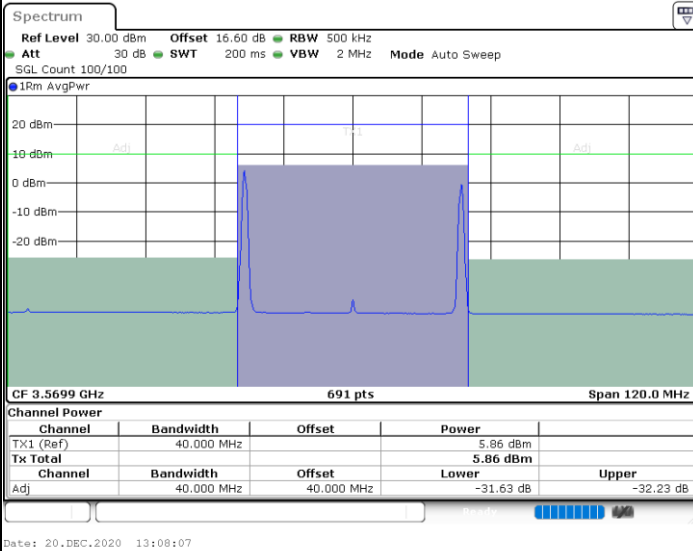


LTE Band 48C / 20MHz+20MHz

QPSK

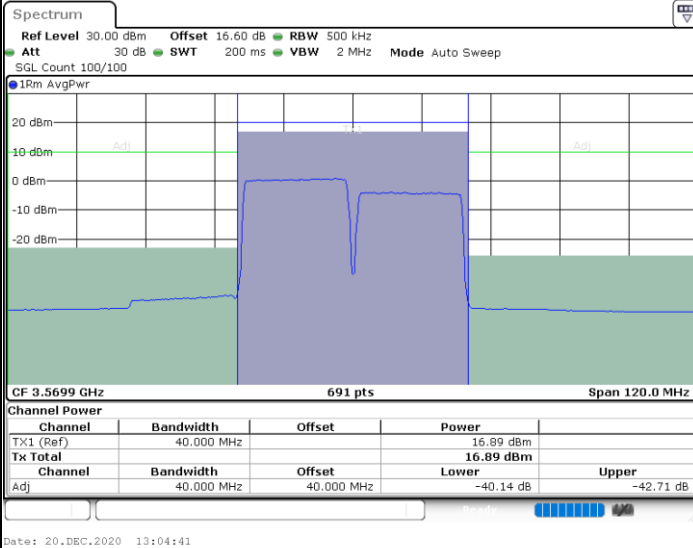
Lowest Channel / 1RB0 and 1RB99

Lowest Channel / 1RB99 and 1RB0



Lowest Channel / FullIRB

N/A



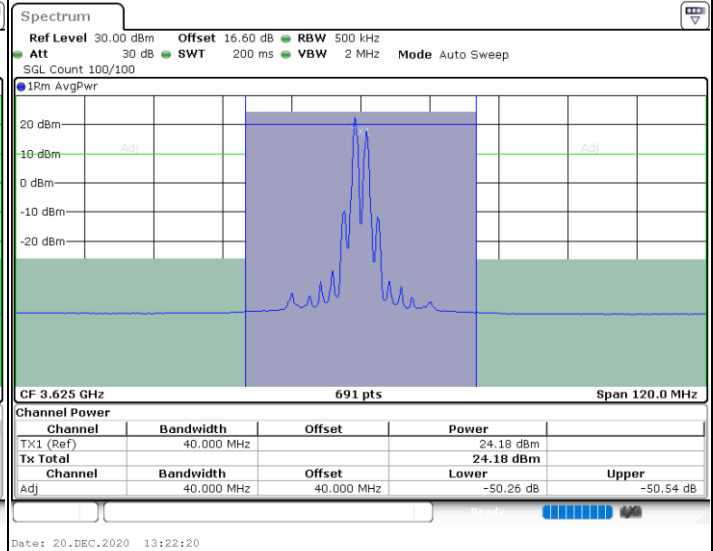
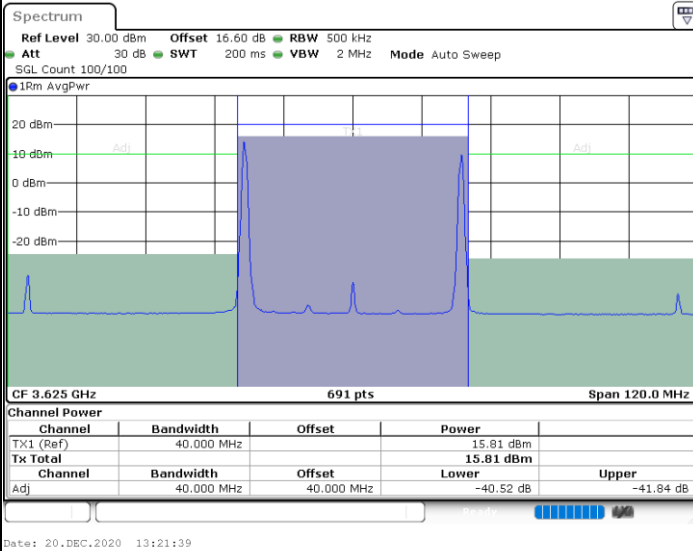


LTE Band 48C / 20MHz+20MHz

QPSK

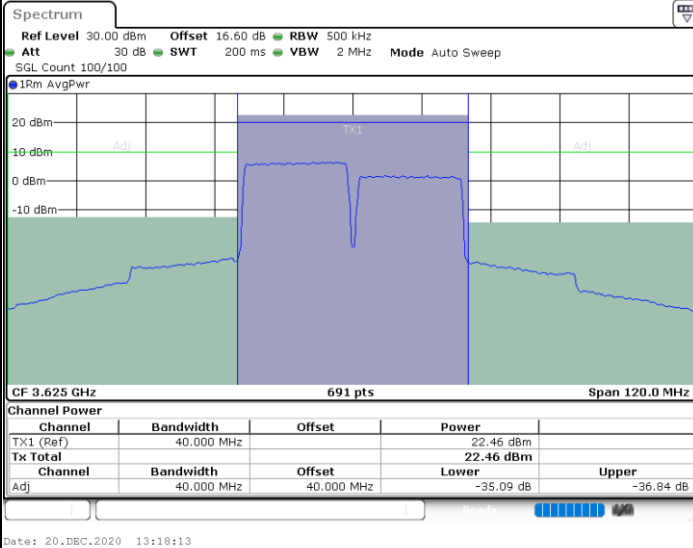
MiddleChannel / 1RB0 and 1RB99

Middle Channel / 1RB99 and 1RB0



Middle Channel / FullRB

N/A



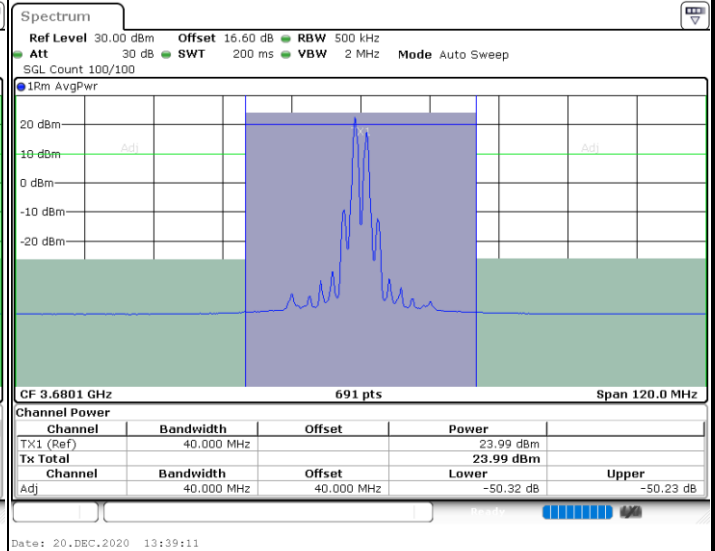
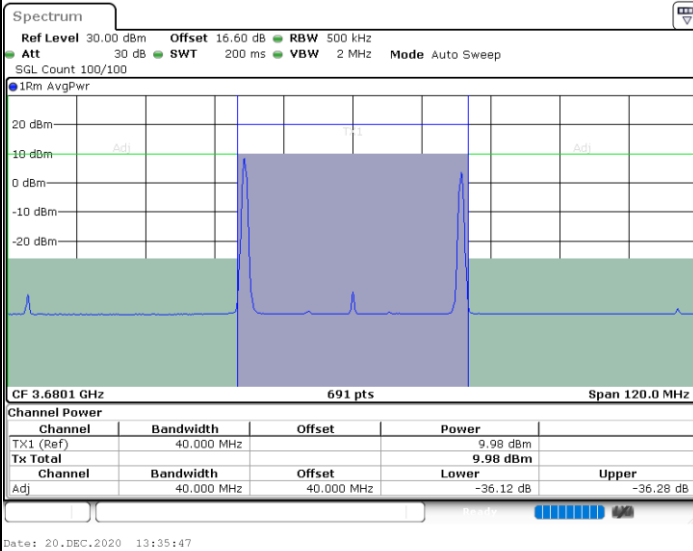


LTE Band 48C / 20MHz+20MHz

QPSK

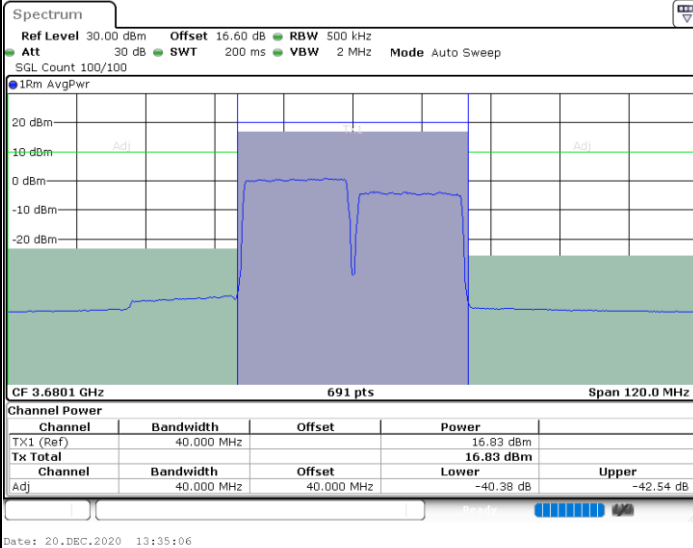
Highest Channel / 1RB0 and 1RB99

Highest Channel / 1RB99 and 1RB0



Highest Channel / FullIRB

N/A



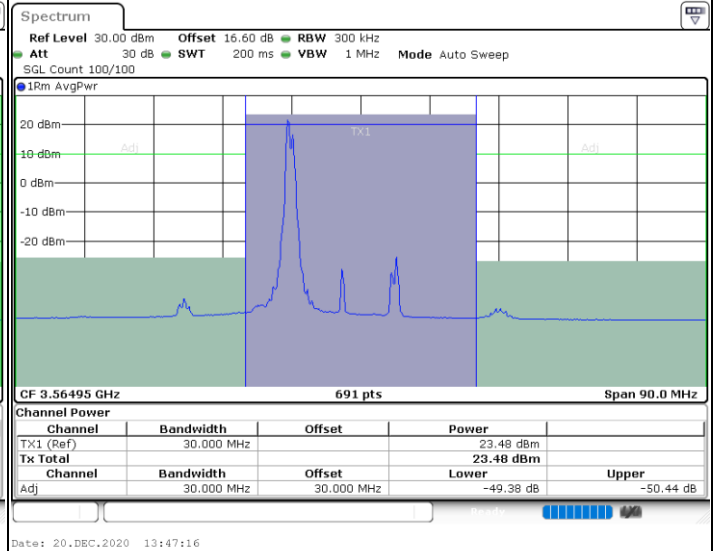
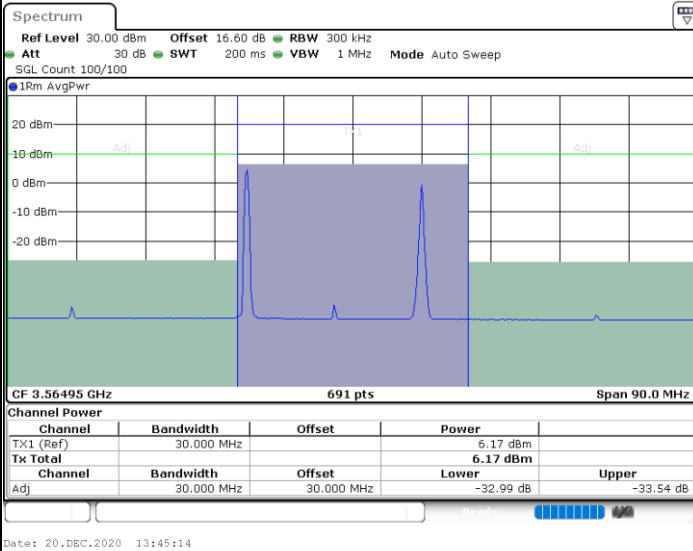


LTE Band 48C / 5MHz+20MHz

16QAM

Lowest Channel / 1RB0 and 1RB99

Lowest Channel / 1RB24 and 1RB0



Lowest Channel / FullIRB

N/A

