

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:

9/8/2023 - 11/2/2023 Test Report Issue Date: 11/8/2023 Test Site/Location: Element lab., Columbia, MD, USA Test Report Serial No.: 1M2309070105-03.A3L

# FCC ID:

## A3LSMA156E

**APPLICANT:** 

## Samsung Electronics Co., Ltd.

Application Type: Model: EUT Type: FCC Classification: FCC Rule Part: Test Procedure(s): Certification SM-A156E/DS Portable Handset PCS Licensed Transmitter Held to Ear (PCE) 27 ANSI C63.26-2015

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-1								
				El	RP	EIRP		
Mode	Bandwidth	Modulation	Tx Frequency Range [MHz]	Max. Power [W]	Max. Power [dBm]	Max. Power [W]	Max. Power [dBm]	Emission Designator
	10 MHz	QPSK	704.0 - 711.0	0.066	18.22	0.109	20.37	8M98G7D
		16QAM	704.0 - 711.0	0.053	17.23	0.087	19.38	8M95W7D
	5 MHz	QPSK	701.5 - 713.5	0.067	18.25	0.110	20.40	4M51G7D
LTE Band 12/17		16QAM	701.5 - 713.5	0.053	17.23	0.087	19.38	4M51W7D
LIE Danu 12/17	3 MHz	QPSK	700.5 - 714.5	0.068	18.30	0.111	20.45	2M70G7D
		16QAM	700.5 - 714.5	0.054	17.32	0.088	19.47	2M70W7D
	1.4 MHz	QPSK	699.7 - 715.3	0.067	18.26	0.110	20.41	1M10G7D
	1.4 IVI⊓Z	16QAM	699.7 - 715.3	0.053	17.26	0.087	19.41	1M11W7D

Overview Table (<1GHz Bands)

Antenna-1						
				EI	RP	
Mode	Bandwidth	Modulation Tx Frequency Range [MHz]		Max. Power [W]	Max. Power [dBm]	Emission Designator
WCDMA1700	N/A	Spread Spectrum	1712.4 - 1752.6	0.141	21.50	4M19F9W
	00.000	QPSK	1720.0 - 1770.0	0.323	25.09	17M9G7D
	20 MHz	16QAM	1720.0 - 1770.0	0.252	24.01	17M9W7D
-		QPSK	1717.5 - 1772.5	0.322	25.08	13M5G7D
	15 MHz	16QAM	1717.5 - 1772.5	0.241	23.82	13M5W7D
	40.101-	QPSK	1715.0 - 1775.0	0.324	25.11	9M03G7D
	10 MHz	16QAM	1715.0 - 1775.0	0.244	23.88	8M97W7D
LTE Band 66/4	<b>C 1 U</b> 1	QPSK	1712.5 - 1777.5	0.319	25.04	4M51G7D
	5 MHz	16QAM	1712.5 - 1777.5	0.235	23.71	4M50W7D
	3 MHz	QPSK	1711.5 - 1778.5	0.335	25.25	2M70G7D
		16QAM	1711.5 - 1778.5	0.240	23.81	2M71W7D
	1.4 MHz	QPSK	1710.7 - 1779.3	0.310	24.91	1M10G7D
		16QAM	1710.7 - 1779.3	0.232	23.65	1M10W7D
	40 MHz	π/2 BPSK	1730.0 - 1760.0	0.159	22.02	38M6G7D
		QPSK	1730.0 - 1760.0	0.156	21.94	38M6G7D
		16QAM	1730.0 - 1760.0	0.129	21.10	38M6W7D
	30 MHz	π/2 BPSK	1725.0 - 1765.0	0.162	22.08	28M6G7D
		QPSK	1725.0 - 1765.0	0.156	21.92	28M6G7D
		16QAM	1725.0 - 1765.0	0.123	20.89	28M6W7D
	20 MHz	π/2 BPSK	1720.0 - 1770.0	0.152	21.82	18M0G7D
		QPSK	1720.0 - 1770.0	0.150	21.75	19M0G7D
		16QAM	1720.0 - 1770.0	0.133	21.24	19M0W7D
NR Band n66		π/2 BPSK	1717.5 - 1772.5	0.148	21.70	13M5G7D
	15 MHz	QPSK	1717.5 - 1772.5	0.153	21.85	14M2G7D
-		16QAM	1717.5 - 1772.5	0.120	20.79	14M2W7D
		π/2 BPSK	1715.0 - 1775.0	0.152	21.83	9M02G7D
	10 MHz	QPSK	1715.0 - 1775.0	0.153	21.86	9M34G7D
		16QAM	1715.0 - 1775.0	0.118	20.70	9M34W7D
†		TT/2 BPSK	1712.5 - 1777.5	0.170	22.30	4M49G7D
	5 MHz	QPSK	1712.5 - 1777.5	0.163	22.12	4M50G7D
	JIMITZ	16QAM	1712.5 - 1777.5	0.136	21.33	4M51W7D

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

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	Antenna-2					
				El	EIRP	
Mode	Bandwidth	Modulation	Tx Frequency Range [MHz]	Max. Power [W]	Max. Power [dBm]	Emission Designator
	20 MHz	QPSK	1720.0 - 1745.0	0.123	20.91	18M0G7D
	20 10112	16QAM	1720.0 - 1745.0	0.097	19.88	18M0W7D
	15 MHz	QPSK	1717.5 - 1747.5	0.124	20.94	13M4G7D
	15 MHZ	16QAM	1717.5 - 1747.5	0.102	20.10	13M5W7D
	40 MU	QPSK	1715.0 - 1750.0	0.125	20.98	9M01G7D
	10 MHz	16QAM	1715.0 - 1750.0	0.100	20.00	8M98W7D
LTE Band 4	5 M H	QPSK	1712.5 - 1752.5	0.122	20.86	4M52G7D
	5 MHz	16QAM	1712.5 - 1752.5	0.095	19.78	4M51W7D
	3 MHz	QPSK	1711.5 - 1753.5	0.119	20.75	2M70G7D
		16QAM	1711.5 - 1753.5	0.095	19.77	2M70W7D
	1.4 MHz	QPSK	1710.7 - 1754.3	0.116	20.64	1M10G7D
		16QAM	1710.7 - 1754.3	0.091	19.59	1M10W7D
	40 MHz	TT/2 BPSK	1730.0 - 1760.0	0.107	20.31	38M7G7D
		QPSK	1730.0 - 1760.0	0.105	20.22	38M8G7D
		16QAM	1730.0 - 1760.0	0.086	19.36	38M8W7D
	30 MHz	π/2 BPSK	1725.0 - 1765.0	0.105	20.23	28M7G7D
		QPSK	1725.0 - 1765.0	0.103	20.12	28M7G7D
		16QAM	1725.0 - 1765.0	0.094	19.73	28M7W7D
		π/2 BPSK	1720.0 - 1770.0	0.104	20.15	23M0G7D
	20 MHz	QPSK	1720.0 - 1770.0	0.102	20.08	23M9G7D
		16QAM	1720.0 - 1770.0	0.088	19.44	23M9W7D
NR Band n66		π/2 BPSK	1717.5 - 1772.5	0.104	20.17	18M0G7D
	15 MHz	QPSK	1717.5 - 1772.5	0.105	20.21	19M0G7D
		16QAM	1717.5 - 1772.5	0.088	19.45	19M0W7D
		π/2 BPSK	1715.0 - 1775.0	0.102	20.10	13M5G7D
	10 MHz	QPSK	1715.0 - 1775.0	0.110	20.42	14M2G7D
		16QAM	1715.0 - 1775.0	0.088	19.44	14M2W7D
		TT/2 BPSK	1712.5 - 1777.5	0.102	20.11	9M05G7D
	5 MHz	QPSK	1712.5 - 1777.5	0.107	20.28	9M37G7D
		16QAM	1712.5 - 1777.5	0.092	19.65	9M32W7D

**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: A3LSMA156E**. 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.: 1932M, 1958M, 0441M, 0432M, 0421M

### 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 WLAN, 802.11a/n/ac UNII (5GHz), Bluetooth (1x, EDR, LE)

Band	Ant1	Ant2
WCDMA AWS	Ant B	N/A
LTE B12/17	Ant A	N/A
LTE B66/4	Ant B	N/A
LTE B4	N/A	Ant C
NR n66	Ant B	Ant C

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.

### 2.4 Software and Firmware

Testing was performed on device(s) using software/firmware version A156EDXU0AWI4 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:

 $P_{d [dBm]} = P_{g [dBm]} - cable loss [dB] + antenna gain [dBd/dBi];$ 

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  $P_{g \text{ [dBm]}}$  – 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:

$$\begin{split} E_{[dB\mu V/m]} &= Measured \ amplitude \ level_{[dBm]} + 107 + Cable \ Loss_{[dB]} + Antenna \ Factor_{[dB/m]} \\ And \\ EIRP_{[dBm]} &= E_{[dB\mu V/m]} + 20logD - 104.8; \ where \ D \ is the measurement \ distance \ in \ meters. \end{split}$$

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  $U_{CISPR}$  measurement uncertainty values specified in CISPR 16-4-2 and, thus, can be compared directly to specified limits to determine compliance.

Contribution	Expanded Uncertainty (±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	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
-	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
Com-Power	AL-130R	9kHz - 30MHz Loop Antenna	1/18/2022	Biennial	1/19/2024	121085
EMCO	3115	Horn Antenna (1-18GHz)	8/8/2022	Biennial	8/8/2024	9704-5182
EMCO	3116	Horn Antenna (18-40GHz)	7/5/2023	Biennial	7/5/2025	9203-2178
Keysight Technologies	N9030A	PXA Signal Analyzer (3Hz-26.5GHz)	8/7/2023	Annual	8/7/2024	MY54490576
Keysight Technologies	N9030A	PXA Signal Analyzer (44GHz)	3/15/2023	3/15/2023 Annual 3/15/2024		MY52350166
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)	9/25/2023	Annual	9/25/2024	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	DRH-118	Horn Antenna (1-18GHz)	2/14/2022	Biennial	2/14/2024	A050307
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 analzyer. 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) = 50.3 dBc.

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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/LTE/NR

Test Condition	Test Description	FCC Part Section(s)	Test Limit	Test Result	Reference
	Transmitter Conducted Output Power*	2.1046(a), 2.1046(c)	N/A	PASS	See RF Exposure Report
	Occupied Bandwidth	2.1049(h)	N/A	PASS	Section 7.3
CONDUCTED	Conducted Band Edge / Spurious Emissions (LTE Band 12, 17)	2.1051, 27.53(g)	≥43 + 10 log (P[Watts]) dB of attenuation below transmitter power	PASS	Sections 7.4, 7.5
CONDI	Conducted Band Edge / Spurious Emissions (WCDMA AWS; LTE Band 4, 66; NR Band n66)	2.1051, 27.53(h)	≥ 43 + 10 log (P[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)	≤ 13 dB	PASS	Section 7.6
	Frequency Stability	2.1055, 27.54	Fundamental emissions stay within authorized frequency block	PASS	Section 7.9
	Effective Radiated Power (LTE Band 12, 17)	27.50(c)(10)	≤ 3 Watts max. ERP	PASS	Section 7.7
RADIATED	Equivalent Isotropic Radiated Power (WCDMA AWS; LTE Band 4, 66; NR Band n66)	27.50(d)(4)	≤ 1 Watt max. EIRP	PASS	Section 7.7
RADI	Radiated Spurious Emissions (LTE Band 12, 17)	2.1053, 27.53(g)	≥ 43 + 10 log (P[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)	≥ 43 + 10 log (P[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.
- 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 v1.2.2.

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## 7.2 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 x 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 7-1. Test Instrument & Measurement Setup

#### Test Notes

None.

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Mode	Bandwidth	Modulation	OBW [MHz]
WCDMA-AWS	5 MHz	Spread Spectrum	4.19
	20 MHz	QPSK	17.92
		16QAM	17.94
	15 MHz	QPSK	13.48
	_	16QAM	13.52
	10 MHz	QPSK	9.03
LTE-B66/4		16QAM	8.97
212 200,1	5 MHz	QPSK	4.51
	0 111 12	16QAM	4.50
	3 MHz	QPSK	2.70
	5 1011 12	16QAM	2.71
	1.4 MHz	QPSK	1.10
		16QAM	1.10
	10 MHz	QPSK	8.98
		16QAM	8.95
	5 MHz	16QAM	4.51
LTE-B12/17	0 MU-	QPSK	2.70
	3 MHz	16QAM	2.70
	1.4 MHz	QPSK	1.10
		16QAM	1.11
		BPSK	38.62
	40MHz	QPSK	38.62
	·	16QAM	38.56
	30MHz	BPSK	28.65
		QPSK	28.64
		16QAM	28.61
		BPSK	23.04
	25MHz	QPSK	23.83
		16QAM	23.84
		BPSK	17.99
NR-n66	20MHz	QPSK	19.01
		16QAM	19.01
		BPSK	13.49
	15MHz	QPSK	14.19
		16QAM	14.21
		BPSK	9.02
	10MHz	QPSK	9.34
		16QAM	9.34
		BPSK	4.49
	5MHz	QPSK	4.50
		16QAM	4.51
			4.51

Table 7-2. Summary of Occupied Bandwidth Test Results – Ant1

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Mode	Bandwidth	Modulation	OBW [MHz]
	20 MHz	QPSK	17.98
		16QAM	17.98
	15 MHz	QPSK	13.43
		16QAM	13.51
	10 MHz	QPSK	9.01
LTE-B4		16QAM	8.98
LIC-D4	5 MHz	QPSK	4.52
	5 10112	16QAM	4.51
	3 MHz	QPSK	2.70
		16QAM	2.70
	1.4 MHz	QPSK	1.10
	1.4 IVI⊓Z	16QAM	1.10
		BPSK	38.72
	40MHz	QPSK	38.79
		16QAM	38.78
	30MHz	BPSK	28.67
		QPSK	28.67
		16QAM	28.67
	25MHz	BPSK	22.96
		QPSK	23.86
		16QAM	23.88
		BPSK	17.95
NR-n66	20MHz	QPSK	19.03
		16QAM	18.98
		BPSK	13.49
	15MHz	QPSK	14.16
		16QAM	14.23
		BPSK	9.05
	10MHz	QPSK	9.37
		16QAM	9.32
		BPSK	4.48
	5MHz	QPSK	4.50
		16QAM	4.51

 Table 7-3. Summary of Occupied Bandwidth Test Results – Ant2

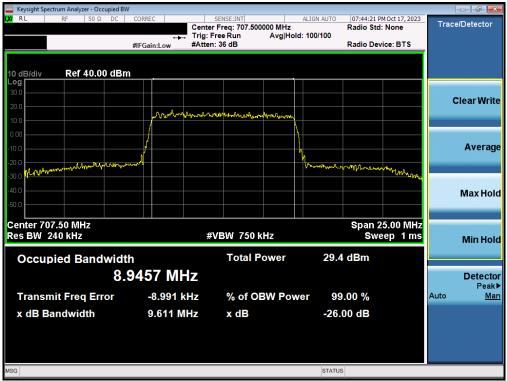
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## LTE Band 12/17 – Ant1

Keysight Spectrum Analyzer - Occupied BW - 6 SENSE:INT Center Freq: 707.500000 MHz Trig: Free Run Avg|Ho #Atten: 36 dB 07:44:12 PM Oct 17, 2023 Radio Std: None ALIGN AUTO Trace/Detector Avg|Hold: 100/100 Radio Device: BTS #IFGain:Low Ref 40.00 dBm 0 dB/div og **Clear Write** L Å ..... Average mart your man alway Marrie Max Hold Center 707.50 MHz Res BW 240 kHz Span 25.00 MHz #VBW 750 kHz Sweep 1 ms **Min Hold Total Power** 30.3 dBm **Occupied Bandwidth** 8.9783 MHz Detector Peak▶ **Transmit Freq Error** 2.128 kHz % of OBW Power Auto 99.00 % Man x dB Bandwidth 9.563 MHz x dB -26.00 dB STATUS

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)

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Keysight Spectrum Analyzer - Occupied B					- <b>.</b>
KI RE SOΩ DC	CORREC	SENSE:INT er Freq: 707.500000 MHz	ALIGN AUTO 07:50:55 I Radio Sto	PM Oct 17, 2023	Trace/Detector
			d: 100/100	: None	
		en: 36 dB	Radio De	vice: BTS	
10 dB/div Ref 40.00 dBr	20				
30.0					
20.0					Clear Write
10.0	mmmmm	mon month and			
0.00			1		
-10.0					Average
-20.0	harmer		Www.www.		
-20.0 -30.0 mmmmmmmmmmmmmmmmmmmmmmmmmmmmmmmmmmm			- Contraction of the contraction	momphon	
-40.0					
					Max Hold
-50.0					
Center 707.500 MHz			Snan /	12.50 MHz	
Res BW 120 kHz	-	#VBW 390 kHz		eep 1 ms	
				oop Thio	Min Hold
Occupied Bandwid	th	Total Power	30.2 dBm		
4.	.5079 MHz				Detector
Transmit Freq Error	1.515 kHz	% of OBW Pow	ver 99.00 %		Peak▶ Auto Man
Transmit Freq Error	1.919 KHZ		99.00 %		
x dB Bandwidth	5.009 MHz	x dB	-26.00 dB		
MSG			STATUS		

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)

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Keysight Spectrum Analyzer - Occupied BW	1				- đ 🔀
XX RL RF 50Ω DC	CORREC	SENSE:INT nter Freg: 707.500000 MHz		4 PM Oct 17, 2023 td: None	Trace/Detector
			Id: 100/100	ta: None	
		tten: 36 dB	Radio D	evice: BTS	
10 dB/div Ref 40.00 dBm					
30.0					01
20.0		a an allerate of Martin of Alexan			Clear Write
10.0	white	an new miles and some many many second			
0.00			<b>V</b>		
-10.0			4		Average
			h		Average
-20.0	φwΩ.		and and way the second of the second of the	The work in and	
-30.0					
-40.0					Max Hold
-50.0					
Center 707.500 MHz				7.500 MHz	
#Res BW 75 kHz		#VBW 240 kHz	Sweet	o 12.53 ms	Min Hold
Occupied Bandwidt		Total Power	30.8 dBm		
Occupied Bandwidt			30.0 UBIII		
2.0	6994 MHz				Detector
	4.070.111		00.00.00		Peak►
Transmit Freq Error	-4.270 kHz	% of OBW Pov	wer 99.00 %		Auto <u>Man</u>
x dB Bandwidth	2.957 MHz	x dB	-26.00 dB		
MSG			STATUS		

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)

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🤤 Keysight Spectrum Analyzer - Occ	cupied BW								
<mark>LXU</mark> RL RF 50Ω	DC CORREC		SENSE:INT		LIGN AUTO		M Oct 17, 2023	Trac	e/Detector
			Freq: 707.50000	0 MHz Avg Hold:	100/100	Radio Std	: None	mac	elDelector
	#IFGain:I			Avginolu.	100/100	Radio Dev	vice: BTS		
	#II Galli.i								
10 dB/div Ref 40.0	0 dBm								
Log									
30.0									Clear Write
20.0									siear write
10.0		monory	mont and a for the second	strange -					
		1		l l					
0.00	<i>م</i> ر			١.					
-10.0				<u> </u>					Average
-20.0	A. Martin			\	ч <u>ы М</u>	л			
-20.0 -30.0	An unit of a				www.	, walken g	winner		
-40.0									Max Hold
-50.0									
Center 707.500 MHz						Span 3	3.500 MHz		
Res BW 33 kHz		#\	/BW 110 kH	z		Sweep	5.867 ms		Min Hold
									Milling
Occupied Band	width		Total Pov	wer	30.1	dBm			
	1.0964	WINZ							Detector
		100.11			0.0	00.0/		A	Peak►
Transmit Freq Err	or	186 Hz	% of OBV	V Powe	r 99.	.00 %		Auto	<u>Man</u>
x dB Bandwidth	1.3	311 MHz	x dB		-26.0	)0 dB			
MEC					CTATIO				
MSG					STATUS				

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)

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# WCDMA AWS – Ant1

Keysight Spectrum Analyzer - Occupied I					
XIRL RF 50Ω DC	Correc	SENSE:INT AL	IGN AUTO 09:34:43 PM Radio Std:		Trace/Detector
	Trig:	Free Run Avg Hold: 1	100/100		
	#IFGain:Low #Atte	n: 36 dB	Radio Devi	ce: BTS	
10 dB/div Ref 40.00 dB	m				
Log 30.0					
20.0					Clear Writ
10.0	man	www.www.www.www.			
0.00					
-10.0					Averag
-20.0	لی				, , , , , , , , , , , , , , , , , , ,
ma show	m	New York	many of the many the		
40.0			10.VL	MMJV	
-40.0					Max Hol
-50.0					
Center 1.732600 GHz				.00 MHz	
Res BW 150 kHz		/BW 1.5 MHz	Swee	ep 1 ms	Min Hol
Occupied Bandwid	<b>t</b> b	Total Power	30.8 dBm		
			COLO GEM		
4	.1900 MHz				Detecto Peak
Transmit Freq Error	-6.951 kHz	% of OBW Power	99.00 %	A	uto <u>Ma</u>
x dB Bandwidth	4.751 MHz	x dB	-26.00 dB		
	4.751 WIEZ	хuв	-20.00 dB		
SG			STATUS		

Plot 7-9. Occupied Bandwidth Plot (WCDMA, Ch. 1413 - Ant1)

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## LTE Band 66/4 - Ant1

Keysight Spectrum Analyzer - Occupied BW SENSE:INT ALIGN AUTO 08:43:27 PM Oct 17, 2023 Radio Std: None Trace/Detector Trig: Free Run #Atten: 36 dB Avg|Hold: 100/100 Radio Device: BTS #IFGain:Low Ref 40.00 dBm 10 dB/div og **Clear Write** Average n www. ALUN AN MARINA altheory Max Hold Center 1.74500 GHz Res BW 470 kHz Span 50.00 MHz #VBW 1.6 MHz Sweep 1 ms Min Hold **Occupied Bandwidth** Total Power 30.0 dBm 17.922 MHz Detector Peak -24.247 kHz **Transmit Freq Error** % of OBW Power 99.00 % Auto Man x dB Bandwidth 19.22 MHz x dB -26.00 dB STATUS MSG

Plot 7-10. Occupied Bandwidth Plot (LTE Band 66/4 - 20MHz QPSK - Full RB - Ant1)



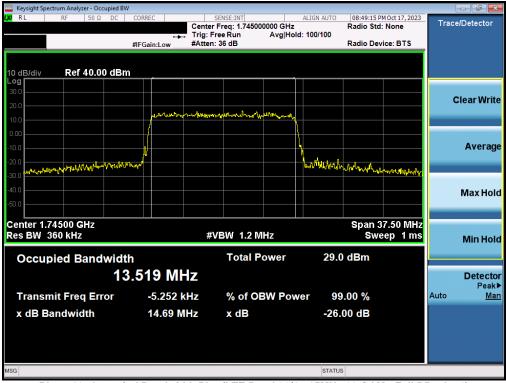
Plot 7-11. Occupied Bandwidth Plot (LTE Band 66/4 - 20MHz 16-QAM - Full RB - Ant1)

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Keysight Spectrum Analyzer - Occupied							×
<mark>(X)</mark> RL RF 50Ω DC	CORREC	SENSE:INT Center Freg: 1.745000	ALIGN AUTO	08:49:08 PM 0		Trace/Detecto	or
		Trig: Free Run	Avg Hold: 100/100				
	#IFGain:Low	#Atten: 36 dB		Radio Device	: BTS		
10 dB/div Ref 40.00 dE	Bm						
Log 30.0	ر و الم						
20.0	ريصالكم					Clear W	rite
10.0	mannap	๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛	www.wayered				
0.00							
-10.0						Aver	aue
							age
-20.0 all shawnow all and all of the state o	(Maple and		Who Work who have a start who have a sta	Maringhan	ather year to be and		
-30.0	ACTION/						
-40.0	A I I I I I I					Max H	old
-50.0	ACT TO T						
Center 1.74500 GHz				Span 37.	50 MHz		
Res BW 360 kHz		#VBW 1.2 M	Hz		p 1 ms	Min H	lold
		Total P					
Occupied Bandwid		Total Po	ower 29.9	dBm			
	13.479 MH	Z				Deteo	
Transmit From Error	-32.271 ki		3W Power 99	.00 %			eak▶ Man
Transmit Freq Error						Auto	VIGIT
x dB Bandwidth	14.53 MI	Hz x dB	-26.	00 dB			
MSG			STATUS	3			

Plot 7-12. Occupied Bandwidth Plot (LTE Band 66/4 - 15MHz QPSK - Full RB - Ant1)



Plot 7-13. Occupied Bandwidth Plot (LTE Band 66/4 - 15MHz 16-QAM - Full RB - Ant1)

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Keysight Spectrum Analyzer - Occupied BW	V						- # <b>X</b>
XX RL RF 50Ω DC	CORREC	SENSE:INT		IGN AUTO 08:56:48 P Radio Std	M Oct 17, 2023	Trace	/Detector
		Center Freq: 1.74500 Trig: Free Run	Avg Hold: 1		: None		
	#IFGain:Low	#Atten: 36 dB	, regimental i	Radio Dev	vice: BTS		
10 dB/div Ref 40.00 dBn Log	n						
30.0							
20.0						C	lear Write
	Anna	wallow and a start of the	m three				
10.0							
0.00							
-10.0	^/						Average
-20.0	~~~~						
www.www.www.www.www.www.	200 · •		La	where where we want	moundar		
-30.0							
-40.0							Max Hold
-50.0							
Center 1.74500 GHz					25.00 MHz		
Res BW 240 kHz		#VBW 750 k	Hz	Swe	eep 1 ms		Min Hold
				00 7 15			
Occupied Bandwidt	h	Total P	ower	29.7 dBm			
9	0269 MH	7					Detector
0.							Peak►
Transmit Freq Error	2.872 kł	Iz % of O	BW Power	99.00 %		Auto	Man
	0 744 14			00.00			
x dB Bandwidth	9.741 MI	lz xdB		-26.00 dB			
MSG				STATUS			
woo				314103			

Plot 7-14. Occupied Bandwidth Plot (LTE Band 66/4 - 10MHz QPSK - Full RB - Ant1)



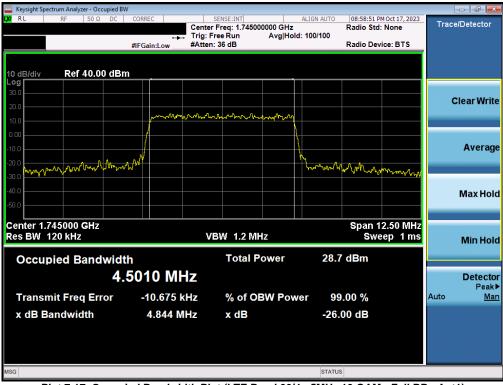
Plot 7-15. Occupied Bandwidth Plot (LTE Band 66/4 - 10MHz 16-QAM - Full RB - Ant1)

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Keysight Spectrum Analyzer - Occupied BW					- ē ×
KAL RF 50Ω DC	CORREC	SENSE:INT er Freg: 1.745000000 GH		PM Oct 17, 2023	Trace/Detector
			old: 100/100	. None	
	#IFGain:Low #Atte	en: 36 dB	Radio De	vice: BTS	
10 dB/div Ref 40.00 dBn	n				
Log					
30.0					Clear Write
20.0					Clear write
10.0	man	www.hallow			
0.00	/				
-10.0	ſ		<b>W</b>		Average
	n n				Averuge
-20.0 mmmmmmmmm	m V		my who we want	mourilan	
-30.0					
-40.0					Max Hold
-50.0					
Center 1.745000 GHz				12.50 MHz	
Res BW 120 kHz		VBW 1.2 MHz	SW	eep 1 ms	Min Hold
Occupied Bandwidt	h	Total Power	29.7 dBm		
		Total Tower	23.7 0.011		
4.	5114 MHz				Detector
	C 755 1.11-	% -6 ODW D-	00.00.0/		Peak▶ Auto Man
Transmit Freq Error	-6.755 kHz	% of OBW Po	wer 99.00 %		Auto <u>Man</u>
x dB Bandwidth	4.969 MHz	x dB	-26.00 dB		
MSG			STATUS		

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



Plot 7-17. Occupied Bandwidth Plot (LTE Band 66/4 - 5MHz 16-QAM - Full RB - Ant1)

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Keysight Spectrum Analyzer - Occupied BW						- ē 🔀
LX RL RF 50Ω DC	CORREC	SENSE:INT Center Freg: 1.74500		GN AUTO 09:01:40 PI Radio Std:	4 Oct 17, 2023	Trace/Detector
		Trig: Free Run	Avg Hold: 10		None	
	#IFGain:Low	#Atten: 36 dB		Radio Devi	ice: BTS	
10 dB/div Ref 40.00 dBm						
Log						
30.0						
20.0						Clear Write
10.0	restancement	<b>₩₽₽₽₩₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽₽</b>	amalway			
	1		L L			
0.00			t,			
-10.0			$\vdash$			Average
-20.0 when all rive highly be the water from the from the former of the second	AMA			Server busing the services	A. Million and Det	
-30.0				1	No bed That is a	
-40.0						
						Max Hold
-50.0						
Center 1.745000 GHz				Snan 7	.500 MHz	
#Res BW 75 kHz		VBW 750 kH	łz		12.53 ms	Min Hald
						Min Hold
Occupied Bandwidt	h	Total P	ower	30.2 dBm		
		_				_
2.	7001 MH	Ζ				Detector Peak▶
Transmit Freq Error	-1.571 kł	v of O	BW Power	99.00 %		Auto Man
			Divi Ower			nato <u>man</u>
x dB Bandwidth	2.981 MI	lz x dB		-26.00 dB		
MSG				STATUS		

Plot 7-18. Occupied Bandwidth Plot (LTE Band 66/4 - 3MHz QPSK - Full RB - Ant1)



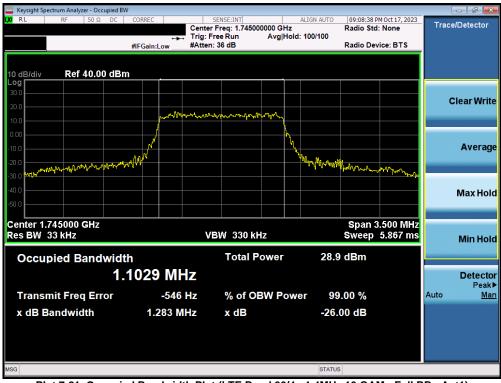
Plot 7-19. Occupied Bandwidth Plot (LTE Band 66/4 - 3MHz 16-QAM - Full RB - Ant1)

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Plot 7-20. Occupied Bandwidth Plot (LTE Band 66/4 - 1.4MHz QPSK - Full RB - Ant1)



Plot 7-21. Occupied Bandwidth Plot (LTE Band 66/4 - 1.4MHz 16-QAM - Full RB - Ant1)

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## LTE Band 4 – Ant2

Keysight Spectrum Analyzer - Occupied BW - -SENSE:INT ALIGN AUTO Center Freq: 1.732500000 GHz Trig: Free Run Avg|Hold: 100/100 #Atten: 36 dB 09:00:18 PM Oct 18, 2023 Trace/Detector Radio Std: None Radio Device: BTS #IFGain:Low Ref 40.00 dBm 0 dB/div og **Clear Write** Average Walking Street halad when the Max Hold Center 1.73250 GHz Res BW 470 kHz Span 50.00 MHz #VBW 1.6 MHz Sweep 1 ms **Min Hold** Occupied Bandwidth Total Power 30.0 dBm 17.985 MHz Detector Peak 14.359 kHz **Transmit Freq Error** % of OBW Power 99.00 % Auto Man x dB Bandwidth 19.32 MHz x dB -26.00 dB STATUS SG





Plot 7-23. Occupied Bandwidth Plot (LTE Band 4 - 20MHz 16-QAM - Full RB - Ant2)

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🔤 Keysight Spectrum Analyzer - Occupier							
<b>LXI</b> RL RF 50Ω DO		SENSE:INT enter Freg: 1.732500000 G	ALIGN AUTO	09:05:39 P	M Oct 18, 2023	Trac	e/Detector
	Ti taka		Hold: 100/100	Radio Dev			
	#IFGain:Low #/	Atten: 36 dB		Radio Dev	ICE. BT3		
10 dB/div Ref 40.00 d	Bm						
Log 30.0							
20.0						(	Clear Write
10.0	all manufacture	mennitations	un				
0.00							
-10.0	4						Average
	/		<b>h</b> .,				
-20.0	when on the second		hut he would	-totles/	Number		
-40.0							Max Hold
-50.0							Μάλ Ποιά
Center 1.73250 GHz Res BW 360 kHz		#VBW 1.2 MHz			7.50 MHz ep 1 ms		
NCS BW SOO KIIZ		##0044 1.2 141112		000	ср тпз		Min Hold
Occupied Bandwi	dth	Total Power	29.8	3 dBm			
	13.427 MHz						Detector
							Peak▶
Transmit Freq Error	414 Hz		ower 99	9.00 %		Auto	Man
x dB Bandwidth	14.61 MHz	x dB	-26.	00 dB			
				-			
MSG			STATU	S			

Plot 7-24. Occupied Bandwidth Plot (LTE Band 4 - 15MHz QPSK - Full RB - Ant2)



Plot 7-25. Occupied Bandwidth Plot (LTE Band 4 - 15MHz 16-QAM - Full RB - Ant2)

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🔤 Keysight Spectrum Analyzer - Occupi	ed BW				- d <u>×</u>
<b>LXI</b> RL RF 50Ω E	OC CORREC	SENSE:INT nter Freg: 1.732500000 GH;		PM Oct 18, 2023	Trace/Detector
			z Radio Sti old: 100/100	a: None	
		tten: 36 dB		vice: BTS	
10 dB/div Ref 40.00 d	i B m				
Log					
30.0					
20.0					Clear Write
10.0	marina	man man man and Mark			
	4				
0.00					
-10.0	k		- <u> </u>		Average
-20.0	- l - m		mannowaly		
-20.0 -30.0			and the state of t	warmen and water	
-40.0					
					Max Hold
-50.0					
Center 1.73250 GHz			Snan	25.00 MHz	
Res BW 240 kHz		#VBW 750 kHz		eep 1 ms	
100 DW 240 KHZ			50		Min Hold
Occupied Bandw	idth	Total Power	29.6 dBm		
	9.0122 MHz				Detector
Tranomit Eroa Erres	4 702 kU		wer 99.00 %		Peak▶ Auto Man
Transmit Freq Error	-4.703 kHz	% of OBW Po	wei 99.00 %		
x dB Bandwidth	9.922 MHz	x dB	-26.00 dB		
MSG			STATUS		

Plot 7-26. Occupied Bandwidth Plot (LTE Band 4 - 10MHz QPSK - Full RB - Ant2)



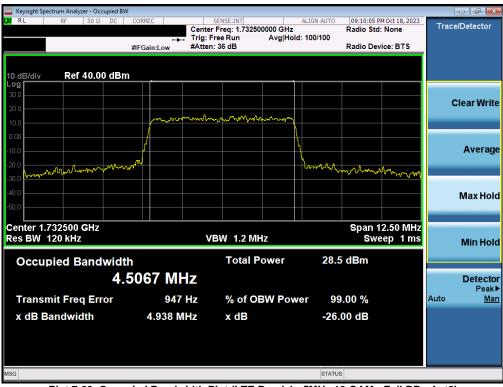
Plot 7-27. Occupied Bandwidth Plot (LTE Band 4 - 10MHz 16-QAM - Full RB - Ant2)

FCC ID: A3LSMA156E		PART 27 MEASUREMENT REPORT					
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🤤 Keysight Spectrum Analyzer - Occupie							
<b>LXI</b> RL RF 50Ω D		SENSE:INT er Freg: 1.732500000 GHz	ALIGN AUTO 09:10:16 Radio Sto	PM Oct 18, 2023	Trace/Detector		
	Trig:	Free Run Avg Hol	d: 100/100	a. None			
	#IFGain:Low #Atte	en: 36 dB	Radio De	vice: BTS			
10 dB/div Ref 40.00 d	Bm						
Log							
30.0					Clear Write		
20.0	40	1001 10 10 1 10 10 10			Cical Write		
10.0	horan anna	march					
0.00			\				
-10.0					Average		
-20.0			h				
-20.0 -30.0	1 Arran A		provement	son turning			
-40.0							
					Max Hold		
-50.0							
Center 1.732500 GHz			Snan '	12.50 MHz			
Res BW 120 kHz	,	VBW 1.2 MHz		eep 1 ms	Min Hold		
Occupied Bandwi	dth	Total Power	29.6 dBm				
	4.5202 MHz				Detector		
					Peak►		
Transmit Freq Error	-5.669 kHz	% of OBW Pov	ver 99.00 %		Auto <u>Man</u>		
x dB Bandwidth	4.984 MHz	x dB	-26.00 dB				
	4.504 MILL	X UD	-20.00 00				
MSG			STATUS				

Plot 7-28. Occupied Bandwidth Plot (LTE Band 4 - 5MHz QPSK - Full RB - Ant2)



Plot 7-29. Occupied Bandwidth Plot (LTE Band 4 - 5MHz 16-QAM - Full RB - Ant2)

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Keysight Spectrum Analyzer - Occupied B\	N						
LXI RL RF 50Ω DC	CORREC	SENSE:INT Center Freg: 1.73250			9:11:57 PM Oct 18, 2 dio Std: None	.023 Tra	ce/Detector
		Talas France France	Avg Hold:		alo Sta: None		
	#IFGain:Low	#Atten: 36 dB		Ra	dio Device: BTS	;	
10 dB/div Ref 40.00 dBr	n						
Log							
30.0							
20.0			. and the second			_	Clear Write
10.0	and the second second	www.utuigeturre.areareitiketika					
0.00	/		<u> </u>				
-10.0			1				Average
							Average
-20.0 Valoren lan mark wald how Might a	Mlov'			and a country of the	Muship manufactures	pulles	
-30.0							
-40.0						_	Max Hold
-50.0						_	
Center 1.732500 GHz					pan 7.500 N		
#Res BW 75 kHz		VBW 750 kH	Z	Sv	veep 12.53	ms	Min Hold
		Total P	owor	30.1 dE	2		
Occupied Bandwidt			OWEI	50.1 de	5111		
2.	7015 MH	Z					Detector
	0.404.1						Peak►
Transmit Freq Error	-2.164 k	Hz % of OE	<b>3W Powe</b>	r 99.00	<b>%</b>	Auto	<u>Man</u>
x dB Bandwidth	2.959 M	Hz xdB		-26.00	dB		
MSG				STATUS			

Plot 7-30. Occupied Bandwidth Plot (LTE Band 4 - 3MHz QPSK - Full RB - Ant2)



Plot 7-31. Occupied Bandwidth Plot (LTE Band 4 - 3MHz 16-QAM - Full RB - Ant2)

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Plot 7-32. Occupied Bandwidth Plot (LTE Band 4 - 1.4MHz QPSK - Full RB - Ant2)



Plot 7-33. Occupied Bandwidth Plot (LTE Band 4 - 1.4MHz 16-QAM - Full RB – Ant2)

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# NR Band n66 – Ant1

Spectrun Occupied	n Analy d BW	rzer 1	+								₽	Trace	•
RL	Align: Auto Freq Ref: Int (S)		orr f: Int (S)	Gate: Off Av			Center Fred Avg Hold: 1 Radio Std: I		GHz	Trace Typ Clear /	Trace Contro		
1 Graph		<b>.</b>	NI L. OI								Trace	Average	Detect
Scale/Di	v 10.0	dB			Ref Value 40	.00 dBm							
Log 30.0											Max H	old	
20.0				and the second second	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	-man-rahatin	an word war				Min Ho	old	
0.00 -10.0			/					1			Restart	Max Hold	
-20.0		warman h	monorde					when	Monter				
-40.0 -50.0													
Center 1 #Res BV				#`	Video BW 3.	0000 MHz		Sv	Spa veep 1.00 ms	an 100 MHz ; (1001 pts)			
2 Metrics		٣								,			
	Occup	bied Bandwidth											
		38.6	16 MHz			Tota	l Power		31.4 dE	۶m			
		mit Freq Error Bandwidth		93.573 kH 41.03 MH		% o x dE	f OBW Pow 3	er	99.00 -26.00 (				
	ר א		Oct 18	s, 2023	$\supset \triangle$								

Plot 7-34. Occupied Bandwidth Plot (NR Band n66 - 40.0MHz π/2 BPSK - Full RB – Ant1)

Spectrum Analyzer 1 Occupied BW	+				Trace	- * 崇
KEYSIGHT     Input: RF       R L     Image: Coupling: DC       Align: Auto	Input Ζ: 50 Ω Corr CCorr Freq Ref: Int (S) NFE: Off	Atten: 36 dB	Trig: Free Run Gate: Off #IF Gain: Low	Center Freq: 1.745000000 GHz Avg Hold: 100/100 Radio Std: None	Trace Type Clear / Write	Trace Control
1 Graph ▼					Trace Average	Detector
Scale/Div 10.0 dB Log		Ref Value 30.00 c	iBm		Max Hold	
20.0 10.0 0.00	fortransformet		marah Mandala Sala ang A		Min Hold	
-10.0 -20.0 -30.0	and all and a second			Martin and the second and the second approximation of the second se	Restart Max Hold	
-40.0 -50.0 -60.0						
Center 1.74500 GHz #Res BW 1.0000 MHz	#	Video BW 3.0000	MHz	Span 100 MH Sweep 1.00 ms (1001 pts		
2 Metrics V						
Occupied Bandwidth	n 623 MHz		Total Power	29.3 dBm		
Transmit Freq Error x dB Bandwidth	-62.636 kH 44.79 MH		% of OBW Pow x dB			
+ r c -	<b>?</b> Oct 18, 2023 2:05:36 PM	$\Box$		II 💽 📑 🔀		

Plot 7-35. Occupied Bandwidth Plot (NR Band n66 - 40.0MHz QPSK - Full RB - Ant1)

FCC ID: A3LSMA156E		PART 27 MEASUREMENT REPORT					
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Spectrur Occupie		zer 1	+								\$	Trace	- * 絵
KEYSI RL	IGHT ↔	Input: RF Coupling: DC Align: Auto			Atten: 36 dB	Gate: (	ree Run Off in: Low	Center Free Avg Hold: 1 Radio Std:		) GHz		Туре	Trace Control
LXI		r algri: r tato	NFE: O					rtudio eta.				ear / Write	Detector
1 Graph		•									Π	ace Average	
Scale/D Log 20.0	0iv 10.0	dB		F	Ref Value 30.00	) dBm					• M	ax Hold	
20.0 10.0 0.00				monorduno	ng dipak Bersteller ang at a	en of the states	<sup>เป</sup> ็นเหลือเป็นเขาสมุข				Эм	in Hold	
-10.0 -20.0 -30.0	الملحم	appronaleter terito	an a first from					happy	by blipping and the second	mound	Re	start Max Hold	
-40.0													
-60.0													
Center 1 #Res BV				#V	/ideo BW 3.00	00 MHz		Sv	Sp veep 1.00 m	an 100 MHz s (1001 pts)			
2 Metrics		•											
	Occup	ied Bandwid					_						
	_		.558 MHz				Power		29.2 di				
		mit Freq Erro Bandwidth		53.193 kHz 41.00 MHz		% of x dB	OBW Pow	er	99.00 -26.00				
						A GD			20100				
	5			8, 2023 45 PM									

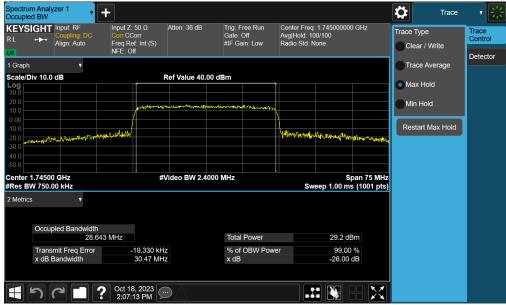
Plot 7-36. Occupied Bandwidth Plot (NR Band n66 - 40.0MHz 16QAM - Full RB - Ant1)

Spectrum Analyze Occupied BW		F								₽	Trace	- * 影
	put: RF oupling: DC lign: Auto	Input Z: 50 Corr CCorr Freq Ref: In NFE: Off		Gate: Off Avg Ho		Avg Hold: 10	enter Freq: 1.745000000 GHz /g Hold: 100/100 adio Std: None			/rite	Trace Control Detector	
1 Graph	•									Trace Av	erage	Delecio
Scale/Div 10.0 de	В		Re	f Value 40.0	0 dBm					Max Hold		
Log 30.0											1	
20.0		~ ~	pp./ll	whereaster and the second	مريد مريد المريد مريد مريد مريد المريد مريد المريد المريد المريد المريد المريد المريد المريد المريد المريد الم المريد المريد	การสุดาร์สุดาร์การสา	\			Min Hold		
0.00										Restart M	ax Hold	
-30.0	water the party	werme					Whenwar	mill of the state	gon Mg May all			
-40.0 -50.0												
Center 1.74500 G #Res BW 750.00			#Vid	leo BW 2.40	00 MHz		Sw		pan 75 MHz s (1001 pts)			
2 Metrics	v											
Occupie	d Bandwidth											
	28.647	MHz			Tota	l Power		31.3 d	Bm			
Transmit x dB Bar	t Freq Error		510 kHz .44 MHz		% o x dE	f OBW Powe	er	99.00 -26.00				
X dB Bar	nawiaun	30			X dE	,		-20.00	ub .			
<b>ب</b>	≥ □ ?	Oct 18, 2 2:15:40	023 PM 💬	Δ								

Plot 7-37. Occupied Bandwidth Plot (NR Band n66 - 30.0MHz π/2 BPSK - Full RB - Ant1)

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Plot 7-38. Occupied Bandwidth Plot (NR Band n66 - 30.0MHz 16QAM - Full RB - Ant1)

Spectrum Anal Occupied BW	· · ·	+		Atten: 36 dB	Tria	- <b>F</b> eer Door	0	4 74500000		₽	Trace	· 「 ※
KEYSIGHT ⊥ +→-•	Coupling: DC Align: Auto	Input Z: 50 Corr CCorr Freq Ref: I NFE: Off		Allen: 36 dB	Gat	: Free Run e: Off Gain: Low	Center Freq: Avg Hold: 10 Radio Std: N	0/100	U GHZ	Trace Type Clear / V	Vrite	Trace Control
1 Graph	•									Trace Av	rerage	
Scale/Div 10.0	) dB		R	ef Value 30.	00 dBm			1		Max Hol	d	
20.0 10.0 0.00		/	~~****	፦ምሳየቋፋ,አየ። <sup>1</sup> ያ ለቀጥ <sub>ቀ</sub> ራ የቁ	manga paglagilagi	nn-on-mlanan,				Min Hold		
-30.0	autoponderationality	en service and the service of					1000-5,4" pc/2cl/	ne fallefactore	normalite recorded	Restart M	lax Hold	
-40.0 -50.0 -60.0												
Center 1.7450 #Res BW 750			#Vi	deo BW 2.4	000 MHz		Sw		pan 75 MHz s (1001 pts)			
2 Metrics	۲											
Occu	pied Bandwidth 28.6	06 MHz			То	tal Power		29.2 d	Bm			
Trans	smit Freq Error		.562 kHz			of OBW Pow	er	99.00				
x dB	Bandwidth	30	).32 MHz		xc	iB		-26.00	dB			
<b>1</b> 5		Oct 18, 2 2:07:20	2023 PM 💭									

Plot 7-39. Occupied Bandwidth Plot (NR Band n66 - 30.0MHz 16QAM - Full RB - Ant1)

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Spectru Occupie	ed BW		• +											\$		Trace	- * 絵
KEYS RL	GHT →	Input: RF Coupling: [ Align: Auto	)C Co	out Z: { rr CCc eq Ref		Atten: 36 dE		Gate: (	ree Run Center Freq: 1.745000000 GHz Off Avg Hold: 100/100 ain: Low Radio Std: None				Trace Type Clear / Write			Trace Control	
LXI		, in the second	NF	E: Off	f <sup>1</sup>											ile	Detector
1 Graph		v												ОТ	race Ave	rage	
Scale/I	Div 10.0	dB			<u>г</u>	Ref Value 4	0.00 d	Bm						• N	lax Hold		
20.0 10.0					porrestance	~ <sup>~</sup> ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	terraphone	Mynta	h.man	<b>,</b> –				M	lin Hold		
0.00										ł				Re	estart Ma	ix Hold	
-20.0 -30.0	- Andrew A	an m	mununa	nhand						١.	alphanter (ni	mmylum	www.				
-40.0 -50.0																	
	1.74500 V 470.00				#\	Video BW 1	.6000	MHz			Sw		pan 50 MHz s (1001 pts)				
2 Metric	s	•															
	Occup	oied Bandw	vidth 17.990 MH	7				Total	Power			31.1 dE	Зm				
	Trans	mit Freq Ei			595.23 kH	z			OBW P	owe	r	99.00					
		Bandwidth			19.12 MH	z		x dB				-26.00	dB				
	5				, 2023 6 PM												

Plot 7-40. Occupied Bandwidth Plot (NR Band n66 - 20.0MHz π/2 BPSK - Full RB - Ant1)

Spectrum Analy Occupied BW	/zer 1	+							₽	Trace	· * 😤
	Input: RF Coupling: DC Align: Auto	Input Z: 50 Ω Corr CCorr Freq Ref: Int NFE: Off	Atten: 36 dB (S)	Gate: C	Trig: Free Run Center Freq. 1.745000000 GHz Gate: Off Avg Hold: 100/100 #IF Gain: Low Radio Std: None				Trace Type Clear / Wi	ite	Trace Control Detector
1 Graph	•								Trace Ave	rage	Delector
Scale/Div 10.0	dB		Ref Value 30.0	0 dBm					Max Hold		
Log 20.0 10.0 0.00			๛๛๛๛๛๚๛๚๚๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛	nen fan efner stran	, , , , , , , , , , , , , , , , , , ,	\			Min Hold		
-10.0 -20.0 -30.0 -40.0	Morrison	whith the pupel				- Muying hu	ա <sub>պո</sub> ւլու <sub>կը</sub> ՝ լ	har handlif for more	Restart Ma	x Hold	
-50.0											
Center 1.74500 Res BW 470.00			#Video BW 1.60	000 MHz		Sw		pan 50 MHz s (1001 pts)			
2 Metrics	T										
Occup	bied Bandwidth 19.0	06 MHz		Total I	Power		28.9 di	Зm			
	mit Freq Error 3andwidth	-10.74	0 kHz 2 MHz	% of 0 x dB	OBW Powe	er	99.00 -26.00				
<b>1</b> 5		Oct 18, 202 2:08:24 PM									

Plot 7-41. Occupied Bandwidth Plot (NR Band n66 - 20.0MHz QPSK - Full RB - Ant1)

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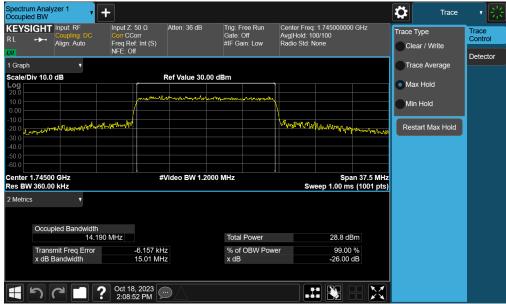
Plot 7-42. Occupied Bandwidth Plot (NR Band n66 - 20.0MHz 16QAM - Full RB - Ant1)



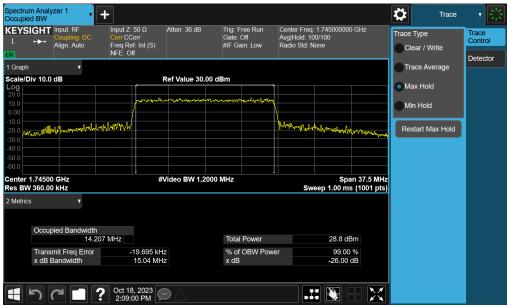
Plot 7-43. Occupied Bandwidth Plot (NR Band n66 - 15.0MHz π/2 BPSK - Full RB - Ant1)

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Plot 7-44. Occupied Bandwidth Plot (NR Band n66 - 15.0MHz QPSK - Full RB - Ant1)



Plot 7-45. Occupied Bandwidth Plot (NR Band n66 - 15.0MHz 16QAM - Full RB - Ant1)

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Spectru Occupie		zer 1 🗸	+									٢	Trace	- * 絵
KEYS RL		Input: RF Coupling: DC Align: Auto			Atten: 36 dB	Gate:	Free Run Off ain: Low	/	Center Freq: Avg Hold: 10 Radio Std: N		) GHz	Trace	Type ear / Write	Trace Control
LXI			NFE: O											Detector
1 Graph		•										Tr	ace Average	
	0iv 10.0	dB		I	Ref Value 35.	00 dBm							ax Hold	
25.0														
15.0 5.00				from	Martin Contraction of the	horan martine a	ht					M	in Hold	
-5.00				/				ł						
-15.0		10-10-00-00	manne					L	- A A			Re	start Max Hold	
-35.0	վրու <sub>հ</sub> ունվիցի։	-								A CAN CAN LIN	NHUUMAJEUPA			
-45.0														
Center	4 74500				Video BW 75	0.00 kHz					pan 25 MHz			
	V 240.00			#	VIGEO BVV / S	0.00 KH2			Sw		s (1001 pts)			
2 Metric	s	Ψ.												
	Occup	ied Bandwid	th											
	occup		0225 MHz			Tota	l Power			30.7 di	3m			
		nit Freq Erro	r -	199.70 kH;			OBW Pc	wer		99.00				
	x dB B	Bandwidth		9.589 MH;	Z	x dE				-26.00	dB			
	5		<b>?</b> Oct 18 2:14:	3, 2023 25 PM	$\supset \triangle$									

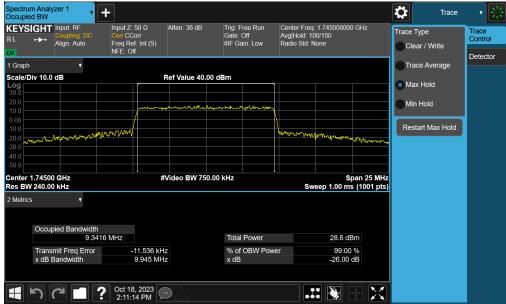
Plot 7-46. Occupied Bandwidth Plot (NR Band n66 - 10.0MHz π/2 BPSK - Full RB - Ant1)

Spectrum Analy Occupied BW	rzer 1	t							₽	Trace	· · 米
	Input: RF Coupling: DC Align: Auto	Input Ζ: 50 Ω Corr CCorr Freq Ref: Int (S) NFE: Off	Atten: 36 dB	Trig: Fr Gate: C #IF Gai		Center Freq Avg Hold: 10 Radio Std: N	0/100	00 GHz	Trace Type Clear / Wi	ite	Trace Control Detector
1 Graph	•								Trace Ave	rage	Delector
Scale/Div 10.0	dB		Ref Value 30.00	0 dBm					Max Hold		
Log 20.0 10.0 0.00		an and	ลากการการสารสาร	Mangaran ang	Mar Carrow M				Min Hold		
-30.0	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	wahan				mann	y many	www.www.u	Restart Ma	ix Hold	
-40.0 -50.0 -60.0											
Center 1.74500 Res BW 240.00		#	Video BW 750.	.00 kHz		Sw		Span 25 MHz is (1001 pts)			
2 Metrics	▼								1		
Occup	bied Bandwidth 9.337	0 MHz		Total	Power		28.5 d	IBm			
	mit Freq Error	-10.842 kH			OBW Pow	er	99.0				
x dB E	Bandwidth	9.908 MH	z	x dB			-26.00	) dB			
<b>1</b> 50		Oct 18, 2023 2:11:05 PM				l l					

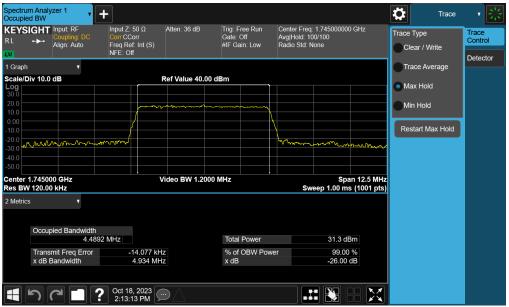
Plot 7-47. Occupied Bandwidth Plot (NR Band n66 - 10.0MHz QPSK - Full RB - Ant1)

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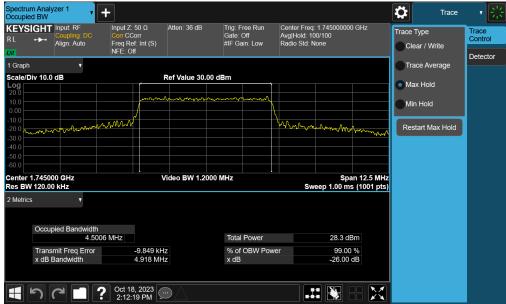
Plot 7-48. Occupied Bandwidth Plot (NR Band n66 - 10.0MHz 16QAM - Full RB - Ant1)



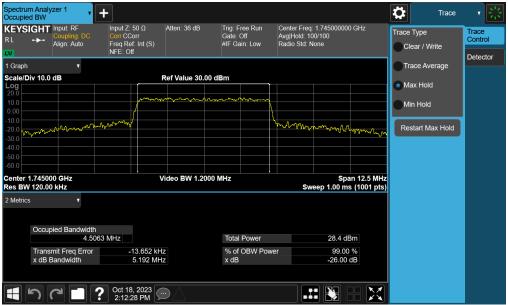
Plot 7-49. Occupied Bandwidth Plot (NR Band n66 - 5.0MHz π/2 BPSK - Full RB - Ant1)

FCC ID: A3LSMA156E		PART 27 MEASUREMENT REPORT				
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Plot 7-50. Occupied Bandwidth Plot (NR Band n66 - 5.0MHz QPSK - Full RB - Ant1)



Plot 7-51. Occupied Bandwidth Plot (NR Band n66 - 5.0MHz 16QAM - Full RB - Ant1)

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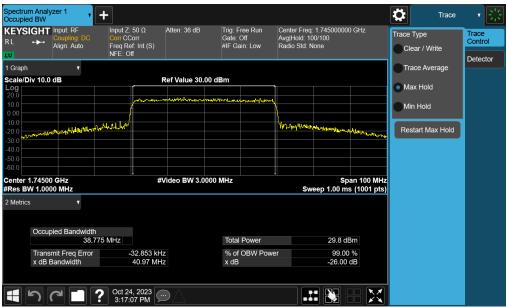


### NR Band n66 - Ant2

Plot 7-52. Occupied Bandwidth Plot (NR Band n66 - 40.0MHz π/2 BPSK - Full RB – Ant2)

	put: RF pupling: DC ign: Auto	Input Z: 5 Corr CCo Freq Ref: NFE: Off	rr	Atten: 36 dB	Gate:	Free Run Off ain: Low	Center Fred Avg Hold: 1 Radio Std: I		) GHz	Trace Type Clear /		Trace Control Detector
1 Graph	•									Trace A	werage	Detector
Scale/Div 10.0 dE	3			ef Value 30.0	00 dBm	an Arnada Anatar				Max Ho		
-10.0 -10.0 -20.0	www.www.	ht mpriorie					www.	ww.clybourseym	Margaretan January	Min Ho Restart I	id Max Hold	
-30.0 -40.0 -50.0												
-60.0 Center 1.74500 G #Res BW 1.0000			#V	ideo BW 3.0	000 MHz		Sv	Sp veep 1.00 m	an 100 MHz s (1001 pts)			
2 Metrics	Ŧ											
Occupied	d Bandwidth 38.79	1 MHz			Tota	l Power		29.9 df	3m			
Transmit x dB Bar	Freq Error ndwidth		7.095 kHz 1.12 MHz		% of x dB	OBW Pov	ver	99.00 -26.00				
<b>1</b> 5		Oct 24, 3:16:58										

Plot 7-53. Occupied Bandwidth Plot (NR Band n66 - 40.0MHz QPSK - Full RB – Ant2)



Plot 7-54. Occupied Bandwidth Plot (NR Band n66 - 40.0MHz 16QAM - Full RB - Ant2)

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Spectru Occupi	um Analyze ied BW	er 1 🔻	+							\$	Trace	- * 法
RL RL		nput: RF oupling: DC lign: Auto	Input Z: 50 Ω Corr CCorr Freq Ref: Int (S	Atten: 36 dB	Gate: (	ree Run Off in: Low	Center Freq Avg Hold: 10 Radio Std: N		) GHz	Trace Ty Clea	pe r / Write	Trace Control
LXI			NFE: Off									Detector
1 Grapi Scale/	h Div 10.0 di	T B		Ref Value 40	.00 dBm						e Average	
Log 30.0										<ul> <li>Max</li> </ul>	Hold	
20.0 10.0			mo	uthenly patronatively	h-drawnor	halan (harman la farta				Min I	Hold	
0.00							}			Resta	rt Max Hold	
-20.0	an and the Mark	به ابلانا الان مع مدلس ال	numm				mannon	-	Manpally			
-40.0												
	1.74500 0	3Hz		#Video BW 2.4	4000 MHz			S	oan 75 MHz			
#Res E	3W 750.00	kHz					Sw	eep 1.00 m				
2 Metric		▼ ed Bandwidth										
			65 MHz			Power		31.9 dE				
	Transmi x dB Ba	it Freq Error ndwidth	-28.459 30.44		% of x dB	OBW Powe	er	99.00 -26.00				
	50		Oct 24, 2023 3:08:59 PM	$\Box$								

Plot 7-55. Occupied Bandwidth Plot (NR Band n66 - 30.0MHz π/2 BPSK - Full RB - Ant2)

Spectrum An Occupied BV	/ <b>'</b>	+						<b>‡</b>	Trace	- * 崇
KEYSIGH RL ↔	T Input: RF Coupling: DC Align: Auto	Input Z: 50 Ω Corr CCorr Freq Ref: Int NFE: Off		Trig: Free Run Gate: Off #IF Gain: Low	Center Freq Avg Hold: 1 Radio Std: 1		I GHz	Trace Type Clear / Wr	rite	Trace Control
1 Graph								Trace Ave	rage	
Scale/Div 10	.0 dB		Ref Value 30.0	0 dBm	•			Max Hold		
20.0 10.0 0.00		- And		ปันหารทำเพียงประการของ	•			Min Hold		
-30.0	rydposition and a start and a start and a start	Langerthe			Upin Henry Jay	hannandan	<sup>เพณ</sup> ์เของใสวิน/ขวงศุ	Restart Ma	x Hold	
-40.0 -50.0 -60.0										
Center 1.745 #Res BW 75			#Video BW 2.40	00 MHz	Sw	Si veep 1.00 ms	oan 75 MHz ; (1001 pts)			
2 Metrics							(			
Occ	cupied Bandwidth 28.6	74 MHz		Total Power		29.8 dE	Im			
Tra	nsmit Freg Error		98 kHz	% of OBW Pov	ver	99.00				
x d	B Bandwidth	31.0	4 MHz	x dB		-26.00	iΒ			
<b>۲</b>	2	Oct 24, 202 3:17:44 Pt	23 M							

Plot 7-56. Occupied Bandwidth Plot (NR Band n66 - 30.0MHz 16QAM - Full RB - Ant2)

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	rum Analy pied BW	/zer 1	+								₽	Trace	- * 絵
KEY RL	SIGHT • <b>→</b> •	Input: RF Coupling: DC Align: Auto	Input Z: Corr CC Freq Re		Atten: 36 dB	Gate: Off Avg			Center Freq: 1.745000000 GHz Avg Hold: 100/100 Radio Std: None			Type ear / Write	Trace Control
LXI			NFE: Of	f									Detector
1 Grap		•									Tr	ace Average	
Scale Log 20.0	/Div 10.0	dB		ſ	Ref Value 30.	00 dBm	1				• Ma	ax Hold	
20.0 10.0 0.00				manning	depet the second defenses	mmmuhadus	<sub>่ง</sub> สระบ <sub>าง</sub> ใ <sub>บแหล่</sub> สกรุงา	λ			Mi	n Hold	
-10.0 -20.0 -30.0	,hest <b>e</b> fterst	<sub>ขามมี</sub> ประชาวไปสาวไป	and the second sec					www.g.,.ml.f.	Mt Hillson And	Million	Re	start Max Hold	
-40.0 -50.0													
-60.0													
	r 1.74500 BW 750.0			. #\	/ideo BW 2.4	000 MHz		Sv	S veep 1.00 m	pan 75 MHz s (1001 pts)			
2 Metr	ics	•											
	2												
	Occup	bied Bandwidtl 28.	n 671 MHz			Tota	l Power		29.7 di	3m			
		mit Freq Error		57.852 kH			OBW Pow	er	99.00				
	X dB i	Bandwidth		31.21 MH:	Z	x dB			-26.00	aв			
	5			, 2023 50 PM									

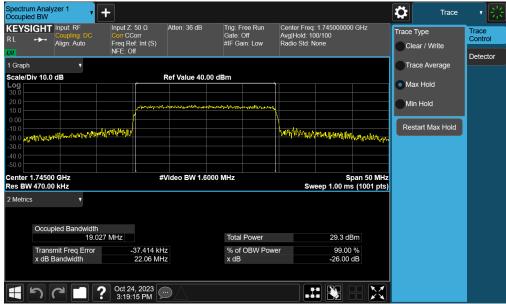
Plot 7-57. Occupied Bandwidth Plot (NR Band n66 - 30.0MHz 16QAM - Full RB - Ant2)

Spectrum Analyz Occupied BW	zer 1	F								₽	Trace	· *
	Input: RF Coupling: DC Align: Auto	Input Z: 50 Ω Corr CCorr Freq Ref: Int (S) NFE: Off	Atten: 36 dB	Gate:	ree Run Off ain: Low		Center Freq: 1.745000000 GHz Avg Hold: 100/100 Radio Std: None			Trace Type Clear / V	Vrite	Trace Control
1 Graph	•									Trace Av	rerage	
Scale/Div 10.0 c	dB		Ref Value 40.00	0 dBm						C May Lia	-	
Log 30.0										Max Hol		
20.0		Jummun	way day of the second	mannul	Markaman and					Min Hold	I	
0.00 -10.0 -20.0										Restart N	lax Hold	
-40.0	helder Marriel and a star	domin as				-0	₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩	www.www.	han			
-50.0												
Center 1.74500 Res BW 470.00			#Video BW 1.60	00 MHz			SW		Span 50 MHz ns (1001 pts)			
2 Metrics	¥						3	Bep 1.00 II	15 (1001 pts)	1		
Occupi	ied Bandwidth 17.954	4 MHz		Total	Power			31.7 c	iBm			
Transm	nit Freg Error	-549.65 k	Hz	% of	OBW Po	owe	r	99.0	0 %			
	andwidth	19.04 M		x dB				-26.00				
<b>1</b> 50	۲ <mark>۲</mark>	Oct 24, 2023 3:13:08 PM										

Plot 7-58. Occupied Bandwidth Plot (NR Band n66 - 20.0MHz π/2 BPSK - Full RB - Ant2)

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Plot 7-59. Occupied Bandwidth Plot (NR Band n66 - 20.0MHz QPSK - Full RB - Ant2)

Spectrum Ana Occupied BW		+							₽	Trace	<ul><li>▼ ╬</li></ul>
KEYSIGH RL +→-• ₩	T Input: RF Coupling: DC Align: Auto	Input Z: 50 Ω Corr CCorr Freq Ref: Int (S) NFE: Off	Atten: 36 dB	Trig: Free F Gate: Off #IF Gain: L	Avg l	er Freq: 1.74 Hold: 100/100 o Std: None		iHz	Trace Type Clear / W	′rite	Trace Control
1 Graph									Trace Ave	erage	
Scale/Div 10	.0 dB		Ref Value 30.0	0 dBm					Max Hold	1	
20.0 10.0 0.00		n na	๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛	an-tentationant after	m				Min Hold		
-10.0 -20.0 -30.0	J. Markey Press	n manipunat			lwy.	MARY MARK	the state of the second	hallon frankfrand	Restart M	ax Hold	
-40.0 -50.0 -60.0											
Center 1.745 Res BW 470.		 #	Video BW 1.60	00 MHz	•	Sweep 1		n 50 MHz 1001 pts)			
2 Metrics	•						·				
Occ	upied Bandwidth	′6 MHz		Total Pov	105		29.4 dBm				
Tra	nsmit Freg Error	-26.504 kł	47	% of OB			99.00 %				
	Bandwidth	20.304 Ki 20.11 Mł		x dB			-26.00 dB				
<b>1</b> 5	6	Oct 24, 2023 3:19:23 PM						X			

Plot 7-60. Occupied Bandwidth Plot (NR Band n66 - 20.0MHz 16QAM - Full RB - Ant2)

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Spectrur Occupie		ter 1	+									٢	Trace	- * 絵
KEYS RL	-	Input: RF Coupling: DC Align: Auto			Atten: 36 dB	Gate:	Free Run Off ain: Low		Center Freq Avg Hold: 10 Radio Std: N		) GHz	Trace	Type ear / Write	Trace Control
LXI		<u> </u>	NFE: Of											Detector
1 Graph		•										Tr	ace Average	
Scale/D	iv 10.0 (	β		, I	Ref Value 40.0	00 dBm	,	_				ОМ	ax Hold	
30.0														
20.0				man	hannon	*****	mm					M	in Hold	
0.00				1								<b>—</b>		
-10.0								ł				Re	start Max Hold	
-20.0	<sup>በ</sup> ግሎ <sup>በ</sup> ዝታናዎች	مهوم المحاليات	Vandonationontal					Ŵ	Marinel Wards	m when we are a full	white when a			
-40.0														
-50.0														
Center 7 Res BW				#\	/ideo BW 1.2	000 MHz			Sw		an 37.5 MHz s (1001 pts)			
2 Metrics										00p 1100 III.	5 (100 i pio)			
2 11104100														
	-													
	Occupi	ed Bandwid	ith 3.492 MHz			Tota	Power			31.6 dE	Зm			
	Transn	nit Freg Erro		390.07 kH:	7		OBW Po	we	r	99.00				
		andwidth		14.31 MH:		x dB				-26.00				
	5)(			, 2023 28 PM										

Plot 7-61. Occupied Bandwidth Plot (NR Band n66 - 15.0MHz π/2 BPSK - Full RB - Ant2)

Spectrum Analyzer 1 Occupied BW	t				Trace	- * 法
R L     Input: RF       Coupling: DC       Align: Auto	Corr CCorr Freq Ref: Int (S)	G	rig: Free Run Sate: Off 4F Gain: Low	Center Freq: 1.745000000 GHz Avg Hold: 100/100 Radio Std: None	Trace Type	Trace Control
1 Graph	NFE: Off				Trace Average	Detector
Scale/Div 10.0 dB	Ref	Value 30.00 dBn	n			
Log 20.0 10.0 0.00	and a stand of the	warnan	mennenter		Max Hold     Min Hold	
-10.0 -20.0 -30.0	with the planet			Madantha Marthan Manapara	Restart Max Hold	
-40.0 -50.0 -60.0						
Center 1.74500 GHz Res BW 360.00 kHz	#Vide	eo BW 1.2000 MI	Hz	Span 37.5 I Sweep 1.00 ms (1001		
2 Metrics 🔹						
Occupied Bandwidth 14.16	5 MHz		Total Power	29.5 dBm		
Transmit Freq Error x dB Bandwidth	-14.425 kHz 15.04 MHz		% of OBW Powe x dB	er 99.00 % -26.00 dB		
<b>1</b> 772	Oct 24, 2023	$\wedge$				

Plot 7-62. Occupied Bandwidth Plot (NR Band n66 - 15.0MHz QPSK - Full RB - Ant2)

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Spectru Occupi	um Analy ed BW	rzer 1 🗸	+								₽	Trace	- * 法
RL RL	SIGHT +►	Input: RF Coupling: DC Align: Auto	Input Z: Corr CC Freq Re	orr f: Int (S)	Atten: 36 dB	Gate:	ree Run Off ain: Low	Center Fred Avg Hold: 1 Radio Std: I		) GHz	Trace	Type ear / Write	Trace Control
LXI			NFE: Of	f									Detector
1 Grapt Scale/	י Div 10.0	, dB			Ref Value 30.0	00 dBm						ace Average	
Log 20.0											• Ma	ax Hold	
10.0				and the second s	<sub>รอ</sub> งส์คาวัย <sub>กล</sub> ะ( <sub>/ไทยังเวลต์</sub>	all and a second se	๛๛๛	1			Mi	n Hold	
0.00 -10.0			ก					Atoliante	- 451		-		
-20.0	Config and and	holomontain	d walan . A					1959 1097 11569	r Maxwarilly	Howwww.	Re	start Max Hold	
-40.0													
-50.0 -60.0													
	1.74500 V 360.00		11	#\	/ideo BW 1.2	000 MHz		Sv		an 37.5 MHz s (1001 pts)			
2 Metric		٣								<u> </u>			
	Occup	oied Bandwidth					_		00.1.1				
	Tropo	14.2 mit Freq Error	231 MHz	33.296 kH;	-		Power OBW Pow	or	29.4 dE 99.00				
		Bandwidth		15.06 MH		x dB	OBW POW	er	-26.00				
	5		<b>?</b> Oct 24 3:20:0										

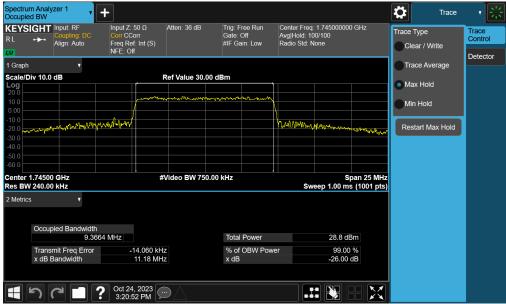
Plot 7-63. Occupied Bandwidth Plot (NR Band n66 - 15.0MHz 16QAM - Full RB - Ant2)

Spectrur Occupie	n Analyzer 1 d BW	•	+									₽	Trace	• 祭
KEYSI RL	GHT Input: RI	F ≱:DC	Input Z: Corr CC		Atten: 36 dB		Free Run		Center Freq Avg[Hold: 10		10 GHz	Тгасе Туре		Trace Control
	Align: Al	uto	Freq Ret NFE: Of			#IF	Gain: Low		Radio Std: N	one		Clear / \	Vrite	
1 Graph		•			I							Trace A	/erage	Detector
	iv 10.0 dB			F	Ref Value 40.	00 dBm								
Log 30.0				í								Max Ho	d	
20.0				man	and the second second	hnalaan	mannel	ì				Min Hole		
10.0								Ą				<b></b>		
-10.0								ł				Restart N	1ax Hold	
-20.0	phonetry and	www.amwa	marywood					Y	Margan and	many	Maskal Jour			
-40.0														
-50.0	74500 811-					0.00111		ļ			05 101			
	1.74500 GHz 240.00 kHz			#\	/ideo BW 75	0.00 KHZ			Sw		pan 25 MHz s (1001 pts)			
2 Metrics	;	•												
	Occupied Ban	dwidth												
		9.049	5 MHz			Tot	al Power			31.4 d	Bm			
	Transmit Freq x dB Bandwid			205.81 kHz 9.653 MHz			of OBW P	owe	r	99.00 -26.00				
	X OB Bandwid	un –		9.003 MHz		x c	Б			-26.00	aв			
	って		Oct 24 3:15:5	, 2023 52 PM										

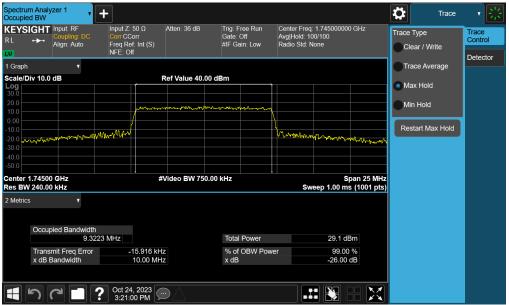
Plot 7-64. Occupied Bandwidth Plot (NR Band n66 - 10.0MHz π/2 BPSK - Full RB - Ant2)

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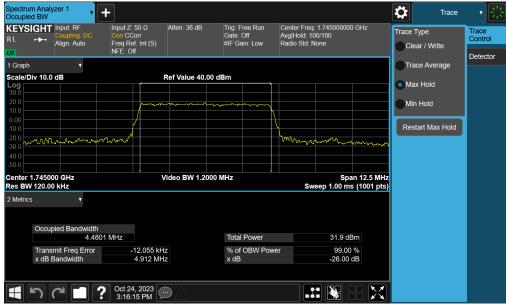
Plot 7-65. Occupied Bandwidth Plot (NR Band n66 - 10.0MHz QPSK - Full RB - Ant2)



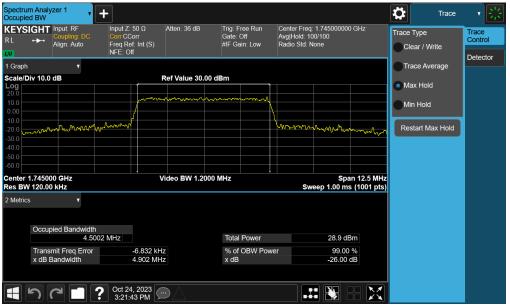
Plot 7-66. Occupied Bandwidth Plot (NR Band n66 - 10.0MHz 16QAM - Full RB - Ant2)

FCC ID: A3LSMA156E		PART 27 MEASUREMENT REPORT	Approved by: Technical Manager
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Plot 7-67. Occupied Bandwidth Plot (NR Band n66 - 5.0MHz π/2 BPSK - Full RB – Ant2)



Plot 7-68. Occupied Bandwidth Plot (NR Band n66 - 5.0MHz QPSK - Full RB - Ant2)

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Plot 7-69. Occupied Bandwidth Plot (NR Band n66 - 5.0MHz 16QAM - Full RB - Ant2)

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### 7.3 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 $43 + 10 \log_{10}(P_{[Watts]})$ , 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 ≥ 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 7-2. Test Instrument & Measurement Setup

#### **Test Notes**

- 1. Per Part 27, 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.

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Mode	Bandwidth	Channel	Range [MHz]	Level [dBm]	Limit [dBm]	Margin [dB]
			30.0 - 679.9	-49.42	-13.00	-36.42
		Low	716.0 - 1000.0	-59.32	-13.00	-46.32
			1000.0 - 10000.0	-45.32	-13.00	-32.32
			30.0 - 680.0	-55.67	-13.00	-42.67
LTE-B12/17	10 MHz	Mid	716.0 - 1000.0	-56.02	-13.00	-43.02
			1000.0 - 10000.0	-45.32	-13.00	-32.32
			30.0 - 679.9	-58.78	-13.00	-45.78
		High	716.0 - 1000.0	-47.86	-13.00	-34.86
			1000.0 - 10000.0	-45.22	-13.00	-32.22
			30.0 - 1705.0	-33.17	-13.00	-20.17
		Low	1755.0 - 10000.0	-47.40	-13.00	-34.40
			10000.0 - 20000.0	-62.96	-13.00	-49.96
			30.0 - 1710.0	-53.85	-13.00	-40.85
WCDMA-AWS	5MHz	Mid	1755.0 - 10000.0	-47.37	-13.00	-34.37
			10000.0 - 20000.0	-62.76	-13.00	-49.76
		High	30.0 - 1710.0	-53.84	-13.00	-40.84
			1760.0 - 10000.0	-35.44	-13.00	-22.44
			10000.0 - 20000.0	-62.63	-13.00	-49.63
		Low	30.0 - 1709.0	-42.61	-13.00	-29.61
			1780.0 - 10000.0	-47.00	-13.00	-34.00
			10000.0 - 20000.0	-62.61	-13.00	-49.61
			30.0 - 1710.0	-53.92	-13.00	-40.92
LTE-B66/4	20MHz	Mid	1780.0 - 10000.0	-47.35	-13.00	-34.35
			10000.0 - 20000.0	-62.46	-13.00	-49.46
			30.0 - 1710.0	-53.81	-13.00	-40.81
		High	1781.0 - 10000.0	-42.36	-13.00	-29.36
			10000.0 - 20000.0	-62.46	-13.00	-49.46
			30.0 - 1709.0	-45.17	-13.00	-32.17
		Low	1780.0 - 10000.0	-47.33	-13.00	-34.33
			10000.0 - 20000.0	-63.66	-13.00	-50.66
			30.0 - 1710.0	-52.64	-13.00	-39.64
NR-n66	20MHz	Mid	1780.0 - 10000.0	-47.46	-13.00	-34.46
			10000.0 - 20000.0	-63.48	-13.00	-50.48
			30.0 - 1710.0	-53.56	-13.00	-40.56
		High	1781.0 - 10000.0	-45.52	-13.00	-32.52
			10000.0 - 20000.0	-63.60	-13.00	-50.60

Table 7-4. Summary of Conducted Spurious Emission Test Results – Ant1

FCC ID: A3LSMA156E		PART 27 MEASUREMENT REPORT				
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Mode	Bandwidth	Channel	Range [MHz]	Level [dBm]	Limit [dBm]	Margin [dB]
			30.0 - 1709.0	-43.72	-13.00	-30.72
		Low	1780.0 - 10000.0	-39.55	-13.00	-26.55
			10000.0 - 20000.0	-62.10	-13.00	-49.10
			30.0 - 1710.0	-50.80	-13.00	-37.80
LTE-B4	20MHz	Mid	1780.0 - 10000.0	-42.03	-13.00	-29.03
			10000.0 - 20000.0	-62.07	-13.00	-49.07
		High	30.0 - 1710.0	-53.44	-13.00	-40.44
			1781.0 - 10000.0	-40.19	-13.00	-27.19
			10000.0 - 20000.0	-62.31	-13.00	-49.31
			30.0 - 1709.0	-45.81	-13.00	-32.81
		Low	1780.0 - 10000.0	-42.59	-13.00	-29.59
			10000.0 - 20000.0	-63.16	-13.00	-50.16
			30.0 - 1710.0	-52.64	-13.00	-39.64
NR-n66	20MHz	Mid	1780.0 - 10000.0	-39.63	-13.00	-26.63
			10000.0 - 20000.0	-62.87	-13.00	-49.87
			30.0 - 1710.0	-53.31	-13.00	-40.31
		High	1781.0 - 10000.0	-37.30	-13.00	-24.30
			10000.0 - 20000.0	-62.82	-13.00	-49.82

Table 7-5. Summary of Conducted Spurious Emission Test Results – Ant2

FCC ID: A3LSMA156E		PART 27 MEASUREMENT REPORT				
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## LTE Band 12/17 - Ant1

🦲 Keysight Spectrum Analyzer - Swept SA 👘					
LX RL RF 50Ω DC	PNO: Fast ↔ Trig: Fre	e Run	ALIGN AUTO Type: RMS	07:47:18 PM Oct 17, 2023 TRACE 1 2 3 4 5 6 TYPE A WWWWW DET A NNNNN	Frequency
PASS 10 dB/div Ref 20.00 dBm	IFGain:Low Atten: 3	0 dB	М	kr1 697.95 MHz -58.780 dBm	Auto Tune
10.0					Center Freq 364.000000 MHz
-10.0					Start Free 30.000000 MH:
-20.0					Stop Fred 698.000000 MH
-40.0					CF Step 66.800000 MH <u>Auto</u> Mar
-60.0				1,	Freq Offse 0 H
-70.0 57.0 50.0 MHz	na an tha an an tha an an an tha an			Stop 698.0 MHz	Scale Type
#Res BW 100 kHz	#VBW 300 kHz		Sweep 32	2.06 ms (13361 pts)	

Plot 7-70. Conducted Spurious Plot (LTE Band 12/17 - 10MHz QPSK - 1 RB - High Channel - Ant1)

Keysight Spec													
L <mark>XI</mark> RL	RF	50 Ω [	DC	CORREC		SE	NSE:INT	#Avg Typ	ALIGN AUTO e: RMS	TRAC	HOct 17, 2023	Fi	requency
PASS				PNO: Fas IFGain:Lo		Trig: Fre Atten: 30		• ,.		TYF De			
10 dB/div Log	Ref 20.	00 dB	m						М	kr1 716. -47.8	10 MHz 60 dBm		Auto Tune
Trace	1 Pass						Ĭ					(	Center Freq
10.0												858	.050000 MHz
0.00													
0.00													Start Freq
-10.0												716	5.100000 MHz
-20.0													
												1.00	Stop Freq 0000000 GHz
-30.0													
-40.0													CF Step
1												28 <u>Auto</u>	3.390000 MHz Mar
-50.0													
-60.0													Freq Offset
	والمحاول والمحاو	-		والمعالية والمساور		inite-instation	ter and the second s	www.co.waraista.ga	مرامر بدار مرد الم	an in the state of the second second	مىلىنى بىرىسىتا <u>ت ئەرىلىدۇ.</u>		0 Hz
-70.0	aller in the second			and b location of the		and the party							Scale Type
Start 0.716 #Res BW 1				#	VBW	300 kHz			Sweep 1	Stop 1.0 13.63 ms (	0000 GHz 5681 pts)	Log	<u>Lin</u>
MSG									STATU				

Plot 7-71. Conducted Spurious Plot (LTE Band 12/17 - 10MHz QPSK - 1 RB - High Channel - Ant1)

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	ectrum Analyze	- Swept SA									- # <b>X</b>
LXI RL	RF	50 Ω DC	CORREC	SENS	SE:INT	#Avg Typ	ALIGN AUTO		M Oct 17, 2023	Fre	quency
PASS			PNO: Fast ↔ IFGain:Low	Trig: Free #Atten: 32				TY D			
10 dB/div	Ref 20.0	)0 dBm					Mł	r1 4.92 -45.2	9 0 GHz 15 dBm	· · · · ·	Auto Tune
Log Trac	e 1 Pass										e <b>nter Freq</b> 000000 GHz
-10.0											<b>Start Freq</b> 000000 GHz
-20.0											<b>Stop Freq</b> 000000 GHz
-40.0					<u>~~</u> ~		-			900.0 <u>Auto</u>	<b>CF Step</b> 000000 MHz Man
-60.0										F	<b>req Offset</b> 0 Hz
-70.0											cale Type
Start 1.00 #Res BW			#VBW	/ 3.0 MHz		s	weep 15	Stop 10	).000 GHz  8001 pts)	Log	Lin
MSG							STATUS				

Plot 7-72. Conducted Spurious Plot (LTE Band 12/17 - 10MHz QPSK - 1 RB - High Channel - Ant1)

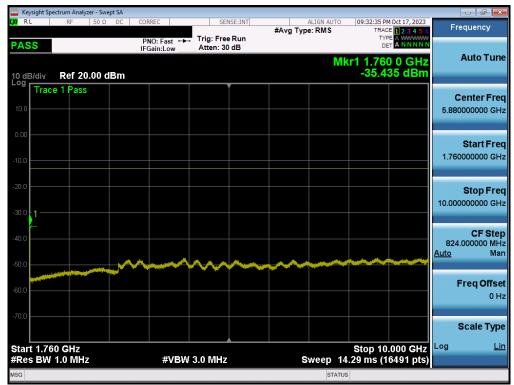
FCC ID: A3LSMA156E		PART 27 MEASUREMENT REPORT				
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### WCDMA AWS – Ant1

🔤 Keysight Spectrum Analyze										
💢 RL RF	50 Ω DC CO	RREC		SE:INT	#Avg Typ	ALIGN AUTO e: RMS	TRACI	Oct 17, 2023	Frequenc	су
PASS		NO: Fast ↔↔ Gain:Low	Trig: Free Atten: 30				TYP DE			
10 dB/div Ref 20.1	00 dBm					Mk	r1 1.700 -53.83	) 0 GHz 35 dBm	Auto	Tune
Trace 1 Pass			Ĭ						Center	Freq
10.0									870.00000	0 MHz
0.00										
									Start 30.00000	
-10.0										
-20.0									Stop	Freq
-30.0									1.71000000	0 GHz
									CE	Step
-40.0									168.00000 Auto	
-50.0								1		Iviaii
-60.0		من <del>اوم المهاور و معدا ال</del> ازمار	مالي الإير المدين الم <del>الع</del> الي	forther you and a particular	eren der ander ander an	an in fried and a first free		***	Freq C	Offset
-00.0										0 Hz
-70.0									Scale	Type
										Lin
Start 0.0300 GHz #Res BW 1.0 MHz		#VBW	3.0 MHz			Sweep 2	Stop 1.7 (240 ms )	100 GHz 3361 pts)	3	<u>L</u> 111
MSG						STATUS				

Plot 7-73. Conducted Spurious Plot (WCDMA Ch. 1513- High Channel - Ant1)



Plot 7-74. Conducted Spurious Plot (WCDMA Ch. 1513- High Channel - Ant1)

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Keysight Spectrum Analyzer										
XIRL RF 5	50 Ω DC C	ORREC		ISE:INT	#Avg Typ	ALIGN AUTO e: RMS	TRAC	HOct 17, 2023	Freque	ency
PASS		PNO: Fast +++	Trig: Free Atten: 10				TYF			
10 dB/div Ref 0.00	dBm					Mkr	1 19.539 -62.6	95 GHz 29 dBm	Aut	o Tune
og Trace 1 Pass			,						Cent	er Fre
-10.0									15.000000	
22.0										
-20.0									Sta	art Fre
-30.0									10.000000	000 GH
40.0										
-40.0									Sto 20.000000	ор <b>Fre</b> 000 GH
50.0										
60.0								1	C	F Ste
									1.000000 <u>Auto</u>	000 GH Ma
-70.0										
80.0									Free	<b>Offse</b> 0 H
										UH
.90.0									Sca	Іе Тур
Start 10.000 GHz							Stop 20	.000 GHz	Log	Li
Res BW 1.0 MHz		#VBW	3.0 MHz		s	weep 17	33 ms (2	0000 GH2 0001 pts)		
ISG						STATUS	3			

Plot 7-75. Conducted Spurious Plot (WCDMA Ch. 1513- High Channel - Ant1)

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# LTE Band 66/4 - Ant1

	ht Spectrum	n Analyzer	- Swept	SA										
LXI RL	F	SF 5	50 Ω I	DC	CORREC			SENSE:INT	#Avg Ty	ALIGN AUTO		M Oct 17, 2023	F	requency
PASS					PNO: F IFGain:	ast ⊶ Low		ree Run 30 dB	#Avg ty	pe: RIVIS	TY	CE 1 2 3 4 5 6 PE A WWWWW ET A NNNNN		
10 dB/d Log	liv Re	ef 20.0	0 dB	m						MI	(r1 1.64 -53.8	8 5 GHz 10 dBm		Auto Tune
10.0	race 1	Pass												Center Freq 0.000000 MHz
-10.0													30	Start Freq 0.000000 MHz
-20.0													1.71	Stop Freq 0000000 GHz
-40.0												1	168 <u>Auto</u>	<b>CF Step</b> 3.000000 MH: Mar
-60.0 🚧	ly Lys by the self signed below	e-program (gram (gram)	مربع المربع	<del>ۇر</del> ېدىزىرىردۇرى	المونورون		angeholori, maya	entre tertification and	uniter gi in ditu program gi të shi		teri alla pita par ditta ta			Freq Offset 0 Hz
-70.0														Scale Type
	0.0300					-43 / 1544		-		0	Stop 1.		Log	Lin
	3W 1.0	WIFIZ				#VBN	/ 3.0 MI	12				(3361 pts)		
MSG										STATU	5			

Plot 7-76. Conducted Spurious Plot (LTE Band 66/4 - 20MHz QPSK - 1 RB - High Channel – Ant1)

RL     RF     50 Ω     DC     CORREC     SENSE:INT     ALIGN AUTO     08:46:16 PM Oct 17, 2023       ASS     PNO: Fast     +     Trig: Free Run Atten: 30 dB     Trace     12.34.5 6	Frequency Auto Tune
ASS PNO: Fast Trig: Free Run TYPE A WWWWW ASS IFGain:Low Atten: 30 dB DET A NNNNN	Auto Tune
Mkr1 1 721 0 GHz	Auto Tune
Mkr1 1.781 0 GHz dB/div Ref 20.00 dBm -42.361 dBm	
Trace 1 Pass	Center Freq .890500000 GHz
	Start Freq .781000000 GHz
	<b>Stop Freq</b> .000000000 GHz
	<b>CF Step</b> 821.900000 MHz <u>50</u> Man
	<b>Freq Offset</b> 0 Hz
	Scale Type
tart 1.781 GHz Stop 10.000 GHz Stop 10.000 GHz Res BW 1.0 MHz #VBW 3.0 MHz Sweep 14.25 ms (16441 pts)	
G	

Plot 7-77. Conducted Spurious Plot (LTE Band 66/4 - 20MHz QPSK - 1 RB - High Channel – Ant1)

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🔤 Keysight Spectrum Analyzer -	Swept SA							
<b>LXI RL RF 5</b> 1	0Ω DC CORRE	EC	SENSE:INT	#Avg Typ	ALIGN AUTO	08:46:38 PM TRACE	Oct 17, 2023	Frequency
PASS	PNC IFGa		Free Run n: 10 dB			TYPE DET	A WWWWW A N N N N N	
10 dB/div Ref 0.00	dBm				Mkr	1 19.517 -62.45	5 GHz 8 dBm	Auto Tune
Log Trace 1 Pass			Ĭ					Center Fred
-10.0								15.00000000 GHz
-20.0								
-20.0								Start Fred
-30.0								10.00000000 GHz
-40.0								
-40.0								Stop Fred 20.000000000 GHz
-50.0								
-60.0							1	CF Step
		والمتكافظ والطرواني ومتعطيها	designed a station lands range	and the second second				1.00000000 GHz <u>Auto</u> Mar
-70.0				a series a static second s				
-80.0								Freq Offset
								0 Hz
-90.0								Scale Type
								Log Lir
Start 10.000 GHz #Res BW 1.0 MHz		#VBW 3.0 N	IHz	s	weep 17	Stop 20.0 33 ms (20	000 0112	
MSG					STATUS			

Plot 7-78. Conducted Spurious Plot (LTE Band 66/4 - 20MHz QPSK - 1 RB - High Channel – Ant1)

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# LTE Band 4 – Ant2

		trum Analy:	zer - Swe	ept SA										
L <mark>XI</mark> RL	_	RF	50 Ω	DC	CORREC		SE	NSE:INT	#Avg Typ	ALIGN AUTO		M Oct 18, 2023	Fr	equency
PAS	S				PNO: IFGain	Fast ↔ :Low	Trig: Free Atten: 30		#***9 · JF		TY			
10 dE	3/div	Ref 20	.00 d	Bm						MI	r1 1.70 -43.7	9 0 GHz '18 dBm		Auto Tune
Log 10.0	Trace	1 Pass												<b>Center Freq</b> 9.500000 MHz
0.00 ·													30	Start Freq 0.000000 MHz
-20.0 - -30.0 -													1.70	Stop Freq 9000000 GHz
-40.0												1	167 <u>Auto</u>	CF Step 7.900000 MHz Mar
-60.0	n an	in the factor of the	an said an	en faller and a fait	alle a star (a george a la	iliyiye terletek	in alient open strangen forst	lig bening from begand	kar asynanical artest		Marth States	of new sector of the sector of		Freq Offset 0 Hz
-70.0														Scale Type
		00 GHz									Stop 1.	7090 GHz	Log	<u>Lin</u>
#Res	s BW ′	1.0 MH2	z			#VBW	/ 3.0 MHz			Sweep 2	2.239 ms (	(3359 pts)		
MSG										STATU	5			

Plot 7-79. Conducted Spurious Plot (LTE Band 4 - 20MHz QPSK - 1 RB - Low Channel – Ant2)

	pectrum Analy		A									ð
L <mark>XI</mark> RL	RF	50 Ω D	IC COF	RREC		ISE:INT	#Avg Typ	ALIGN AUTO e: RMS	TRA	M Oct 18, 2023	Freque	ncy
PASS				NO: Fast ↔ Gain:Low	Trig: Free Atten: 30			M			Aut	o Tune
10 dB/div	Ref 20	0.00 dBr	n						-39.5	54 dBm		
	ce 1 Pass											er Frec
10.0											5.877500	000 GH:
0.00												rt Fred
-10.0											1.755000	JUU GH:
-20.0											Sto 10.000000	p Free
-30.0		1										
-40.0											824.5000 Auto	F Step 000 MH Mar
-50.0			~~		$\sim$		- Martin					Ma
-60.0											Freq	Offsei 0 Ha
-70.0											Cool	
					<u> </u>							е Туре
Start 1.7 #Res BW		z		#VBW	( 3.0 MHz		s	weep 14	Stop 10 1.29 ms (1	.000 GHz 6491 pts)	Log	Lir
MSG								STATU	s			

Plot 7-80. Conducted Spurious Plot (LTE Band 4 - 20MHz QPSK - 1 RB - Low Channel – Ant2)

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	trum Analyzer - Sw	/ept SA								
LXU RL	RF 50 Ω	2 DC C	ORREC	SEN	ISE:INT	#Avg Typ	ALIGN AUTO		M Oct 18, 2023	Frequency
PASS			PNO: Fast ↔ FGain:Low	Trig: Free Atten: 10				TYI Di		<b>.</b>
10 dB/div	Ref 0.00 d	Bm					Mkr	1 19.58 -62.1	4 0 GHz 03 dBm	Auto Tun
Log Trace	1 Pass									Center Free
-10.0										15.00000000 GH
-20.0										
										Start Free 10.000000000 GH
-30.0										10.00000000 GH
-40.0										Stop Free
-50.0										20.00000000 GH
-30.0									. 1	
-60.0										CF Step 1.000000000 GH
-70.0		a saya ana ang		a na an innean an a						<u>Auto</u> Mar
										Freq Offse
-80.0										ОН
-90.0										
										Scale Type
Start 10.00 #Res BW 1	0 GHz		#VRM	3.0 MHz		_	ween 47	Stop 20	.000 GHz 20001 pts)	Log <u>Lii</u>
MSG	TV INITIZ		# ¥ 🗆 9 ¥	5.0 191112			STATUS		ooor pisj	

Plot 7-81. Conducted Spurious Plot (LTE Band 4 - 20MHz QPSK - 1 RB - Low Channel – Ant2)

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