



# ELEMENT WASHINGTON DC LLC

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## PART 27 MEASUREMENT REPORT

**Applicant Name:**  
Samsung Electronics Co., Ltd.  
129, Samsung-ro,  
Yeongtong-gu, Suwon-si  
Gyeonggi-do, 16677, Korea

**Date of Testing:**  
5/30 - 8/4/2023  
**Test Report Issue Date:**  
8/9/2023  
**Test Site/Location:**  
Element Lab., Columbia, MD, USA  
**Test Report Serial No.:**  
1M2304260063-06.A3L

<b>FCC ID:</b>	<b>A3LSMS711B</b>
<b>APPLICANT:</b>	<b>Samsung Electronics Co., Ltd.</b>

**Application Type:** Certification  
**Model:** SM-S711B/DS  
**Additional Model(s):** SM-S711B  
**EUT Type:** Portable Handset  
**FCC Classification:** PCS Licensed Transmitter Held to Ear (PCE)  
**FCC Rule Part:** 27  
**Test Procedure(s):** ANSI C63.26-2015, KDB 648474 D03 v01r04

This equipment has been shown to be capable of compliance with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in §2.947. Test results reported herein relate only to the item(s) tested.

I attest to the accuracy of data. All measurements reported herein were performed by me or were made under my supervision and are correct to the best of my knowledge and belief. I assume full responsibility for the completeness of these measurements and vouch for the qualifications of all persons taking them.

**RJ Ortanez**  
Executive Vice President



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## MEASUREMENT REPORT

### FCC Part 27

Antenna-A								
Mode	Bandwidth	Modulation	Tx Frequency Range [MHz]	ERP		EIRP		Emission Designator
				Max. Power [W]	Max. Power [dBm]	Max. Power [W]	Max. Power [dBm]	
LTE Band 12/17	10 MHz	QPSK	704.0 - 711.0	0.085	19.28	0.139	21.43	9M04G7D
		16QAM	704.0 - 711.0	0.051	17.05	0.083	19.20	9M06W7D
	5 MHz	QPSK	701.5 - 713.5	0.083	19.21	0.137	21.36	4M55G7D
		16QAM	701.5 - 713.5	0.055	17.44	0.091	19.59	4M56W7D
LTE Band 12	3 MHz	QPSK	700.5 - 714.5	0.082	19.14	0.135	21.29	2M72G7D
		16QAM	700.5 - 714.5	0.051	17.04	0.083	19.19	2M73W7D
	1.4 MHz	QPSK	699.7 - 715.3	0.083	19.18	0.136	21.33	1M10G7D
		16QAM	699.7 - 715.3	0.050	17.01	0.082	19.16	1M10W7D
LTE Band 13	10 MHz	QPSK	782.0	0.096	19.82	0.157	21.97	9M04G7D
		16QAM	782.0	0.056	17.47	0.092	19.62	9M08W7D
	5 MHz	QPSK	779.5 - 784.5	0.103	20.14	0.169	22.29	4M55G7D
		16QAM	779.5 - 784.5	0.064	18.07	0.105	20.22	4M56W7D

**Overview Table (<1GHz Bands)**

Antenna-A						
Mode	Bandwidth	Modulation	Tx Frequency Range [MHz]	EIRP		Emission Designator
				Max. Power [W]	Max. Power [dBm]	
WCDMA1700	N/A	Spread Spectrum	1712.4 - 1752.6	0.167	22.22	4M20F9W
LTE Band 66/4	20 MHz	QPSK	1720.0 - 1770.0	0.171	22.34	18M0G7D
		16QAM	1720.0 - 1770.0	0.131	21.17	18M0W7D
		QPSK	1717.5 - 1772.5	0.168	22.24	13M5G7D
	15 MHz	16QAM	1717.5 - 1772.5	0.139	21.42	13M6W7D
		QPSK	1715.0 - 1775.0	0.162	22.11	9M07G7D
		16QAM	1715.0 - 1775.0	0.133	21.22	9M06W7D
	10 MHz	QPSK	1712.5 - 1777.5	0.159	22.02	4M55G7D
		16QAM	1712.5 - 1777.5	0.134	21.28	4M56W7D
	5 MHz	QPSK	1711.5 - 1778.5	0.159	22.02	2M73G7D
		16QAM	1711.5 - 1778.5	0.127	21.05	2M74W7D
	3 MHz	QPSK	1710.7 - 1779.3	0.162	22.09	1M10G7D
		16QAM	1710.7 - 1779.3	0.126	21.02	1M10W7D
NR Band n66	40 MHz	$\pi/2$ BPSK	1730.0 - 1760.0	0.198	22.96	39M0G7D
		QPSK	1730.0 - 1760.0	0.195	22.90	38M9G7D
		16QAM	1730.0 - 1760.0	0.157	21.97	38M8W7D
	30 MHz	$\pi/2$ BPSK	1725.0 - 1765.0	0.195	22.90	29M0G7D
		QPSK	1725.0 - 1765.0	0.190	22.78	28M9G7D
		16QAM	1725.0 - 1765.0	0.170	22.30	28M8W7D
	20 MHz	$\pi/2$ BPSK	1720.0 - 1770.0	0.197	22.94	18M0G7D
		QPSK	1720.0 - 1770.0	0.192	22.83	19M1G7D
		16QAM	1720.0 - 1770.0	0.171	22.33	19M0W7D
	15 MHz	$\pi/2$ BPSK	1717.5 - 1772.5	0.200	23.02	13M5G7D
		QPSK	1717.5 - 1772.5	0.186	22.70	14M2G7D
		16QAM	1717.5 - 1772.5	0.168	22.26	14M2W7D
	10 MHz	$\pi/2$ BPSK	1715.0 - 1775.0	0.193	22.86	9M01G7D
		QPSK	1715.0 - 1775.0	0.185	22.68	9M34G7D
		16QAM	1715.0 - 1775.0	0.164	22.15	9M36W7D
	5 MHz	$\pi/2$ BPSK	1712.5 - 1777.5	0.194	22.88	4M54G7D
		QPSK	1712.5 - 1777.5	0.189	22.77	4M53G7D
		16QAM	1712.5 - 1777.5	0.163	22.11	4M56W7D

**Overview Table (>1GHz Bands)**

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Antenna-F							
Mode	Bandwidth	Modulation	Tx Frequency Range [MHz]	EIRP		Emission Designator	
				Max. Power [W]	Max. Power [dBm]		
LTE Band 66/4	20 MHz	QPSK	1720.0 - 1770.0	0.119	20.75	17M9G7D	
		16QAM	1720.0 - 1770.0	0.116	20.65	17M9W7D	
	15 MHz	QPSK	1717.5 - 1772.5	0.119	20.75	13M5G7D	
		16QAM	1717.5 - 1772.5	0.116	20.63	13M5W7D	
	10 MHz	QPSK	1715.0 - 1775.0	0.118	20.73	9M01G7D	
		16QAM	1715.0 - 1775.0	0.117	20.70	9M03W7D	
	5 MHz	QPSK	1712.5 - 1777.5	0.117	20.67	4M51G7D	
		16QAM	1712.5 - 1777.5	0.115	20.60	4M54W7D	
	3 MHz	QPSK	1711.5 - 1778.5	0.117	20.67	2M71G7D	
		16QAM	1711.5 - 1778.5	0.114	20.58	2M72W7D	
	1.4 MHz	QPSK	1710.7 - 1779.3	0.117	20.68	1M10G7D	
		16QAM	1710.7 - 1779.3	0.115	20.61	1M10W7D	
	NR Band n66	40 MHz	$\pi/2$ BPSK	1730.0 - 1760.0	0.143	21.55	38M9G7D
			QPSK	1730.0 - 1760.0	0.138	21.39	38M9G7D
16QAM			1730.0 - 1760.0	0.113	20.52	38M7W7D	
30 MHz		$\pi/2$ BPSK	1725.0 - 1765.0	0.144	21.58	28M9G7D	
		QPSK	1725.0 - 1765.0	0.136	21.34	28M9G7D	
		16QAM	1725.0 - 1765.0	0.118	20.72	28M8W7D	
20 MHz		$\pi/2$ BPSK	1720.0 - 1770.0	0.140	21.47	18M0G7D	
		QPSK	1720.0 - 1770.0	0.136	21.33	19M1G7D	
		16QAM	1720.0 - 1770.0	0.116	20.66	19M0W7D	
15 MHz		$\pi/2$ BPSK	1717.5 - 1772.5	0.142	21.54	13M5G7D	
		QPSK	1717.5 - 1772.5	0.136	21.35	14M2G7D	
		16QAM	1717.5 - 1772.5	0.107	20.30	14M2W7D	
10 MHz		$\pi/2$ BPSK	1715.0 - 1775.0	0.142	21.53	9M09G7D	
		QPSK	1715.0 - 1775.0	0.138	21.39	9M34G7D	
		16QAM	1715.0 - 1775.0	0.117	20.68	9M33W7D	
5 MHz		$\pi/2$ BPSK	1712.5 - 1777.5	0.141	21.49	4M52G7D	
		QPSK	1712.5 - 1777.5	0.132	21.20	4M52G7D	
		16QAM	1712.5 - 1777.5	0.104	20.17	4M53W7D	

Overview Table (>1GHz Bands)

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## 1.0 INTRODUCTION

### 1.1 Scope

Measurement and determination of electromagnetic emissions (EMC) of radio frequency devices including intentional and/or unintentional radiators for compliance with the technical rules and regulations of the Federal Communications Commission and the Innovation, Science and Economic Development Canada.

### 1.2 Element Test Location

These measurement tests were conducted at the Element Laboratory located at 7185 Oakland Mills Road, Columbia, MD 21046. The measurement facility is compliant with the test site requirements specified in ANSI C63.4-2014.

### 1.3 Test Facility / Accreditations

**Measurements were performed at Element Lab located in Columbia, MD 21046, U.S.A.**

- Element Washington DC LLC is an ISO 17025-2017 accredited test facility under the American Association for Laboratory Accreditation (A2LA) with Certificate number 2041.01 for Specific Absorption Rate (SAR), Hearing Aid Compatibility (HAC) testing, where applicable, and Electromagnetic Compatibility (EMC) testing for FCC and Innovation, Science, and Economic Development Canada rules.
- Element Washington DC LLC TCB is a Telecommunication Certification Body (TCB) accredited to ISO/IEC 17065-2012 by A2LA (Certificate number 2041.03) in all scopes of FCC Rules and ISED Standards (RSS).
- Element Washington DC LLC facility is a registered (2451B) test laboratory with the site description on file with ISED.
- Element Washington DC LLC is a Recognized U.S. Certification Assessment Body (CAB # US0110) for ISED Canada as designated by NIST under the U.S. and Canada Mutual Recognition Agreement.

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## 2.0 PRODUCT INFORMATION

### 2.1 Equipment Description

The Equipment Under Test (EUT) is the **Samsung Portable Handset FCC ID: A3LSMS711B**. The test data contained in this report pertains only to the emissions due to the EUT's licensed transmitters that operate under the provisions of Part 27.

**Test Device Serial No.:** 0168M, 0073M, 1056M, 0874M, 1050, 0974M

### 2.2 Device Capabilities

This device contains the following capabilities:

850/1900 GSM/GPRS/EDGE, 850/1700/1900 WCDMA/HSPA, Multi-band LTE, Multi-band 5G NR (FR1), 802.11b/g/n/ax WLAN, 802.11a/n/ac/ax UNII (5GHz and 6GHz), Bluetooth (1x, EDR, LE), NFC, Wireless Power Transfer

This device uses a tuner circuit that dynamically updates the antenna impedance parameters to optimize antenna performance for certain bands and modes of operation. The tuner for this device was set to simulate a "free space" condition where the transmit antenna is matched to the medium into which it is transmitting and, thus, the power is at its maximum level.

Band	Ant1	Ant2
B12/17	ANT A	
B13	ANT A	
B66/4	ANT A	ANT F
WCDMA	ANT A	
N66	ANT A	ANT F

**Table 2-1. Antenna Naming Convention**

### 2.3 Test Configuration

The EUT was tested per the guidance of ANSI C63.26-2015. See Section 7.0 of this test report for a description of the radiated and antenna port conducted emissions tests.

This device supports wireless charging capability and, thus, is subject to the test requirements of KDB 648474 D03 v01r04. Additional radiated spurious emission measurements were performed with the EUT lying flat on an authorized wireless charging pad (WCP) Model: EP-N5100 while operating under normal conditions in a simulated call or data transmission configuration. The worst case radiated emissions data is shown in this report.

### 2.4 Software and Firmware

Testing was performed on device(s) using software/firmware version S711BXXU0\_0627\_0900\_devFull installed on the EUT.

### 2.5 EMI Suppression Device(s)/Modifications

No EMI suppression device(s) were added and no modifications were made during testing.

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## 3.0 DESCRIPTION OF TESTS

### 3.1 Evaluation Procedure

The measurement procedures described in the “American National Standard for Compliance Testing of Transmitters Used in Licensed Radio Services” (ANSI C63.26-2015) were used in the measurement of the EUT.

**Deviation from Measurement Procedure.....None**

### 3.2 Radiated Power and Radiated Spurious Emissions

The radiated test facilities consisted of an indoor 3 meter semi-anechoic chamber used for final measurements and exploratory measurements, when necessary. The measurement area is contained within the semi-anechoic chamber which is shielded from any ambient interference. The test site inside the chamber is a 6m x 5.2m elliptical, obstruction-free area in accordance with Figure 5.7 of Clause 5 in ANSI C63.4-2014. Absorbers are arranged on the floor between the turn table and the antenna mast in such a way so as to maximize the reduction of reflections for measurements above 1GHz. For measurements below 1GHz, the absorbers are removed. A raised turntable is used for radiated measurement. The turn table is a continuously rotatable, remote-controlled, metallic turntable and 2 meters (6.56 ft.) in diameter. The turn table is flush with the raised floor of the chamber in order to maintain its function as a ground plane. An 80cm tall test table made of Styrodur is placed on top of the turn table. A Styrodur pedestal is placed on top of the test table to bring the total table height to 1.5m.

The equipment under test was transmitting while connected to its integral antenna and is placed on a turntable 3 meters from the receive antenna. The receive antenna height is adjusted between 1 and 4 meter height, the turntable is rotated through 360 degrees, and the EUT is manipulated through all orthogonal planes representative of its typical use to achieve the highest reading on the receive spectrum analyzer.

For radiated power measurements, substitution method is used per the guidance of ANSI C63.26-2015. For emissions below 1GHz, a half-wave dipole is substituted in place of the EUT. For emissions above 1GHz, a horn antenna is substituted in place of the EUT. The substitute antenna is driven by a signal generator with the level of the signal generator being adjusted to obtain the same receive spectrum analyzer level previously recorded from the spurious emission from the EUT. The power of the emission is calculated using the following formula:

$$P_d [dBm] = P_g [dBm] - \text{cable loss} [dB] + \text{antenna gain} [dBd/dBi];$$

where  $P_d$  is the dipole equivalent power,  $P_g$  is the generator output into the substitution antenna, and the antenna gain is the gain of the substitute antenna used relative to either a half-wave dipole (dBd) or an isotropic source (dBi). The substitute level is equal to  $P_g [dBm] - \text{cable loss} [dB]$ .

For radiated spurious emissions measurements, the field strength conversion method is used per the formulas in Section 5.2.7 of ANSI C63.26-2015. Field Strength (EIRP) is calculated using the following formulas:

$$E_{[dB\mu V/m]} = \text{Measured amplitude level}_{[dBm]} + 107 + \text{Cable Loss}_{[dB]} + \text{Antenna Factor}_{[dB/m]}$$

And

$$\text{EIRP}_{[dBm]} = E_{[dB\mu V/m]} + 20\log D - 104.8; \text{ where } D \text{ is the measurement distance in meters.}$$

All radiated measurements are performed in a chamber that meets the site requirements per ANSI C63.4-2014. Additionally, radiated emissions below 30MHz are also validated on an Open Area Test Site to assert correlation with the chamber measurements per the requirements of KDB 414788 D01 v01r01.

Radiated power and radiated spurious emission levels are investigated with the receive antenna horizontally and vertically polarized per ANSI C63.26-2015.

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## 4.0 MEASUREMENT UNCERTAINTY

The measurement uncertainties shown below were calculated in accordance with the requirements of ANSI C63.4-2014. All measurement uncertainty values are shown with a coverage factor of  $k = 2$  to indicate a 95% level of confidence. The measurement uncertainty shown below meets or exceeds the  $U_{\text{CISPR}}$  measurement uncertainty values specified in CISPR 16-4-2 and, thus, can be compared directly to specified limits to determine compliance.

Contribution	Expanded Uncertainty ( $\pm$ dB)
Conducted Bench Top Measurements	1.13
Radiated Disturbance (<1GHz)	4.98
Radiated Disturbance (>1GHz)	5.07
Radiated Disturbance (>18GHz)	5.09

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## 5.0 TEST EQUIPMENT CALIBRATION DATA

Test Equipment Calibration is traceable to the National Institute of Standards and Technology (NIST). Measurements antennas used during testing were calibrated in accordance to the requirements of ANSI C63.5-2017.

Manufacturer	Model	Description	Cal Date	Cal Interval	Cal Due	Serial Number
-	AP2-001	EMC Cable and Switch System	1/11/2023	Annual	1/11/2024	AP2-001
-	AP2-002	EMC Cable and Switch System	1/11/2023	Annual	1/11/2024	AP2-002
-	ETS-001	EMC Cable and Switch System	1/11/2023	Annual	1/11/2024	ETS-001
-	ETS-002	EMC Cable and Switch System	1/11/2023	Annual	1/11/2024	ETS-002
-	LTX1	Licensed Transmitter Cable Set	1/12/2023	Annual	1/12/2024	LTX1
-	LTX2	Licensed Transmitter Cable Set	1/12/2023	Annual	1/12/2024	LTX2
-	LTX3	Licensed Transmitter Cable Set	1/12/2023	Annual	1/12/2024	LTX3
-	LTX4	Licensed Transmitter Cable Set	1/12/2023	Annual	1/12/2024	LTX4
-	LTX5	Licensed Transmitter Cable Set	1/12/2023	Annual	1/12/2024	LTX5
Anritsu	MT8821C	Radio Communication Analyzer	N/A			620152694
EMCO	3115	Horn Antenna (1-18GHz)	8/8/2022	Biennial	8/8/2024	9704-5182
EMCO	3116	Horn Antenna (18-40GHz)	7/20/2021	Biennial	8/30/2023	9203-2178
Keysight Technologies	N9030A	PXA Signal Analyzer (3Hz-26.5GHz)	9/6/2022	Annual	9/6/2023	MYS4490576
Keysight Technologies	N9030A	PXA Signal Analyzer (44GHz)	3/15/2023	Annual	3/15/2024	MYS2350166
Rohde & Schwarz	CMW500	Radio Communication Tester	N/A			112347
Rohde & Schwarz	TC-TA18	Cross Polarized Vivaldi Test Antenna	9/28/2022	Biennial	9/28/2024	101058
Rohde & Schwarz	ESU26	EMI Test Receiver (26.5GHz)	8/29/2022	Annual	8/29/2023	100342
Rohde & Schwarz	ESW44	EMI Test Receiver (2Hz-44GHz)	3/1/2023	Annual	3/1/2024	101716
Rohde & Schwarz	VULB9162	Bi-Log Antenna	2/21/2023	Biennial	2/21/2025	00301
Sunol	JB5	Bi-Log Antenna (30M - 5GHz)	8/30/2022	Biennial	8/30/2024	A051107

**Table 5-1. Test Equipment**

**Notes:**

1. For equipment listed above that has a calibration date or calibration due date that falls within the test date range, care was taken to ensure that this equipment was used after the calibration date and before the calibration due date.
2. Equipment with a calibration date of "N/A" shown in this list was not used to make direct calibrated measurements.

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## 6.0 SAMPLE CALCULATIONS

### Emission Designator

#### QPSK Modulation

Emission Designator = 8M62G7D

LTE BW = 8.62 MHz

G = Phase Modulation

7 = Quantized/Digital Info

D = Data transmission, telemetry, telecommand

#### QAM Modulation

Emission Designator = 8M45W7D

LTE BW = 8.45 MHz

W = Amplitude/Angle Modulated

7 = Quantized/Digital Info

D = Data transmission, telemetry, telecommand

### Spurious Radiated Emission – LTE Band

#### **Example: Middle Channel LTE Mode 2<sup>nd</sup> Harmonic (1564 MHz)**

The average spectrum analyzer reading at 3 meters with the EUT on the turntable was  $-81.0$  dBm. The gain of the substituted antenna is 8.1 dBi. The signal generator connected to the substituted antenna terminals is adjusted to produce a reading of  $-81.0$  dBm on the spectrum analyzer. The loss of the cable between the signal generator and the terminals of the substituted antenna is 2.0 dB at 1564 MHz. So 6.1 dB is added to the signal generator reading of  $-30.9$  dBm yielding  $-24.80$  dBm. The fundamental EIRP was 25.501 dBm so this harmonic was 25.501 dBm  $- (-24.80)$ .

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## 7.0 TEST RESULTS

### 7.1 Summary

Company Name: Samsung Electronics Co., Ltd.  
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 FCC Classification: PCS Licensed Transmitter Held to Ear (PCE)  
 Mode(s): WCDMA/NR/LTE

Test Condition	Test Description	FCC Part Section(s)	Test Limit	Test Result	Reference
<b>CONDUCTED</b>	Transmitter Conducted Output Power *	2.1046(a), 2.1046(c)	N/A	PASS	Section 7.2
	Occupied Bandwidth	2.1049(h)	N/A	PASS	Section 7.3
	Conducted Band Edge / Spurious Emissions (LTE Band 13)	2.1051, 27.53(c), 27.53(f)	Undesirable emissions must meet the limits detailed in sections 27.53(c) and 27.53(f)	PASS	Sections 7.4, 7.5
	Conducted Band Edge / Spurious Emissions (LTE Band 12, 17)	2.1051, 27.53(g)	$\geq 43 + 10 \log (P[\text{Watts}])$ dB of attenuation below transmitter power	PASS	Sections 7.4, 7.5
	Conducted Band Edge / Spurious Emissions (WCDMA AWS; LTE Band 4, 66; NR Band n66)	2.1051, 27.53(h)	$\geq 43 + 10 \log (P[\text{Watts}])$ dB of attenuation below transmitter power	PASS	Sections 7.4, 7.5
	Peak-to-Average Ratio (WCDMA AWS; LTE Band 4, 66; NR Band n66)	27.50(d)(5)	$\leq 13$ dB	PASS	Section 7.6
	Frequency Stability	2.1055, 27.54	Fundamental emissions stay within authorized frequency block	PASS	Section 7.9
<b>RADIATED</b>	Effective Radiated Power (LTE Band 13)	27.50(b)(10)	$\leq 3$ Watts max. ERP	PASS	Section 7.7
	Effective Radiated Power (LTE Band 12, 17)	27.50(c)(10)	$\leq 3$ Watts max. ERP	PASS	Section 7.7
	Equivalent Isotropic Radiated Power (WCDMA AWS; LTE Band 4, 66; NR Band n66)	27.50(d)(4)	$\leq 1$ Watt max. EIRP	PASS	Section 7.7
	Radiated Spurious Emissions (LTE Band 13)	2.1053, 27.53(c), 27.53(f)	Undesirable emissions must meet the limits detailed in sections 27.53(c) and 27.53(f)	PASS	Section 7.8
	Radiated Spurious Emissions (LTE Band 12, 17)	2.1053, 27.53(g)	$\geq 43 + 10 \log (P[\text{Watts}])$ dB of attenuation below transmitter power	PASS	Section 7.8
	Radiated Spurious Emissions (WCDMA AWS; LTE Band 4, 66; NR Band n66)	2.1053, 27.53(h)(1)	$\geq 43 + 10 \log (P[\text{Watts}])$ dB of attenuation below transmitter power	PASS	Section 7.8

\* The only transmitter output conducted powers included in this report are those where the Pmax value, per the tune-up document, is higher than any of the DSI power levels. For the remaining conducted power measurements, see the **RF Exposure Report**.

**Table 7-1. Summary of Test Results (FCC)**

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**Notes:**

- 1) All modes of operation and data rates were investigated. The test results shown in the following sections represent the worst case emissions.
- 2) The analyzer plots shown in Section 7.0 were taken with a correction table loaded into the analyzer. The correction table was used to account for the losses of the cables, directional couplers, and attenuators used as part of the system to maintain a link between the call box and the EUT at all frequencies of interest.
- 3) All antenna port conducted emissions testing was performed on a test bench with the antenna port of the EUT connected to the spectrum analyzer through calibrated cables, attenuators, and couplers.
- 4) For conducted spurious emissions, automated test software was used to measure emissions and capture the corresponding plots necessary to show compliance. The measurement software utilized is EMC Software Tool v1.0.

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## 7.2 Conducted Output Power Data

### Test Overview

All emissions are measured with a spectrum analyzer connected to the antenna terminal of the EUT while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies. All data rates were investigated to determine the worst-case configuration. All modes of operation were investigated and the worst-case configuration results are reported in this section.

### Test Procedure Used

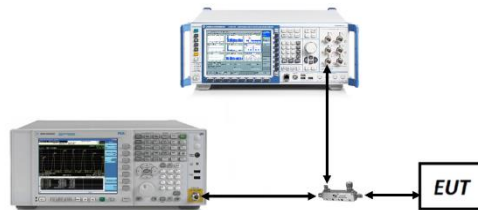
ANSI C63.26-2015 – Section 5.2

### Test Settings

1. Detector = RMS
2. Trace mode = trace average for continuous emissions, max hold for pulse emissions
3. Sweep time = auto couple
4. The trace was allowed to stabilize
5. Please see test notes below for RBW and VBW settings

### Test Setup

The EUT and measurement equipment were set up as shown in the diagram below.



**Figure 7-1. Test Instrument & Measurement Setup**

### Test Notes

1. Conducted power measurements were evaluated using various combinations of RB size, RB offset, modulation, and channel bandwidth. Channel bandwidth data is shown in the tables below based only on the channel bandwidths that were supported in this device.
2. All other conducted power measurements are contained in the RF exposure report for this filing.

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3GPP Release Version	Mode	3GPP 34.121 Subtest	AWS Band [dBm]		
			1312	1412	1513
99	WCDMA	12.2 kbps RMC	23.11	23.12	23.10

**Table 7-2. Conducted Power Test Results – WCDMA AWS**

Bandwidth	Modulation	Channel	Frequency [MHz]	RB Size/Offset	Conducted Power [dBm]
20 MHz	QPSK	132072	1720.0	1 / 0	24.45
		132322	1745.0	1 / 0	24.41
		132572	1770.0	1 / 99	24.30
	16-QAM	132072	1720.0	1 / 50	23.37
15 MHz	QPSK	132047	1717.5	1 / 37	24.36
		132322	1745.0	1 / 37	24.40
		132597	1772.5	1 / 37	24.25
	16-QAM	132047	1717.5	1 / 37	23.62
10 MHz	QPSK	132022	1715.0	1 / 49	24.22
		132322	1745.0	1 / 25	24.19
		132622	1775.0	1 / 49	24.18
	16-QAM	132022	1715.0	1 / 25	23.43
5 MHz	QPSK	131997	1712.5	1 / 24	24.13
		132322	1745.0	1 / 0	24.29
		132647	1777.5	1 / 12	24.20
	16-QAM	131997	1712.5	1 / 12	23.49
3 MHz	QPSK	131987	1711.5	1 / 7	24.13
		132322	1745.0	1 / 7	24.41
		132657	1778.5	1 / 14	24.17
	16-QAM	131987	1711.5	1 / 0	23.26
1.4 MHz	QPSK	131979	1710.7	1 / 5	24.20
		132322	1745.0	1 / 5	24.06
		132665	1779.3	1 / 5	24.14
	16-QAM	131979	1710.7	1 / 3	23.22

**Table 7-3. Conducted Power Test Results - LTE B66/4 - Ant1**

FCC ID: A3LSMS711B	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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Bandwidth	Modulation	Channel	Frequency [MHz]	RB Size/Offset	Conducted Power [dBm]
40 MHz	π/2 BPSK	346000	1730.0	1 / 108	24.32
		349000	1745.0	1 / 108	24.17
		352000	1760.0	1 / 108	24.24
	QPSK	346000	1730.0	1 / 108	24.42
		349000	1745.0	1 / 108	24.26
		352000	1760.0	1 / 108	24.30
16-QAM	346000	1730.0	1 / 108	23.08	
30 MHz	π/2 BPSK	345000	1725.0	1 / 80	24.26
		349000	1745.0	1 / 40	24.30
		353000	1765.0	1 / 80	24.34
	QPSK	345000	1725.0	1 / 80	24.30
		349000	1745.0	1 / 40	24.37
		353000	1765.0	1 / 80	24.47
16-QAM	345000	1725.0	1 / 80	23.41	
20 MHz	π/2 BPSK	344000	1720.0	1 / 53	24.30
		349000	1745.0	1 / 53	24.33
		354000	1770.0	1 / 26	24.37
	QPSK	344000	1720.0	1 / 53	24.35
		349000	1745.0	1 / 53	24.27
		354000	1770.0	1 / 26	24.21
16-QAM	344000	1720.0	1 / 53	23.44	
15 MHz	π/2 BPSK	343500	1717.5	1 / 39	24.38
		349000	1745.0	1 / 58	24.26
		354500	1772.5	1 / 58	24.26
	QPSK	343500	1717.5	1 / 58	24.22
		349000	1745.0	1 / 58	24.23
		354500	1772.5	1 / 58	24.16
16-QAM	343500	1717.5	1 / 58	23.37	
10 MHz	π/2 BPSK	343000	1715.0	1 / 38	24.23
		349000	1745.0	1 / 26	24.43
		355000	1775.0	1 / 26	24.26
	QPSK	343000	1715.0	1 / 38	24.20
		349000	1745.0	1 / 26	24.41
		355000	1775.0	1 / 26	24.16
16-QAM	343000	1715.0	1 / 38	23.26	
5 MHz	π/2 BPSK	342500	1712.5	1 / 12	24.24
		349000	1745.0	1 / 12	24.40
		355500	1777.5	1 / 18	24.28
	QPSK	342500	1712.5	1 / 12	24.29
		349000	1745.0	1 / 12	24.45
		355500	1777.5	1 / 18	24.21
16-QAM	342500	1712.5	1 / 12	23.23	

**Table 7-4. Conducted Power Test Results - NR n66 - Ant1**

FCC ID: A3LSMS711B	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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Bandwidth	Modulation	Channel	Frequency [MHz]	RB Size/Offset	Conducted Power [dBm]
20 MHz	QPSK	132072	1720.0	1 / 0	22.79
		132322	1745.0	100 / 0	22.81
		132572	1770.0	1 / 0	22.81
	16-QAM	132322	1745.0	1 / 0	22.95
15 MHz	QPSK	132047	1717.5	1 / 0	22.82
		132322	1745.0	75 / 0	22.77
		132597	1772.5	75 / 0	22.84
	16-QAM	132322	1745.0	1 / 0	23.11
10 MHz	QPSK	132022	1715.0	1 / 0	22.88
		132322	1745.0	50 / 0	22.79
		132622	1775.0	1 / 0	22.91
	16-QAM	132322	1745.0	1 / 0	22.99
5 MHz	QPSK	131997	1712.5	25 / 0	22.80
		132322	1745.0	25 / 0	22.73
		132647	1777.5	1 / 0	22.87
	16-QAM	132322	1745.0	1 / 12	22.89
3 MHz	QPSK	131987	1711.5	1 / 0	22.79
		132322	1745.0	15 / 0	22.73
		132657	1778.5	1 / 14	22.55
	16-QAM	132322	1745.0	1 / 14	22.87
1.4 MHz	QPSK	131979	1710.7	1 / 5	22.73
		132322	1745.0	1 / 5	22.76
		132665	1779.3	1 / 5	22.53
	16-QAM	132322	1745.0	1 / 0	23.00

Table 7-5. Conducted Power Test Results - LTE B66/4 – Ant2

FCC ID: A3LSMS711B	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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Bandwidth	Modulation	Channel	Frequency [MHz]	RB Size/Offset	Conducted Power [dBm]
40 MHz	π/2 BPSK	346000	1730.0	1 / 108	23.96
		349000	1745.0	1 / 108	23.98
		352000	1760.0	1 / 108	23.95
	QPSK	346000	1730.0	1 / 108	23.93
		349000	1745.0	1 / 161	23.95
		352000	1760.0	1 / 108	23.97
	16-QAM	352000	1760.0	1 / 108	22.99
30 MHz	π/2 BPSK	345000	1725.0	1 / 80	23.92
		349000	1745.0	1 / 80	23.98
		353000	1765.0	1 / 80	23.98
	QPSK	345000	1725.0	1 / 80	23.89
		349000	1745.0	1 / 80	23.95
		353000	1765.0	1 / 80	23.93
	16-QAM	353000	1765.0	1 / 80	23.19
20 MHz	π/2 BPSK	344000	1720.0	1 / 79	23.88
		349000	1745.0	1 / 53	23.95
		354000	1770.0	1 / 26	23.87
	QPSK	344000	1720.0	1 / 79	23.92
		349000	1745.0	1 / 53	23.94
		354000	1770.0	1 / 26	23.91
	16-QAM	354000	1770.0	1 / 26	23.13
15 MHz	π/2 BPSK	343500	1717.5	1 / 58	23.66
		349000	1745.0	1 / 39	23.91
		354500	1772.5	1 / 20	23.94
	QPSK	343500	1717.5	1 / 58	23.79
		349000	1745.0	1 / 39	23.94
		354500	1772.5	1 / 20	23.94
	16-QAM	354500	1772.5	1 / 20	22.77
10 MHz	π/2 BPSK	343000	1715.0	1 / 38	23.59
		349000	1745.0	1 / 26	23.89
		355000	1775.0	1 / 13	23.93
	QPSK	343000	1715.0	1 / 38	23.72
		349000	1745.0	1 / 26	23.88
		355000	1775.0	1 / 13	23.98
	16-QAM	355000	1775.0	1 / 13	23.16
5 MHz	π/2 BPSK	342500	1712.5	1 / 6	23.54
		349000	1745.0	1 / 12	23.91
		355500	1777.5	1 / 12	23.89
	QPSK	342500	1712.5	1 / 6	23.63
		349000	1745.0	1 / 12	23.91
		355500	1777.5	1 / 12	23.79
	16-QAM	349000	1745.0	1 / 12	23.13

**Table 7-6. Conducted Power Test Results - NR n66 – Ant2**

FCC ID: A3LSMS711B	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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### 7.3 Occupied Bandwidth

#### Test Overview

The occupied bandwidth, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 percent of the total mean power radiated by a given emission shall be measured. All modes of operation were investigated and the worst-case configuration results are reported in this section.

#### Test Procedure Used

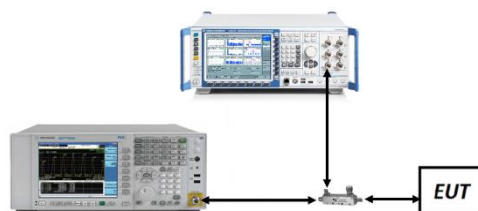
ANSI C63.26-2015 – Section 5.4.4

#### Test Settings

1. The signal analyzer's automatic bandwidth measurement capability was used to perform the 99% occupied bandwidth and the 26dB bandwidth. The bandwidth measurement was not influenced by any intermediate power nulls in the fundamental emission.
2. RBW = 1 – 5% of the expected OBW
3. VBW  $\geq 3 \times$  RBW
4. Detector = Peak
5. Trace mode = max hold
6. Sweep = auto couple
7. The trace was allowed to stabilize
8. If necessary, steps 2 – 7 were repeated after changing the RBW such that it would be within 1 – 5% of the 99% occupied bandwidth observed in Step 7

#### Test Setup

The EUT and measurement equipment were set up as shown in the diagram below.



**Figure 7-2. Test Instrument & Measurement Setup**

#### Test Notes

None.

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Mode	Bandwidth	Modulation	OBW [MHz]
LTE Band 12/17	10 MHz	QPSK	9.04
		16QAM	9.06
	5 MHz	QPSK	4.55
		16QAM	4.56
	3 MHz	QPSK	2.72
		16QAM	2.73
	1.4 MHz	QPSK	1.10
		16QAM	1.10
LTE Band 13	10 MHz	QPSK	9.04
		16QAM	9.08
	5 MHz	QPSK	4.55
		16QAM	4.56

**Table 7-7. Occupied Bandwidth Test Results – Ant1**

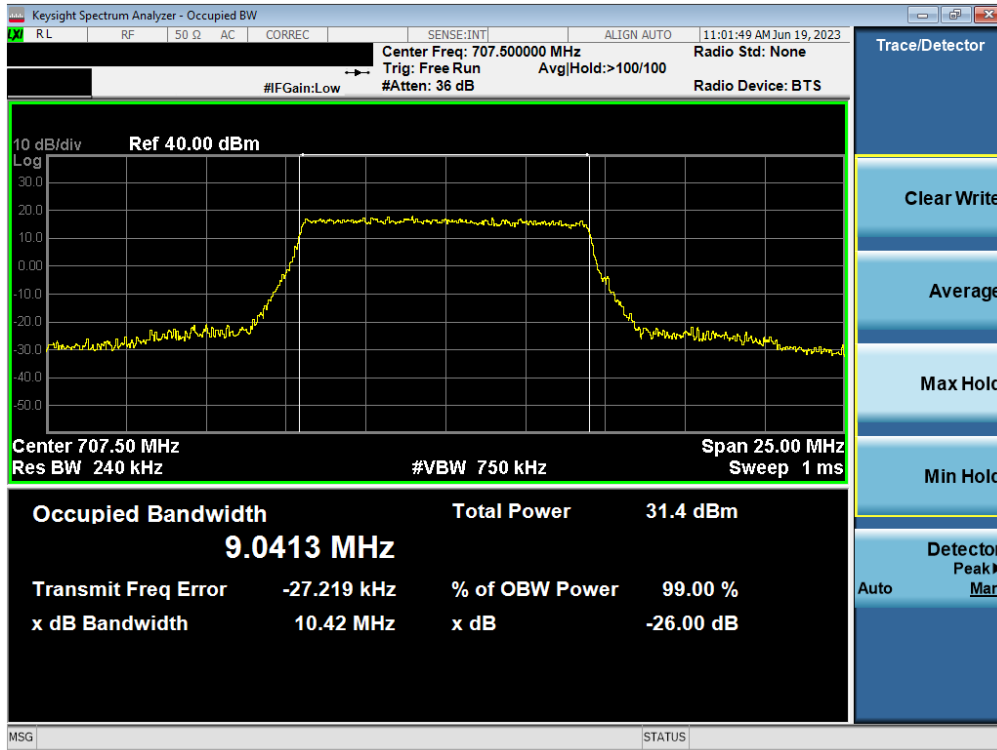
<b>FCC ID:</b> A3LSMS711B	<b>PART 27 MEASUREMENT REPORT</b>		<b>Approved by:</b> Technical Manager
<b>Test Report S/N:</b> 1M2304260063-06.A3L	<b>Test Dates:</b> 5/30 - 8/4/2023	<b>EUT Type:</b> Portable Handset	Page 19 of 142

Mode	Bandwidth	Modulation	OBW [MHz]	
WCDMA1700	N/A	N/A	4.20	
LTE Band 66/4	20 MHz	QPSK	18.04	
		16QAM	18.04	
	15 MHz	QPSK	13.54	
		16QAM	13.57	
	10 MHz	QPSK	9.07	
		16QAM	9.06	
	5 MHz	QPSK	4.55	
		16QAM	4.56	
	3 MHz	QPSK	2.73	
		16QAM	2.74	
	1.4 MHz	QPSK	1.10	
		16QAM	1.10	
	NR Band n66	40 MHz	$\pi/2$ BPSK	39.04
			QPSK	38.90
16QAM			38.83	
30 MHz		$\pi/2$ BPSK	28.97	
		QPSK	28.86	
		16QAM	28.75	
20 MHz		$\pi/2$ BPSK	17.98	
		QPSK	19.09	
		16QAM	19.05	
15 MHz		$\pi/2$ BPSK	13.53	
		QPSK	14.18	
		16QAM	14.22	
10 MHz		$\pi/2$ BPSK	9.01	
		QPSK	9.34	
		16QAM	9.36	
5 MHz		$\pi/2$ BPSK	4.54	
		QPSK	4.53	
		16QAM	4.56	

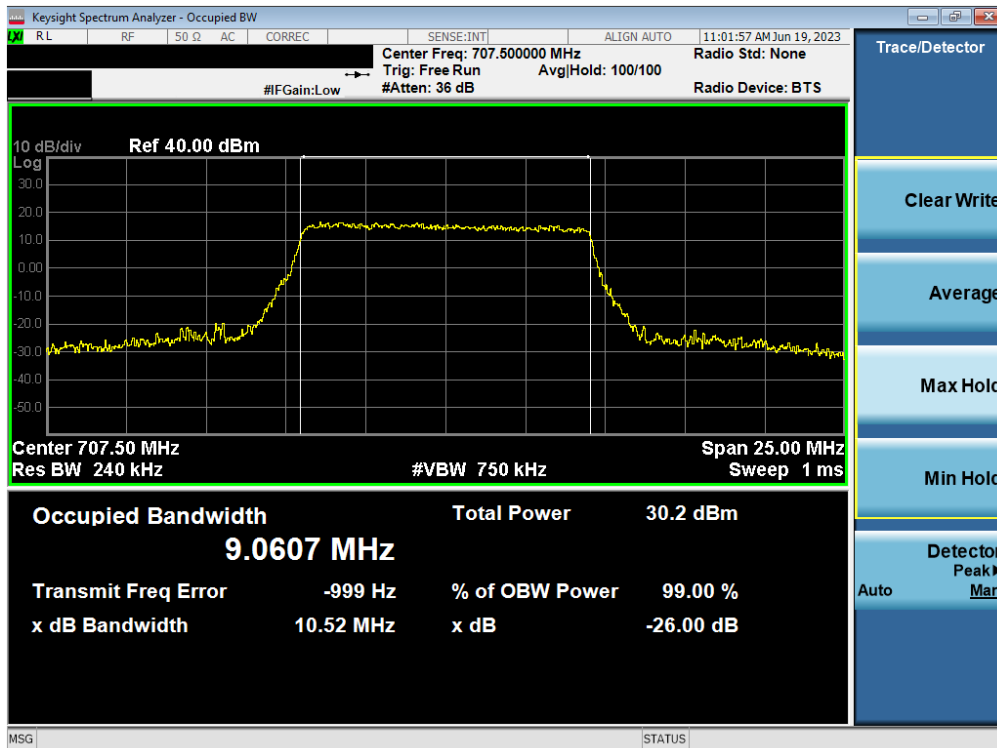
**Table 7-8. Occupied Bandwidth Test Results – Ant1**

FCC ID: A3LSMS711B	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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### LTE Band 12/17 – Ant1

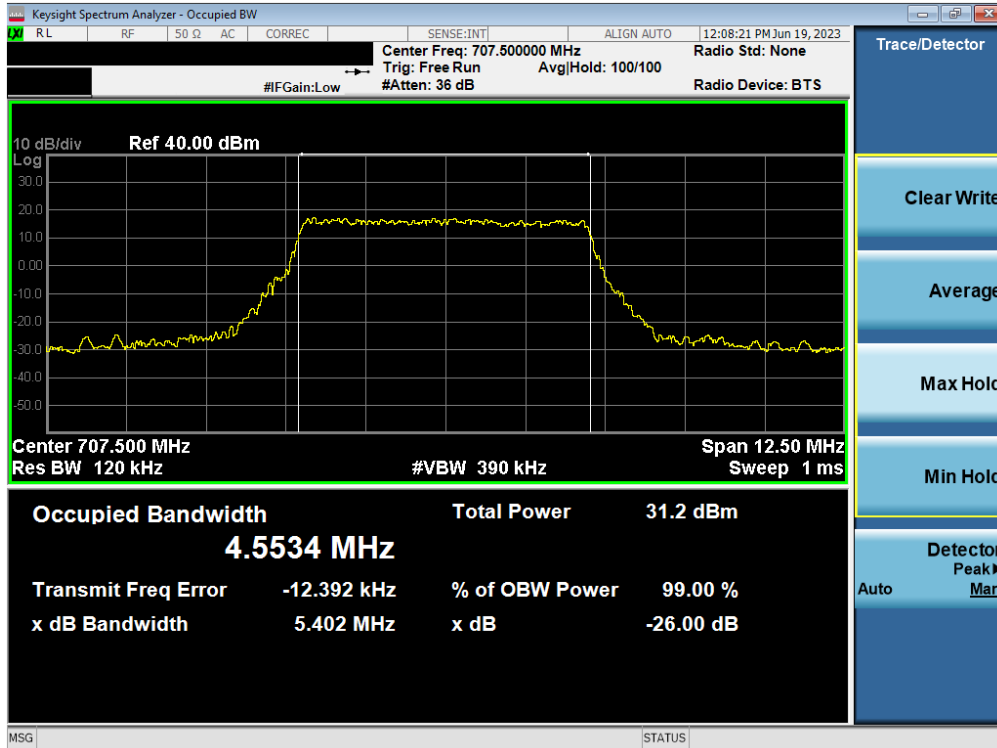


Plot 7-1. Occupied Bandwidth Plot (LTE Band 12/17 - 10MHz QPSK - Full RB – Ant1)

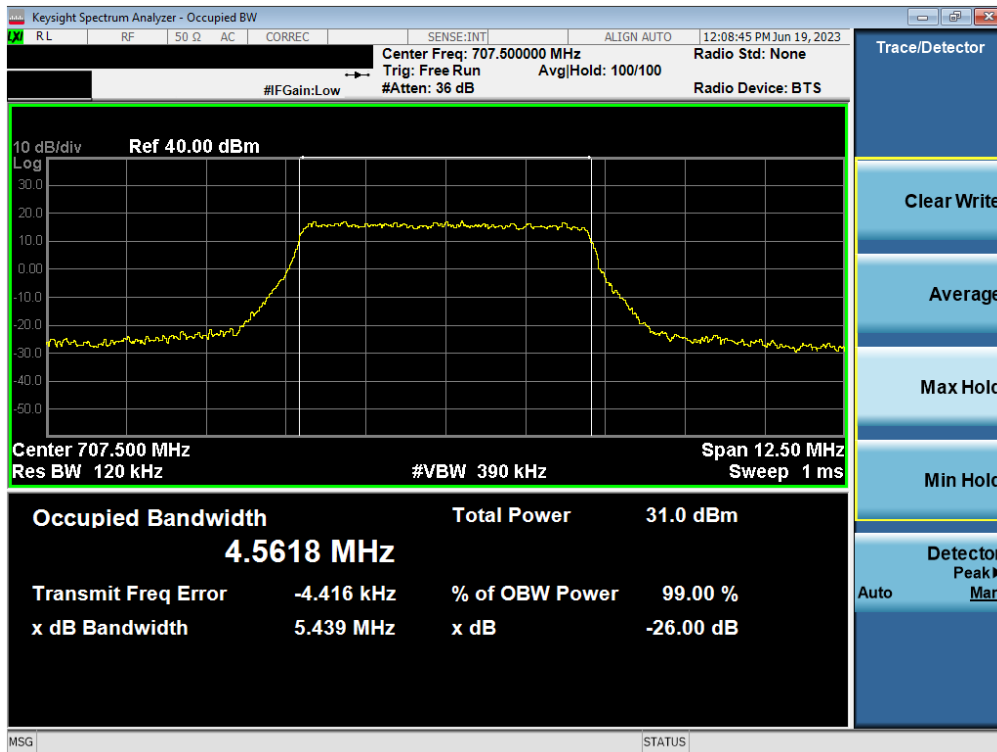


Plot 7-2. Occupied Bandwidth Plot (LTE Band 12/17 - 10MHz 16-QAM - Full RB – Ant1)

FCC ID: A3LSMS711B	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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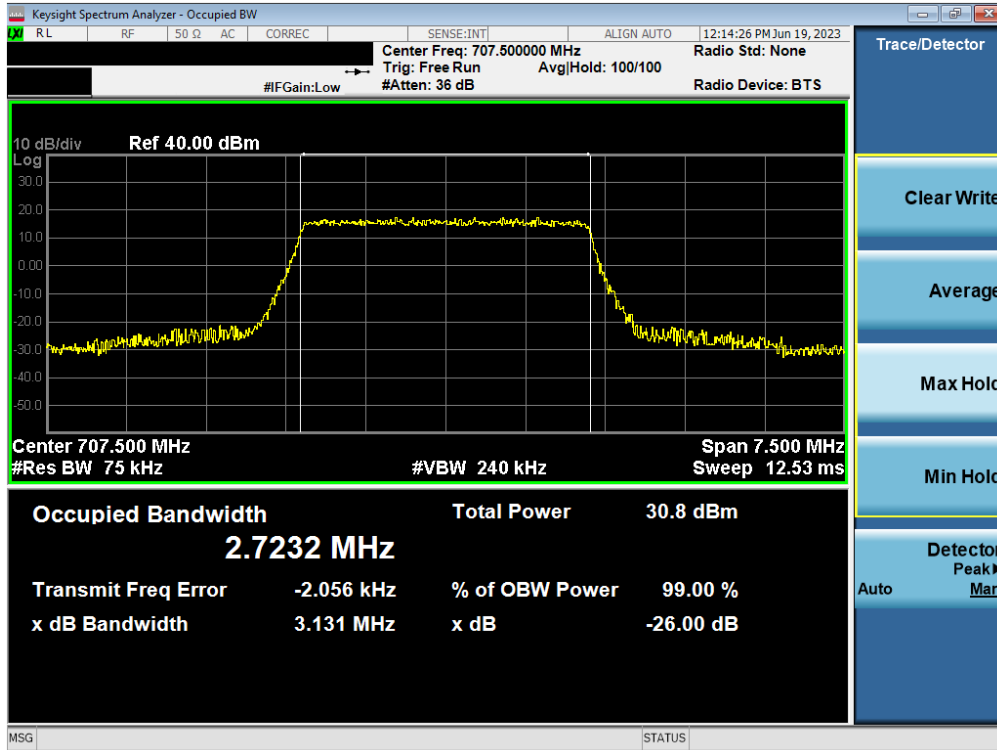


Plot 7-3. Occupied Bandwidth Plot (LTE Band 12/17 - 5MHz QPSK - Full RB – Ant1)

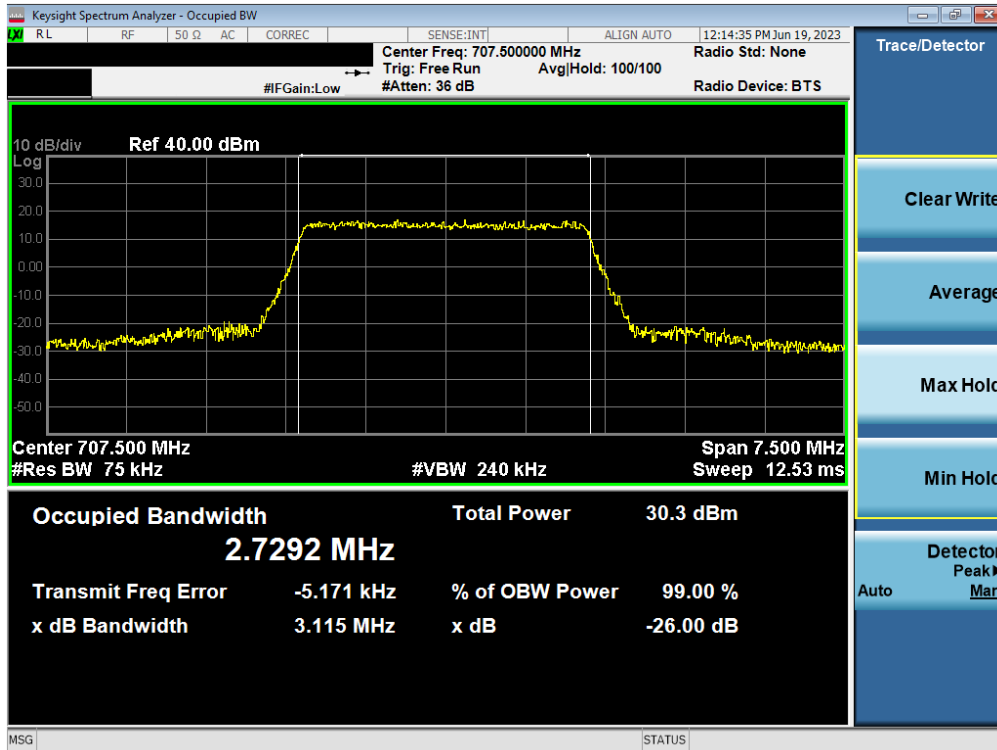


Plot 7-4. Occupied Bandwidth Plot (LTE Band 12/17 - 5MHz 16-QAM - Full RB – Ant1)

FCC ID: A3LSMS711B	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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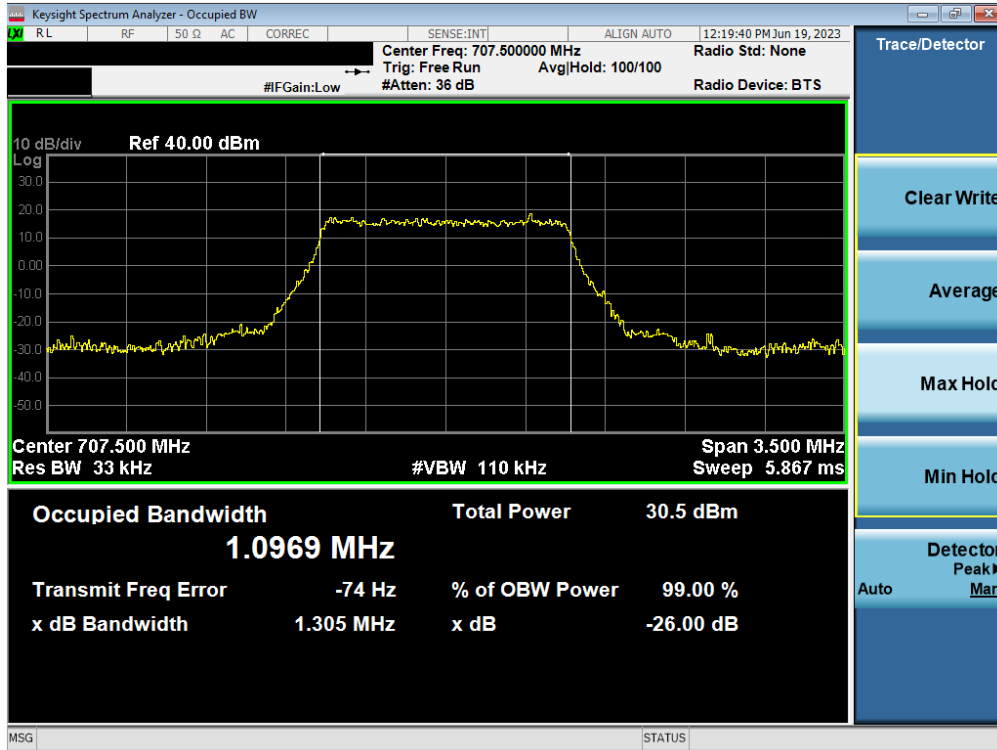


Plot 7-5. Occupied Bandwidth Plot (LTE Band 12 - 3MHz QPSK - Full RB – Ant1)

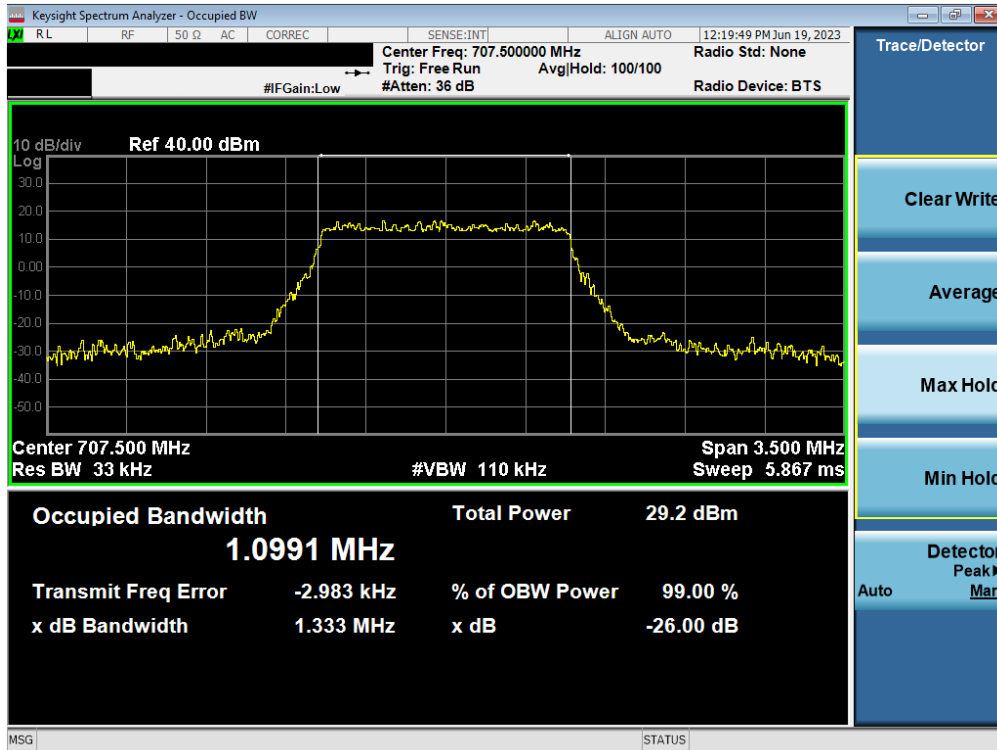


Plot 7-6. Occupied Bandwidth Plot (LTE Band 12 - 3MHz 16-QAM - Full RB – Ant1)

FCC ID: A3LSMS711B	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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Plot 7-7. Occupied Bandwidth Plot (LTE Band 12 – 1.4MHz QPSK - Full RB – Ant1)

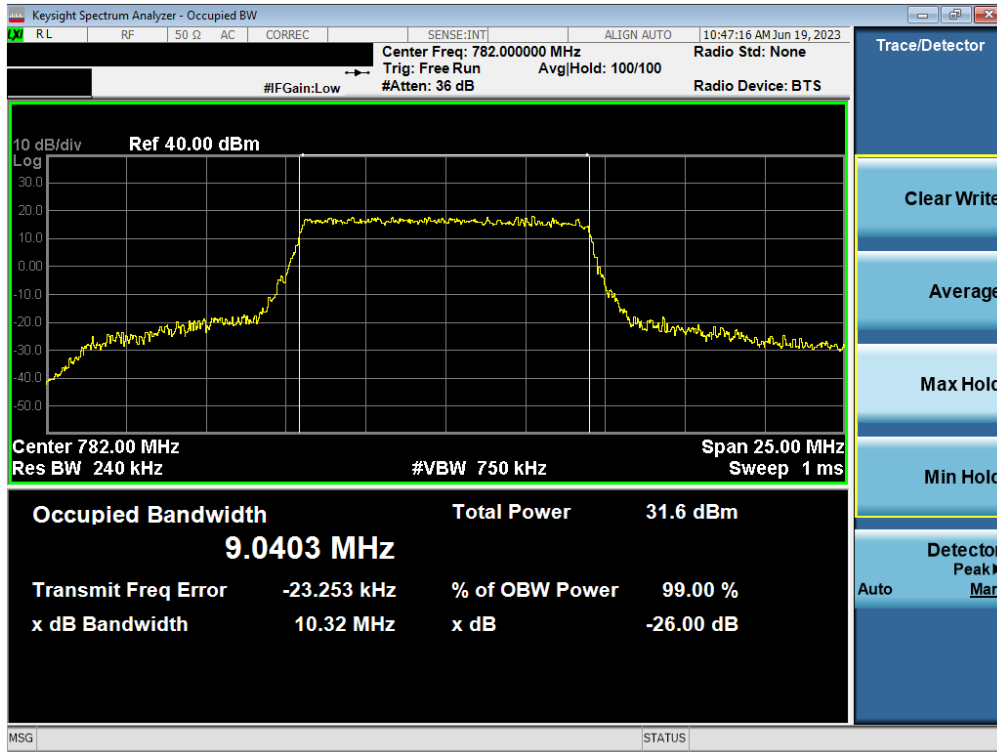


Plot 7-8. Occupied Bandwidth Plot (LTE Band 12 – 1.4MHz 16-QAM - Full RB – Ant1)

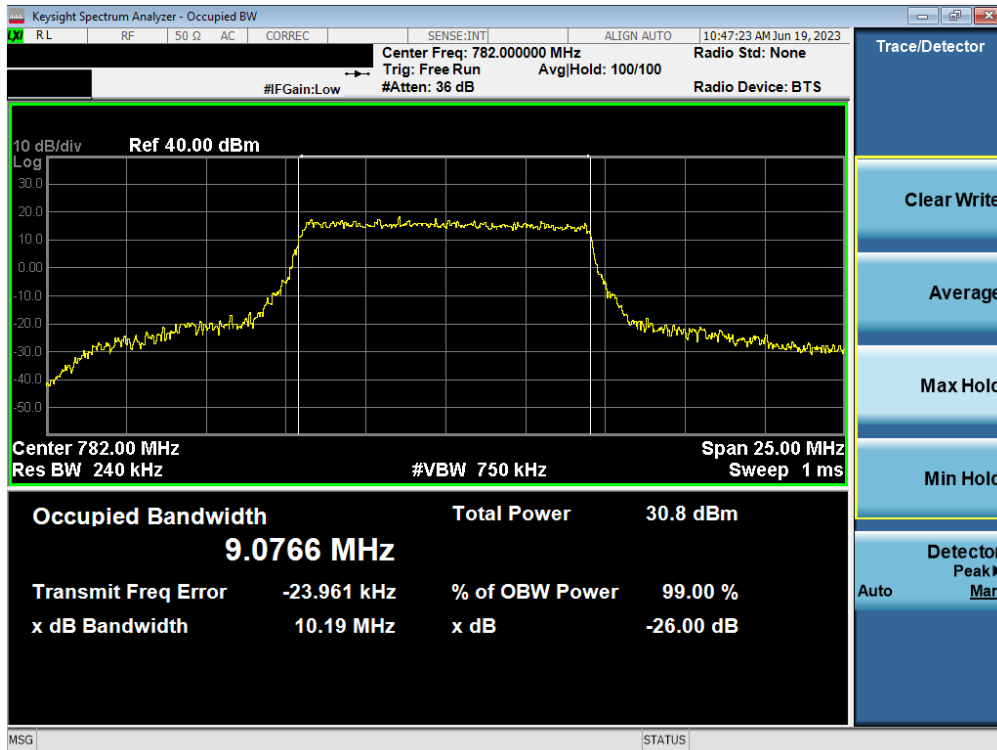
FCC ID: A3LSMS711B	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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# LTE Band 13 – Ant1

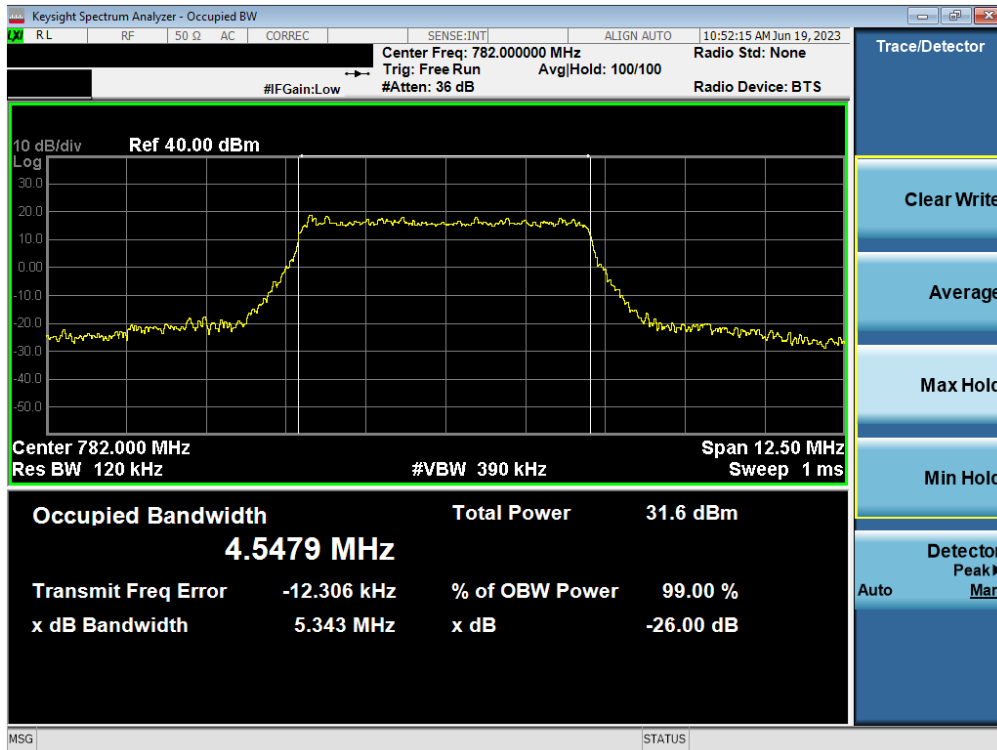


Plot 7-9. Occupied Bandwidth Plot (LTE Band 13 - 10MHz QPSK - Full RB – Ant1)

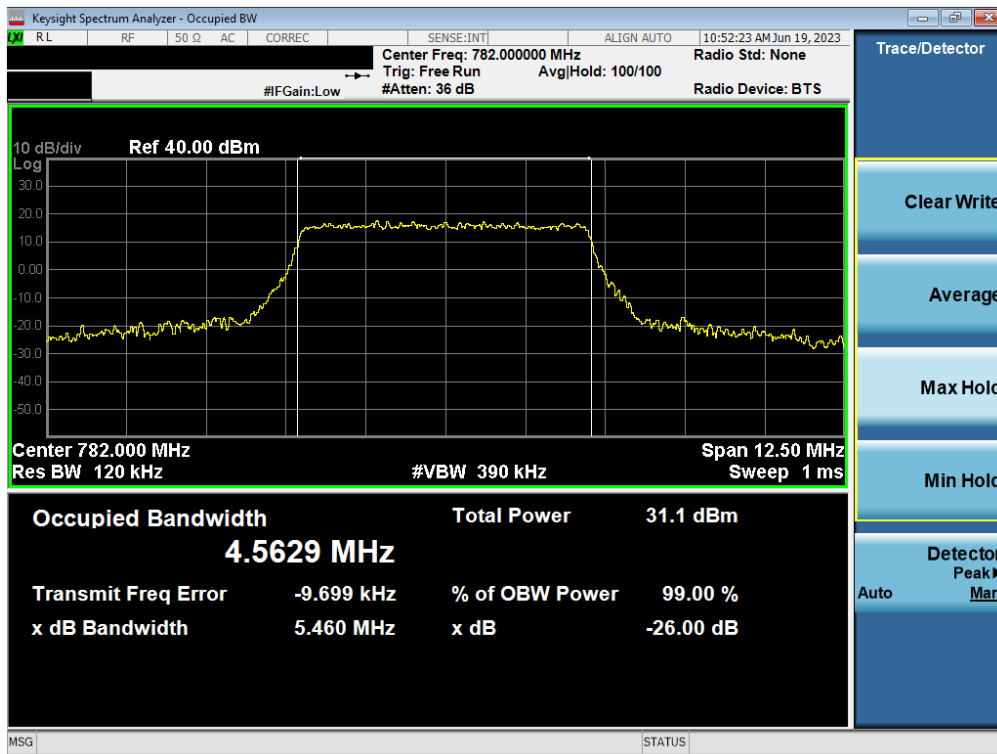


Plot 7-10. Occupied Bandwidth Plot (LTE Band 13 - 10MHz 16-QAM - Full RB – Ant1)

FCC ID: A3LSMS711B	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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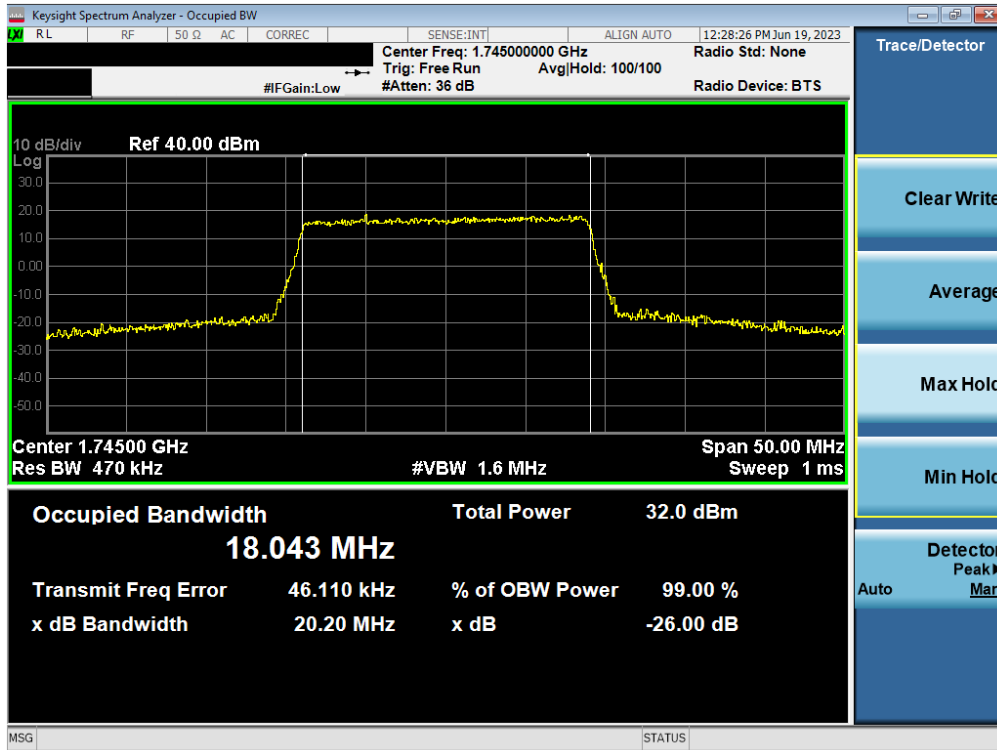
Plot 7-11. Occupied Bandwidth Plot (LTE Band 13 - 5MHz QPSK - Full RB – Ant1)



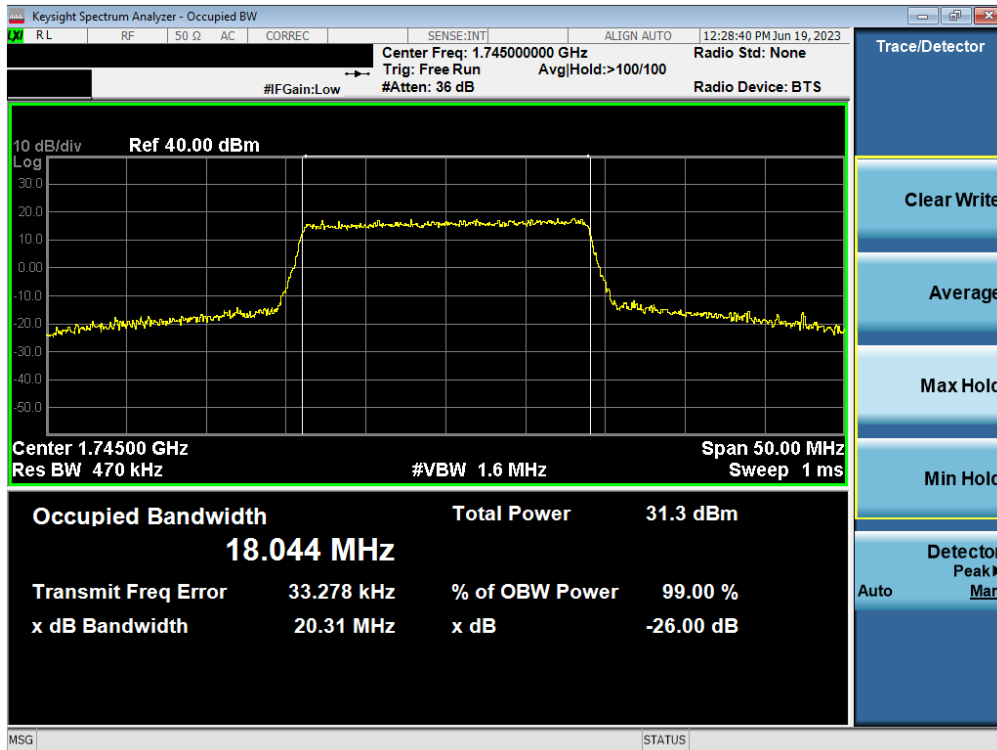
Plot 7-12. Occupied Bandwidth Plot (LTE Band 13 - 5MHz 16-QAM - Full RB – Ant1)

FCC ID: A3LSMS711B	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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# LTE Band 66/4 - Ant1

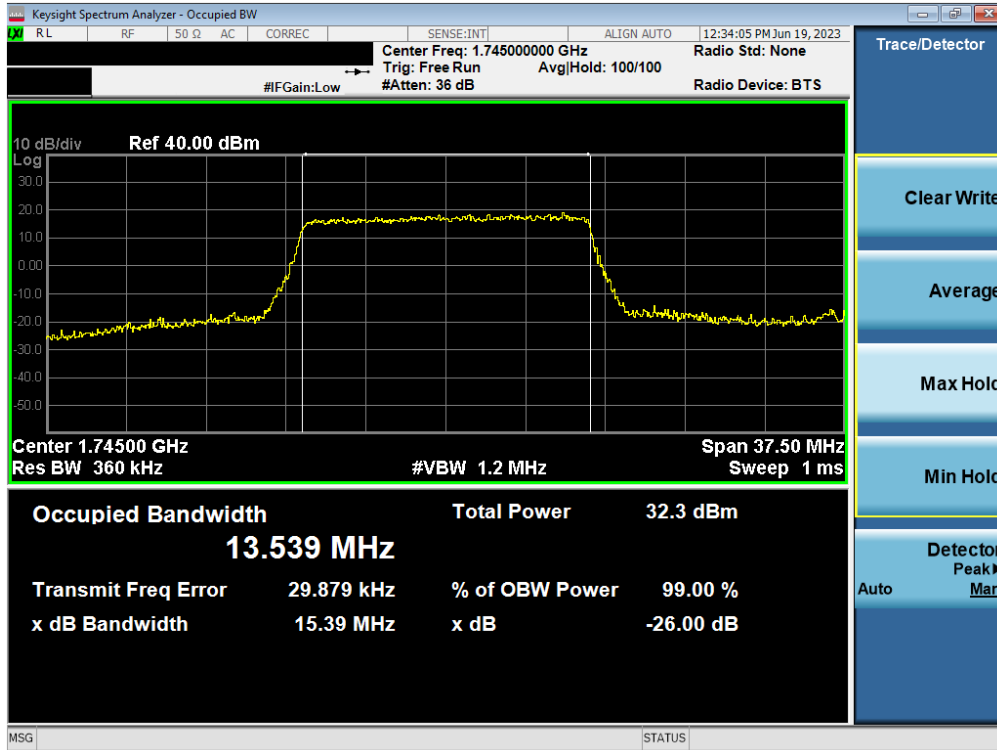


Plot 7-13. Occupied Bandwidth Plot (LTE Band 66/4 - 20MHz QPSK - Full RB - Ant1)

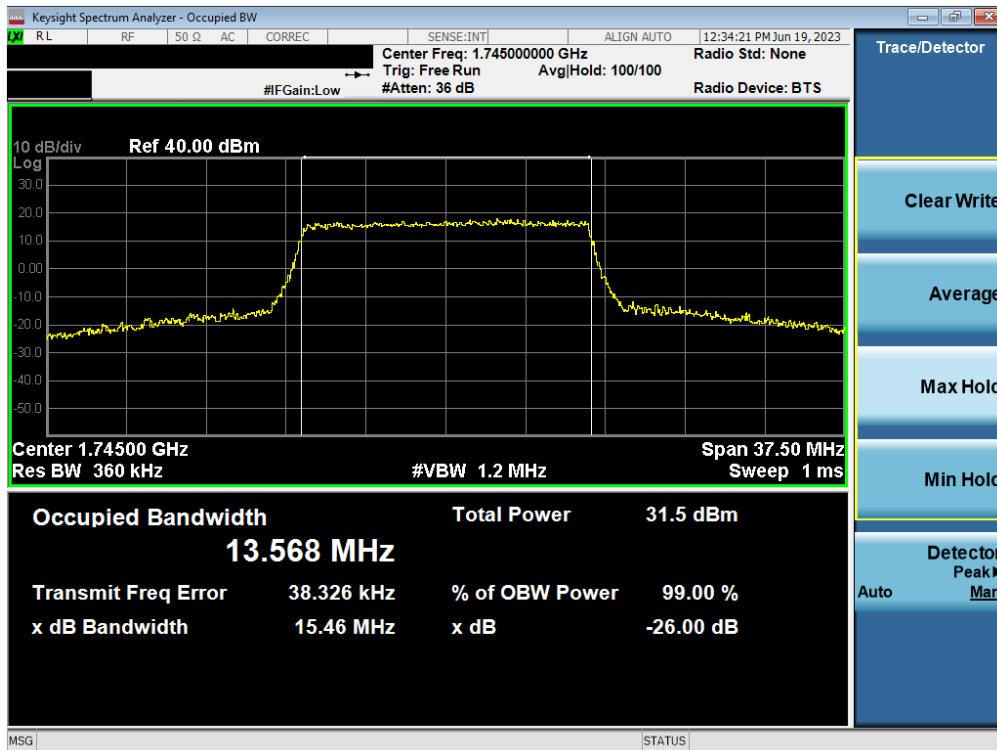


Plot 7-14. Occupied Bandwidth Plot (LTE Band 66/4 - 20MHz 16-QAM - Full RB - Ant1)

FCC ID: A3LSMS711B	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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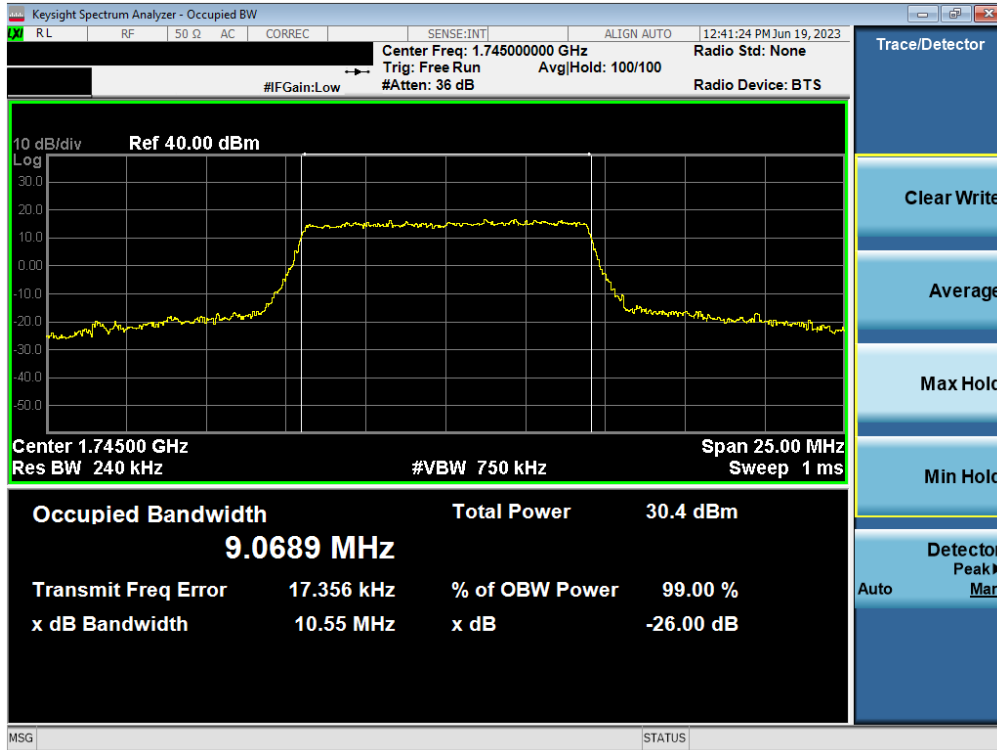


Plot 7-15. Occupied Bandwidth Plot (LTE Band 66/4 - 15MHz QPSK - Full RB - Ant1)

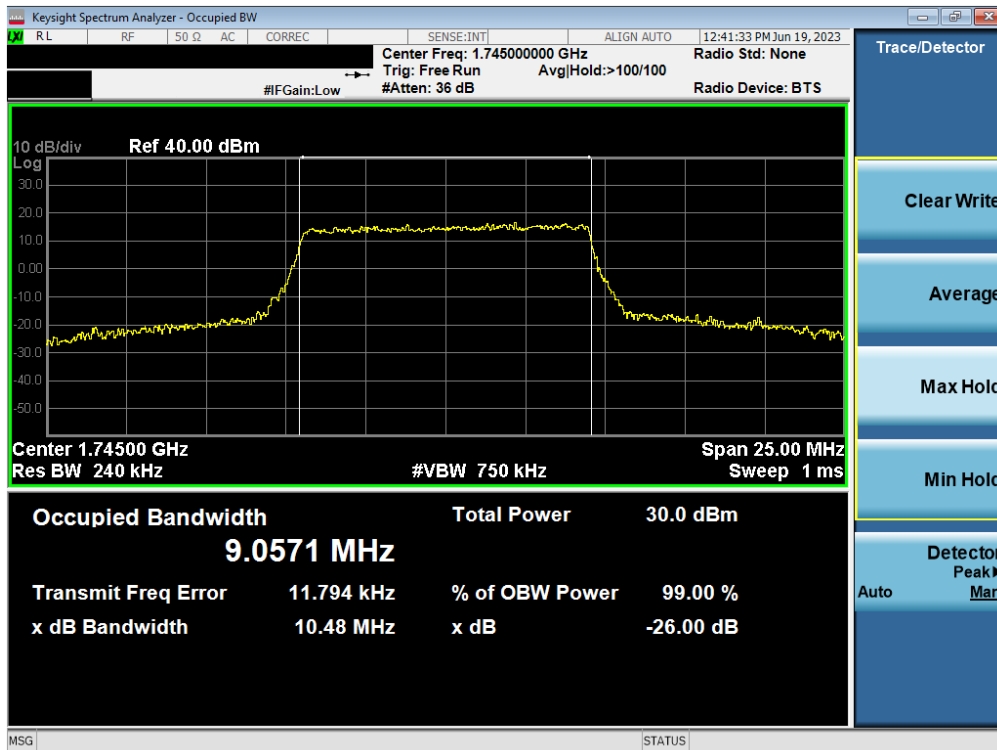


Plot 7-16. Occupied Bandwidth Plot (LTE Band 66/4 - 15MHz 16-QAM - Full RB - Ant1)

FCC ID: A3LSMS711B	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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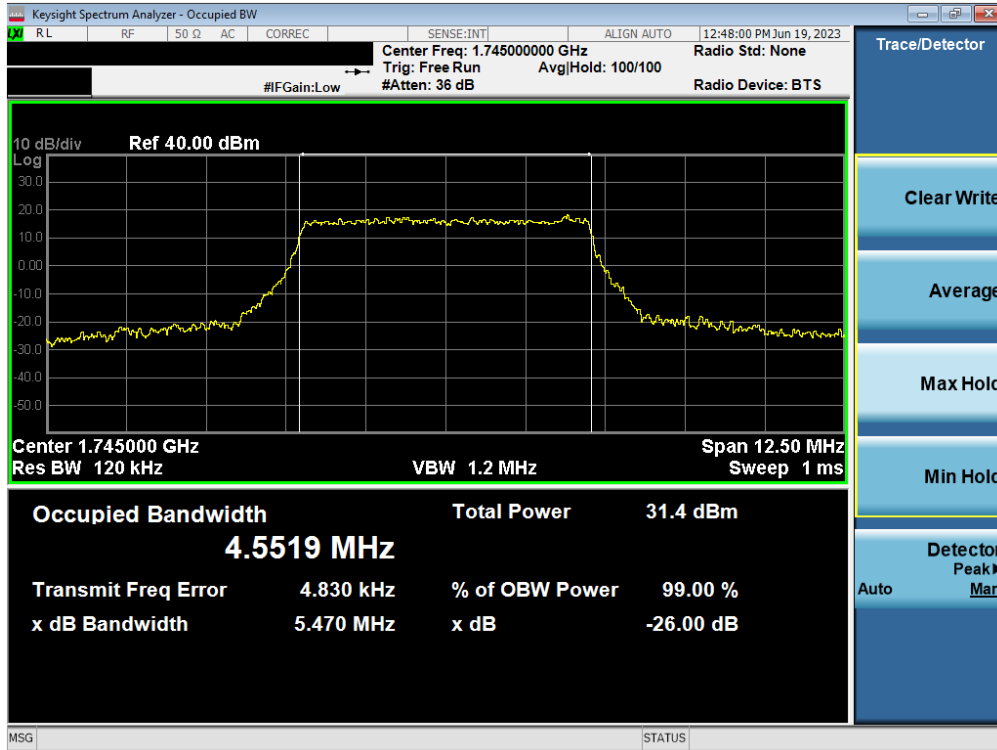


Plot 7-17. Occupied Bandwidth Plot (LTE Band 66/4 - 10MHz QPSK - Full RB - Ant1)

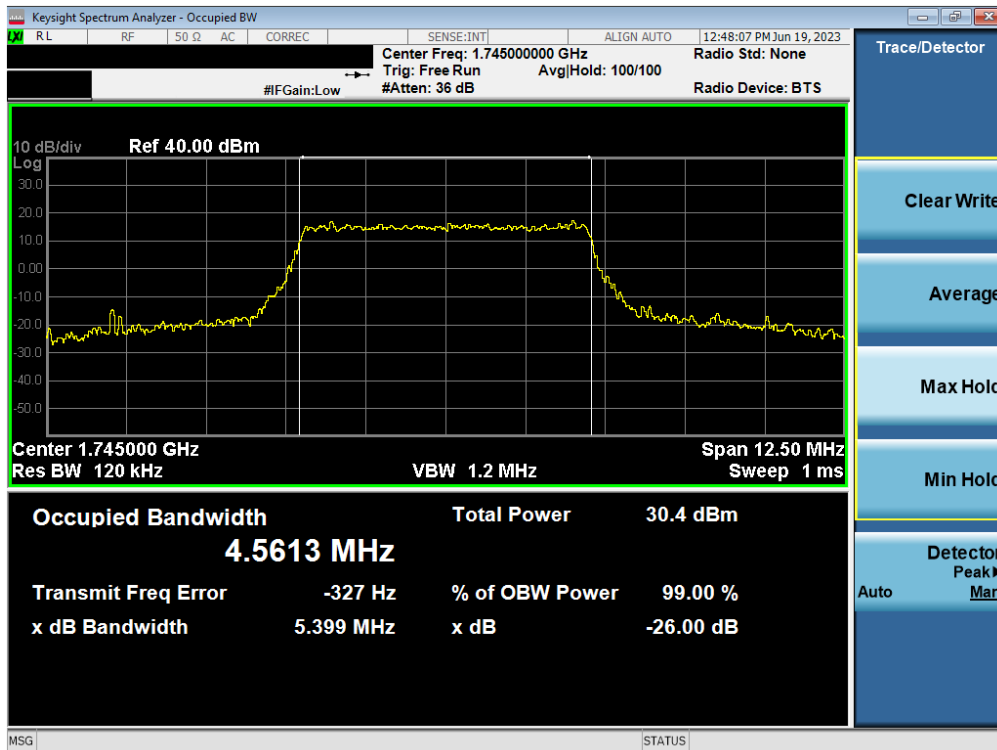


Plot 7-18. Occupied Bandwidth Plot (LTE Band 66/4 - 10MHz 16-QAM - Full RB - Ant1)

FCC ID: A3LSMS711B	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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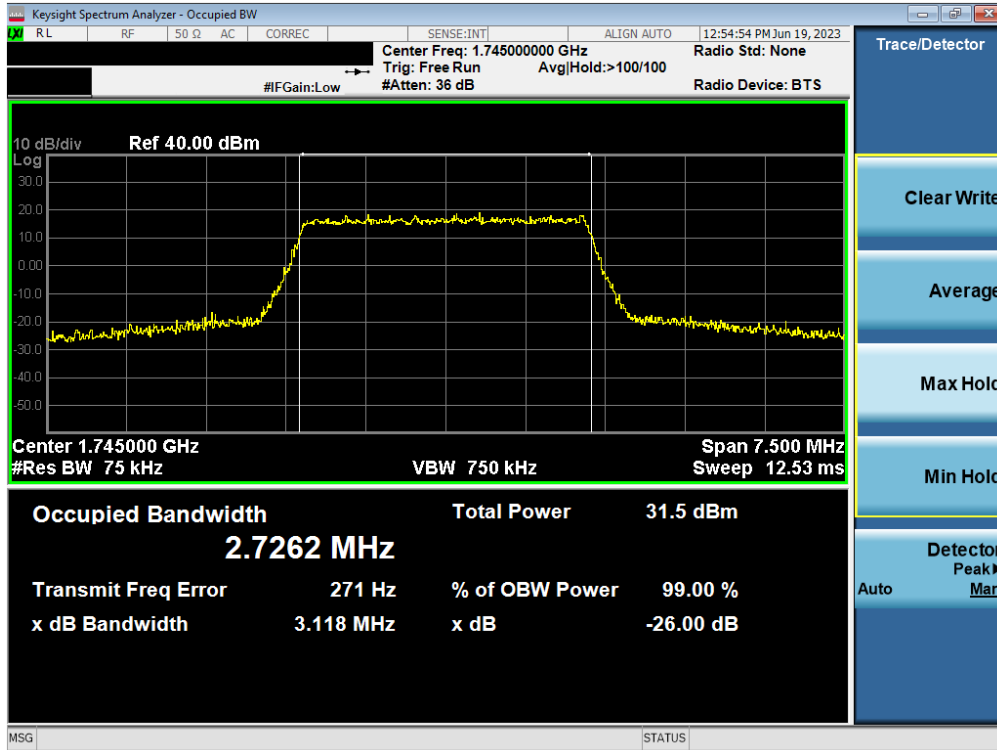


Plot 7-19. Occupied Bandwidth Plot (LTE Band 66/4 - 5MHz QPSK - Full RB - Ant1)

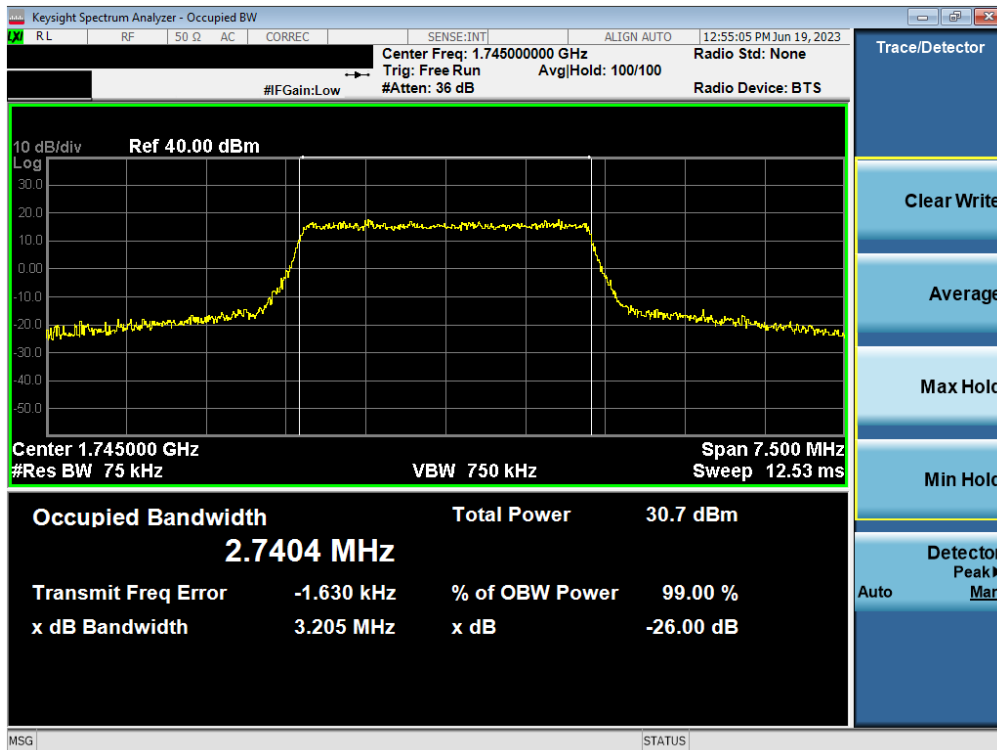


Plot 7-20. Occupied Bandwidth Plot (LTE Band 66/4 - 5MHz 16-QAM - Full RB - Ant1)

FCC ID: A3LSMS711B	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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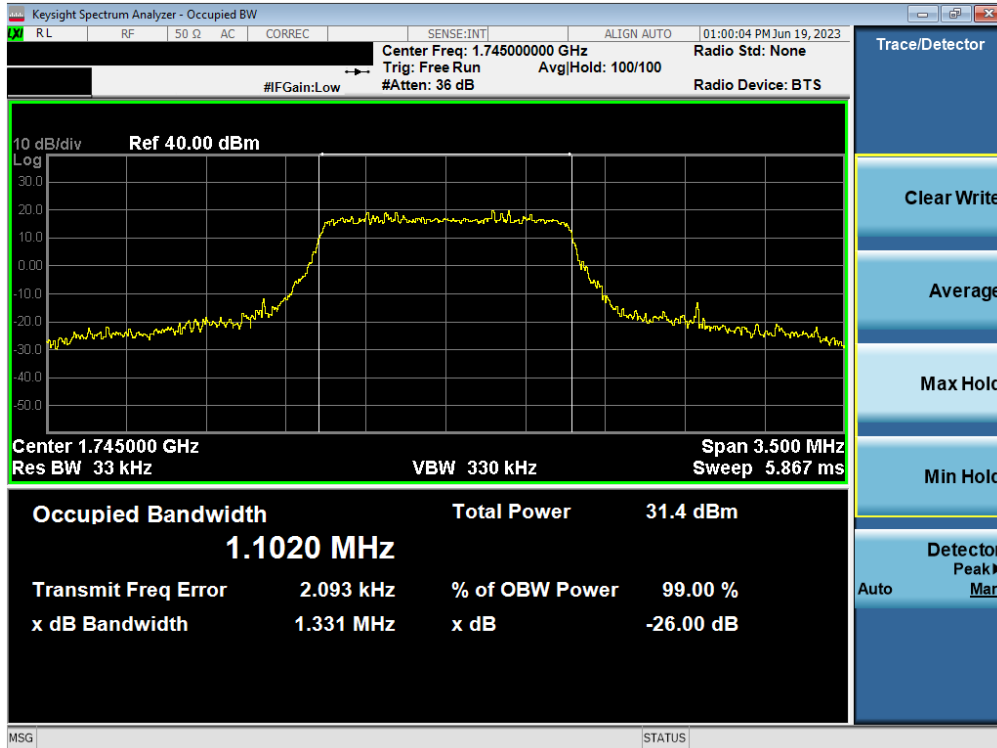


Plot 7-21. Occupied Bandwidth Plot (LTE Band 66/4 - 3MHz QPSK - Full RB - Ant1)

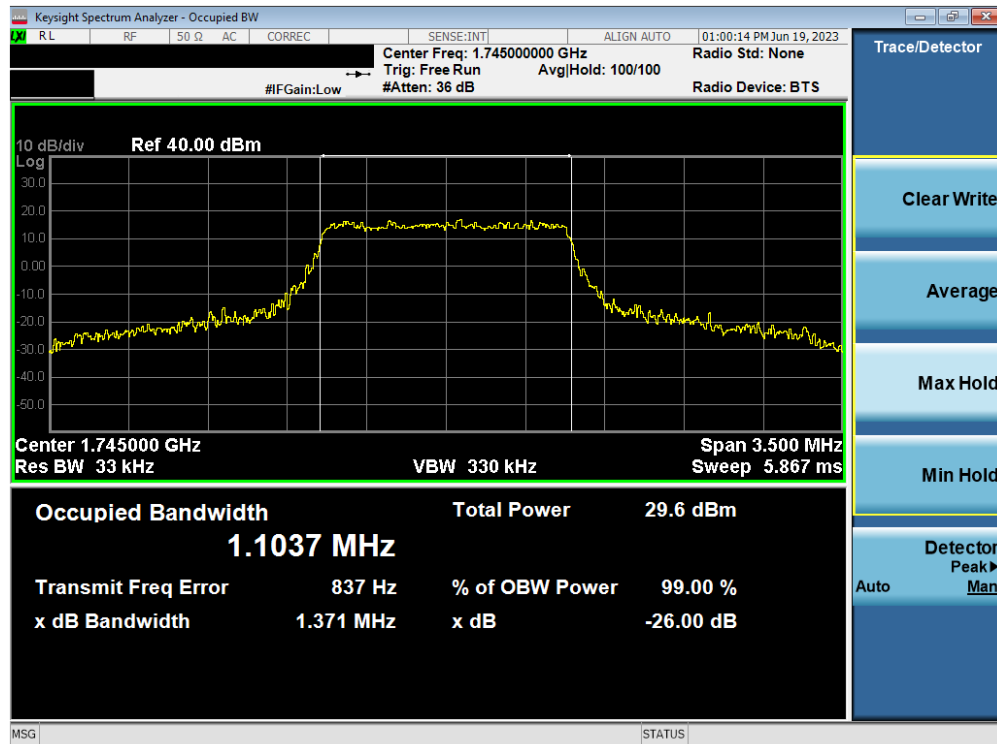


Plot 7-22. Occupied Bandwidth Plot (LTE Band 66/4 - 3MHz 16-QAM - Full RB - Ant1)

FCC ID: A3LSMS711B	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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Plot 7-23. Occupied Bandwidth Plot (LTE Band 66/4 - 1.4MHz QPSK - Full RB - Ant1)

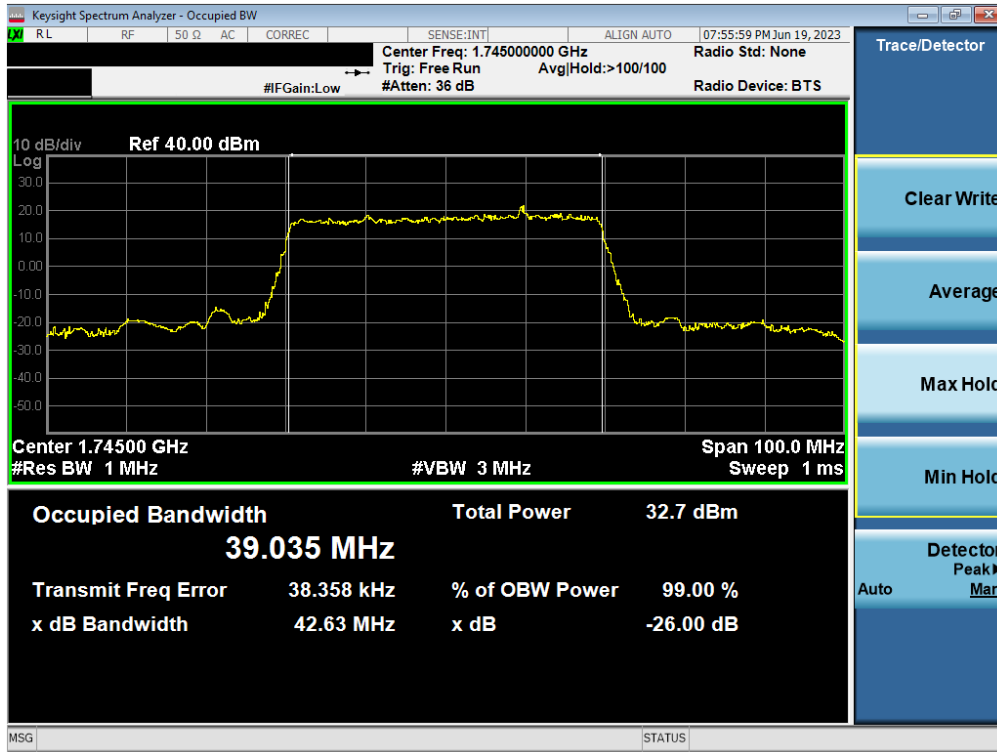


Plot 7-24. Occupied Bandwidth Plot (LTE Band 66/4 - 1.4MHz 16-QAM - Full RB - Ant1)

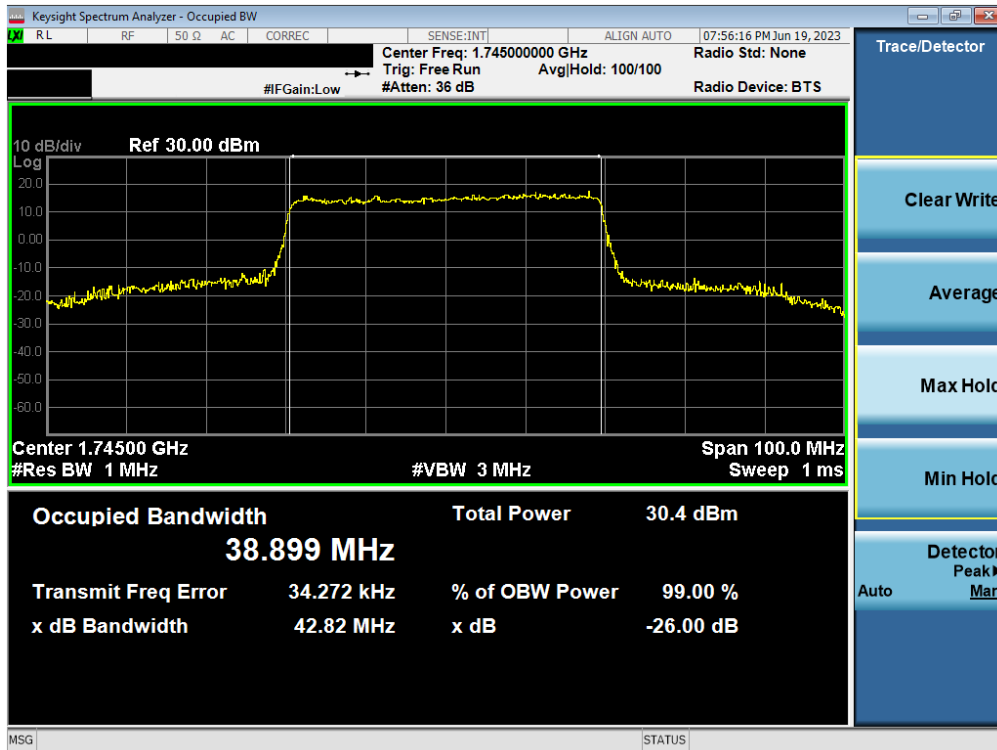
FCC ID: A3LSMS711B	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2304260063-06.A3L	Test Dates: 5/30 - 8/4/2023	EUT Type: Portable Handset	Page 32 of 142



# NR Band n66 – Ant1

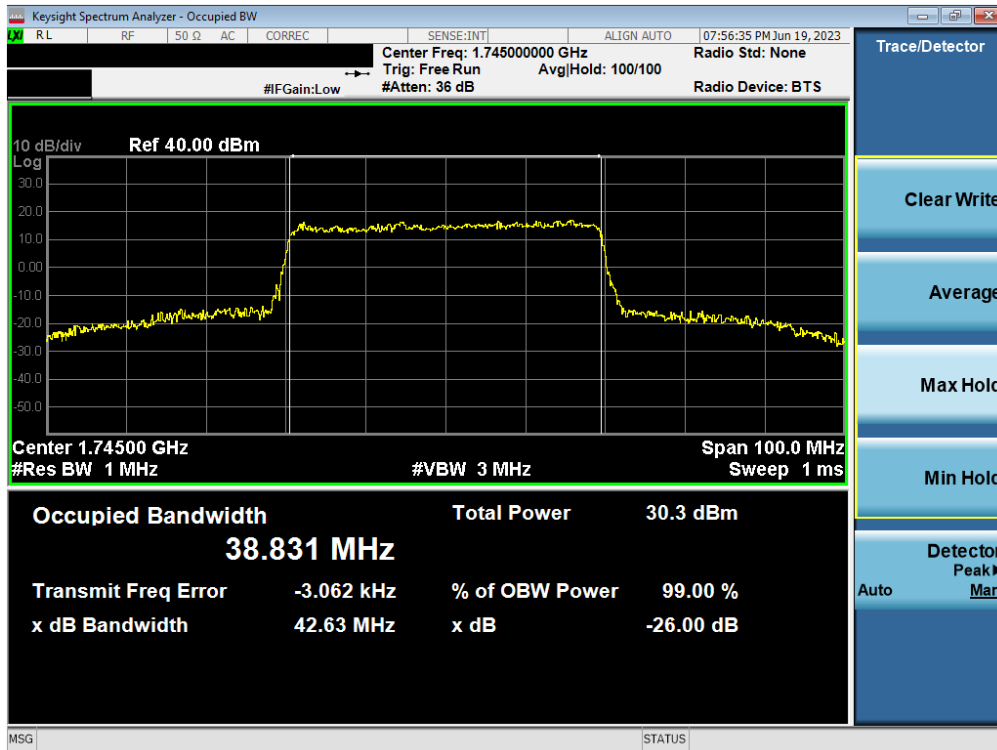


Plot 7-25. Occupied Bandwidth Plot (NR Band n66 - 40.0MHz DFT-s-OFDM BPSK - Full RB – Ant1)

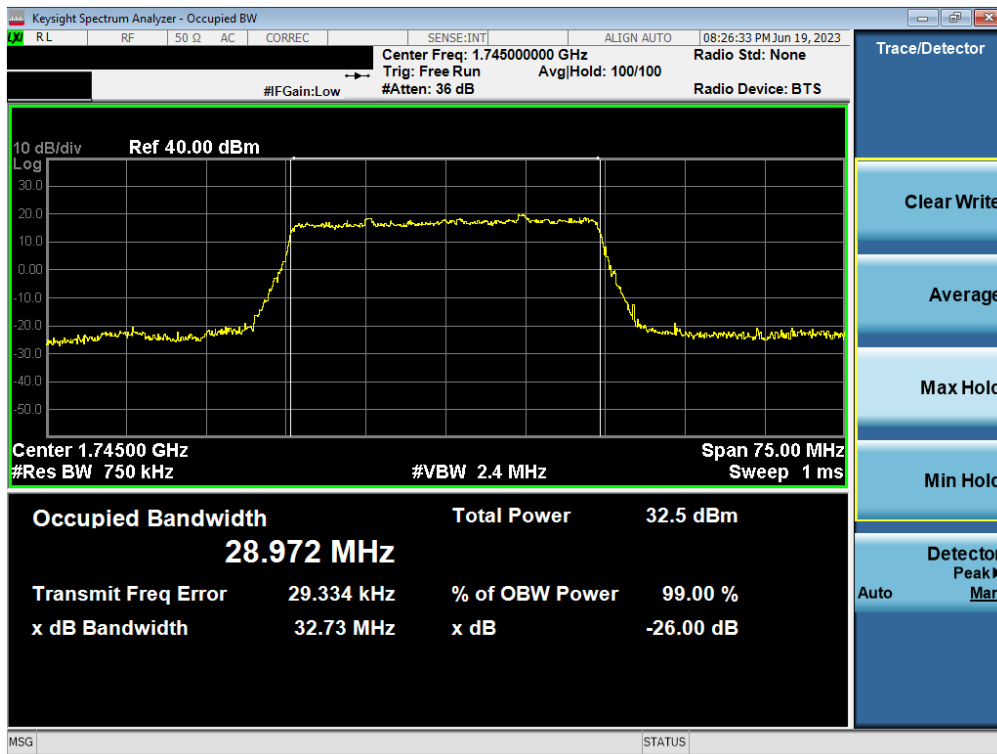


Plot 7-26. Occupied Bandwidth Plot (NR Band n66 - 40.0MHz CP-OFDM QPSK - Full RB – Ant1)

FCC ID: A3LSMS711B	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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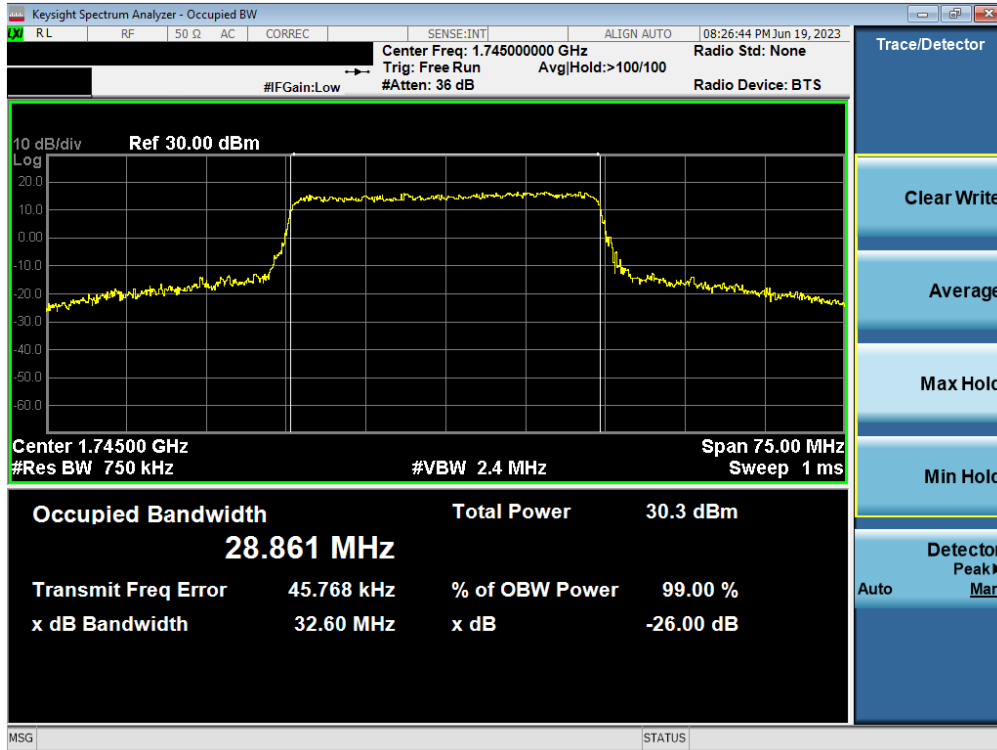


Plot 7-27. Occupied Bandwidth Plot (NR Band n66 - 40.0MHz CP-OFDM 16QAM - Full RB – Ant1)

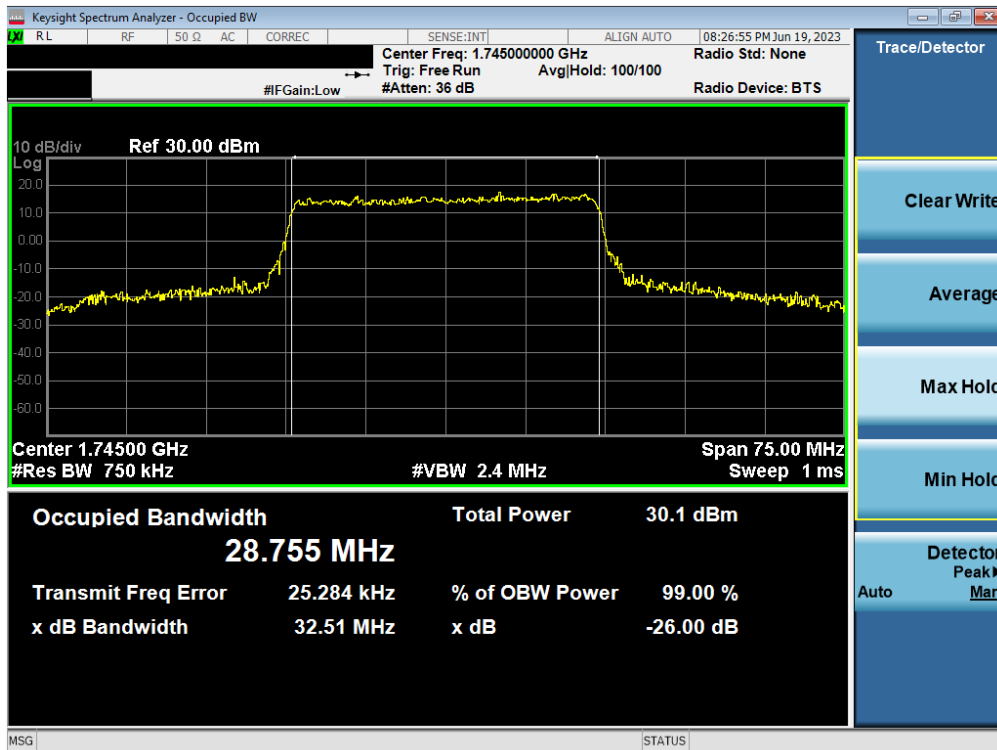


Plot 7-28. Occupied Bandwidth Plot (NR Band n66 - 30.0MHz DFT-s-OFDM BPSK - Full RB – Ant1)

FCC ID: A3LSMS711B	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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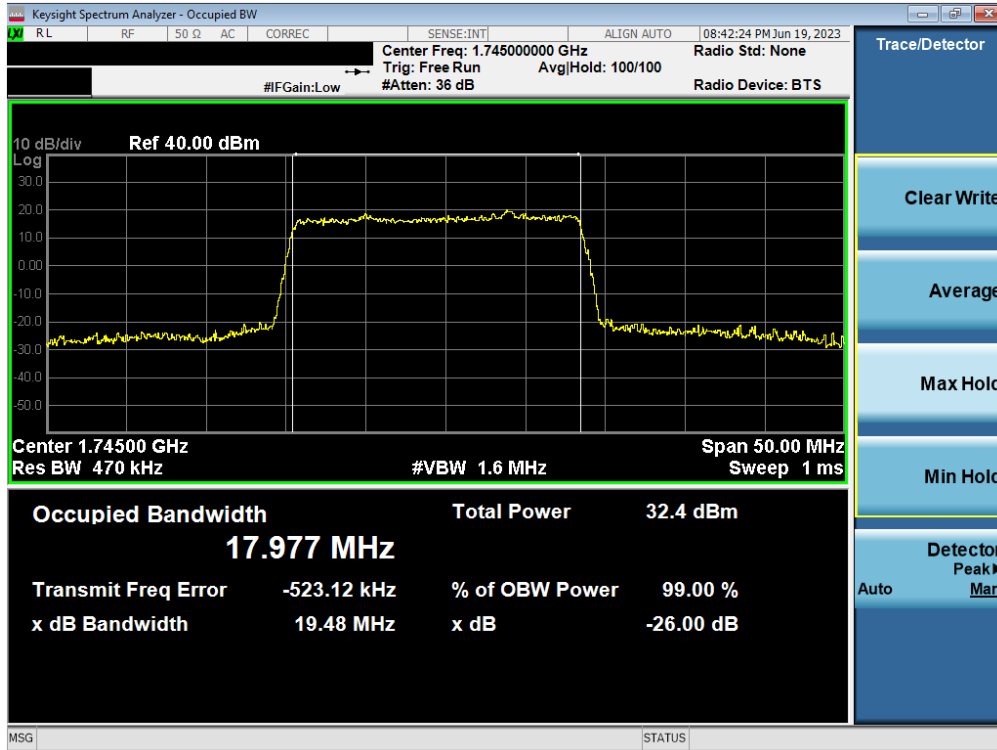


Plot 7-29. Occupied Bandwidth Plot (NR Band n66 - 30.0MHz CP-OFDM QPSK - Full RB – Ant1)

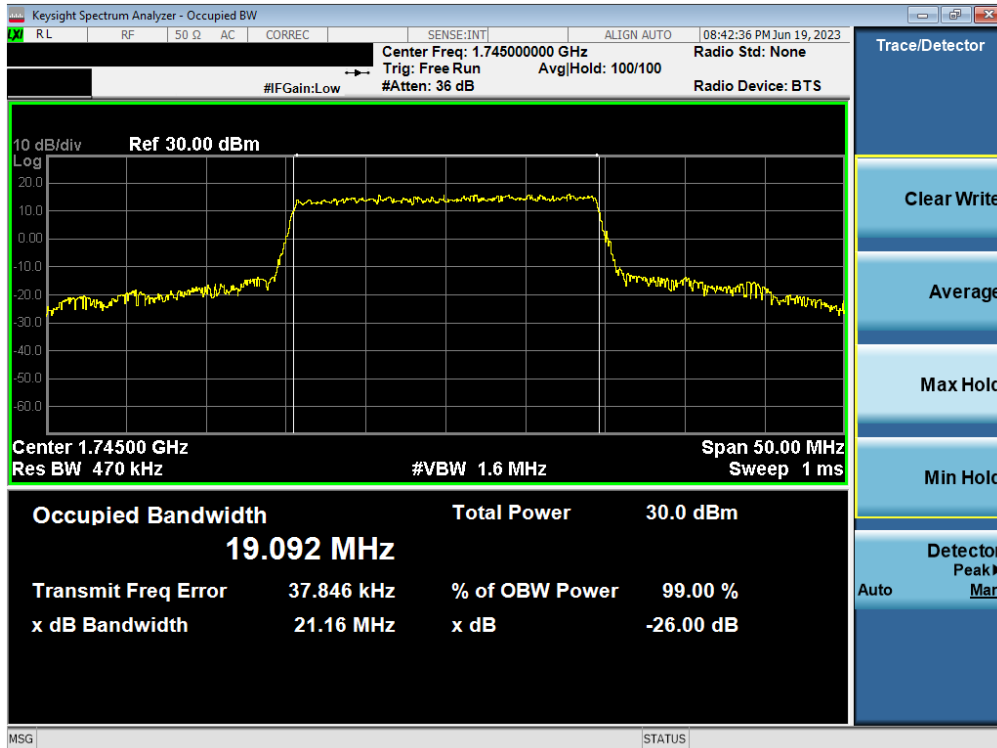


Plot 7-30. Occupied Bandwidth Plot (NR Band n66 - 30.0MHz CP-OFDM 16QAM - Full RB – Ant1)

FCC ID: A3LSMS711B	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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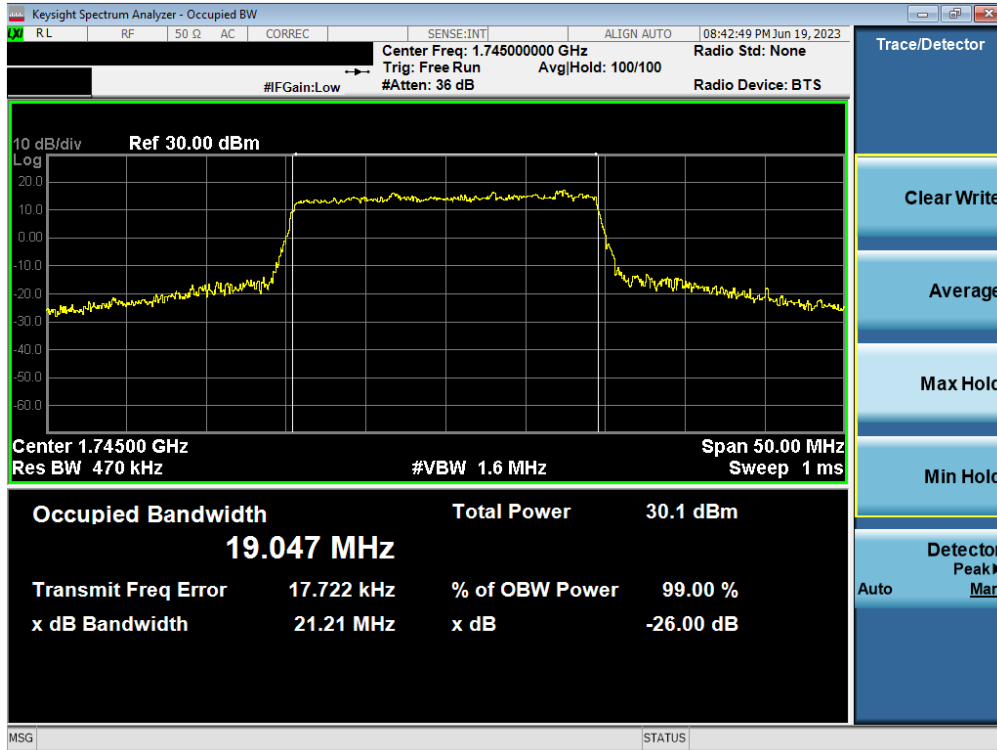


Plot 7-31. Occupied Bandwidth Plot (NR Band n66 - 20.0MHz DFT-s-OFDM BPSK - Full RB – Ant1)

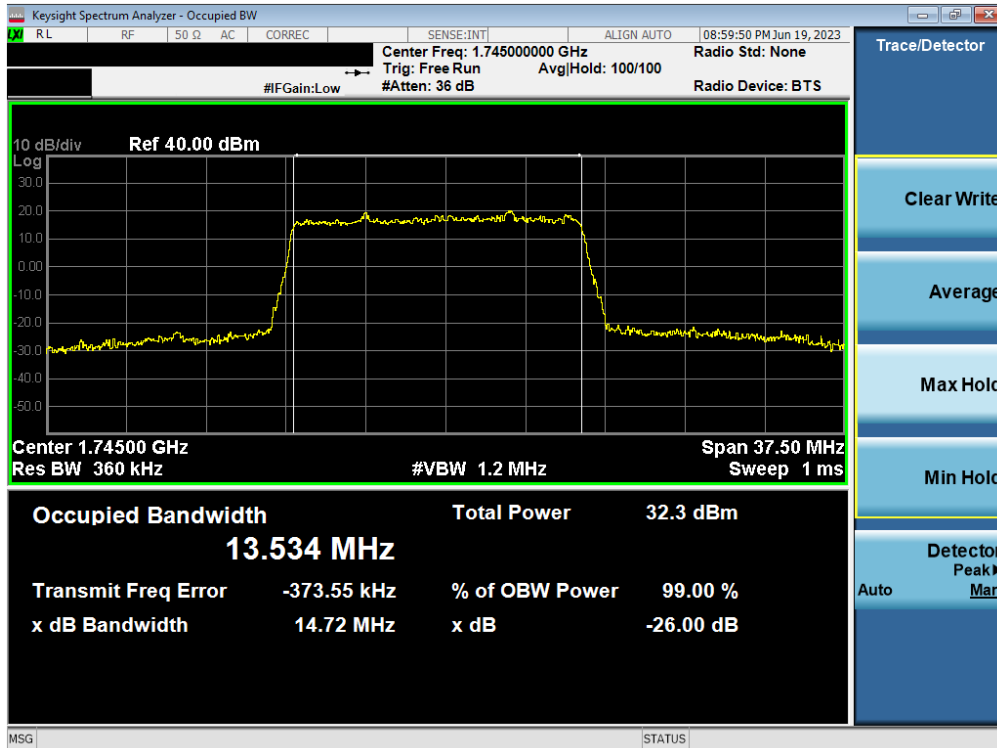


Plot 7-32. Occupied Bandwidth Plot (NR Band n66 - 20.0MHz CP-OFDM QPSK - Full RB – Ant1)

FCC ID: A3LSMS711B	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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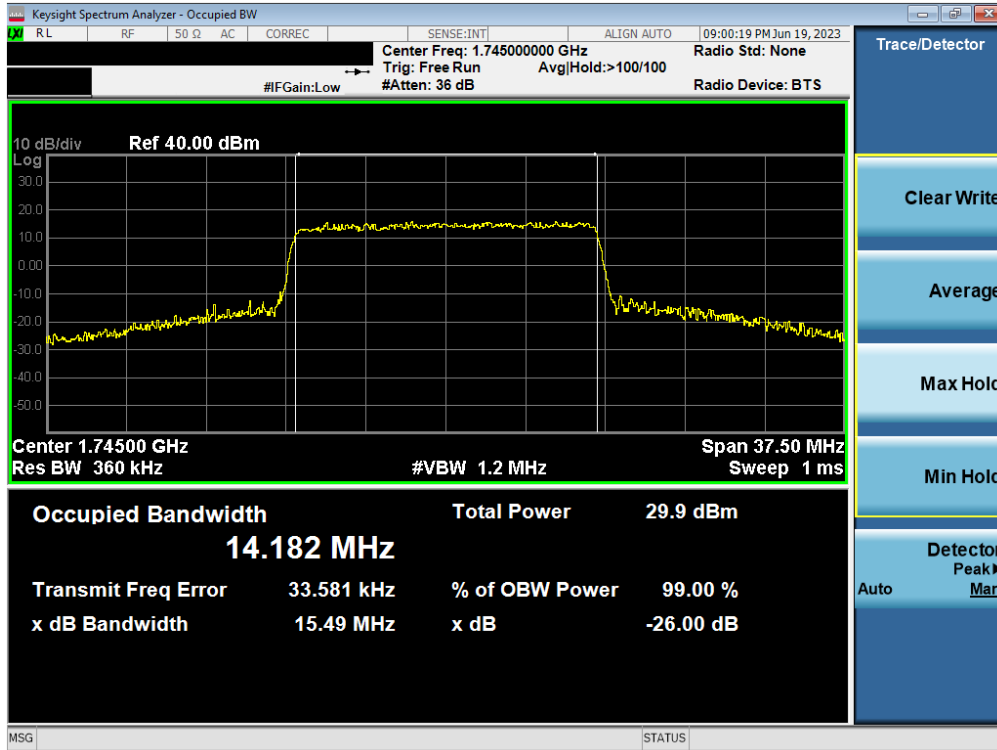


Plot 7-33. Occupied Bandwidth Plot (NR Band n66 - 20.0MHz CP-OFDM 16QAM - Full RB – Ant1)

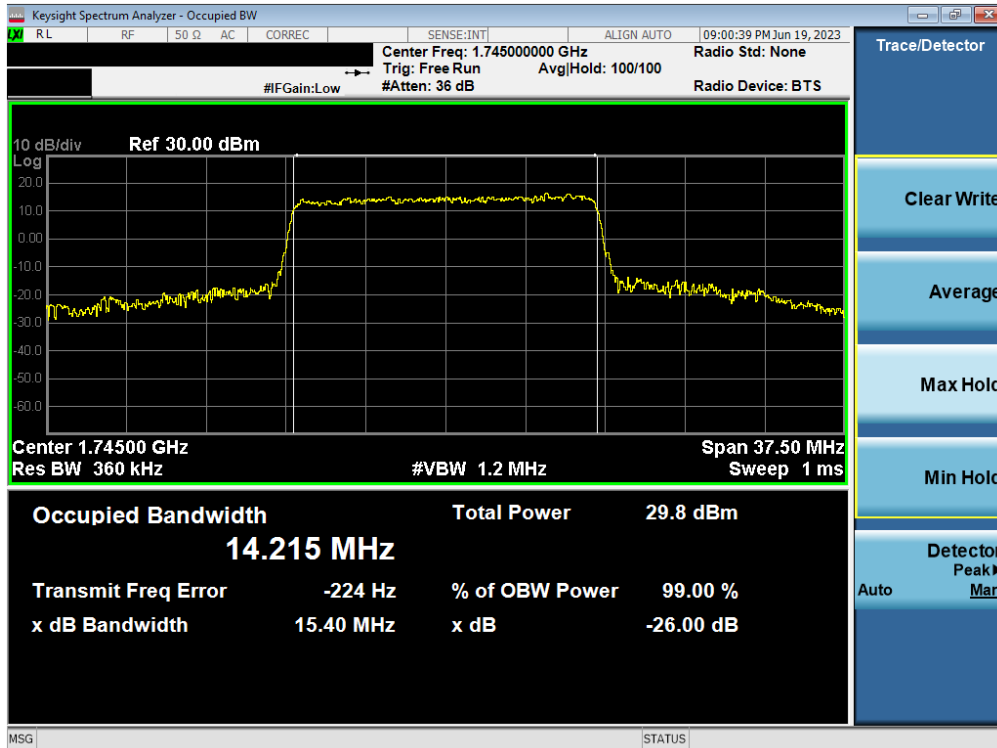


Plot 7-34. Occupied Bandwidth Plot (NR Band n66 - 15.0MHz DFT-s-OFDM BPSK - Full RB – Ant1)

FCC ID: A3LSMS711B	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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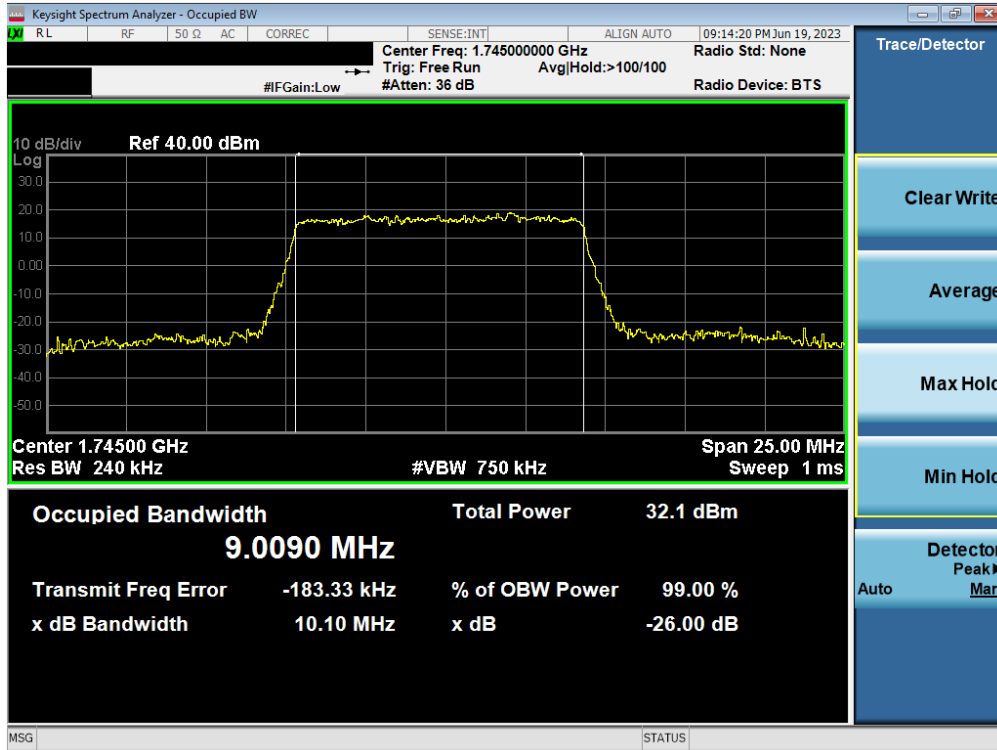


Plot 7-35. Occupied Bandwidth Plot (NR Band n66 - 15.0MHz CP-OFDM QPSK - Full RB - Ant1)

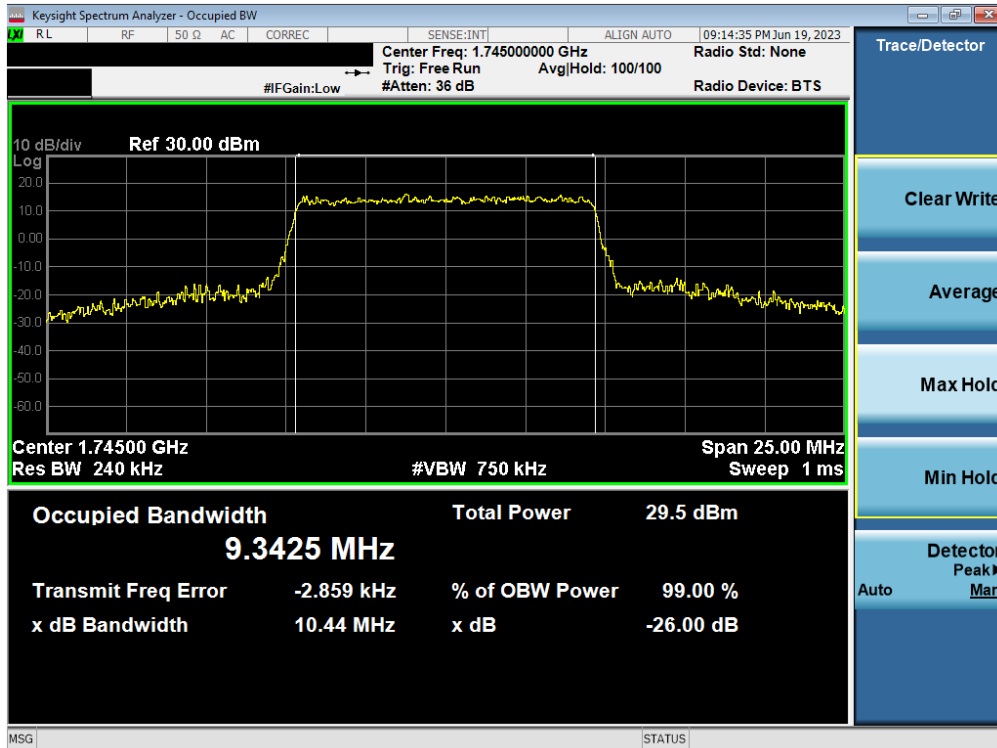


Plot 7-36. Occupied Bandwidth Plot (NR Band n66 - 15.0MHz CP-OFDM 16QAM - Full RB - Ant1)

FCC ID: A3LSMS711B	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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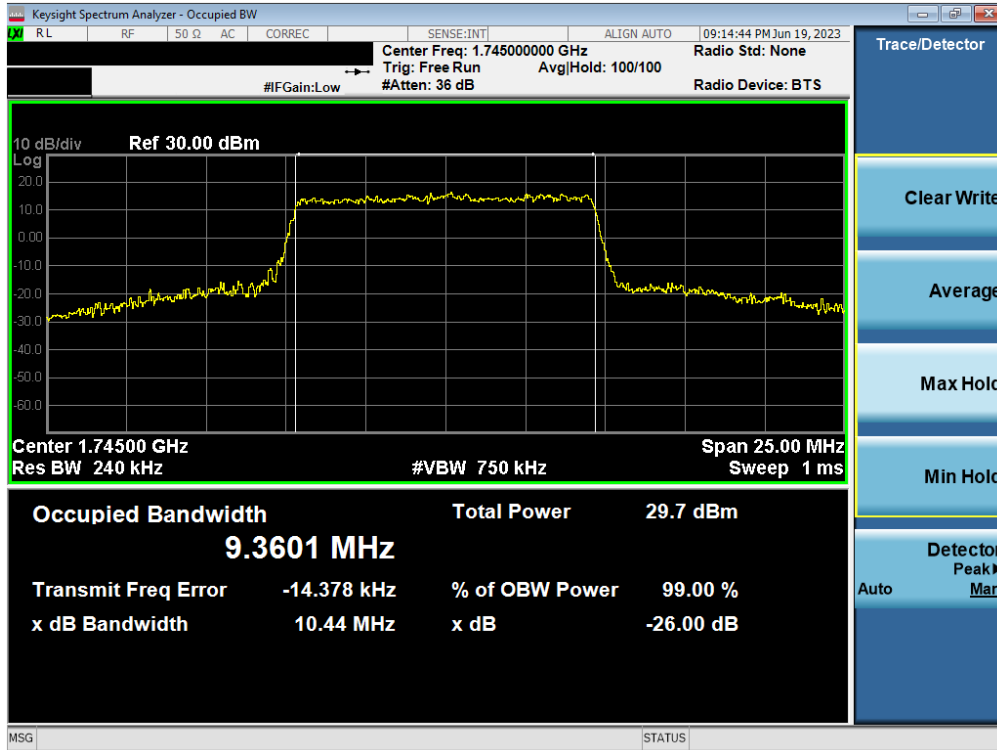


Plot 7-37. Occupied Bandwidth Plot (NR Band n66 - 10.0MHz DFT-s-OFDM BPSK - Full RB – Ant1)

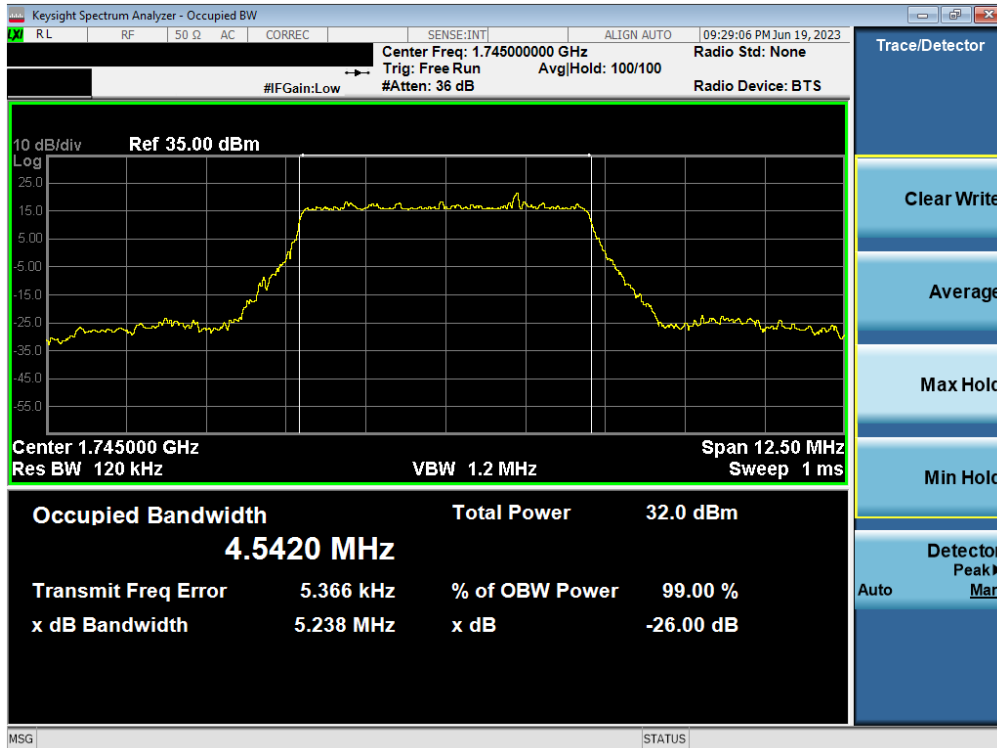


Plot 7-38. Occupied Bandwidth Plot (NR Band n66 - 10.0MHz CP-OFDM QPSK - Full RB – Ant1)

FCC ID: A3LSMS711B	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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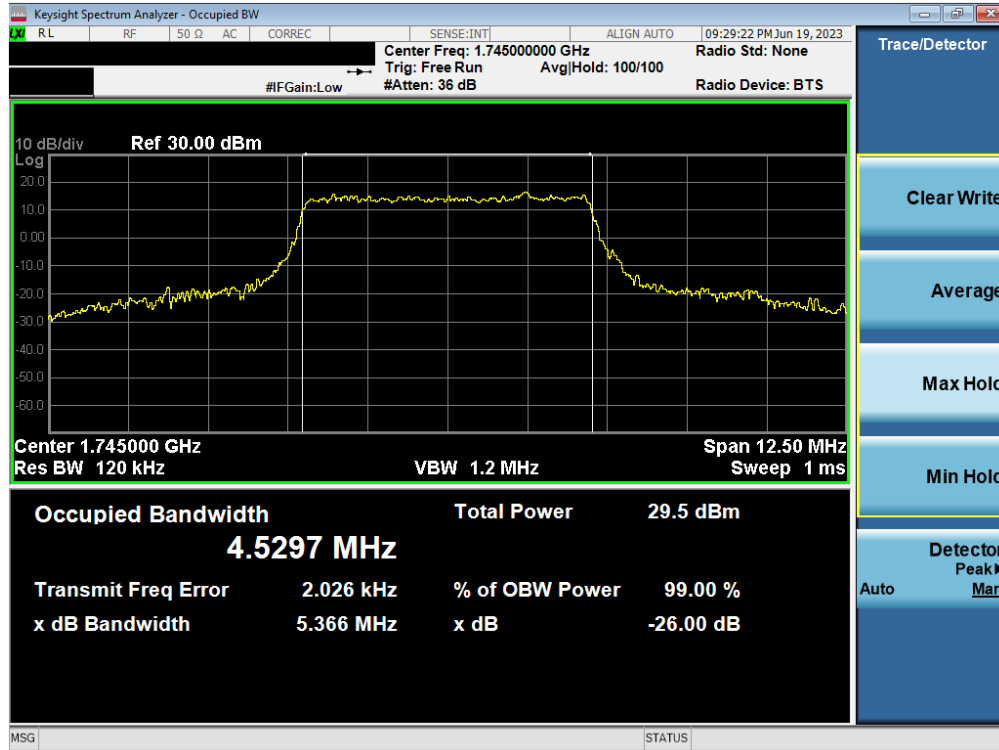
Plot 7-39. Occupied Bandwidth Plot (NR Band n66 - 10.0MHz CP-OFDM 16QAM - Full RB - Ant1)



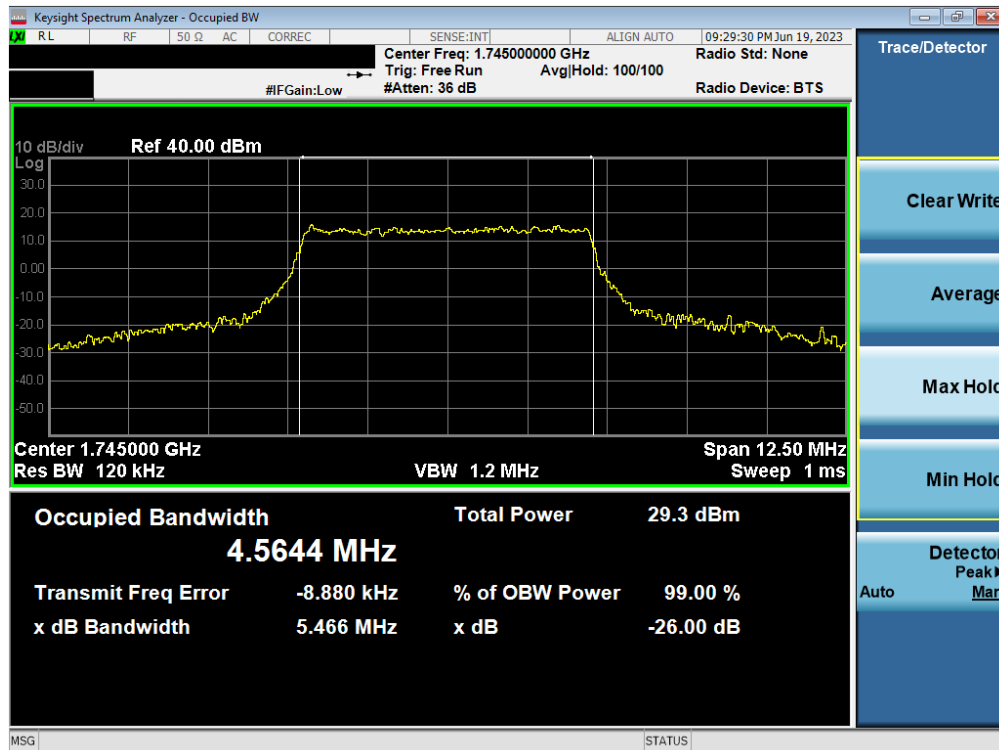
Plot 7-40. Occupied Bandwidth Plot (NR Band n66 - 5.0MHz DFT-s-OFDM BPSK - Full RB - Ant1)

FCC ID: A3LSMS711B	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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Plot 7-41. Occupied Bandwidth Plot (NR Band n66 - 5.0MHz CP-OFDM QPSK - Full RB - Ant1)



Plot 7-42. Occupied Bandwidth Plot (NR Band n66 - 5.0MHz CP-OFDM 16QAM - Full RB - Ant1)

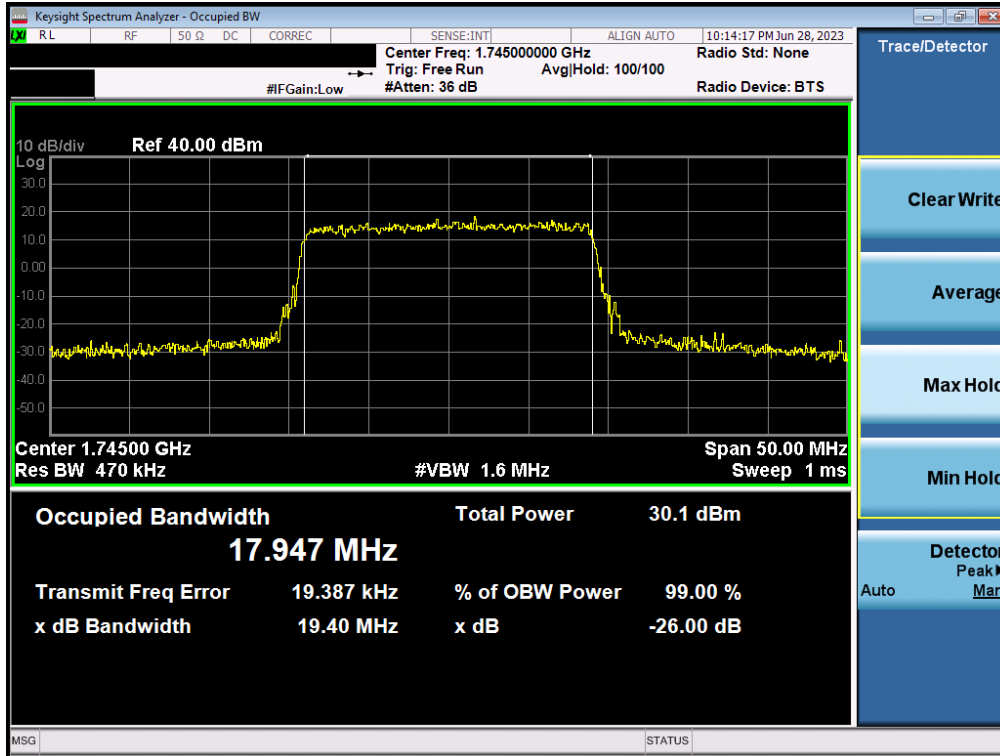
FCC ID: A3LSMS711B	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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Mode	Bandwidth	Modulation	OBW [MHz]
LTE Band 66/4	20 MHz	QPSK	17.95
		16QAM	17.90
	15 MHz	QPSK	13.48
		16QAM	13.46
	10 MHz	QPSK	9.01
		16QAM	9.03
	5 MHz	QPSK	4.51
		16QAM	4.54
	3 MHz	QPSK	2.71
		16QAM	2.72
	1.4 MHz	QPSK	1.10
		16QAM	1.10
NR Band n66	40 MHz	$\pi/2$ BPSK	38.94
		QPSK	38.87
		16QAM	38.70
	30 MHz	$\pi/2$ BPSK	28.89
		QPSK	28.89
		16QAM	28.79
	20 MHz	$\pi/2$ BPSK	17.99
		QPSK	19.09
		16QAM	19.03
	15 MHz	$\pi/2$ BPSK	13.51
		QPSK	14.15
		16QAM	14.24
	10 MHz	$\pi/2$ BPSK	9.09
		QPSK	9.34
		16QAM	9.33
5 MHz	$\pi/2$ BPSK	4.52	
	QPSK	4.52	
	16QAM	4.53	

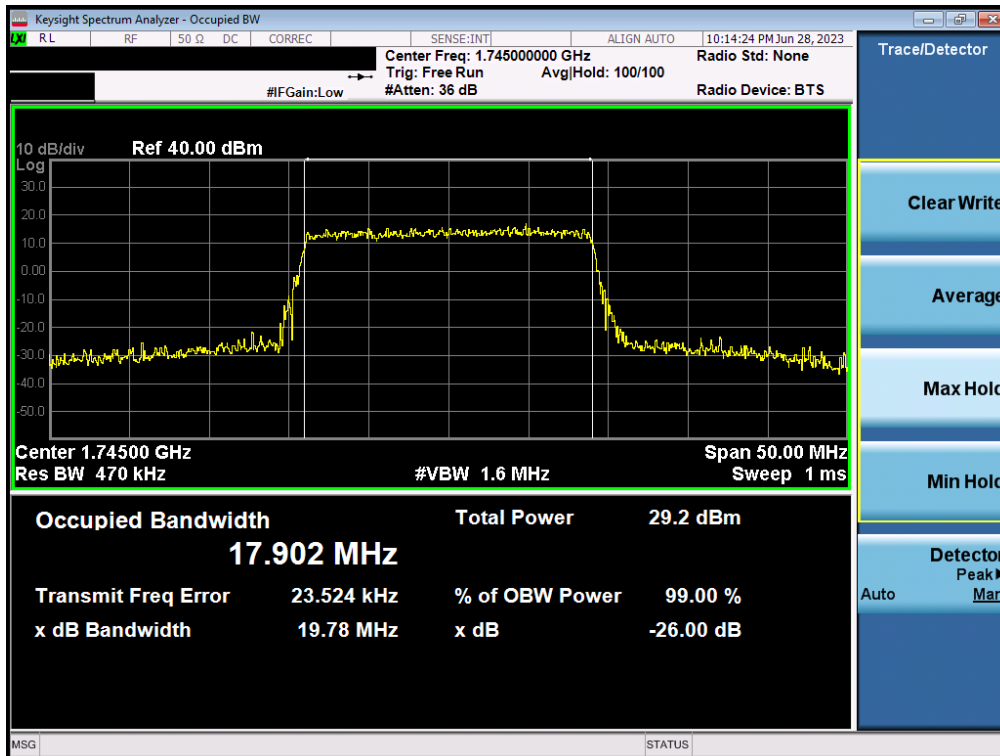
**Table 7-9. Occupied Bandwidth Test Results – Ant2**

FCC ID: A3LSMS711B	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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### LTE Band 66/4 - Ant2

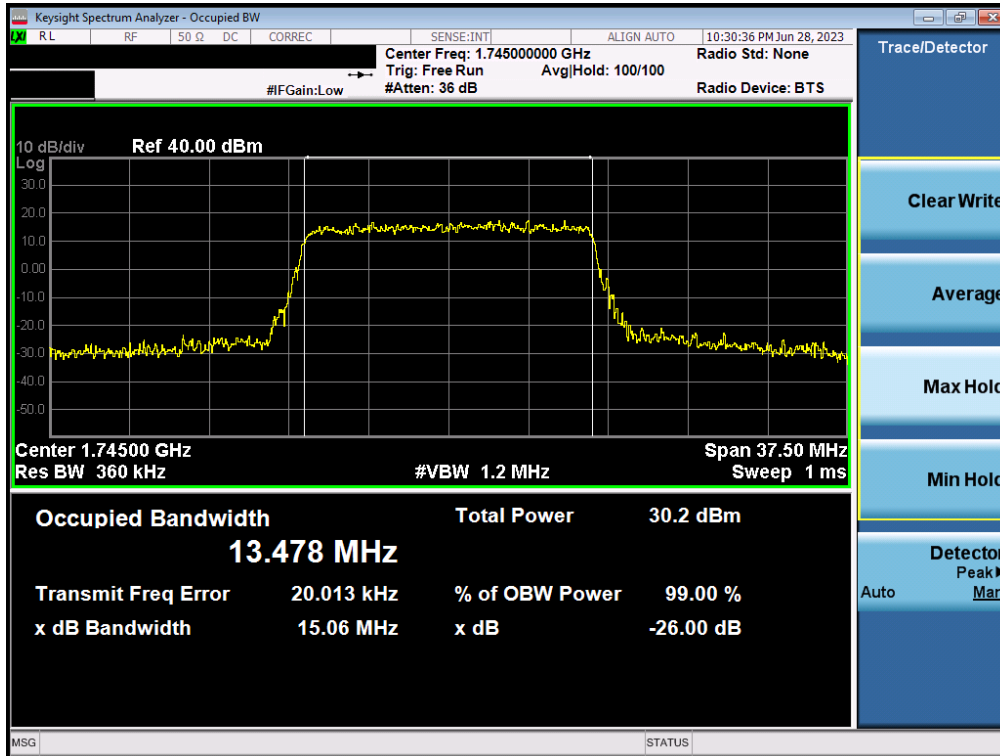


Plot 7-43. Occupied Bandwidth Plot (LTE Band 66/4 - 20MHz QPSK - Full RB - Ant2)

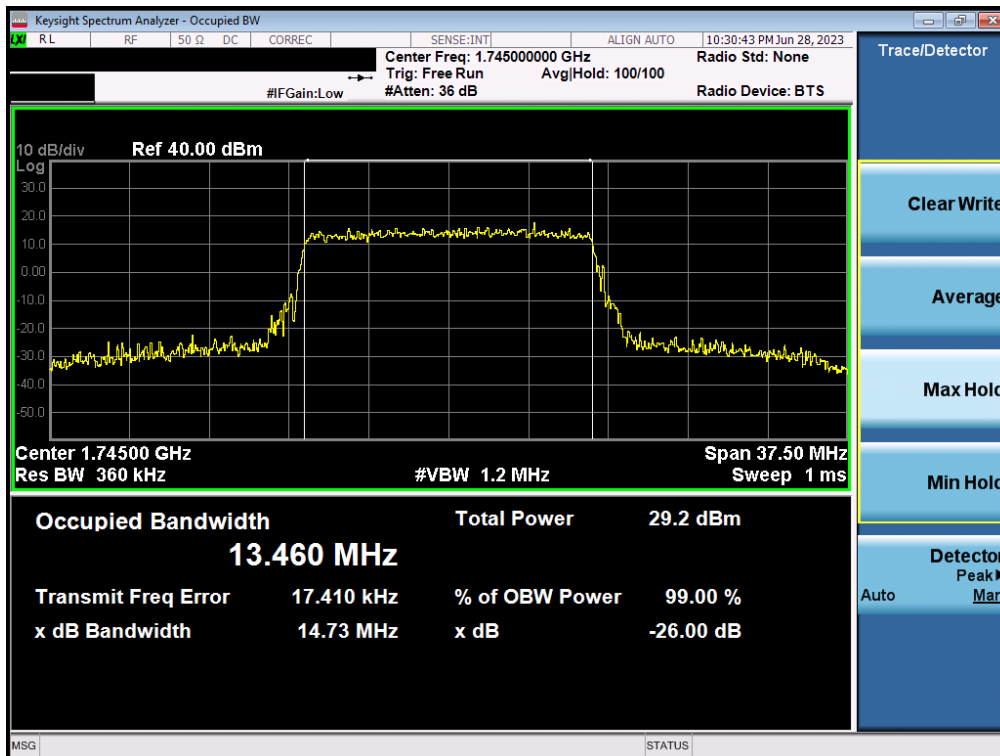


Plot 7-44. Occupied Bandwidth Plot (LTE Band 66/4 - 20MHz 16-QAM - Full RB - Ant2)

FCC ID: A3LSMS711B	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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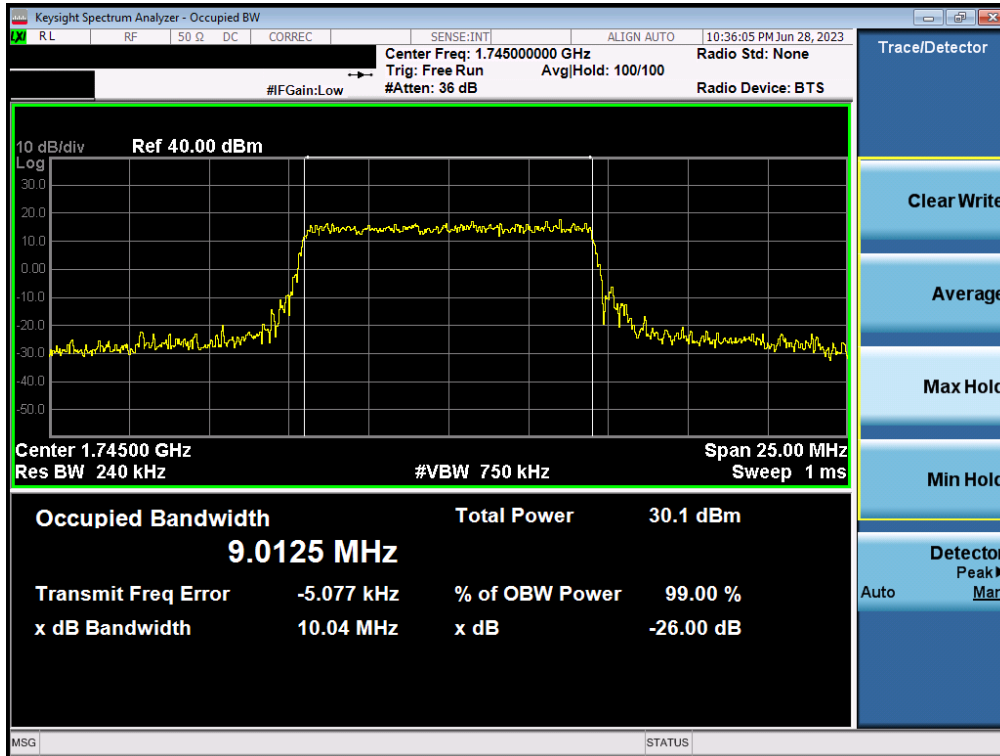


Plot 7-45. Occupied Bandwidth Plot (LTE Band 66/4 - 15MHz QPSK - Full RB - Ant2)

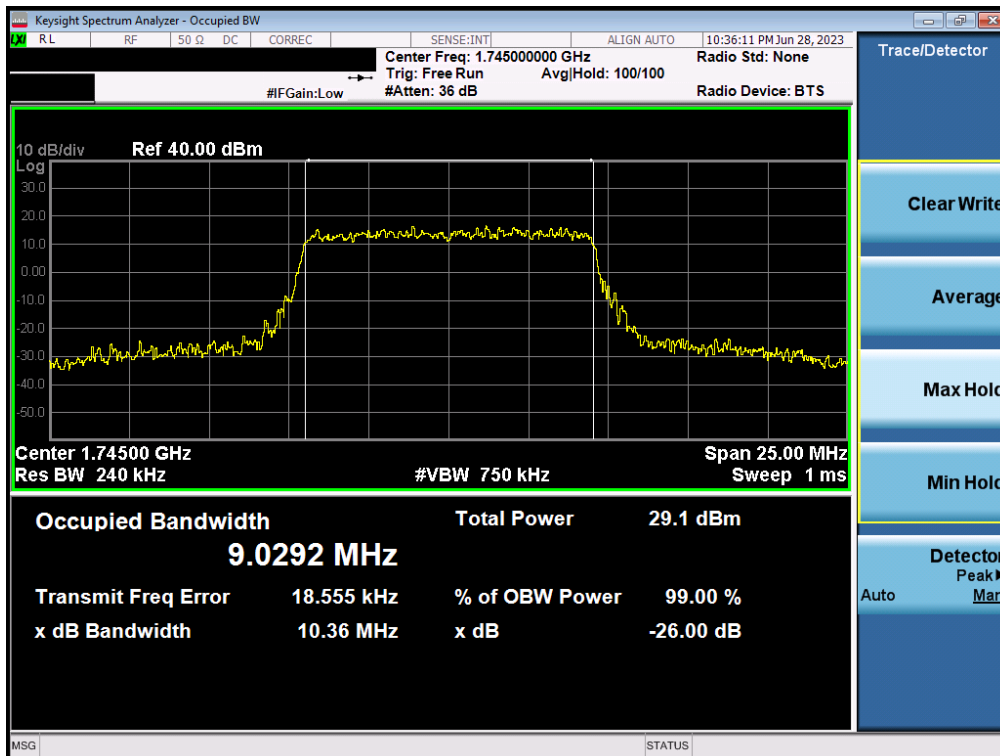


Plot 7-46. Occupied Bandwidth Plot (LTE Band 66/4 - 15MHz 16-QAM - Full RB - Ant2)

FCC ID: A3LSMS711B	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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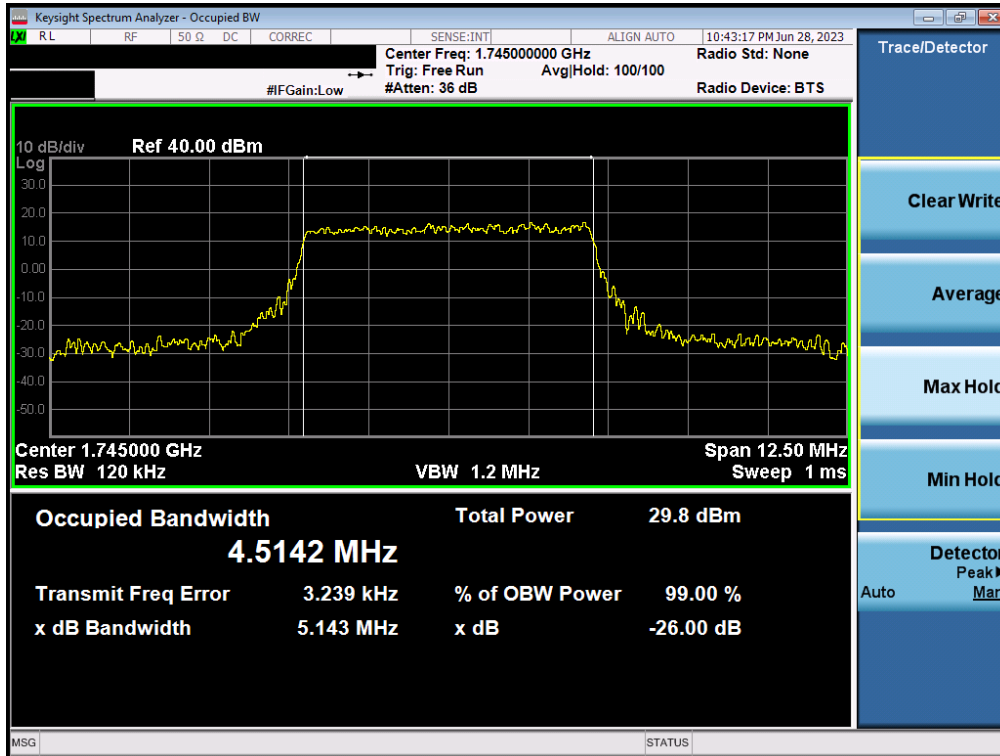


Plot 7-47. Occupied Bandwidth Plot (LTE Band 66/4 - 10MHz QPSK - Full RB - Ant2)

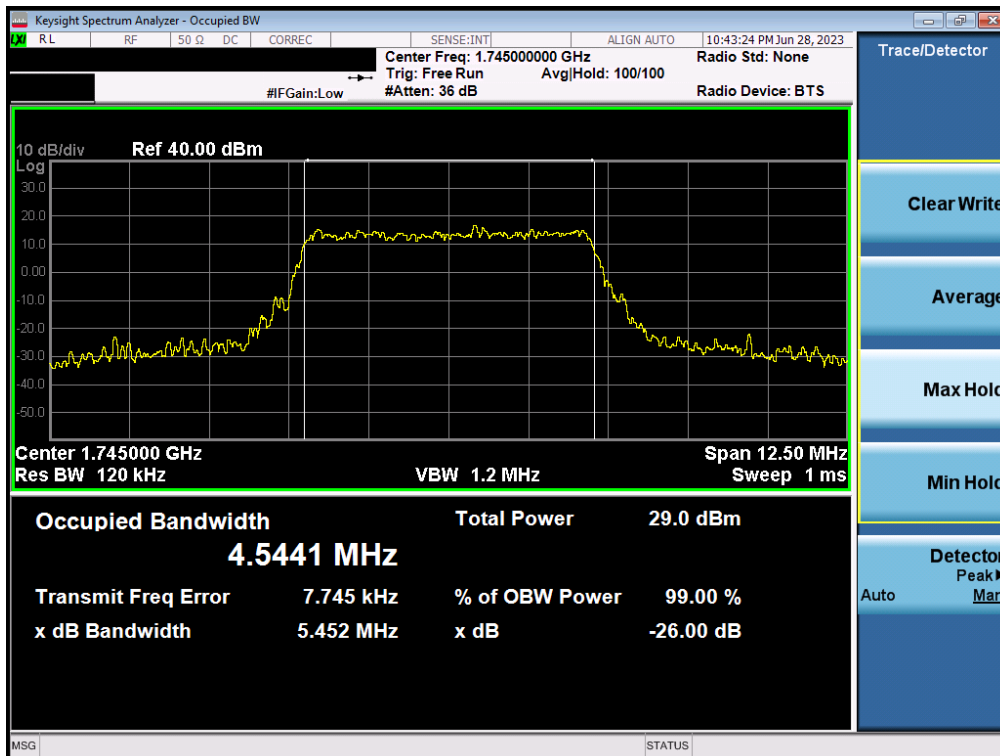


Plot 7-48. Occupied Bandwidth Plot (LTE Band 66/4 - 10MHz 16-QAM - Full RB - Ant2)

FCC ID: A3LSMS711B	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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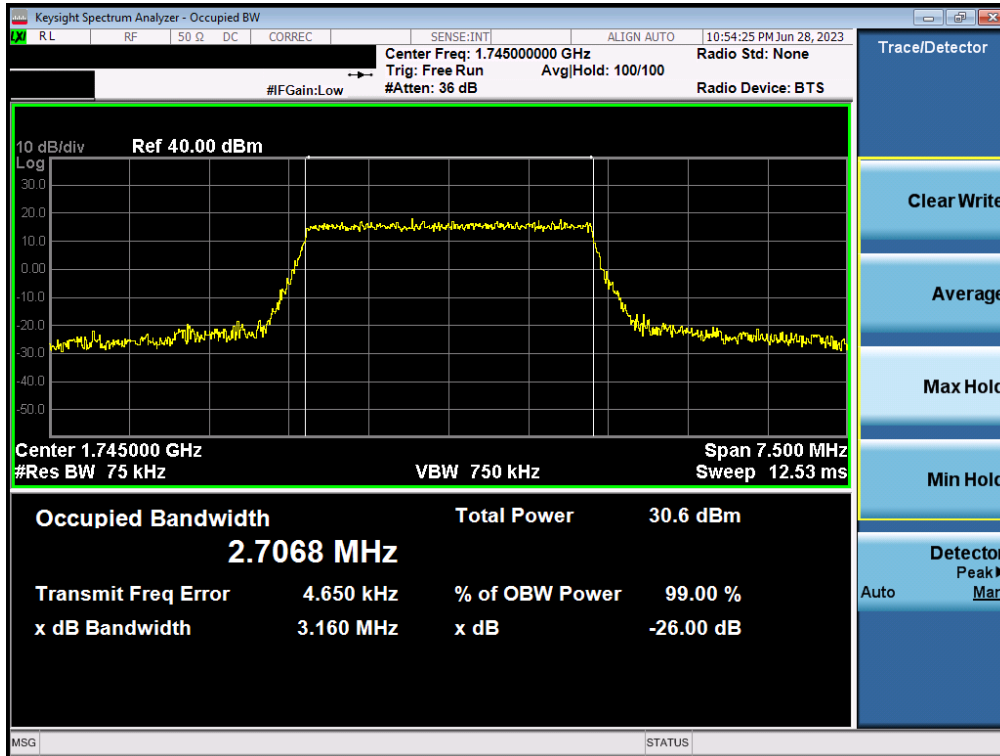


Plot 7-49. Occupied Bandwidth Plot (LTE Band 66/4 - 5MHz QPSK - Full RB - Ant2)

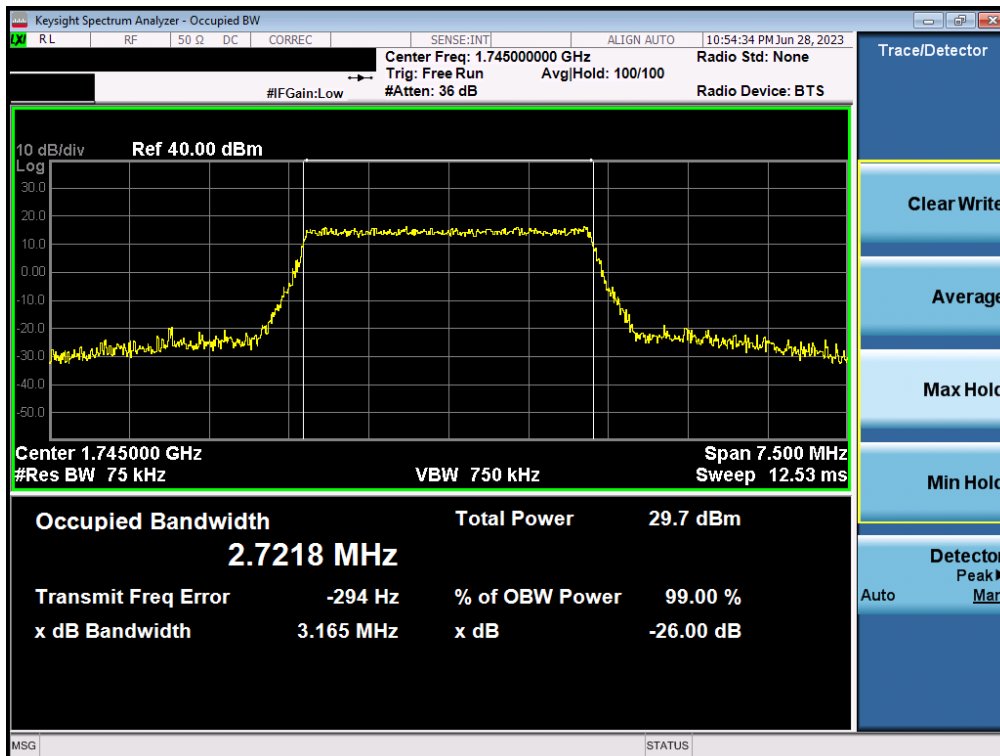


Plot 7-50. Occupied Bandwidth Plot (LTE Band 66/4 - 5MHz 16-QAM - Full RB - Ant2)

FCC ID: A3LSMS711B	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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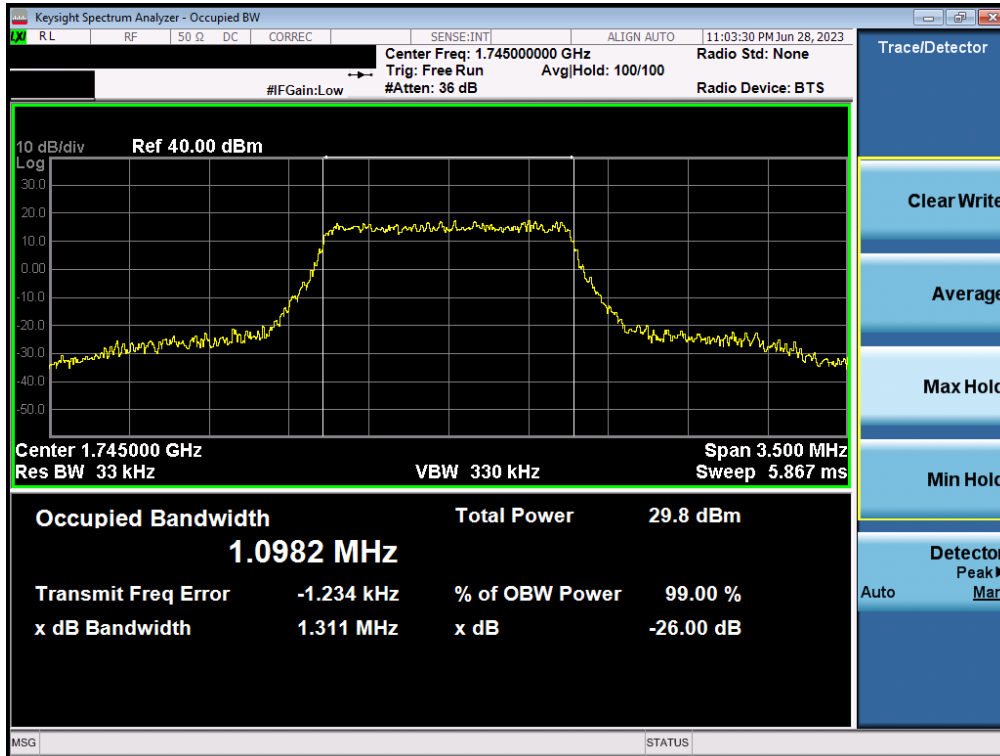


Plot 7-51. Occupied Bandwidth Plot (LTE Band 66/4 - 3MHz QPSK - Full RB - Ant2)

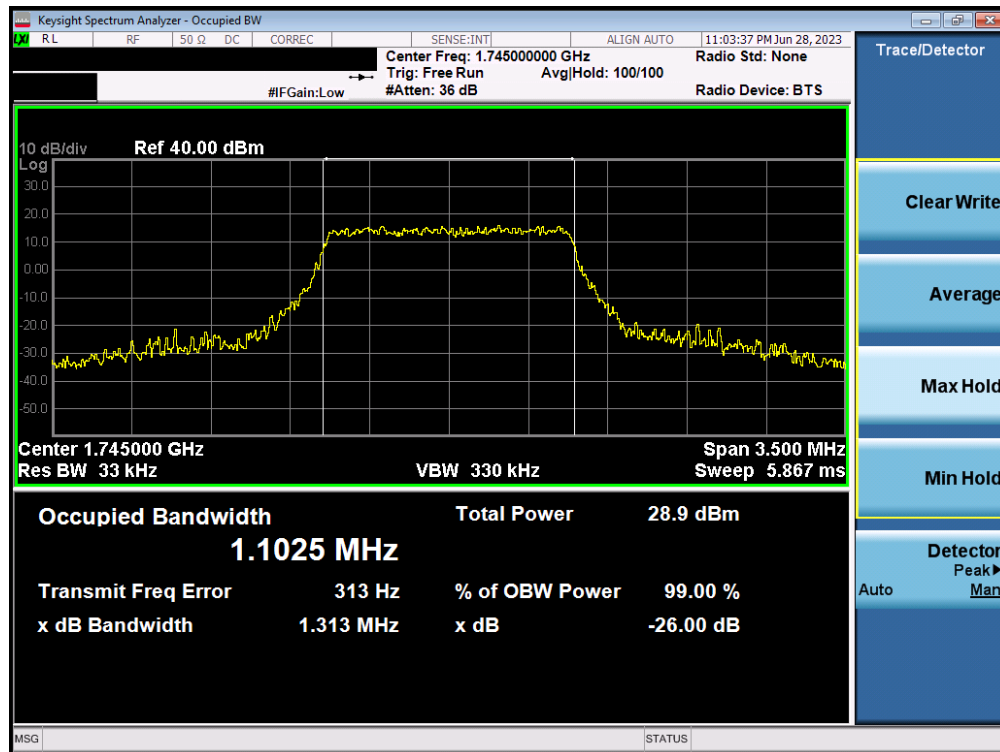


Plot 7-52. Occupied Bandwidth Plot (LTE Band 66/4 - 3MHz 16-QAM - Full RB - Ant2)

FCC ID: A3LSMS711B		PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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Plot 7-53. Occupied Bandwidth Plot (LTE Band 66/4 - 1.4MHz QPSK - Full RB - Ant2)

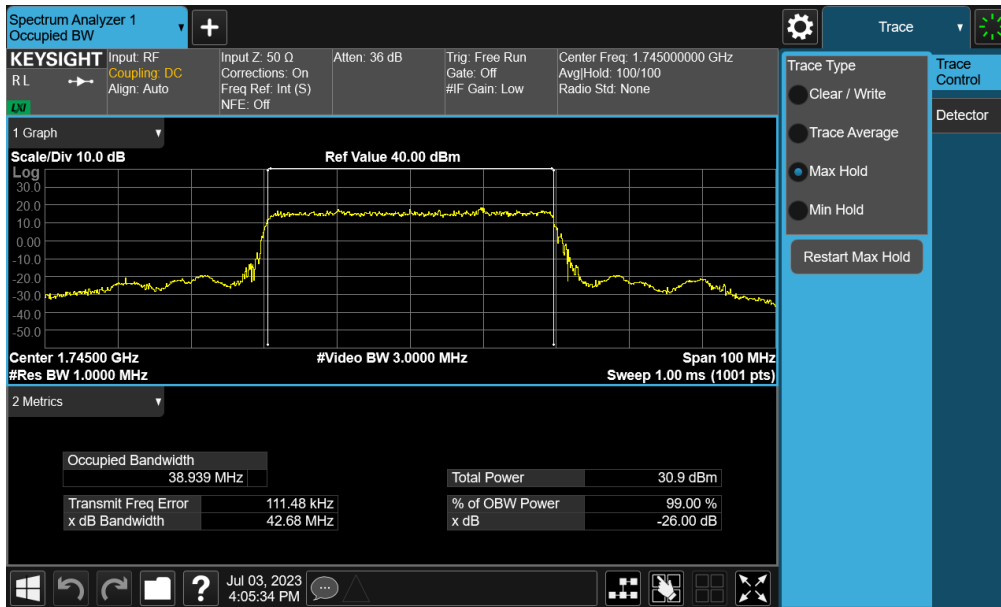


Plot 7-54. Occupied Bandwidth Plot (LTE Band 66/4 - 1.4MHz 16-QAM - Full RB - Ant2)

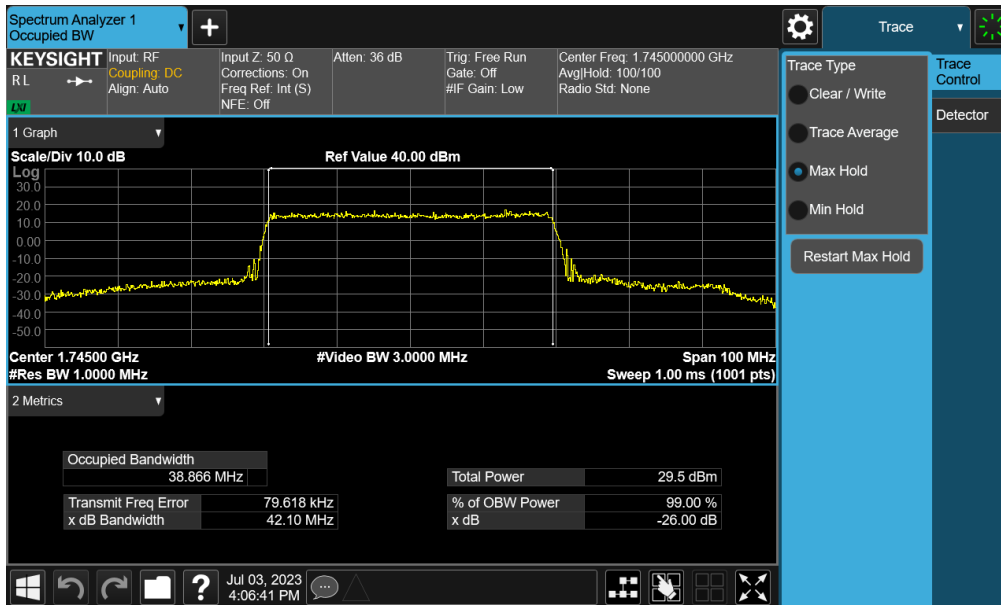
FCC ID: A3LSMS711B	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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## NR Band n66 – Ant2

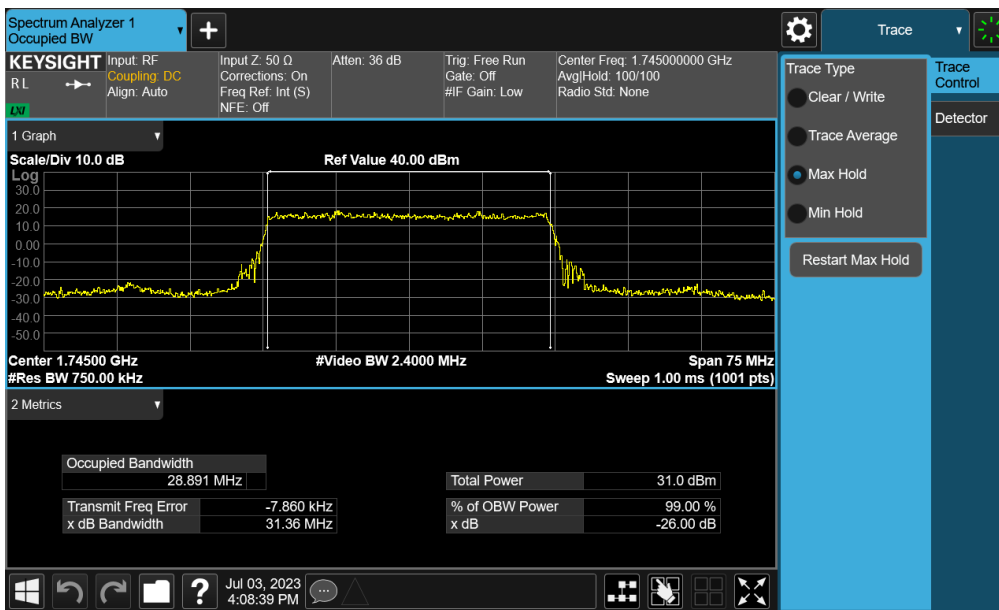
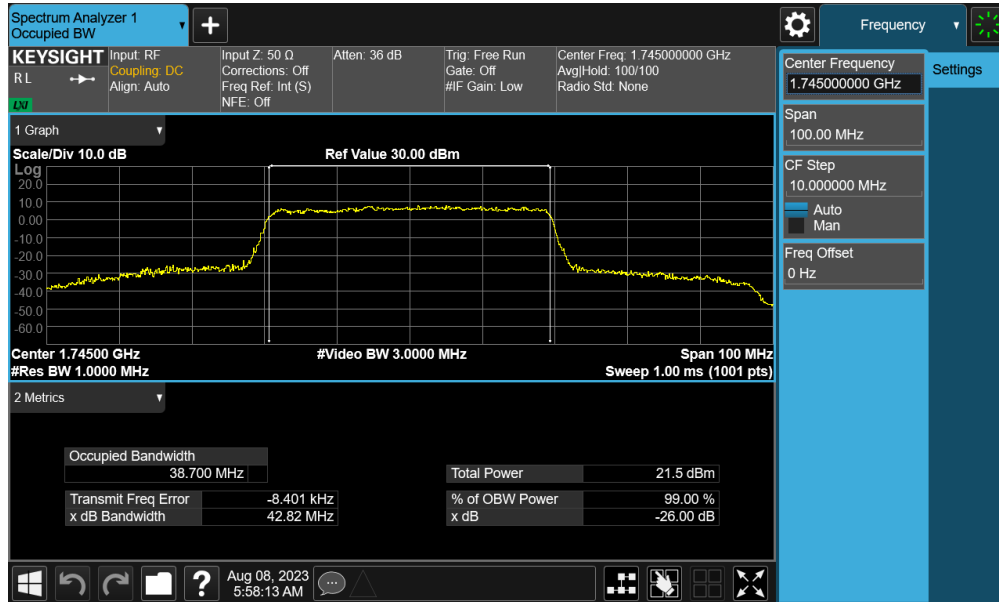


Plot 7-55. Occupied Bandwidth Plot (NR Band n66 - 40.0MHz DFT-s-OFDM BPSK - Full RB – Ant2)

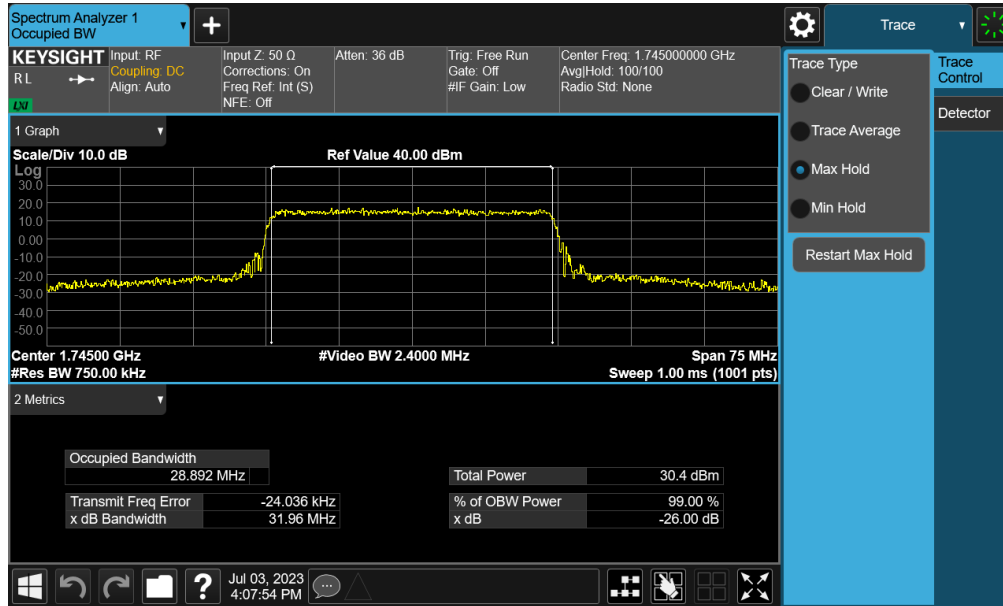


Plot 7-56. Occupied Bandwidth Plot (NR Band n66 - 40.0MHz CP-OFDM QPSK - Full RB – Ant2)

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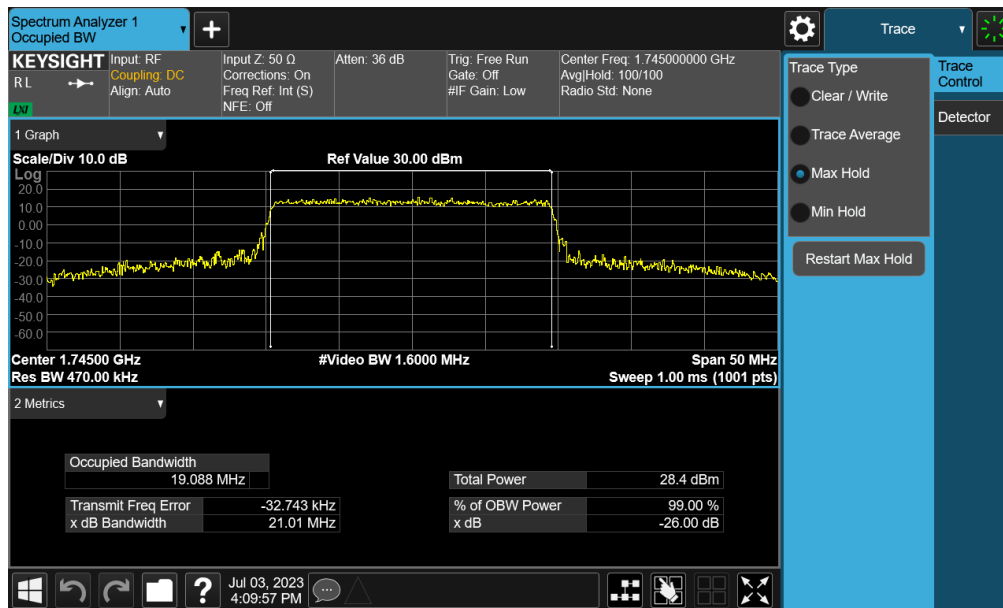
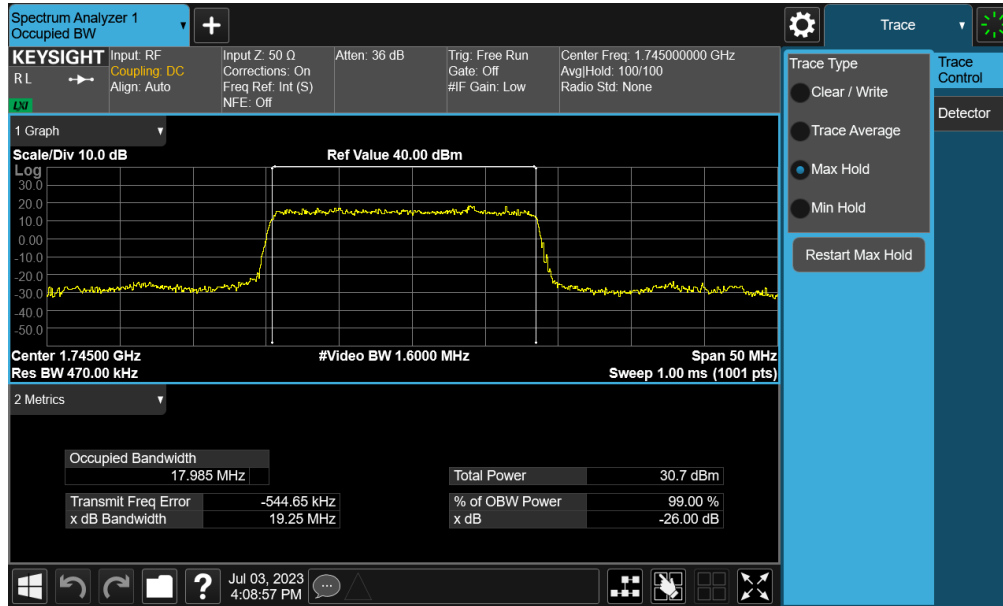


Plot 7-59. Occupied Bandwidth Plot (NR Band n66 - 30.0MHz CP-OFDM QPSK - Full RB – Ant2)

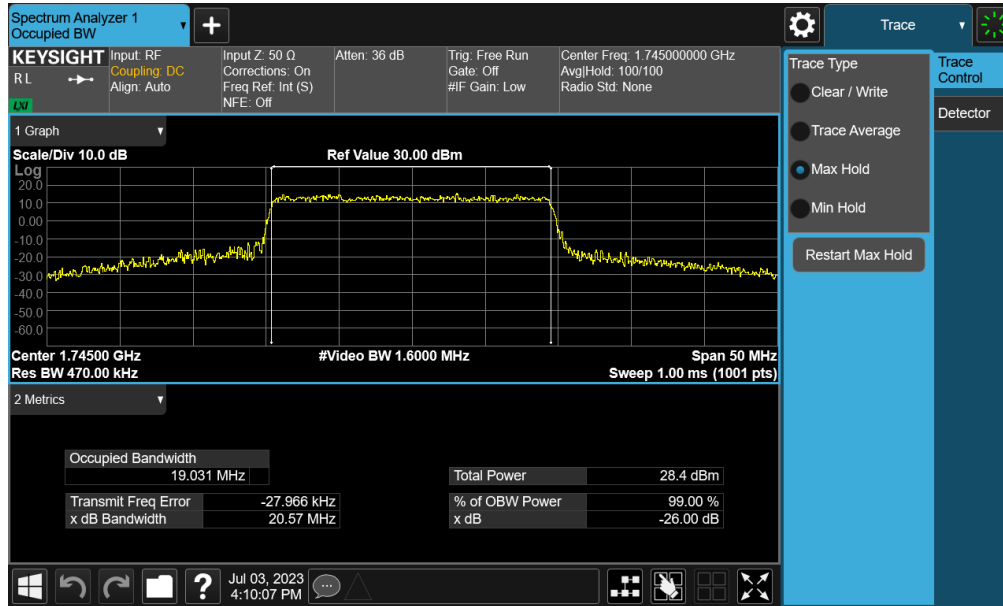


Plot 7-60. Occupied Bandwidth Plot (NR Band n66 - 30.0MHz CP-OFDM 16QAM - Full RB – Ant2)

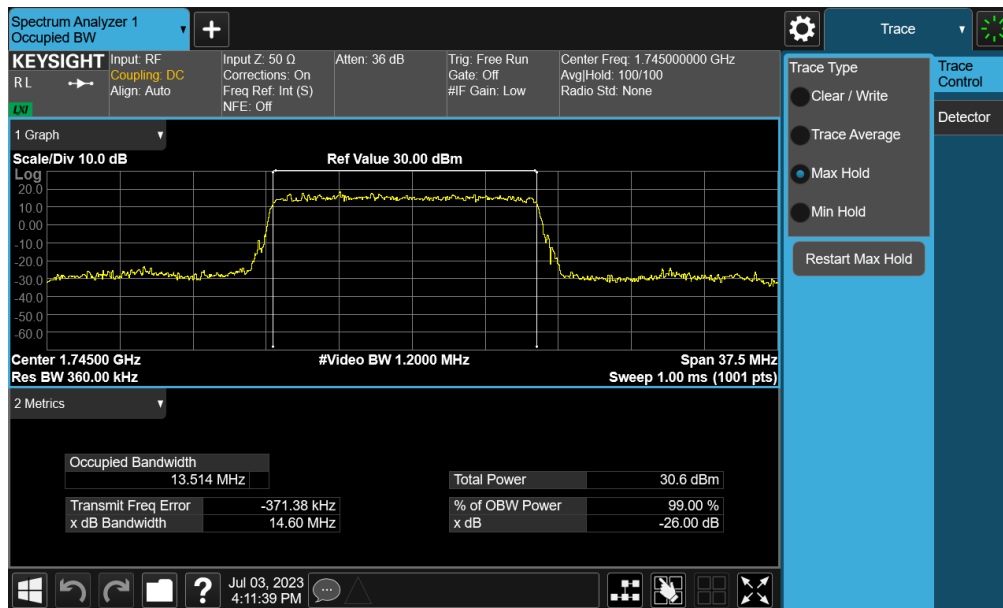
FCC ID: A3LSMS711B	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2304260063-06.A3L	Test Dates: 5/30 - 8/4/2023	EUT Type: Portable Handset	Page 51 of 142



FCC ID: A3LSMS711B	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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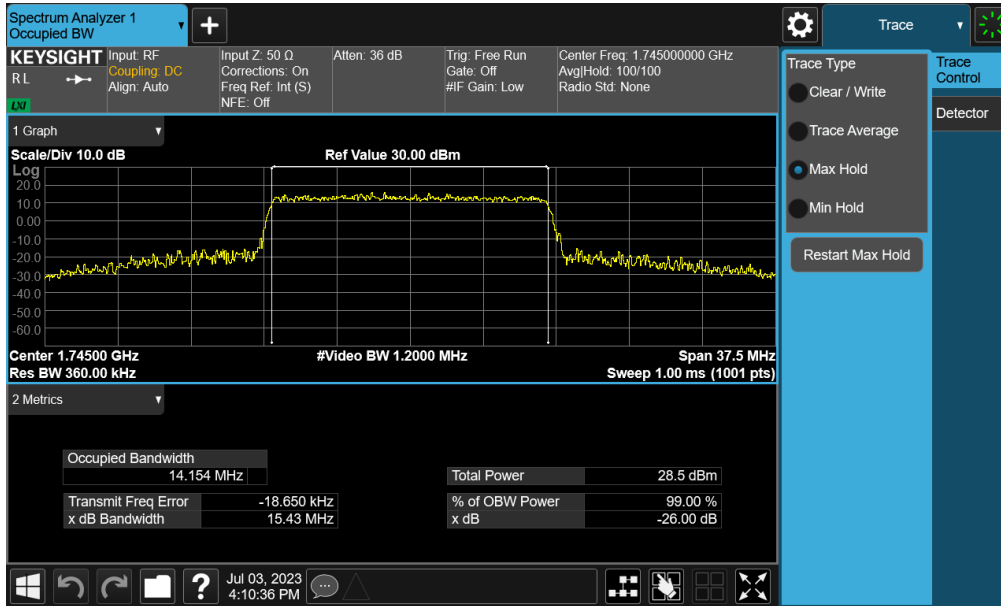


Plot 7-63. Occupied Bandwidth Plot (NR Band n66 - 20.0MHz CP-OFDM 16QAM - Full RB – Ant2)



Plot 7-64. Occupied Bandwidth Plot (NR Band n66 - 15.0MHz DFT-s-OFDM BPSK - Full RB – Ant2)

FCC ID: A3LSMS711B	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2304260063-06.A3L	Test Dates: 5/30 - 8/4/2023	EUT Type: Portable Handset	Page 53 of 142

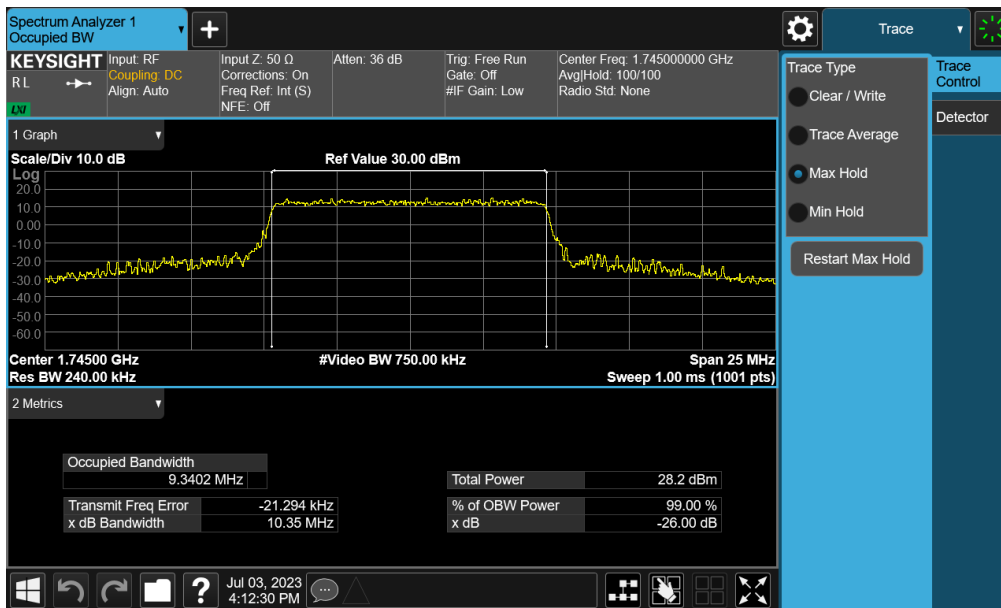
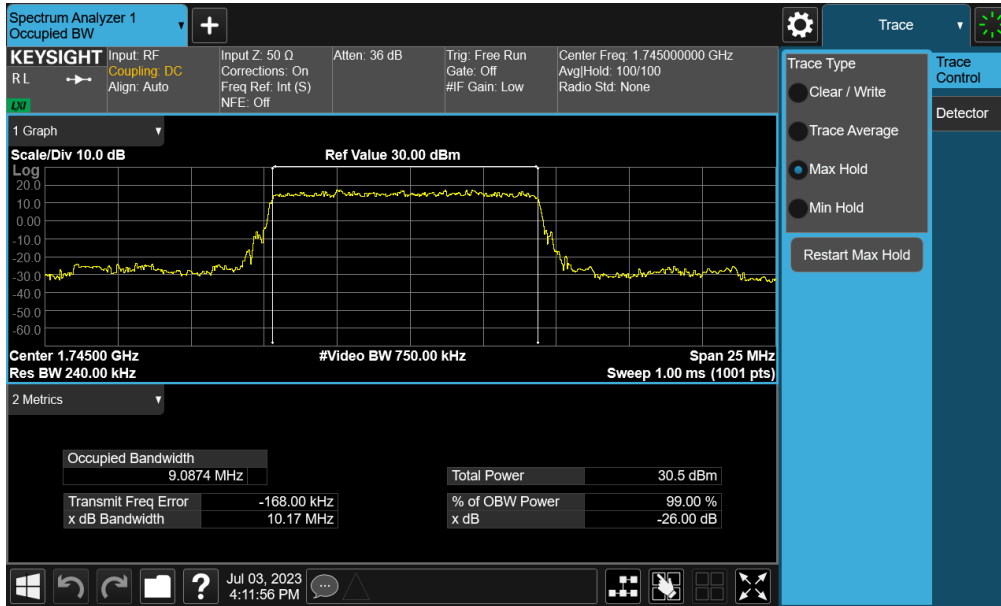


Plot 7-65. Occupied Bandwidth Plot (NR Band n66 - 15.0MHz CP-OFDM QPSK - Full RB – Ant2)

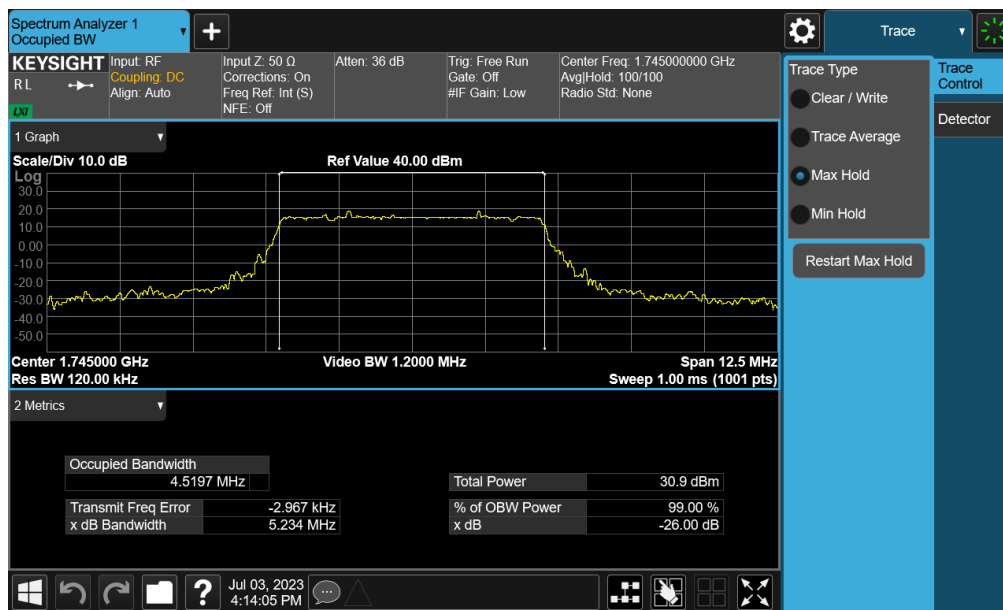
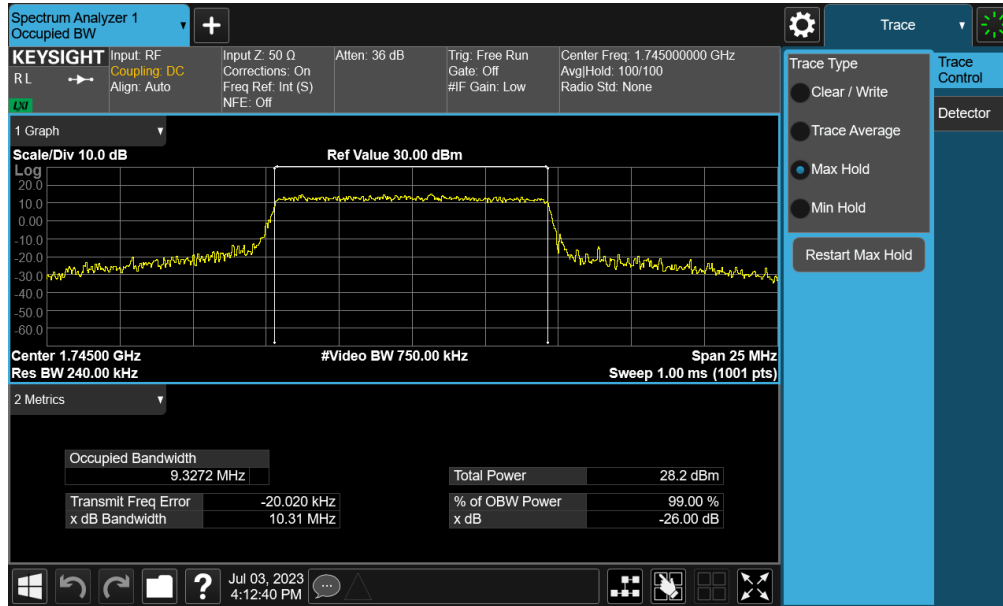


Plot 7-66. Occupied Bandwidth Plot (NR Band n66 - 15.0MHz CP-OFDM 16QAM - Full RB – Ant2)

FCC ID: A3LSMS711B	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2304260063-06.A3L	Test Dates: 5/30 - 8/4/2023	EUT Type: Portable Handset	Page 54 of 142

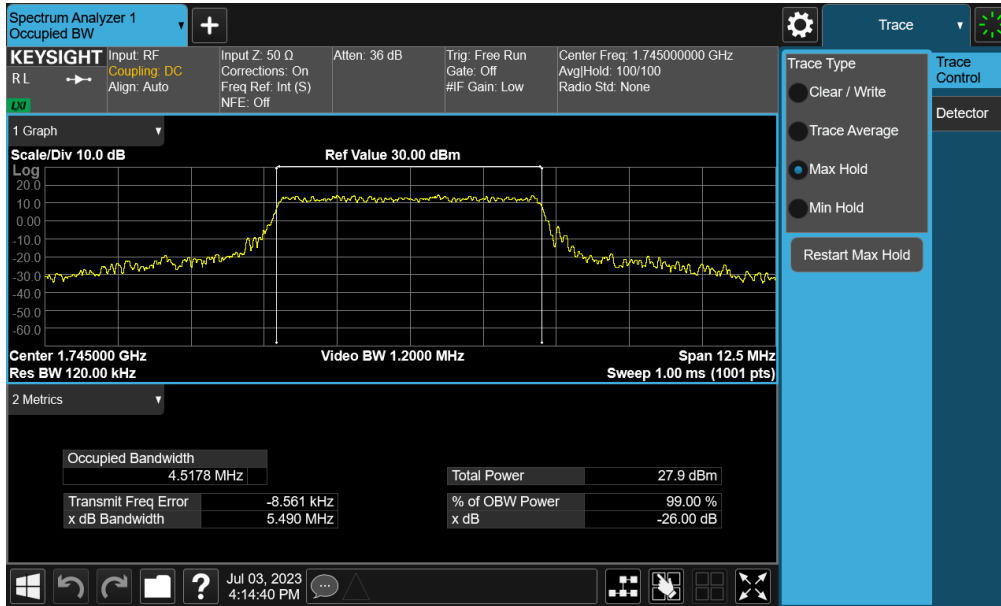


FCC ID: A3LSMS711B	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2304260063-06.A3L	Test Dates: 5/30 - 8/4/2023	EUT Type: Portable Handset	Page 55 of 142

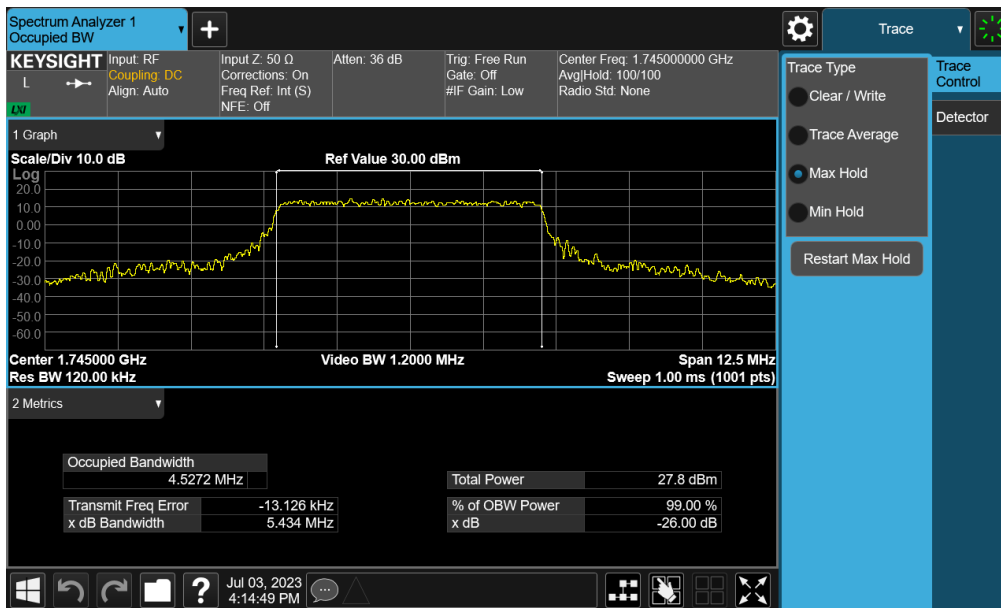


FCC ID: A3LSMS711B	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2304260063-06.A3L	Test Dates: 5/30 - 8/4/2023	EUT Type: Portable Handset	Page 56 of 142





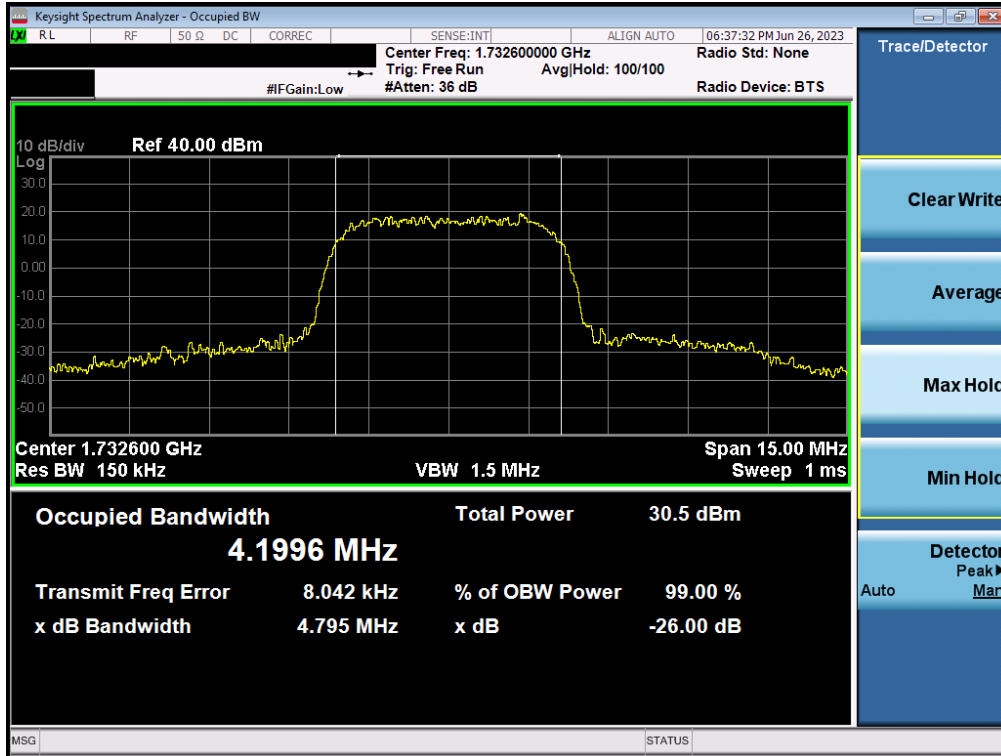
Plot 7-71. Occupied Bandwidth Plot (NR Band n66 - 5.0MHz CP-OFDM QPSK - Full RB – Ant2)



Plot 7-72. Occupied Bandwidth Plot (NR Band n66 - 5.0MHz CP-OFDM 16QAM - Full RB – Ant2)

FCC ID: A3LSMS711B	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2304260063-06.A3L	Test Dates: 5/30 - 8/4/2023	EUT Type: Portable Handset	Page 57 of 142

# WCDMA AWS – Ant1



Plot 7-73. Occupied Bandwidth Plot (WCDMA, Ch. 1413 – Ant1)

FCC ID: A3LSMS711B	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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## 7.4 Spurious and Harmonic Emissions at Antenna Terminal

### Test Overview

The level of the carrier and the various conducted spurious and harmonic frequencies is measured by means of a calibrated spectrum analyzer. The spectrum is scanned from the lowest frequency generated in the equipment up to a frequency including its 10<sup>th</sup> harmonic. All out of band emissions are measured with a spectrum analyzer connected to the antenna terminal of the EUT while the EUT is operating at maximum power, and at the appropriate frequencies. All data rates were investigated to determine the worst case configuration. All modes of operation were investigated and the worst case configuration results are reported in this section.

***The minimum permissible attenuation level of any spurious emission is  $43 + 10 \log_{10}(P_{\text{Watts}})$ , where  $P$  is the transmitter power in Watts.***

### Test Procedure Used

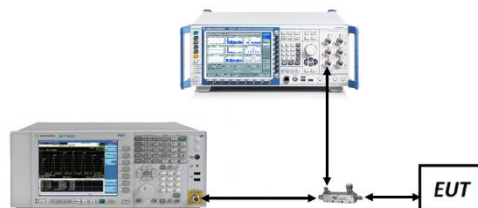
ANSI C63.26-2015 – Section 5.7.4

### Test Settings

1. Start frequency was set to 30MHz and stop frequency was set to 18GHz (separated into at least two plots per channel)
2. RBW  $\geq$  100kHz
3. VBW  $\geq$  3 x RBW
4. Detector = RMS
5. Trace mode = max hold
6. Sweep time = auto couple
7. The trace was allowed to stabilize

### Test Setup

The EUT and measurement equipment were set up as shown in the diagram below.



**Figure 7-3. Test Instrument & Measurement Setup**

### Test Notes

1. Per Part 27 and RSS-139, compliance with the applicable limits is based on the use of measurement instrumentation employing a resolution bandwidth 100 kHz or greater for measurements below 1GHz.
2. For NR operation, all subcarrier spacings (SCS) and transmission schemes (e.g. CP-OFDM and DFT-s-OFDM) were investigated to determine the worst case configuration. All modes of operation were investigated and the worst case configuration results are reported in this section.

FCC ID: A3LSMS711B	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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Mode	Bandwidth	Channel	Range [MHz]	Level [dBm]	Limit [dBm]	Margin [dB]
LTE Band 12/17	10 MHz	Low	30.0 - 697.9	-45.49	-13	-32.49
		Low	716.0 - 1000.0	-46.84	-13	-33.84
		Low	1000.0 - 10000.0	-45.05	-13	-32.05
		Mid	30.0 - 698.0	-46.08	-13	-33.08
		Mid	716.0 - 1000.0	-47.27	-13	-34.27
		Mid	1000.0 - 10000.0	-45.16	-13	-32.16
		High	30.0 - 697.9	-51.03	-13	-38.03
		High	716.1 - 1000.0	-45.48	-13	-32.48
		High	1000.0 - 10000.0	-44.93	-13	-31.93
LTE Band 13	10 MHz	Mid	30.0 - 777.0	-46.00	-13	-33.00
		Mid	787.0 - 1000.0	-47.93	-13	-34.93
		Mid	1000.0 - 10000.0	-45.34	-13	-32.34

**Table 7-10. Conducted Spurious Emission Test Results – Ant1**

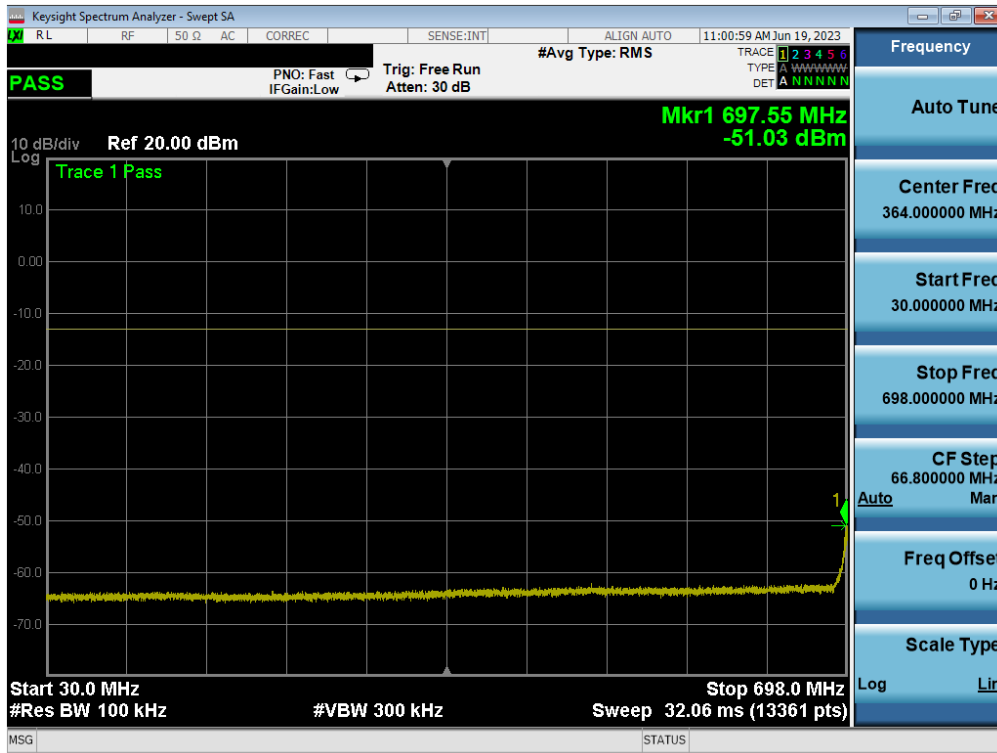
FCC ID: A3LSMS711B	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2304260063-06.A3L	Test Dates: 5/30 - 8/4/2023	EUT Type: Portable Handset	Page 60 of 142

Mode	Bandwidth	Channel	Range [MHz]	Level [dBm]	Limit [dBm]	Margin [dB]
WCDMA1700	N/A	Low	30.0 - 1705.0	-36.54	-13	-23.54
		Low	1755.0 - 10000.0	-46.85	-13	-33.85
		Low	10000.0 - 20000.0	-62.06	-13	-49.06
		Mid	30.0 - 1710.0	-53.20	-13	-40.20
		Mid	1755.0 - 10000.0	-46.85	-13	-33.85
		Mid	10000.0 - 20000.0	-62.03	-13	-49.03
		High	30.0 - 1710.0	-53.87	-13	-40.87
		High	1760.0 - 10000.0	-31.64	-13	-18.64
		High	10000.0 - 20000.0	-61.97	-13	-48.97
LTE Band 66/4	20 MHz	Low	30.0 - 1709.0	-38.12	-13	-25.12
		Low	1780.0 - 10000.0	-45.24	-13	-32.24
		Low	10000.0 - 20000.0	-56.49	-13	-43.49
		Mid	30.0 - 1710.0	-49.30	-13	-36.30
		Mid	1780.0 - 10000.0	-44.92	-13	-31.92
		Mid	10000.0 - 20000.0	-56.54	-13	-43.54
		High	30.0 - 1710.0	-49.18	-13	-36.18
		High	1781.0 - 10000.0	-37.10	-13	-24.10
		High	10000.0 - 20000.0	-56.25	-13	-43.25
NR Band n66	40 MHz	Low	30.0 - 1710.0	-41.07	-13	-28.07
		Low	1780.0 - 10000.0	-45.47	-13	-32.47
		Low	10000.0 - 20000.0	-56.72	-13	-43.72
		Mid	30.0 - 1710.0	-46.65	-13	-33.65
		Mid	1780.0 - 10000.0	-45.21	-13	-32.21
		Mid	10000.0 - 20000.0	-56.99	-13	-43.99
		High	30.0 - 1710.0	-48.58	-13	-35.58
		High	1780.0 - 10000.0	-41.09	-13	-28.09
		High	10000.0 - 20000.0	-56.69	-13	-43.69

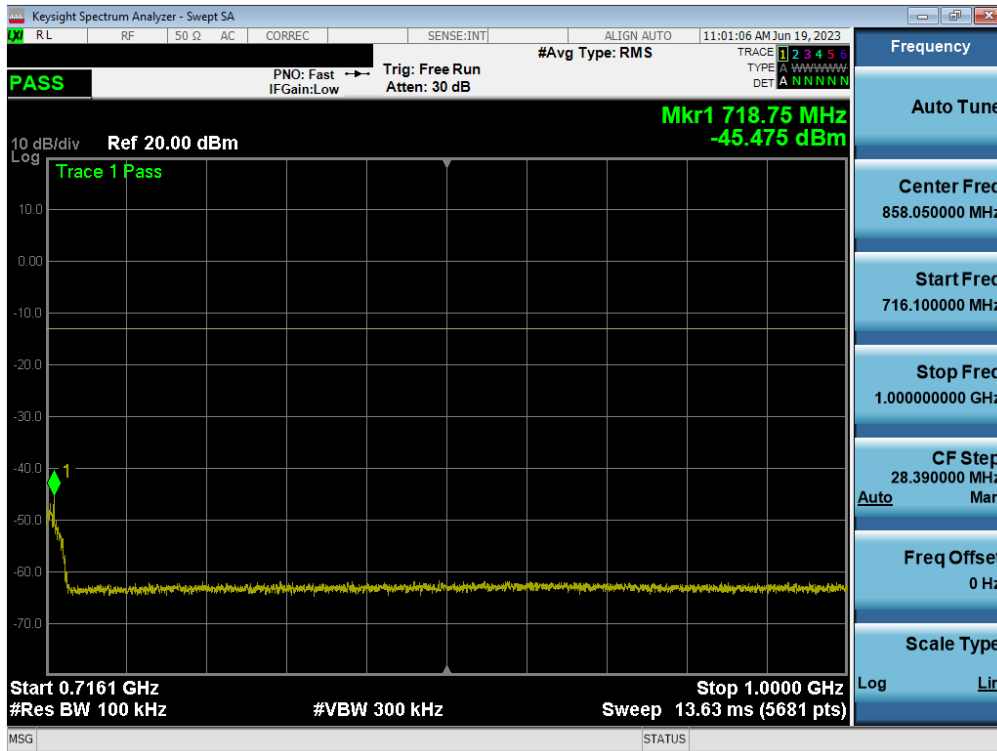
**Table 7-11. Conducted Spurious Emission Test Results – Ant1**

FCC ID: A3LSMS711B	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2304260063-06.A3L	Test Dates: 5/30 - 8/4/2023	EUT Type: Portable Handset	Page 61 of 142

# LTE Band 12/17 – Ant1

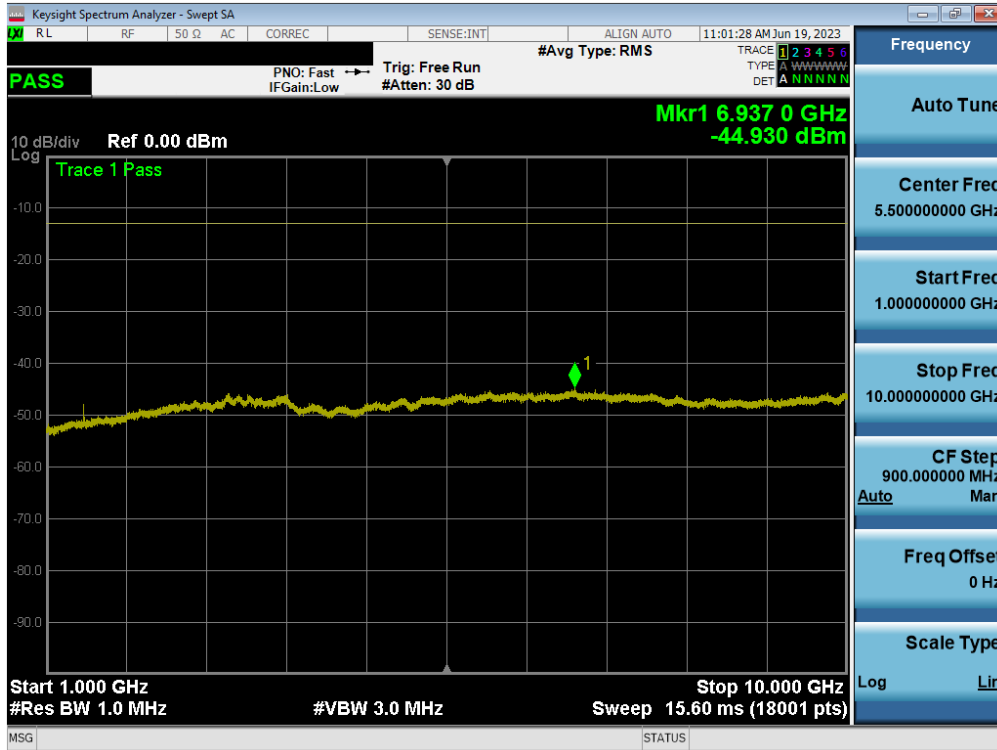


Plot 7-74. Conducted Spurious Plot (LTE Band 12/17 - 10MHz QPSK - 1 RB - High Channel - Ant1)



Plot 7-75. Conducted Spurious Plot (LTE Band 12/17 - 10MHz QPSK - 1 RB - High Channel - Ant1)

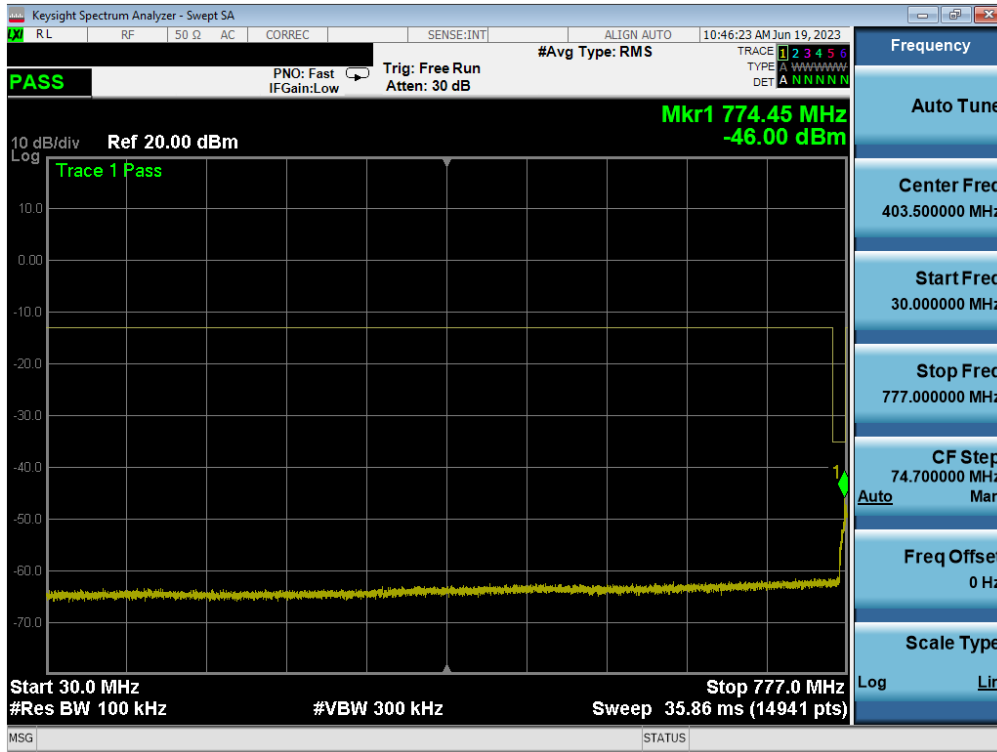
FCC ID: A3LSMS711B	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2304260063-06.A3L	Test Dates: 5/30 - 8/4/2023	EUT Type: Portable Handset	Page 62 of 142



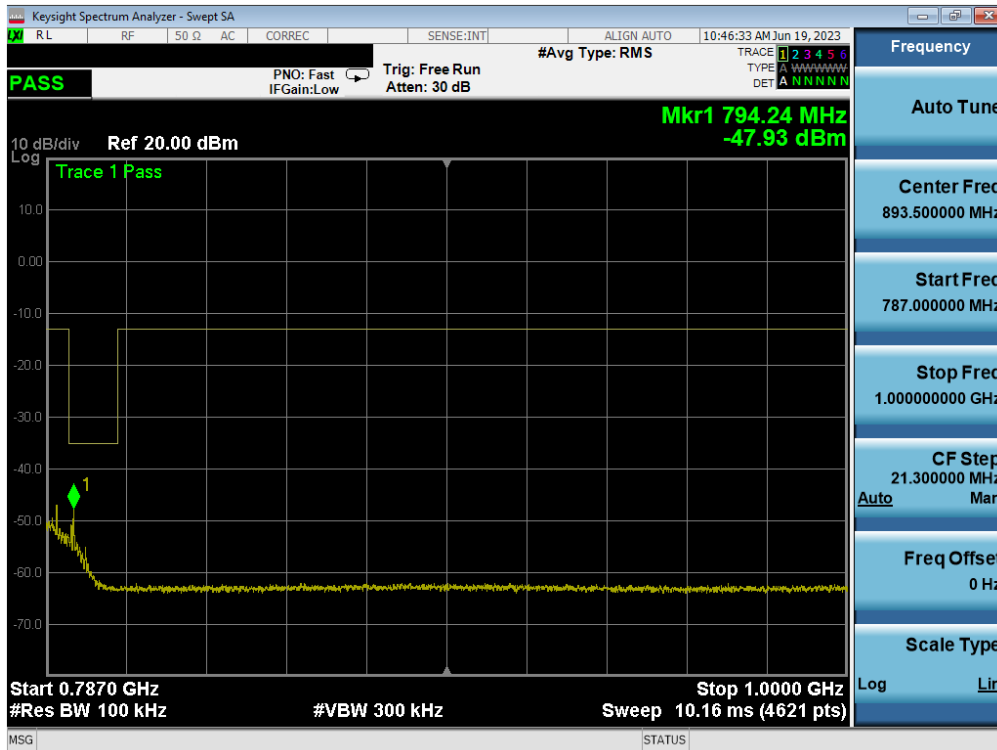
Plot 7-76. Conducted Spurious Plot (LTE Band 12/17 - 10MHz QPSK - 1 RB - High Channel - Ant1)

FCC ID: A3LSMS711B	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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# LTE Band 13 – Ant1



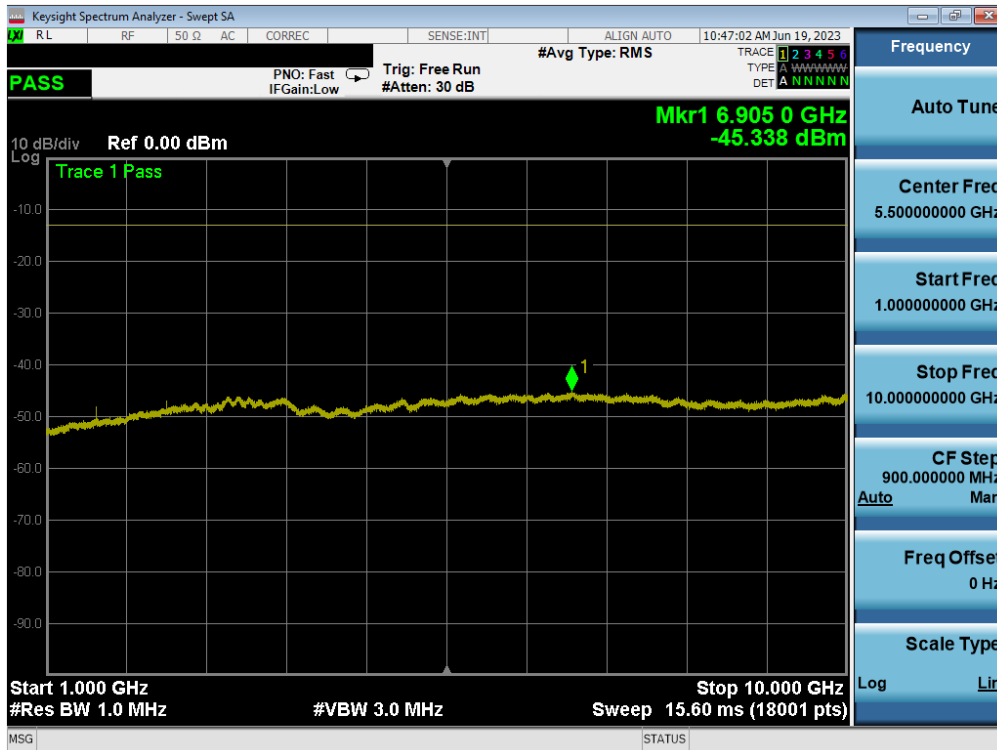
Plot 7-77. Conducted Spurious Plot (LTE Band 13 - 10MHz QPSK - 1 RB)



Plot 7-78. Conducted Spurious Plot (LTE Band 13 - 10MHz QPSK - 1 RB)

FCC ID: A3LSMS711B	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2304260063-06.A3L	Test Dates: 5/30 - 8/4/2023	EUT Type: Portable Handset	Page 64 of 142

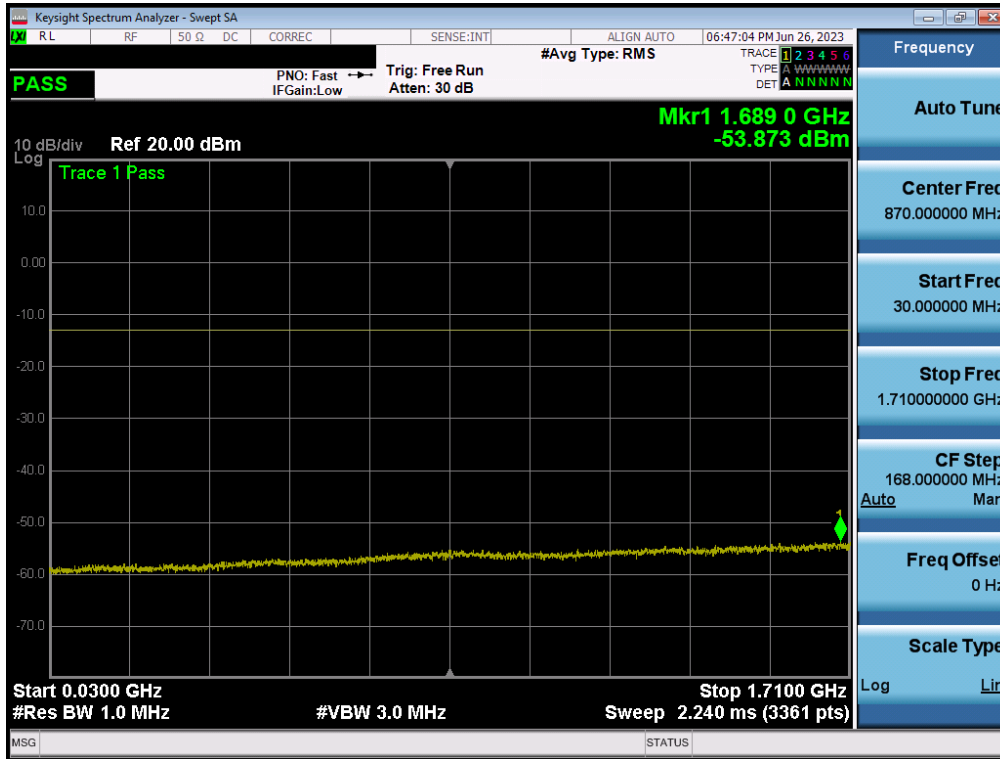




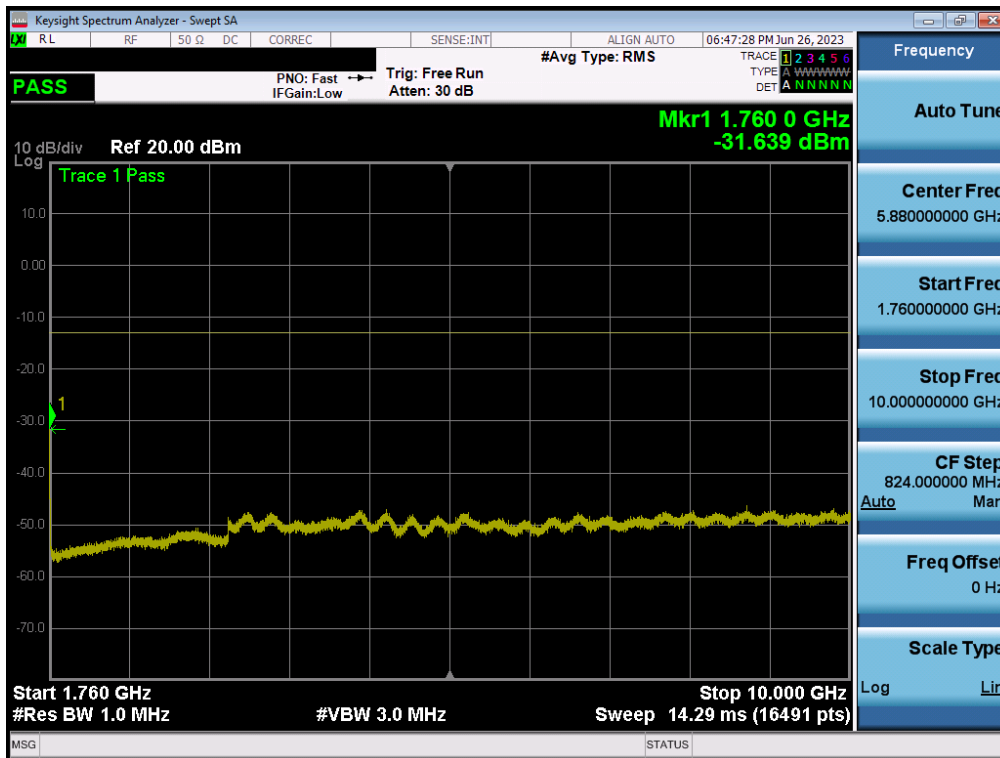
Plot 7-79. Conducted Spurious Plot (LTE Band 13 - 10MHz QPSK - 1 RB)

FCC ID: A3LSMS711B	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2304260063-06.A3L	Test Dates: 5/30 - 8/4/2023	EUT Type: Portable Handset	Page 65 of 142

# WCDMA AWS – Ant1

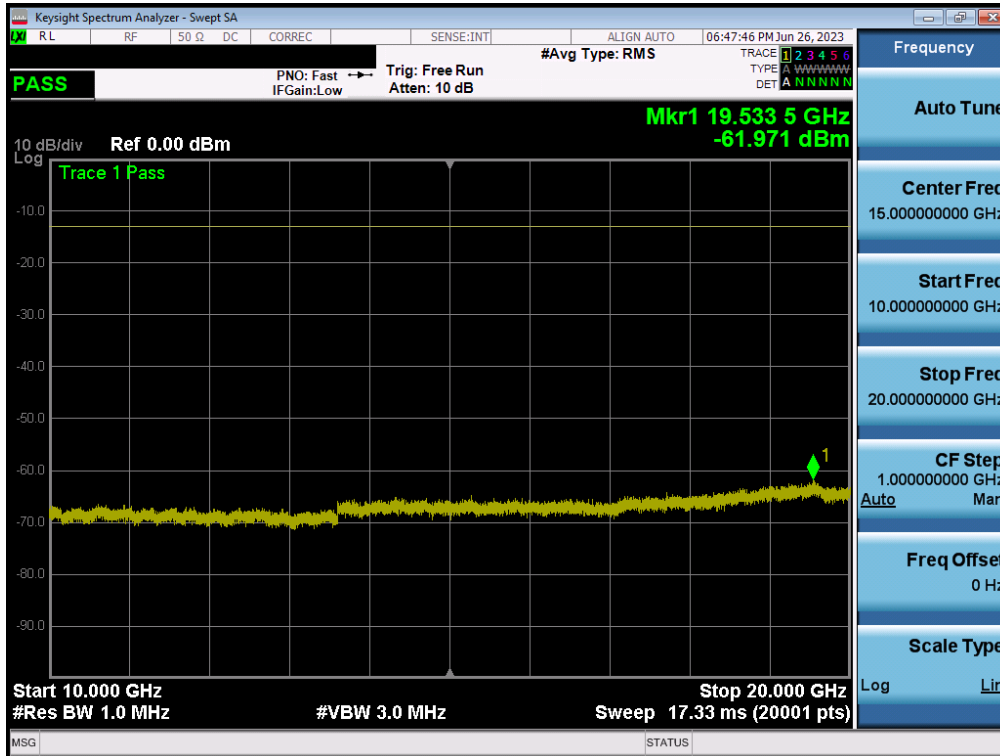


Plot 7-80. Conducted Spurious Plot (WCDMA Ch. 1513- High Channel - Ant1)



Plot 7-81. Conducted Spurious Plot (WCDMA Ch. 1513- High Channel - Ant1)

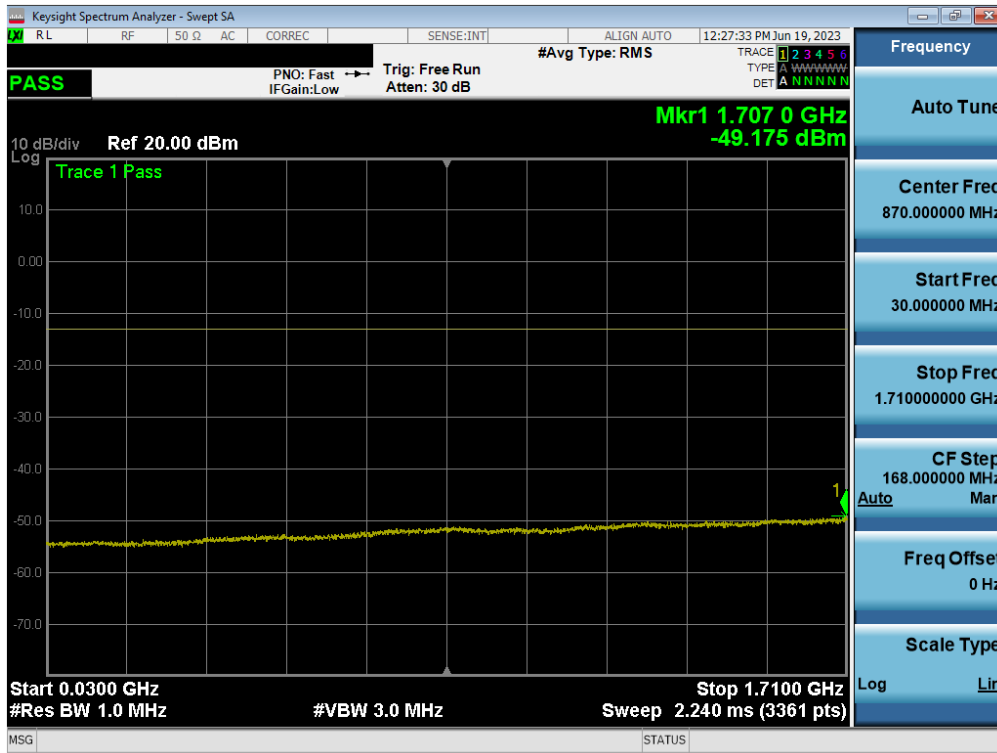
FCC ID: A3LSMS711B	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2304260063-06.A3L	Test Dates: 5/30 - 8/4/2023	EUT Type: Portable Handset	Page 66 of 142



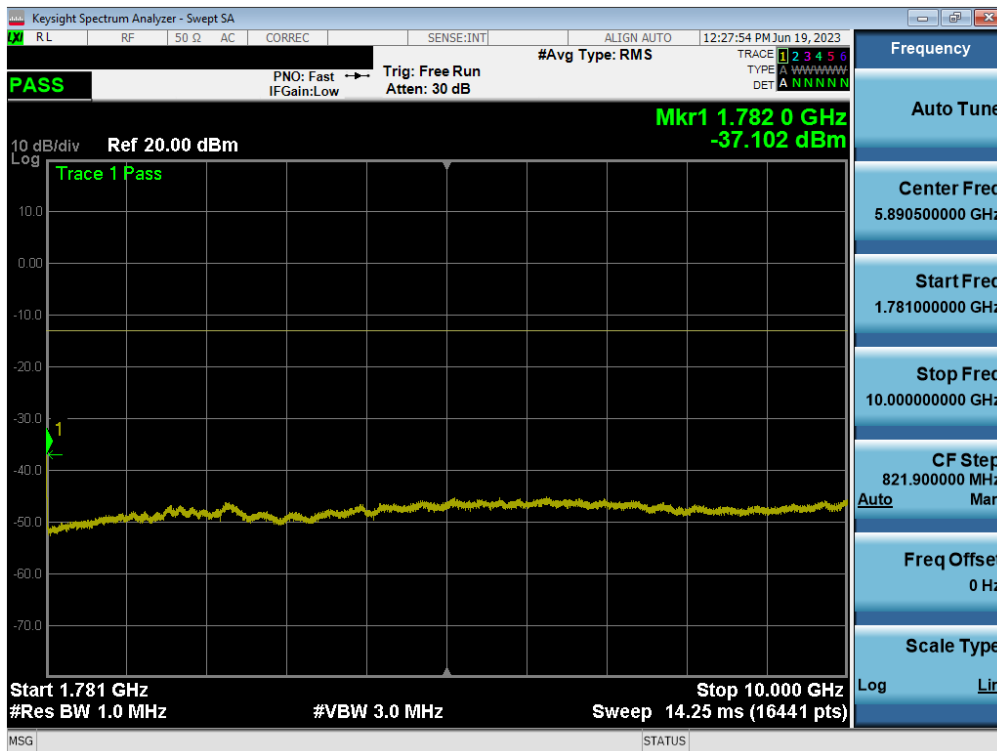
Plot 7-82. Conducted Spurious Plot (WCDMA Ch. 1513- High Channel - Ant1)

FCC ID: A3LSMS711B	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2304260063-06.A3L	Test Dates: 5/30 - 8/4/2023	EUT Type: Portable Handset	Page 67 of 142

## LTE Band 66/4 – Ant1

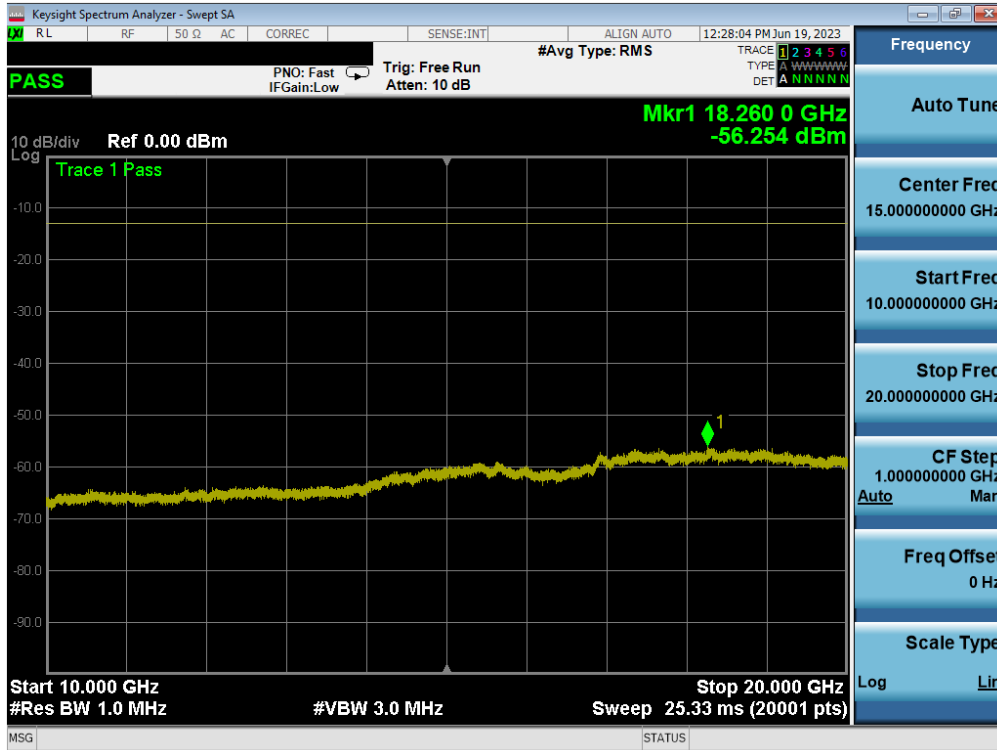


Plot 7-83. Conducted Spurious Plot (LTE Band 66/4 - 20MHz QPSK - 1 RB - High Channel – Ant1)



Plot 7-84. Conducted Spurious Plot (LTE Band 66/4 - 20MHz QPSK - 1 RB - High Channel – Ant1)

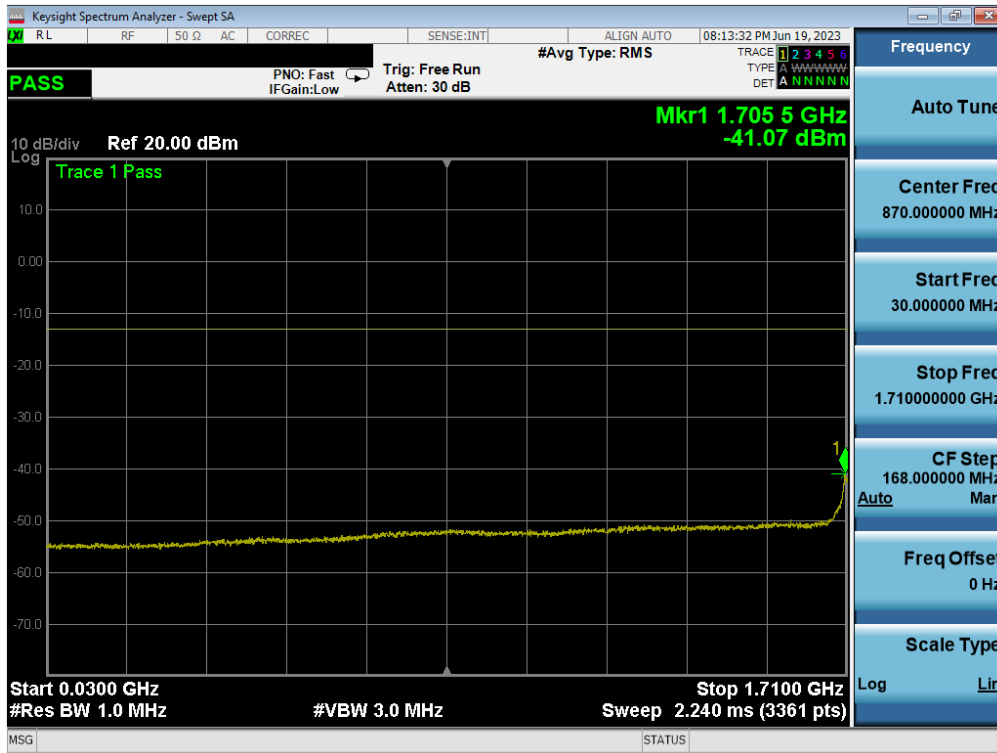
FCC ID: A3LSMS711B	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2304260063-06.A3L	Test Dates: 5/30 - 8/4/2023	EUT Type: Portable Handset	Page 68 of 142



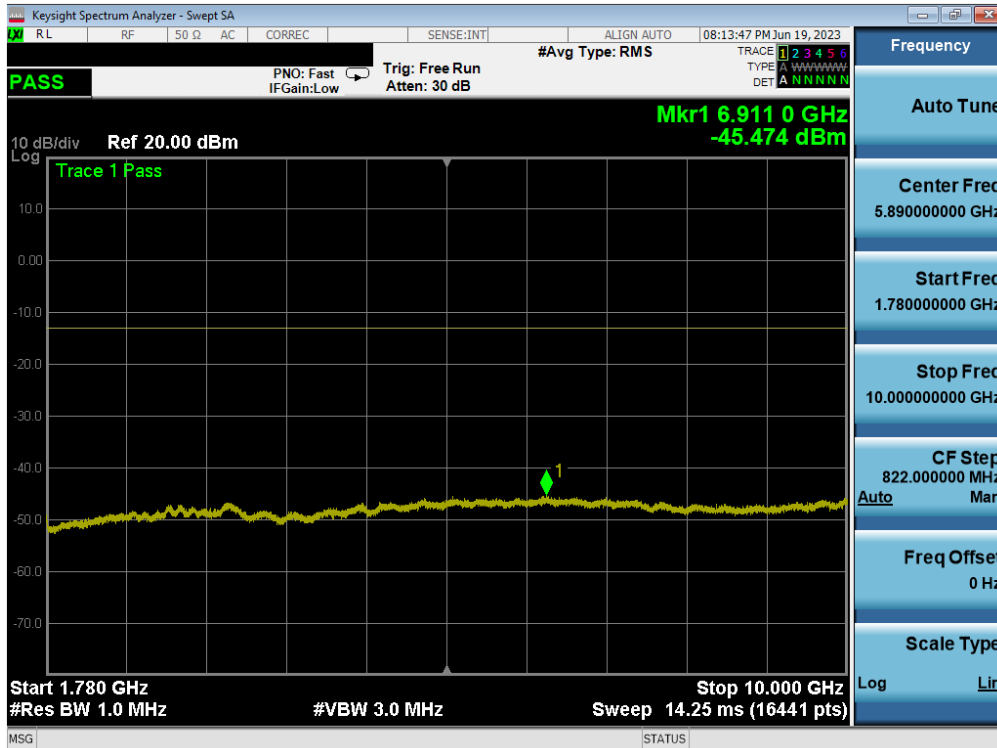
Plot 7-85. Conducted Spurious Plot (LTE Band 66/4 - 20MHz QPSK - 1 RB - High Channel – Ant1)

FCC ID: A3LSMS711B	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2304260063-06.A3L	Test Dates: 5/30 - 8/4/2023	EUT Type: Portable Handset	Page 69 of 142

# NR Band n66 – Ant1

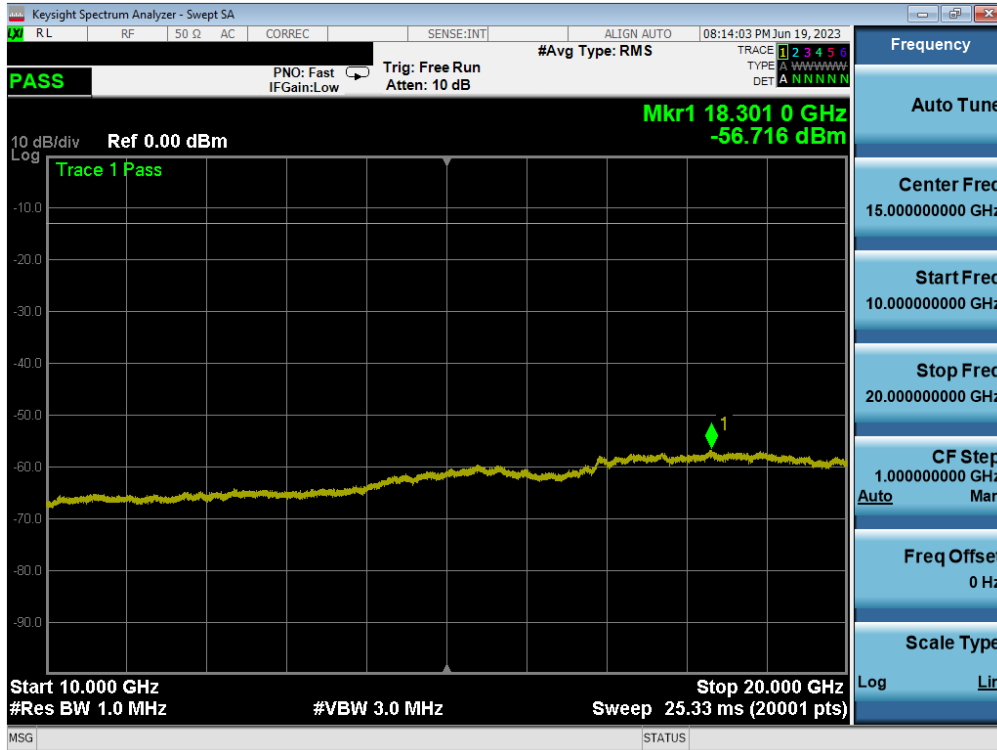


Plot 7-86. Conducted Spurious Plot (NR Band n66 -40.0MHz - 1 RB - Low Channel - Ant1)



Plot 7-87. Conducted Spurious Plot (NR Band n66 - 40.0MHz - 1 RB - Low Channel - Ant1)

FCC ID: A3LSMS711B	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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Plot 7-88. Conducted Spurious Plot (NR Band n66 - 40.0MHz - 1 RB - Low Channel - Ant1)

FCC ID: A3LSMS711B	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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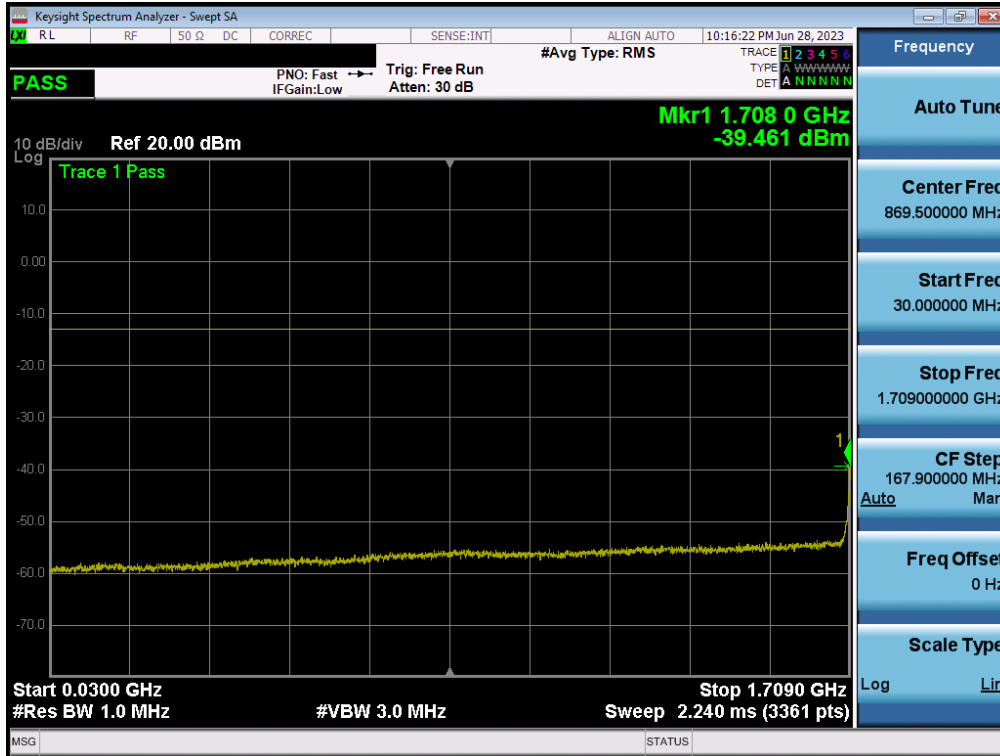
Mode	Bandwidth	Channel	Range [MHz]	Level [dBm]	Limit [dBm]	Margin [dB]
LTE Band 66/4	20 MHz	Low	30.0 - 1709.0	-39.46	-13	-26.46
		Low	1780.0 - 10000.0	-47.05	-13	-34.05
		Low	10000.0 - 20000.0	-62.31	-13	-49.31
		Mid	30.0 - 1710.0	-53.69	-13	-40.69
		Mid	1780.0 - 10000.0	-46.86	-13	-33.86
		Mid	10000.0 - 20000.0	-62.72	-13	-49.72
		High	30.0 - 1710.0	-53.54	-13	-40.54
		High	1781.0 - 10000.0	-39.97	-13	-26.97
		High	10000.0 - 20000.0	-62.60	-13	-49.60
NR Band n66	40 MHz	Low	30.0 - 1710.0	-49.37	-13	-36.37
		Low	1780.0 - 10000.0	-47.12	-13	-34.12
		Low	10000.0 - 20000.0	-62.80	-13	-49.80
		Mid	30.0 - 1710.0	-49.33	-13	-36.33
		Mid	1780.0 - 10000.0	-47.20	-13	-34.20
		Mid	10000.0 - 20000.0	-63.15	-13	-50.15
		High	30.0 - 1710.0	-52.25	-13	-39.25
		High	1780.0 - 10000.0	-42.85	-13	-29.85
		High	10000.0 - 20000.0	-62.73	-13	-49.73

**Table 7-12. Conducted Spurious Emission Test Results – Ant2**

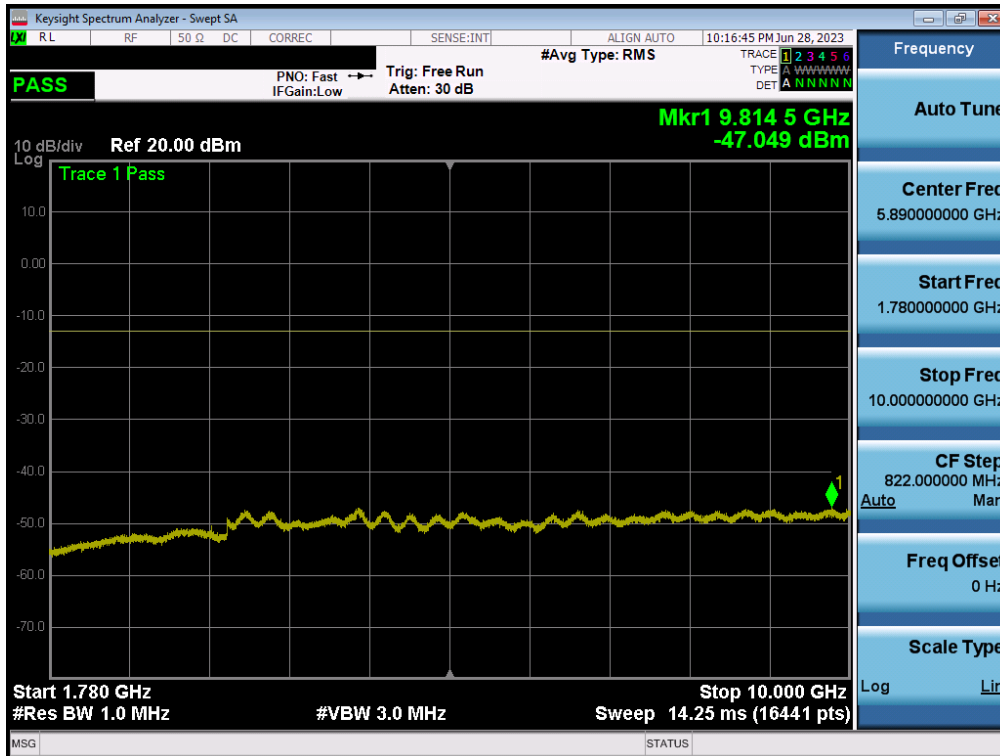
FCC ID: A3LSMS711B	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2304260063-06.A3L	Test Dates: 5/30 - 8/4/2023	EUT Type: Portable Handset	Page 72 of 142



### LTE Band 66/4 – Ant2

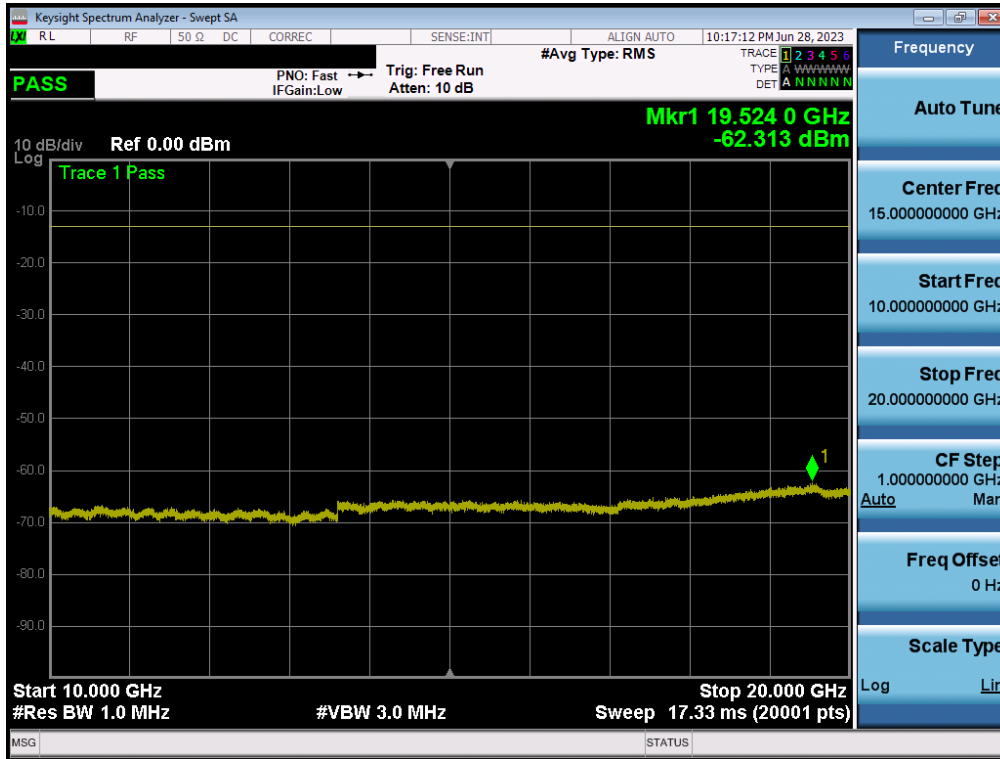


Plot 7-89. Conducted Spurious Plot (LTE Band 66/4 - 20MHz QPSK - 1 RB - Low Channel – Ant2)



Plot 7-90. Conducted Spurious Plot (LTE Band 66/4 - 20MHz QPSK - 1 RB - Low Channel – Ant2)

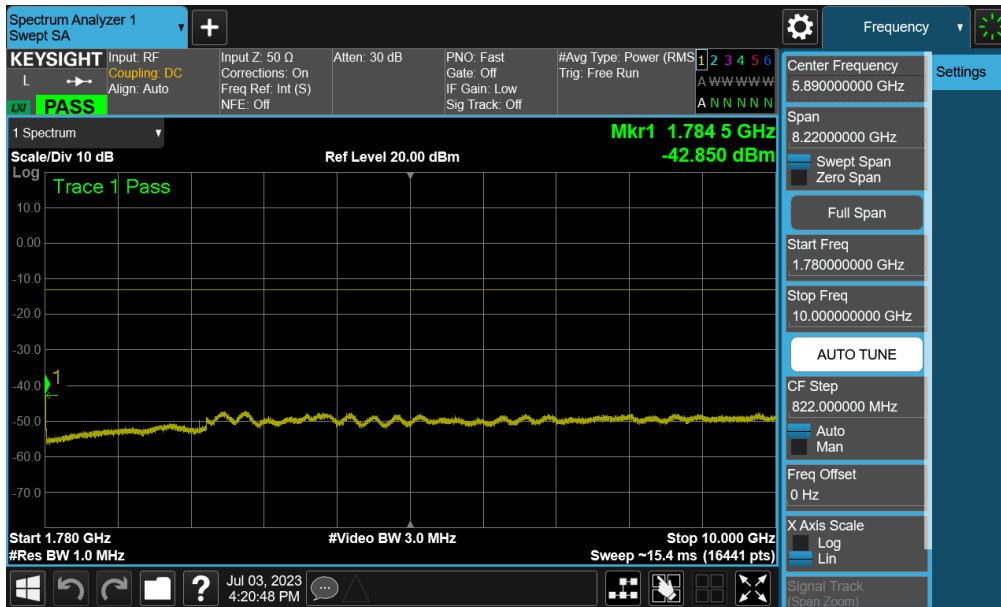
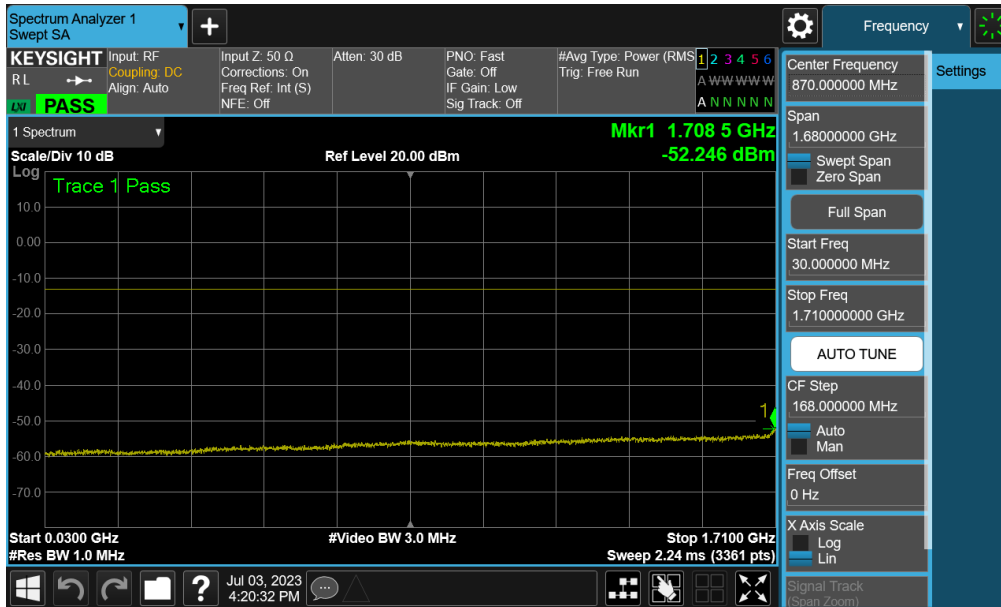
FCC ID: A3LSMS711B	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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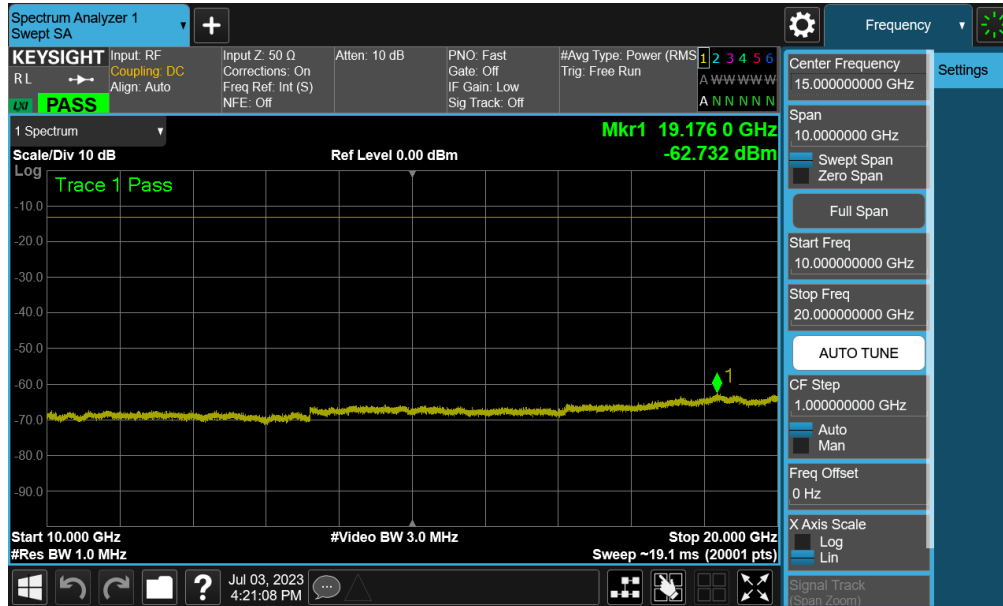
Plot 7-91. Conducted Spurious Plot (LTE Band 66/4 - 20MHz QPSK - 1 RB - Low Channel – Ant2)

FCC ID: A3LSMS711B	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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## NR Band n66 – Ant2



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Plot 7-94. Conducted Spurious Plot (NR Band n66 - 40.0MHz - 1 RB - High Channel - Ant2)

FCC ID: A3LSMS711B	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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## 7.5 Band Edge Emissions at Antenna Terminal

### Test Overview

All out of band emissions are measured with a spectrum analyzer connected to the antenna terminal of the EUT while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies. All data rates were investigated to determine the worst-case configuration. All modes of operation were investigated and the worst-case configuration results are reported in this section.

***The minimum permissible attenuation level of any spurious emission is  $43 + 10 \log_{10}(P_{[Watts]})$ , where P is the transmitter power in Watts.***

### Test Procedure Used

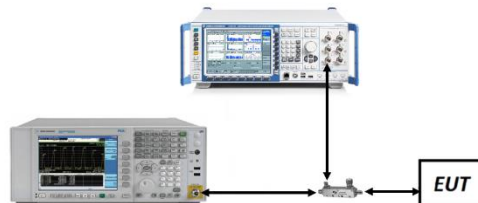
ANSI C63.26-2015 – Section 5.7.3

### Test Settings

1. Start and stop frequency were set such that the band edge would be placed in the center of the plot
2. Span was set large enough so as to capture all out of band emissions near the band edge
3. RBW  $\geq$  1% of the emission bandwidth
4. VBW  $\geq$  3 x RBW
5. Detector = RMS
6. Number of sweep points  $\geq$  2 x Span/RBW
7. Trace mode = trace average for continuous emissions, max hold for pulse emissions
8. Sweep time = auto couple
9. The trace was allowed to stabilize

### Test Setup

The EUT and measurement equipment were set up as shown in the diagram below.



**Figure 7-4. Test Instrument & Measurement Setup**

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**Test Notes**

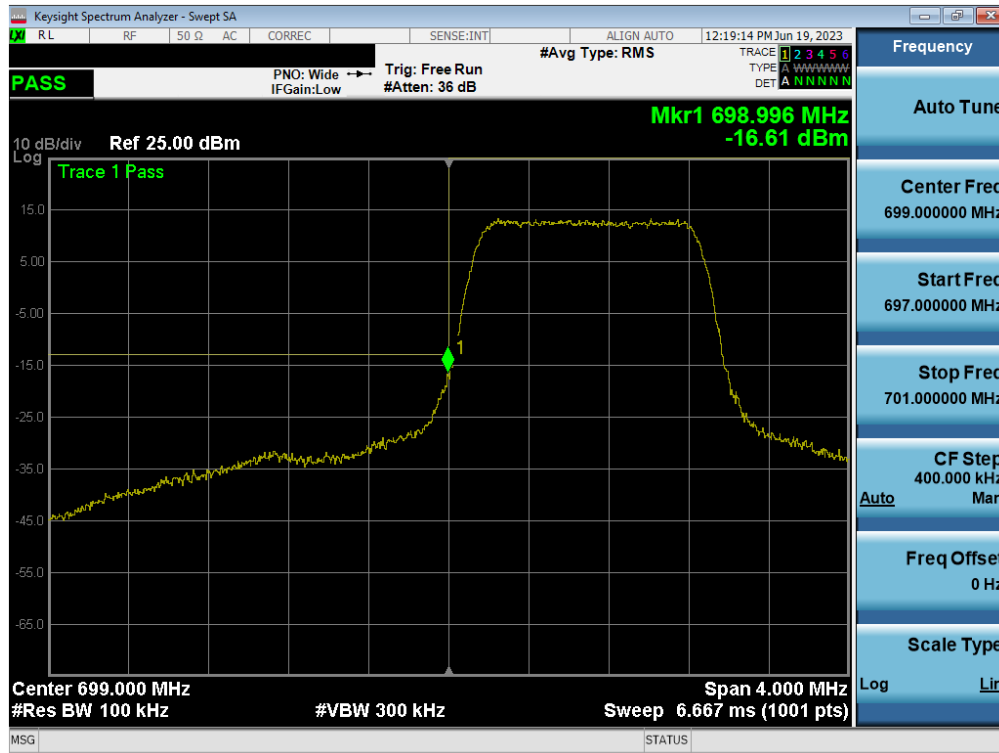
1. Per 27.53(h) for AWS band operation, in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed to demonstrate compliance with the out-of-band emissions limit. The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emission are attenuated at least 26 dB below the transmitter power.
2. Per 27.53(g) for operations in the 663 - 698 MHz and 698 – 746MHz bands, in the 100 kHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least 30 kHz may be employed to demonstrate compliance with the out-of-band emissions limit.
3. Per 27.53(c)(5) for operations in the 776-788 MHz band, in the 100 kHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least 30 kHz may be employed to demonstrate compliance with the out-of-band emissions limit.
4. For all plots showing emissions in the 763 – 775MHz and 793 – 805MHz band, the FCC limit per 27.53(c)(4) is  $65 + 10 \log_{10}(P) = -35\text{dBm}$  in a 6.25kHz bandwidth.

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### LTE Band 12/17 – Ant1

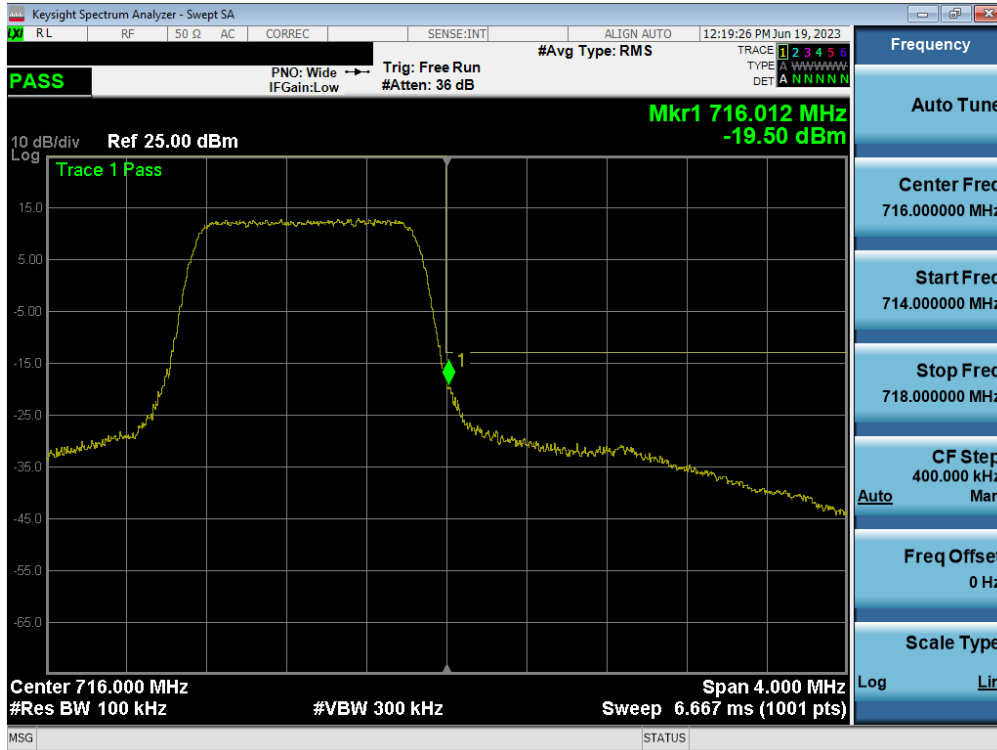
Mode	Bandwidth	Channel	Test Case	Level [dBm]	Limit [dBm]	Margin [dB]
LTE Band 12/17	10 MHz	Low (B12)	Band Edge	-28.74	-13	-15.74
		Low (B17)	Band Edge	-27.94	-13	-14.94
		High	Band Edge	-30.16	-13	-17.16
	5 MHz	Low (B12)	Band Edge	-21.47	-13	-8.47
		Low (B17)	Band Edge	-20.57	-13	-7.57
		High	Band Edge	-24.96	-13	-11.96
	3 MHz	Low	Band Edge	-18.27	-13	-5.27
		High	Band Edge	-17.63	-13	-4.63
	1.4 MHz	Low	Band Edge	-16.61	-13	-3.61
High		Band Edge	-19.50	-13	-6.50	

Table 7-13. Band Edge Emissions Test Results – Ant1



Plot 7-95. Lower Band Edge Plot (LTE Band 12 – 1.4MHz QPSK – Full RB - Ant1)

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Plot 7-96. Upper Band Edge Plot (LTE Band 12 – 1.4MHz QPSK – Full RB - Ant1)

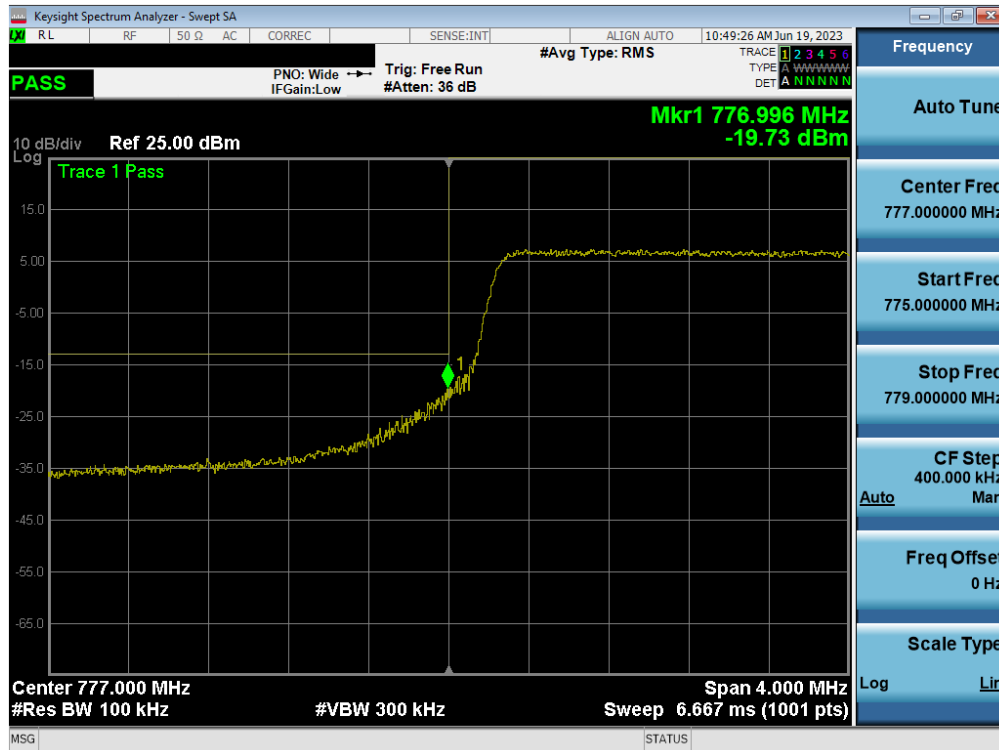
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### LTE Band 13 – Ant1

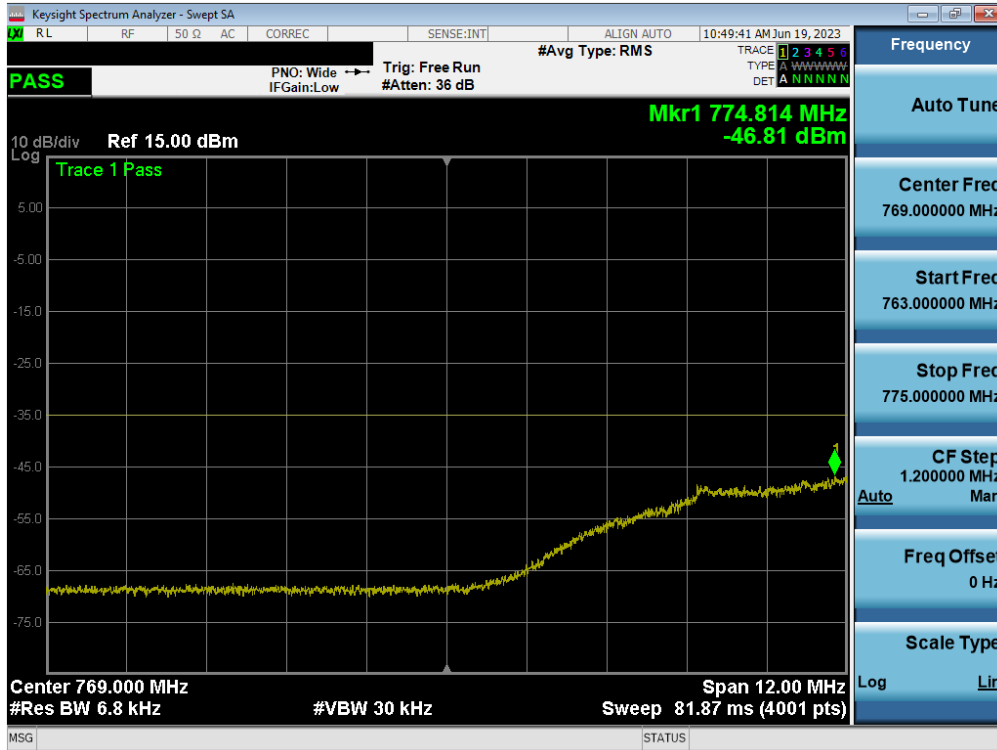
Mode	Bandwidth	Channel	Test Case	Level [dBm]	Limit [dBm]	Margin [dB]
LTE Band 13	10 MHz	Low	Band Edge	-26.09	-13	-13.09
		Low	Emission Mask	-48.81	-35	-13.81
		High	Band Edge	-28.09	-13	-15.09
		High	Emission Mask	-52.18	-35	-17.18
	5 MHz	Low	Band Edge	-19.73	-13	-6.73
		Low	Emission Mask	-46.81	-35	-11.81
		High	Band Edge	-21.84	-13	-8.84
		High	EmMask	-56.14	-35	-21.14

Table 7-14. Band Edge Test Results – Ant1

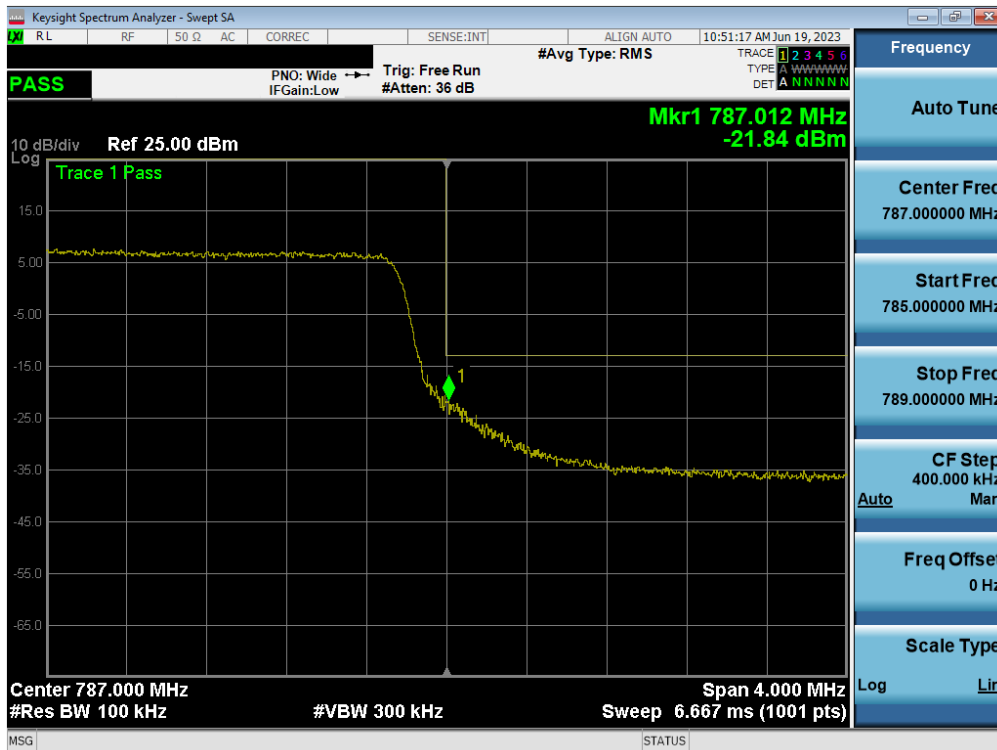


Plot 7-97. Lower Band Edge Plot (LTE Band 13 - 5MHz QPSK – Full RB - Ant1)

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Plot 7-98. Lower Emission Mask Plot (LTE Band 13 - 5MHz QPSK – Full RB - Ant1)



Plot 7-99. Upper Band Edge Plot (LTE Band 13 - 5MHz QPSK – Full RB - Ant1)

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