

Part 96 MEASUREMENT REPORT

Applicant Name:
Microsoft Corporation
One Microsoft Way
Redmond, WA 98052
United States

Date of Testing:
05/05/2025 – 06/17/2025
Test Report Issue Date:
6/24/2025
Test Site/Location:
Element Lab., Columbia, MD, USA
Test Report Serial No.:
1M2504010035-01-R3.C3K

FCC ID:	C3K2119
APPLICANT:	Microsoft Corporation

Application Type: Class II Permissive Change, Module Host Integration
EUT Type: Modular Approval - Host Integration (Portable Computing Device)
FCC Classification: Citizens Band End User Devices (CBE)
FCC Rule Part(s): 96
Test Procedure(s): ANSI C63.26-2015, KDB 940660 D01 v03,
WINNF-TS-0122 v1.0.2

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 Ortiz
Executive Vice President



FCC ID: C3K2119	PART 96 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2504010035-01-R3.C3K	Test Dates: 05/05/2025 – 06/17/2025	EUT Type: Modular Approval - Host Integration (Portable Computing Device)	Page 1 of 146

T A B L E O F C O N T E N T S

1.0	INTRODUCTION.....	6
1.1	Scope	6
1.2	Element Test Location	6
1.3	Test Facility / Accreditations	6
2.0	PRODUCT INFORMATION	7
2.1	Equipment Description.....	7
2.2	Device Capabilities	7
2.3	Test Configuration	7
2.4	Software and Firmware.....	7
2.5	EMI Suppression Device(s)/Modifications	7
2.6	Antenna Description	8
3.0	DESCRIPTION OF TESTS	9
3.1	Measurement Procedure	9
3.2	Radiated Spurious Emissions	9
4.0	MEASUREMENT UNCERTAINTY.....	10
5.0	TEST EQUIPMENT CALIBRATION DATA.....	11
6.0	SAMPLE EMISSION DESIGNATORS.....	12
7.0	TEST RESULTS	13
7.1	Summary	13
7.2	Conducted Output Power Data and ERIP	14
7.3	Occupied Bandwidth.....	19
7.4	Spurious and Harmonic Emissions at Antenna Terminal	59
7.5	Band Edge Emissions at Antenna Terminal.....	83
7.6	Radiated Spurious Emissions Measurements.....	106
7.7	Frequency Stability / Temperature Variation.....	134
7.8	End User Device Additional Requirement (CBSD Protocol).....	137
8.0	CONCLUSION	146

FCC ID: C3K2119	PART 96 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2504010035-01-R3.C3K	Test Dates: 05/05/2025 – 06/17/2025	EUT Type: Modular Approval - Host Integration (Portable Computing Device)	Page 2 of 146

MEASUREMENT REPORT

FCC Part 96

Antenna-6						
Mode	Bandwidth	Modulation	Tx Frequency Range [MHz]	EIRP		Emission Designator
				Max. Power [W]	Max. Power [dBm]	
LTE Band 48	40 MHz	QPSK	3570.0 - 3680.0	0.177	22.48	37M7G7D
		16QAM	3570.0 - 3680.0	0.131	21.17	37M6W7D
	35 MHz	QPSK	3567.5 - 3682.5	0.141	21.48	32M3G7D
		16QAM	3567.5 - 3682.5	0.119	20.75	32M3W7D
	30 MHz	QPSK	3565.0 - 3685.0	0.163	22.11	27M9G7D
		16QAM	3565.0 - 3685.0	0.130	21.14	27M9W7D
	25 MHz	QPSK	3562.5 - 3687.5	0.157	21.96	22M6G7D
		16QAM	3562.5 - 3687.5	0.135	21.31	22M6W7D
	20 MHz	QPSK	3560.0 - 3690.0	0.187	22.72	17M9G7D
		16QAM	3560.0 - 3690.0	0.181	22.57	18M0W7D
	15 MHz	QPSK	3557.5 - 3692.5	0.185	22.67	13M5G7D
		16QAM	3557.5 - 3692.5	0.175	22.43	13M5W7D
	5 MHz	QPSK	3552.5 - 3697.5	0.195	22.90	4M53G7D
		16QAM	3552.5 - 3697.5	0.190	22.79	4M51W7D
NR Band n48	40 MHz	$\pi/2$ BPSK	3570.0 - 3680.0	0.188	22.73	36M0G7D
		QPSK	3570.0 - 3680.0	0.192	22.83	36M0G7D
		16QAM	3570.0 - 3680.0	0.185	22.68	36M0W7D
	30 MHz	$\pi/2$ BPSK	3565.0 - 3685.0	0.181	22.58	27M0G7D
		QPSK	3565.0 - 3685.0	0.187	22.73	26M9G7D
		16QAM	3565.0 - 3685.0	0.177	22.47	27M0W7D
	20 MHz	$\pi/2$ BPSK	3560.0 - 3690.0	0.185	22.68	18M1G7D
		QPSK	3560.0 - 3690.0	0.183	22.62	18M0G7D
		16QAM	3560.0 - 3690.0	0.183	22.61	18M0W7D
	15 MHz	$\pi/2$ BPSK	3557.5 - 3692.5	0.189	22.76	13M0G7D
		QPSK	3557.5 - 3692.5	0.187	22.71	13M0G7D
		16QAM	3557.5 - 3692.5	0.184	22.65	13M1W7D
	10 MHz	$\pi/2$ BPSK	3555.0 - 3695.0	0.179	22.52	8M68G7D
		QPSK	3555.0 - 3695.0	0.178	22.50	8M71G7D
		16QAM	3555.0 - 3695.0	0.173	22.37	8M81W7D

EUT Overview

FCC ID: C3K2119	PART 96 MEASUREMENT REPORT			Approved by: Technical Manager
Test Report S/N: 1M2504010035-01-R3.C3K	Test Dates: 05/05/2025 - 06/17/2025	EUT Type: Modular Approval - Host Integration (Portable Computing Device)		Page 3 of 146

Antenna-1						
Mode	Bandwidth	Modulation	Tx Frequency Range [MHz]	EIRP		Emission Designator
				Max. Power [W]	Max. Power [dBm]	
LTE Band 48	20 MHz	QPSK	3560.0 - 3690.0	0.163	22.11	18M1G7D
		16QAM	3560.0 - 3690.0	0.154	21.86	18M0W7D
	15 MHz	QPSK	3557.5 - 3692.5	0.168	22.25	13M5G7D
		16QAM	3557.5 - 3692.5	0.164	22.16	13M6W7D
	10 MHz	QPSK	3555.0 - 3695.0	0.176	22.44	9M00G7D
		16QAM	3555.0 - 3695.0	0.159	22.02	9M04W7D
	5 MHz	QPSK	3552.5 - 3697.5	0.175	22.42	4M51G7D
		16QAM	3552.5 - 3697.5	0.163	22.12	4M53W7D
	40 MHz	π/2 BPSK	3570.0 - 3680.0	0.137	21.38	36M0G7D
		QPSK	3570.0 - 3680.0	0.139	21.42	35M9G7D
		16QAM	3570.0 - 3680.0	0.133	21.25	36M0W7D
NR Band n48	30 MHz	π/2 BPSK	3565.0 - 3685.0	0.135	21.32	26M8G7D
		QPSK	3565.0 - 3685.0	0.139	21.43	27M0G7D
		16QAM	3565.0 - 3685.0	0.128	21.07	27M0W7D
	20 MHz	π/2 BPSK	3560.0 - 3690.0	0.138	21.41	18M0G7D
		QPSK	3560.0 - 3690.0	0.139	21.43	18M0G7D
		16QAM	3560.0 - 3690.0	0.134	21.27	18M0W7D
	15 MHz	π/2 BPSK	3557.5 - 3692.5	0.140	21.45	13M0G7D
		QPSK	3557.5 - 3692.5	0.139	21.42	13M0G7D
		16QAM	3557.5 - 3692.5	0.138	21.41	13M1W7D
	10 MHz	π/2 BPSK	3555.0 - 3695.0	0.134	21.28	8M76G7D
		QPSK	3555.0 - 3695.0	0.135	21.30	8M66G7D
		16QAM	3555.0 - 3695.0	0.126	21.01	8M82W7D

EUT Overview

Antenna-3						
Mode	Bandwidth	Modulation	Tx Frequency Range [MHz]	EIRP		Emission Designator
				Max. Power [W]	Max. Power [dBm]	
NR Band n48	40 MHz	π/2 BPSK	3570.0 - 3680.0	0.149	21.72	522KG7D
		QPSK	3570.0 - 3680.0	0.151	21.80	574KG7D
		16QAM	3570.0 - 3680.0	0.132	21.22	653KW7D

EUT Overview

FCC ID: C3K2119	PART 96 MEASUREMENT REPORT				Approved by: Technical Manager
Test Report S/N: 1M2504010035-01-R3.C3K	Test Dates: 05/05/2025 - 06/17/2025	EUT Type: Modular Approval - Host Integration (Portable Computing Device)			

Antenna-4

Mode	Bandwidth	Modulation	Tx Frequency Range [MHz]	EIRP		Emission Designator
				Max. Power [W]	Max. Power [dBm]	
NR Band n48	40 MHz	π/2 BPSK	3570.0 - 3680.0	0.136	21.34	518KG7D
		QPSK	3570.0 - 3680.0	0.135	21.32	639KG7D
		16QAM	3570.0 - 3680.0	0.130	21.14	637KW7D

EUT Overview
UL-MIMO Antenna 6+1

Mode	Bandwidth	Modulation	Tx Frequency Range [MHz]	EIRP	
				Max. Power [W]	Max. Power [dBm]
NR Band n48	40 MHz	π/2 BPSK	3570.0 - 3680.0	0.130	21.13
		QPSK	3570.0 - 3680.0	0.127	21.04
		16QAM	3570.0 - 3680.0	0.102	20.10

EUT Overview

Note: EIRP levels shown in the table above are measured over the full channel bandwidth. These values will appear on the Grant of Authorization.

FCC ID: C3K2119	PART 96 MEASUREMENT REPORT			Approved by: Technical Manager
Test Report S/N: 1M2504010035-01-R3.C3K	Test Dates: 05/05/2025 – 06/17/2025	EUT Type: Modular Approval - Host Integration (Portable Computing Device)		Page 5 of 146



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.

1.2 Element Test Location

Measurements were conducted at the Element laboratory(ies) indicated in Section 1.3 below. All measurement facilities are compliant with the test site requirements specified in ANSI C63.4-2014 and KDB 414788 D01 v01r01.

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 Agreements (MRAs).

FCC ID: C3K2119	PART 96 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2504010035-01-R3.C3K	Test Dates: 05/05/2025 – 06/17/2025	EUT Type: Modular Approval - Host Integration (Portable Computing Device)	Page 6 of 146

2.0 PRODUCT INFORMATION

2.1 Equipment Description

The Equipment Under Test (EUT) is a **Microsoft Corporation Module FCC ID: C3K2119** installed in Portable Computing Device Model: 2119. This same device also includes a WiFi integrated module certified under FCC ID: C3K00002102A.. The test data contained in this report pertains only to the emissions due to the EUT's LTE Band 48 and NR Band n48 operation in the CBRS band. Per FCC Part 96, this device is evaluated as a Citizens Band End User Devices (CBE).

Test Device Serial No.: 3496J, 3496H, 3494H, 3493C, 3493C, 3494H

2.2 Device Capabilities

This device contains the following capabilities:

Bluetooth (1x, EDR, LE), 802.11b/g/n/ac/ax/be WLAN, 802.11a/n/ac/ax/be UNII (5GHz and GHz), 850/1700/1900 WCDMA/HSPA, Multi-band LTE, Multi-band 5G NR (FR1)

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.

For NR operations, the EUT was set to transmit via a Factory Test Mode (FTM) software provided by the manufacturer. The EUT duty cycle was set to 100% in all cases.

2.4 Software and Firmware

Testing was performed on device(s) using software/firmware version 241216-XXX-2a26fdf-00427-0 (licensed) and 3.1.0.1407 (unlicensed) 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.

FCC ID: C3K2119	PART 96 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2504010035-01-R3.C3K	Test Dates: 05/05/2025 – 06/17/2025	EUT Type: Modular Approval - Host Integration (Portable Computing Device)	Page 7 of 146

2.6 Antenna Description

The following antenna gains are used in this device to calculate the radiated power in section 7.2 of the report per the "2119 Operational Description" document provided by the client. This document is also included in the filing as a public exhibit.

Antenna	Antenna Gain [dBi]
LTE B48/n48 Antenna 6	1.94
LTE B48/n48 Antenna 1	1.46
n48 SRS Antenna 3	1.82
n48 SRS Antenna 3	1.42
UL-MIMO n48 Antenna 6 & 1	1.71

Note: UL-MIMO n48 antenna gain is the uncorrelated directional gain of Antenna 6 and 1.

FCC ID: C3K2119	PART 96 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2504010035-01-R3.C3K	Test Dates: 05/05/2025 – 06/17/2025	EUT Type: Modular Approval - Host Integration (Portable Computing Device)	Page 8 of 146

3.0 DESCRIPTION OF TESTS

3.1 Measurement 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 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 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:

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

And

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

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.

FCC ID: C3K2119	PART 96 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2504010035-01-R3.C3K	Test Dates: 05/05/2025 – 06/17/2025	EUT Type: Modular Approval - Host Integration (Portable Computing Device)	Page 9 of 146

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

Table 4-1. Measurement Uncertainty Budget

FCC ID: C3K2119	PART 96 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2504010035-01-R3.C3K	Test Dates: 05/05/2025 – 06/17/2025	EUT Type: Modular Approval - Host Integration (Portable Computing Device)	Page 10 of 146



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	EMC Cable and Switch System	2/25/2025	Annual	2/25/2026	AP2
-	AP1	EMC Cable and Switch System	2/25/2025	Annual	2/25/2026	AP1
-	ETS	EMC Cable and Switch System	12/11/2024	Annual	12/11/2025	ETS
-	LTx4	Licensed Transmitter Cable Set	2/25/2025	Annual	2/25/2026	LTx4
-	LTx5	Licensed Transmitter Cable Set	2/25/2025	Annual	2/25/2026	LTx5
Anritsu	MT8821C	Radio Communication Analyzer		N/A		6201381794
Espec	ESX-2CA	Environmental Chamber	11/20/2024	Biennial	11/20/2026	17620
ETS Lindgren	3117	1-18 GHz DRG Horn (Medium)	6/4/2025	Biennial	6/7/2027	00125518
Keysight Technologies	N9030A	PXA Signal Analyzer (44GHz)	10/16/2024	Annual	10/16/2025	MY49430494
Keysight Technologies	N9030B	PXA Signal Analyzer, Multi-touch	9/19/2024	Annual	9/19/2025	MY57141001
Keysight Technologies	N9038A	MXE EMI Receiver	9/16/2024	Annual	9/16/2025	MY51210133
Rohde & Schwarz	CMW500	Radio Communication Tester		N/A		100976
Rohde & Schwarz	ESU26	EMI Test Receiver (26.5GHz)	10/16/2024	Annual	10/16/2025	100342
Rohde & Schwarz	ESU40	EMI Test Receiver (40GHz)	10/16/2024	Annual	10/16/2025	100348
Sunol	JB5	Bi-Log Antenna (30M - 5GHz)	9/11/2024	Biennial	9/11/2026	A051107

Table 5-1. Test Equipment Calibration Table

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.

FCC ID: C3K2119	PART 96 MEASUREMENT REPORT			Approved by: Technical Manager
Test Report S/N: 1M2504010035-01-R3.C3K	Test Dates: 05/05/2025 – 06/17/2025	EUT Type: Modular Approval - Host Integration (Portable Computing Device)		Page 11 of 146

6.0 SAMPLE EMISSION DESIGNATORS

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

FCC ID: C3K2119	PART 96 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2504010035-01-R3.C3K	Test Dates: 05/05/2025 – 06/17/2025	EUT Type: Modular Approval - Host Integration (Portable Computing Device)	Page 12 of 146

7.0 TEST RESULTS

7.1 Summary

Company Name: Microsoft Corporation
 FCC ID: C3K2119
 FCC Classification: Citizens Band End User Devices (CBE)
 Mode(s): LTE/NR

Test Condition	Test Description	FCC Part Section(s)	Test Limit	Test Result	Reference
CONDUCTED	Conducted Power	2.1046(a), 2.1046(c)	N/A	PASS	Section 7.2
	Uplink Carrier Aggregation	96.41(e)	> 43 + 10log(P[Watts]) at Band Edge and for all out-of-band emissions	PASS	Section 7.2
	Equivalent Isotropic Radiated Power (EIRP) (EUD)	96.41(b)	23 dBm/10MHz	PASS	Section 7.2
	Occupied Bandwidth	2.1049(h)	N/A	PASS	Section 7.3
	Conducted Band Edge / Spurious Emissions (CBSD)	2.1051, 96.41(e)(i)	-13 dBm/MHz at frequencies within 0-10 MHz of above the upper SAS-assigned channel edge and within 0-10MHz below the lower SAS-assigned channel edge -25 dBm/MHz at frequencies greater than 10 MHz above and below channel edge -emissions below 3530 MHz or above 3720 MHz shall not exceed -40dBm/MHz	PASS	Sections 7.4, 7.5
	Additional Maximum Power Reduction (A-MPR)	2.1046	N/A	PASS	Section 7.2
	Frequency Stability	2.1055	Fundamental emissions stay within authorized frequency block	PASS	Section 7.7
	End User Device Additional Requirements (CBSD Protocol)	96.47	End User Devices may operate only if they can positively receive and decode an authorization signal transmitted by a CBSD, including the frequencies and power limits for their operation. An End User Device must discontinue operations, change frequencies, or change its operational power level within 10 seconds of receiving instructions from its associated CBSD.	PASS	Section 7.8
RADIATED	Radiated Spurious Emissions	2.1053, 96.41(e)	-40 dBm/MHz	PASS	Section 7.6

Table 7-1. Summary of Test Results

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 were all 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 v1.2.2.

FCC ID: C3K2119	PART 96 MEASUREMENT REPORT			Approved by: Technical Manager
Test Report S/N: 1M2504010035-01-R3.C3K	Test Dates: 05/05/2025 – 06/17/2025	EUT Type: Modular Approval - Host Integration (Portable Computing Device)	Page 13 of 146	

7.2 Conducted Output Power Data and EIRP

Test Overview

The EUT is set up to transmit at maximum power for LTE. All power levels are measured with a callbox 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.

A-MPR is implemented in this device per the A-MPR specification in 3GPP TS 36.101. The conducted powers are shown herein to cover the different A-MPR levels specified in the standard. Measurement equipment was set up with triggering/gating on the spectrum analyzer such that powers were measured only during the on-time of the signal.

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. EIRP is calculated using conducted power and antenna gain.
2. This unit was tested using a power supply.
3. 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.
4. Conducted power was found to reduce for the higher order QAM modulations when compared to 16QAM. Due to this trend, only the worst-case QAM (16QAM) powers are included in this section.
5. 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: C3K2119	PART 96 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2504010035-01-R3.C3K	Test Dates: 05/05/2025 – 06/17/2025	EUT Type: Modular Approval - Host Integration (Portable Computing Device)	Page 14 of 146

Bandwidth	Modulation	PCC			SCC			Conducted Power [dBm]	Ant. Gain [dBi]	EIRP [dBm/10MHz]	EIRP [Watts/10MHz]	EIRP Limit [dBm/10MHz]	Margin [dB]
		Bandwidth [MHz]	Frequency [MHz]	RB / Offset	Bandwidth [MHz]	Frequency [MHz]	RB / Offset						
40 MHz	QPSK	20	3560.0	1 / 99	20	3579.8	1 / 0	19.00	1.94	20.94	0.124	23.00	-2.06
		20	3625.0	1 / 99	20	3644.8	1 / 0	20.31	1.94	22.25	0.168	23.00	-0.75
		20	3690.0	1 / 0	20	3670.2	1 / 99	20.54	1.94	22.48	0.177	23.00	-0.52
	16-QAM	20	3690.0	1 / 0	20	3670.2	1 / 99	19.23	1.94	21.17	0.131	23.00	-1.83
35 MHz	QPSK	20	3557.5	1 / 99	15	3577.1	1 / 0	19.54	1.94	21.48	0.141	23.00	-1.52
		20	3625.0	1 / 99	15	3642.1	1 / 0	19.44	1.94	21.38	0.137	23.00	-1.62
		20	3692.5	1 / 0	15	3672.9	1 / 74	19.49	1.94	21.43	0.139	23.00	-1.57
	16-QAM	20	3557.5	1 / 99	15	3577.1	1 / 0	18.81	1.94	20.75	0.119	23.00	-2.25
30 MHz	QPSK	20	3555.0	1 / 99	10	3574.4	1 / 0	20.17	1.94	22.11	0.163	23.00	-0.89
		20	3625.0	1 / 99	10	3639.4	1 / 0	20.14	1.94	22.08	0.161	23.00	-0.92
		20	3695.0	1 / 0	10	3678.3	1 / 49	20.04	1.94	21.98	0.158	23.00	-1.02
	16-QAM	20	3555.0	1 / 99	10	3574.4	1 / 0	19.20	1.94	21.14	0.130	23.00	-1.86
25 MHz	QPSK	20	3552.5	1 / 99	5	3571.7	1 / 0	20.02	1.94	21.96	0.157	23.00	-1.04
		20	3625.0	1 / 99	5	3636.7	1 / 0	19.79	1.94	21.73	0.149	23.00	-1.27
		20	3697.5	1 / 0	5	3678.3	1 / 24	19.83	1.94	21.77	0.150	23.00	-1.23
	16-QAM	20	3697.5	1 / 0	5	3678.3	1 / 24	19.37	1.94	21.31	0.135	23.00	-1.69

Table 7-2. Conducted Power Output Data and EIRP data (ULCA LB48 – Ant6)

Bandwidth	Modulation	Channel	Frequency [MHz]	RB Size/Offset	Conducted Power [dBm]	Ant Gain [dBi]	EIRP [dBm/10MHz]	EIRP [Watts/10MHz]	EIRP Limit [dBm/10MHz]	Margin [dB]
20 MHz	QPSK	55340	3560.0	1 / 1	20.78	1.94	22.72	0.187	23.00	-0.28
		55990	3625.0	1 / 25	20.38	1.94	22.32	0.171	23.00	-0.68
		56640	3690.0	1 / 25	20.34	1.94	22.28	0.169	23.00	-0.72
	16-QAM	55340	3560.0	1 / 1	20.63	1.94	22.57	0.181	23.00	-0.43
15 MHz	QPSK	55315	3557.5	1 / 1	20.73	1.94	22.67	0.185	23.00	-0.33
		55990	3625.0	1 / 19	20.35	1.94	22.29	0.169	23.00	-0.71
		56665	3692.5	1 / 19	20.47	1.94	22.41	0.174	23.00	-0.59
	16-QAM	55315	3557.5	1 / 1	20.49	1.94	22.43	0.175	23.00	-0.57
10 MHz	QPSK	55290	3555.0	1 / 22	20.75	1.94	22.69	0.186	23.00	-0.31
		55990	3625.0	1 / 12	20.49	1.94	22.43	0.175	23.00	-0.57
		56690	3695.0	1 / 1	20.38	1.94	22.32	0.170	23.00	-0.68
	16-QAM	55290	3555.0	1 / 22	20.71	1.94	22.65	0.184	23.00	-0.35
5 MHz	QPSK	55265	3552.5	1 / 5	20.96	1.94	22.90	0.195	23.00	-0.10
		55990	3625.0	10 / 0	20.89	1.94	22.83	0.192	23.00	-0.17
		56715	3697.5	1 / 1	20.52	1.94	22.46	0.176	23.00	-0.54
	16-QAM	55265	3552.5	1 / 5	20.85	1.94	22.79	0.190	23.00	-0.21

Table 7-3. Conducted Power Output and EIRP Data (LTE Band 48 – Ant6)

FCC ID: C3K2119	PART 96 MEASUREMENT REPORT					Approved by: Technical Manager
Test Report S/N: 1M2504010035-01-R3.C3K	Test Dates: 05/05/2025 – 06/17/2025	EUT Type: Modular Approval - Host Integration (Portable Computing Device)				Page 15 of 146

Bandwidth	Modulation	Channel	Frequency [MHz]	RB Size/Offset	Conducted Power [dBm]	Ant Gain [dBi]	EIRP [dBm/10MHz]	EIRP [Watts/10MHz]	EIRP Limit [dBm/10MHz]	Margin [dB]
40 MHz	TT/2 BPSK	638000	3570.0	1 / 1	20.77	1.94	22.71	0.187	23.00	-0.29
		641666	3625.0	1 / 53	20.76	1.94	22.70	0.186	23.00	-0.30
		645332	3680.0	1 / 1	20.79	1.94	22.73	0.188	23.00	-0.27
	QPSK	638000	3570.0	1 / 1	20.82	1.94	22.76	0.189	23.00	-0.24
		641666	3625.0	1 / 53	20.89	1.94	22.83	0.192	23.00	-0.17
		645332	3680.0	1 / 1	20.77	1.94	22.71	0.187	23.00	-0.29
		638000	3570.0	1 / 1	20.74	1.94	22.68	0.185	23.00	-0.32
30 MHz	TT/2 BPSK	637666	3565.0	1 / 39	20.52	1.94	22.46	0.176	23.00	-0.54
		641666	3625.0	1 / 76	20.51	1.94	22.45	0.176	23.00	-0.55
		645666	3685.0	1 / 1	20.64	1.94	22.58	0.181	23.00	-0.42
	QPSK	637666	3565.0	1 / 76	20.75	1.94	22.69	0.186	23.00	-0.31
		641666	3625.0	75 / 0	20.79	1.94	22.73	0.187	23.00	-0.27
		645666	3685.0	1 / 76	20.72	1.94	22.66	0.184	23.00	-0.34
		641666	3625.0	1 / 76	20.53	1.94	22.47	0.177	23.00	-0.53
20 MHz	TT/2 BPSK	637334	3560.0	1 / 1	20.68	1.94	22.62	0.183	23.00	-0.38
		641666	3625.0	1 / 49	20.42	1.94	22.36	0.172	23.00	-0.64
		646000	3690.0	1 / 25	20.74	1.94	22.68	0.185	23.00	-0.32
	QPSK	637334	3560.0	1 / 1	20.68	1.94	22.62	0.183	23.00	-0.38
		641666	3625.0	1 / 49	20.46	1.94	22.40	0.174	23.00	-0.60
		646000	3690.0	1 / 25	20.65	1.94	22.59	0.181	23.00	-0.41
		641666	3625.0	1 / 49	20.67	1.94	22.61	0.183	23.00	-0.39
15 MHz	TT/2 BPSK	637166	3557.5	1 / 1	20.82	1.94	22.76	0.189	23.00	-0.24
		641666	3625.0	1 / 36	20.34	1.94	22.28	0.169	23.00	-0.72
		646166	3692.5	1 / 36	20.64	1.94	22.58	0.181	23.00	-0.42
	QPSK	637166	3557.5	1 / 1	20.77	1.94	22.71	0.187	23.00	-0.29
		641666	3625.0	1 / 19	20.30	1.94	22.24	0.167	23.00	-0.76
		646166	3692.5	1 / 36	20.62	1.94	22.56	0.180	23.00	-0.44
		637166	3557.5	1 / 1	20.71	1.94	22.65	0.184	23.00	-0.35
10 MHz	TT/2 BPSK	637000	3555.0	24 / 0	20.58	1.94	22.52	0.179	23.00	-0.48
		641666	3625.0	1 / 22	20.48	1.94	22.42	0.175	23.00	-0.58
		646332	3695.0	1 / 1	20.36	1.94	22.30	0.170	23.00	-0.70
	QPSK	637000	3555.0	1 / 1	20.49	1.94	22.43	0.175	23.00	-0.57
		641666	3625.0	1 / 22	20.56	1.94	22.50	0.178	23.00	-0.50
		646332	3695.0	1 / 1	20.36	1.94	22.30	0.170	23.00	-0.70
		641666	3625.0	1 / 22	20.43	1.94	22.37	0.173	23.00	-0.63

Table 7-4. Conducted Power Output and EIRP Data (NR Band n48 – Ant6)

FCC ID: C3K2119	PART 96 MEASUREMENT REPORT				Approved by: Technical Manager
Test Report S/N: 1M2504010035-01-R3.C3K	Test Dates: 05/05/2025 – 06/17/2025	EUT Type: Modular Approval - Host Integration (Portable Computing Device)			Page 16 of 146

Bandwidth	Modulation	Channel	Frequency [MHz]	RB Size/Offset	Conducted Power [dBm]	Ant Gain [dBi]	EIRP [dBm/10MHz]	EIRP [Watts/10MHz]	EIRP Limit [dBm/10MHz]	Margin [dB]
20 MHz	QPSK	55340	3560.0	1 / 1	20.43	1.46	21.89	0.154	23.00	-1.11
		55990	3625.0	1 / 1	20.65	1.46	22.11	0.163	23.00	-0.89
		56640	3690.0	50 / 0	20.52	1.46	21.98	0.158	23.00	-1.02
		16-QAM	55990	3625.0	1 / 1	20.40	1.46	21.86	0.154	23.00
15 MHz	QPSK	55315	3557.5	1 / 1	20.79	1.46	22.25	0.168	23.00	-0.75
		55990	3625.0	1 / 1	20.52	1.46	21.98	0.158	23.00	-1.02
		56665	3692.5	1 / 1	20.58	1.46	22.04	0.160	23.00	-0.96
		16-QAM	55315	3557.5	1 / 1	20.70	1.46	22.16	0.164	23.00
10 MHz	QPSK	55290	3555.0	1 / 25	20.98	1.46	22.44	0.176	23.00	-0.56
		55990	3625.0	1 / 25	20.80	1.46	22.26	0.168	23.00	-0.74
		56690	3695.0	1 / 49	20.75	1.46	22.21	0.166	23.00	-0.79
		16-QAM	55290	3555.0	1 / 25	20.56	1.46	22.02	0.159	23.00
5 MHz	QPSK	55265	3552.5	1 / 49	20.96	1.46	22.42	0.175	23.00	-0.58
		55990	3625.0	1 / 25	20.91	1.46	22.37	0.172	23.00	-0.63
		56715	3697.5	1 / 1	20.63	1.46	22.09	0.162	23.00	-0.91
		16-QAM	55265	3552.5	1 / 49	20.66	1.46	22.12	0.163	23.00

Table 7-5. Conducted Power Output and EIRP Data (LTE Band 48 – Ant1)

Bandwidth	Modulation	Channel	Frequency [MHz]	RB Size/Offset	Conducted Power [dBm]	Ant Gain [dBi]	EIRP [dBm/10MHz]	EIRP [Watts/10MHz]	EIRP Limit [dBm/10MHz]	Margin [dB]
40 MHz	TT/2 BPSK	638000	3570.0	1 / 104	19.83	1.46	21.29	0.134	23.00	-1.71
		641666	3625.0	1 / 1	19.92	1.46	21.38	0.137	23.00	-1.62
		645332	3680.0	1 / 53	19.83	1.46	21.29	0.135	23.00	-1.71
	QPSK	638000	3570.0	1 / 104	19.73	1.46	21.19	0.131	23.00	-1.81
		641666	3625.0	1 / 104	19.96	1.46	21.42	0.139	23.00	-1.58
		645332	3680.0	1 / 104	19.81	1.46	21.27	0.134	23.00	-1.73
	16-QAM	641666	3625.0	1 / 104	19.79	1.46	21.25	0.133	23.00	-1.75
	TT/2 BPSK	637666	3565.0	1 / 39	19.67	1.46	21.13	0.130	23.00	-1.87
		641666	3625.0	1 / 76	19.83	1.46	21.29	0.135	23.00	-1.71
		645666	3685.0	1 / 1	19.86	1.46	21.32	0.135	23.00	-1.68
	QPSK	637666	3565.0	1 / 39	19.75	1.46	21.21	0.132	23.00	-1.79
		641666	3625.0	1 / 39	19.81	1.46	21.27	0.134	23.00	-1.73
		645666	3685.0	1 / 1	19.97	1.46	21.43	0.139	23.00	-1.57
	16-QAM	637666	3565.0	1 / 39	19.60	1.46	21.06	0.128	23.00	-1.94
30 MHz	TT/2 BPSK	637334	3560.0	1 / 1	19.95	1.46	21.41	0.138	23.00	-1.59
		641666	3625.0	1 / 49	19.90	1.46	21.36	0.137	23.00	-1.64
		646000	3690.0	1 / 1	19.78	1.46	21.24	0.133	23.00	-1.76
	QPSK	637334	3560.0	1 / 1	19.97	1.46	21.43	0.139	23.00	-1.57
		641666	3625.0	1 / 49	19.78	1.46	21.24	0.133	23.00	-1.76
		646000	3690.0	1 / 49	19.80	1.46	21.26	0.134	23.00	-1.74
	16-QAM	637334	3560.0	1 / 1	19.81	1.46	21.27	0.134	23.00	-1.73
	TT/2 BPSK	637166	3557.5	1 / 19	19.94	1.46	21.40	0.138	23.00	-1.60
		641666	3625.0	1 / 36	19.93	1.46	21.39	0.138	23.00	-1.61
		646166	3692.5	1 / 1	19.99	1.46	21.45	0.140	23.00	-1.55
	QPSK	637166	3557.5	1 / 19	19.95	1.46	21.41	0.138	23.00	-1.59
		641666	3625.0	1 / 36	19.96	1.46	21.42	0.139	23.00	-1.58
		646166	3692.5	1 / 1	19.95	1.46	21.41	0.138	23.00	-1.59
	16-QAM	646166	3692.5	1 / 1	19.95	1.46	21.41	0.138	23.00	-1.59
10 MHz	TT/2 BPSK	637000	3555.0	1 / 1	19.82	1.46	21.28	0.134	23.00	-1.72
		641666	3625.0	1 / 19	19.64	1.46	21.10	0.129	23.00	-1.90
		646332	3695.0	1 / 36	19.59	1.46	21.05	0.127	23.00	-1.95
	QPSK	637000	3555.0	1 / 1	19.84	1.46	21.30	0.135	23.00	-1.70
		641666	3625.0	1 / 36	19.65	1.46	21.11	0.129	23.00	-1.89
		646332	3695.0	1 / 36	19.61	1.46	21.07	0.128	23.00	-1.93
	16-QAM	641666	3625.0	1 / 36	19.55	1.46	21.01	0.126	23.00	-1.99

Table 7-6. Conducted Power Output and EIRP Data (NR Band n48 – Ant1)

FCC ID: C3K2119		PART 96 MEASUREMENT REPORT					Approved by: Technical Manager
Test Report S/N: 1M2504010035-01-R3.C3K		Test Dates: 05/05/2025 – 06/17/2025	EUT Type: Modular Approval - Host Integration (Portable Computing Device)				Page 17 of 146
© 2025 ELEMENT							V11.2 09/11/2024

Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from Element. If you have any questions about this or have an inquiry about obtaining additional rights to this report or assembly of contents thereof, please contact ct.info@element.com.

Bandwidth	Modulation	Channel	Frequency [MHz]	RB Size/Offset	Conducted Power [dBm]	Ant Gain [dBi]	EIRP [dBm/10MHz]	EIRP [Watts/10MHz]	EIRP Limit [dBm/10MHz]	Margin [dB]
40 MHz	TT/2 BPSK	638000	3570.0	1 / 104	19.63	1.82	21.45	0.140	23.00	-1.55
		641666	3625.0	1 / 1	19.72	1.82	21.54	0.143	23.00	-1.46
		645332	3680.0	1 / 104	19.90	1.82	21.72	0.149	23.00	-1.28
	QPSK	638000	3570.0	1 / 104	19.66	1.82	21.48	0.141	23.00	-1.52
		641666	3625.0	1 / 1	19.69	1.82	21.51	0.141	23.00	-1.49
		645332	3680.0	1 / 104	19.98	1.82	21.80	0.151	23.00	-1.20
	16-QAM	641666	3625.0	1 / 1	19.40	1.82	21.22	0.132	23.00	-1.78

Table 7-7. Conducted Power Output and EIRP Data (NR Band n48 – SRS Ant3)

Bandwidth	Modulation	Channel	Frequency [MHz]	RB Size/Offset	Conducted Power [dBm]	Ant Gain [dBi]	EIRP [dBm/10MHz]	EIRP [Watts/10MHz]	EIRP Limit [dBm/10MHz]	Margin [dB]
40 MHz	TT/2 BPSK	638000	3570.0	1 / 1	19.85	1.42	21.27	0.134	23.00	-1.73
		641666	3625.0	1 / 1	19.92	1.42	21.34	0.136	23.00	-1.66
		645332	3680.0	1 / 104	19.82	1.42	21.24	0.133	23.00	-1.76
	QPSK	638000	3570.0	1 / 1	19.77	1.42	21.19	0.132	23.00	-1.81
		641666	3625.0	1 / 1	19.90	1.42	21.32	0.135	23.00	-1.68
		645332	3680.0	1 / 104	19.64	1.42	21.06	0.128	23.00	-1.94
	16-QAM	641666	3625.0	1 / 1	19.72	1.42	21.14	0.130	23.00	-1.86

Table 7-8. Conducted Power Output and EIRP Data (NR Band n48 – SRS Ant4)

Bandwidth	Modulation	Channel	Frequency [MHz]	RB Size/Offset	Ant6 Conducted Power [dBm]	Ant1 Conducted Power [dBm]	Ant Gain [dBi]	Ant6 + Ant1 EIRP [dBm/10MHz]	EIRP [Watts/10MHz]	EIRP Limit [dBm/10MHz]	Margin [dB]
40 MHz	TT/2 BPSK	638000	3570.0	1 / 1	16.33	16.06	1.71	20.92	0.124	23.00	-2.08
		641666	3625.0	1 / 104	16.72	16.08	1.71	21.13	0.130	23.00	-1.87
		645332	3680.0	1 / 1	16.39	16.02	1.71	20.93	0.124	23.00	-2.07
	QPSK	638000	3570.0	1 / 1	16.39	16.05	1.71	20.95	0.124	23.00	-2.05
		641666	3625.0	1 / 104	16.59	16.04	1.71	21.04	0.127	23.00	-1.96
		645332	3680.0	1 / 1	16.38	16.03	1.71	20.93	0.124	23.00	-2.07
	16-QAM	638000	3570.0	1 / 1	15.49	15.01	1.71	19.98	0.100	23.00	-3.02
		641666	3625.0	1 / 104	15.42	15.34	1.71	20.10	0.102	23.00	-2.90
		645332	3680.0	1 / 1	15.25	15.19	1.71	19.94	0.099	23.00	-3.06

Table 7-9. Conducted Power Output and EIRP Data (NR Band n48 – UL-MIMO Antenna 6 + 1)
Sample UL-MIMO Calculation:

At 3625MHz, the conducted power for antenna 6 was 16.72 dBm and 16.08dBm for antenna 1.

$$\text{Antenna 6 + Antenna 1} = \text{MIMO}$$

$$16.72 \text{ dBm} + 16.08 \text{ dBm} = 19.42 \text{ dBm}$$

Sample EIRP calculation for UL-MIMO:

At 3625MHz, the conducted MIMO power was 19.42dBm with an antenna gain of 1.71dBi

$$\text{e.i.r.p. (dBm)} = \text{Conducted Power (dBm)} + \text{Ant gain (dBi)}$$

$$19.42 \text{ dBm} + 1.71 = 21.13 \text{ dBm}$$

FCC ID: C3K2119	PART 96 MEASUREMENT REPORT					Approved by: Technical Manager
Test Report S/N: 1M2504010035-01-R3.C3K	Test Dates: 05/05/2025 – 06/17/2025	EUT Type: Modular Approval - Host Integration (Portable Computing Device)				

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 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.

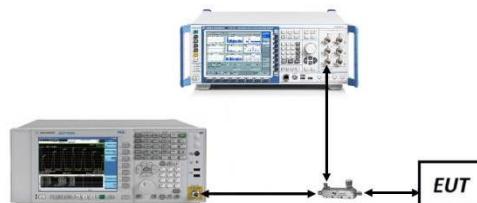


Figure 7-2. Test Instrument & Measurement Setup

Test Notes

None

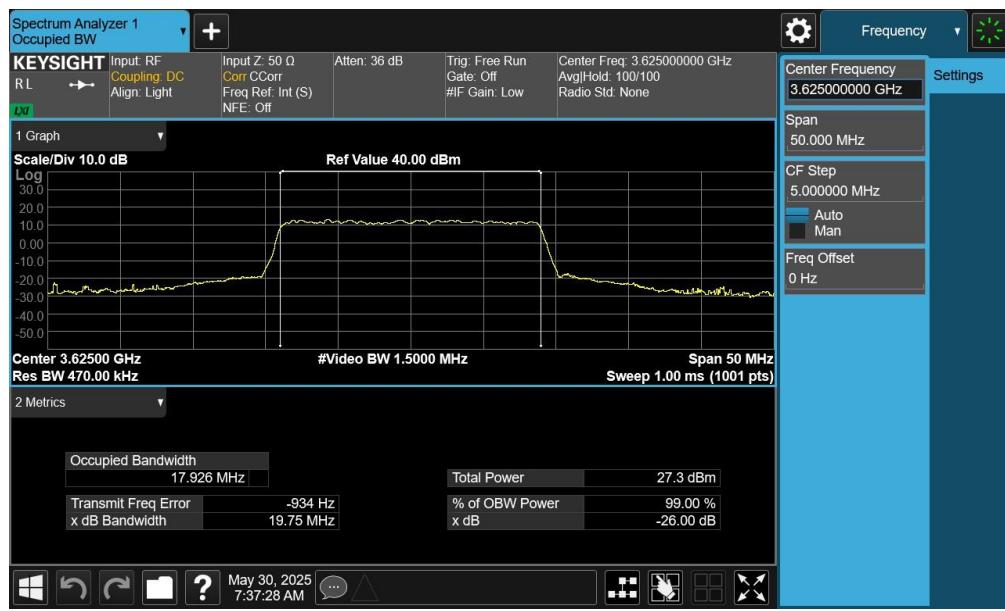
FCC ID: C3K2119	PART 96 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2504010035-01-R3.C3K	Test Dates: 05/05/2025 – 06/17/2025	EUT Type: Modular Approval - Host Integration (Portable Computing Device)	Page 19 of 146

Mode	Bandwidth	Modulation	OBW [MHz]
LTE-B48	20 MHz	QPSK	17.93
		16QAM	18.06
	15 MHz	QPSK	13.55
		16QAM	13.48
	10 MHz	QPSK	9.02
		16QAM	9.01
	5 MHz	QPSK	4.53
		16QAM	4.51
LTE-B48	20+20MHz	QPSK	37.74
		16QAM	37.62
	20+15MHz	QPSK	32.30
		16QAM	32.28
	20+10MHz	QPSK	27.90
		16QAM	27.87
	20+5MHz	QPSK	22.59
		16QAM	22.60
NR-n48	40MHz	$\pi/2$ BPSK	36.02
		QPSK	36.03
		16QAM	36.00
	30MHz	$\pi/2$ BPSK	27.01
		QPSK	26.88
		16QAM	27.01
	20MHz	$\pi/2$ BPSK	18.14
		QPSK	18.04
		16QAM	18.01
	15MHz	$\pi/2$ BPSK	13.03
		QPSK	13.03
		16QAM	13.12
	10 MHz	$\pi/2$ BPSK	8.68
		QPSK	8.71
		16QAM	8.81

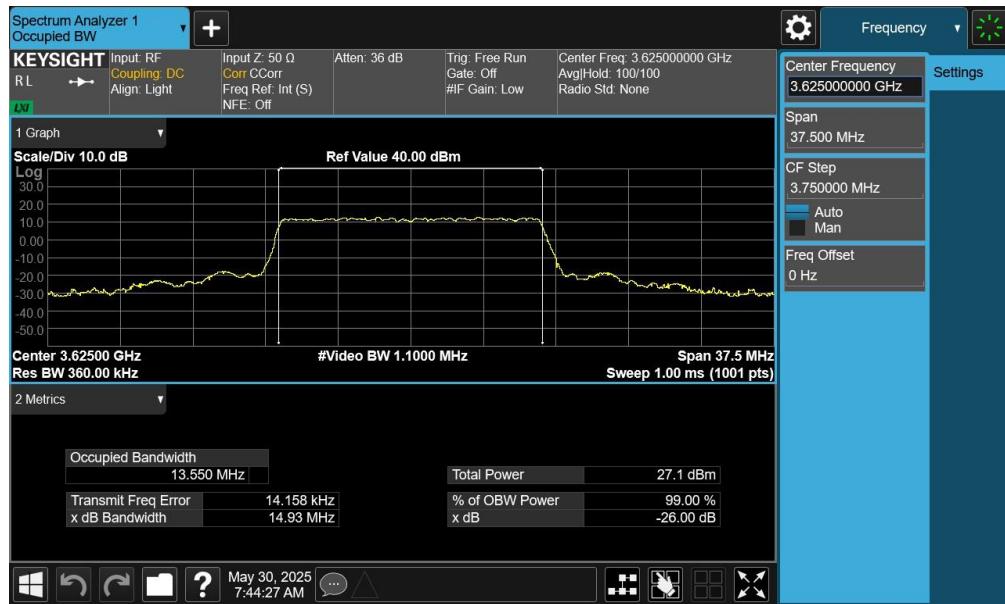
Table 7-10. Occupied Bandwidth Test Results – Ant6

FCC ID: C3K2119	PART 96 MEASUREMENT REPORT			Approved by: Technical Manager
Test Report S/N: 1M2504010035-01-R3.C3K	Test Dates: 05/05/2025 – 06/17/2025	EUT Type: Modular Approval - Host Integration (Portable Computing Device)		Page 20 of 146

LTE Band 48 – Ant6



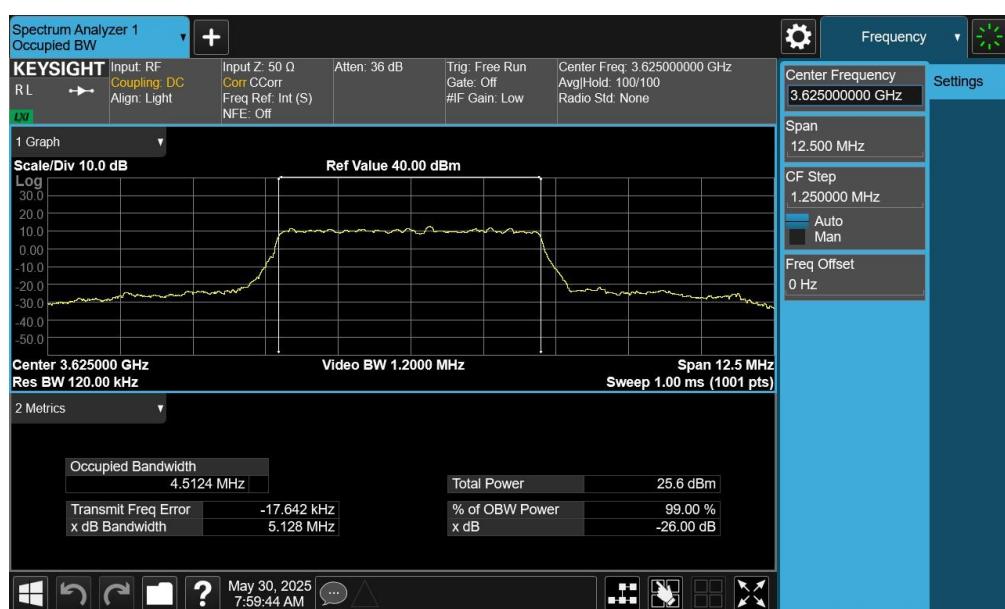
FCC ID: C3K2119	PART 96 MEASUREMENT REPORT			Approved by: Technical Manager
Test Report S/N: 1M2504010035-01-R3.C3K	Test Dates: 05/05/2025 - 06/17/2025	EUT Type: Modular Approval - Host Integration (Portable Computing Device)		Page 21 of 146



FCC ID: C3K2119	PART 96 MEASUREMENT REPORT			Approved by: Technical Manager
Test Report S/N: 1M2504010035-01-R3.C3K	Test Dates: 05/05/2025 - 06/17/2025	EUT Type: Modular Approval - Host Integration (Portable Computing Device)		Page 22 of 146



FCC ID: C3K2119	PART 96 MEASUREMENT REPORT			Approved by: Technical Manager
Test Report S/N: 1M2504010035-01-R3.C3K	Test Dates: 05/05/2025 - 06/17/2025	EUT Type: Modular Approval - Host Integration (Portable Computing Device)		Page 23 of 146



FCC ID: C3K2119	PART 96 MEASUREMENT REPORT			Approved by: Technical Manager
Test Report S/N: 1M2504010035-01-R3.C3K	Test Dates: 05/05/2025 – 06/17/2025	EUT Type: Modular Approval - Host Integration (Portable Computing Device)		Page 24 of 146

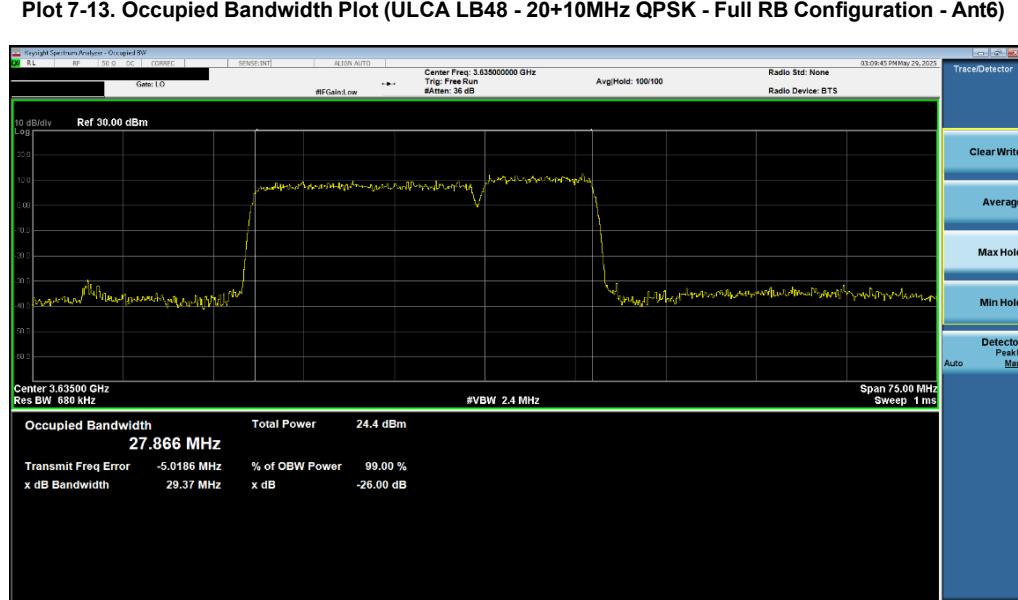
ULCA LTE Band 48 – Ant6



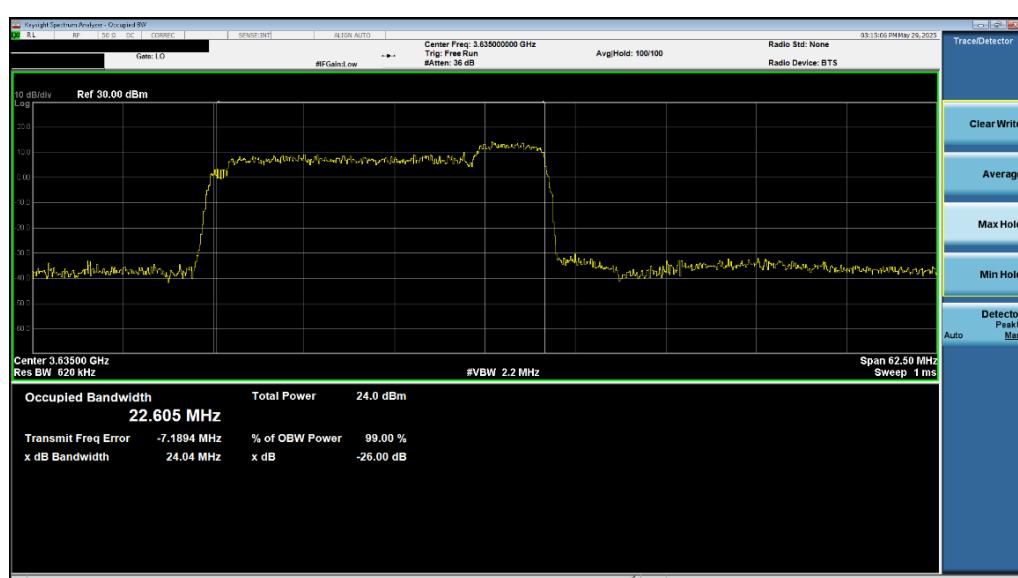
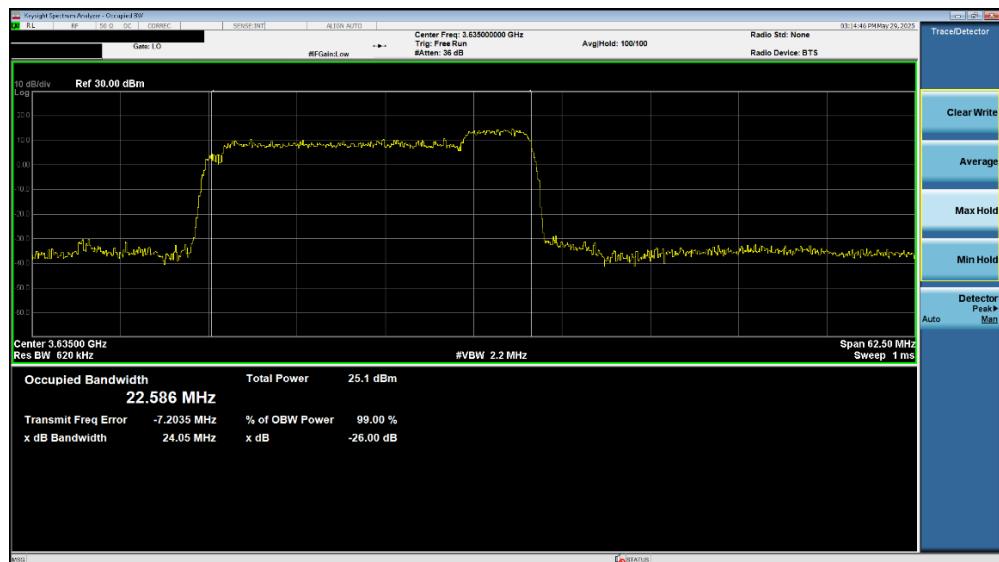
FCC ID: C3K2119	PART 96 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2504010035-01-R3.C3K	Test Dates: 05/05/2025 – 06/17/2025	EUT Type: Modular Approval - Host Integration (Portable Computing Device)	Page 25 of 146



FCC ID: C3K2119	PART 96 MEASUREMENT REPORT			Approved by: Technical Manager
Test Report S/N: 1M2504010035-01-R3.C3K	Test Dates: 05/05/2025 - 06/17/2025	EUT Type: Modular Approval - Host Integration (Portable Computing Device)		Page 26 of 146

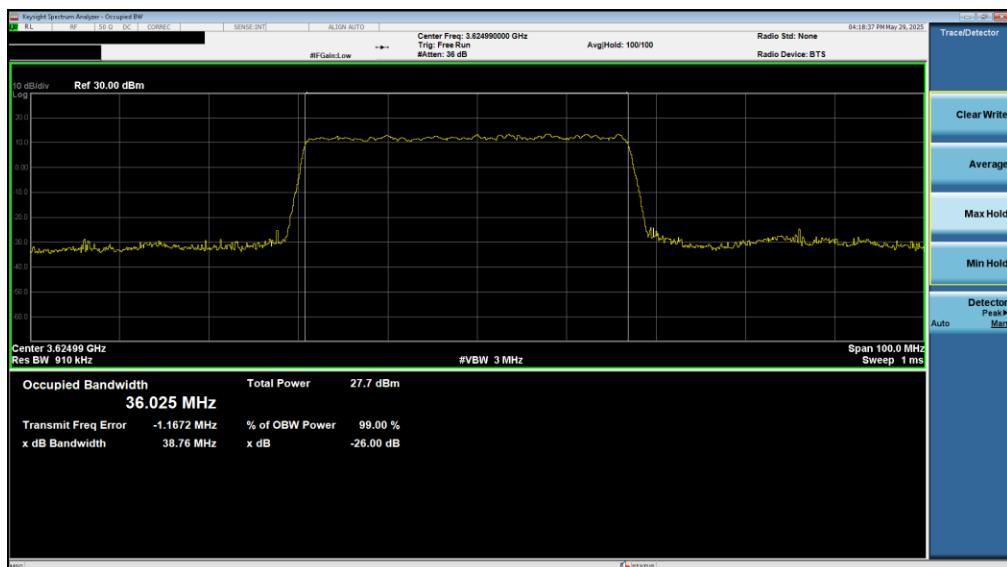


FCC ID: C3K2119	PART 96 MEASUREMENT REPORT			Approved by: Technical Manager
Test Report S/N: 1M2504010035-01-R3.C3K	Test Dates: 05/05/2025 - 06/17/2025	EUT Type: Modular Approval - Host Integration (Portable Computing Device)		Page 27 of 146

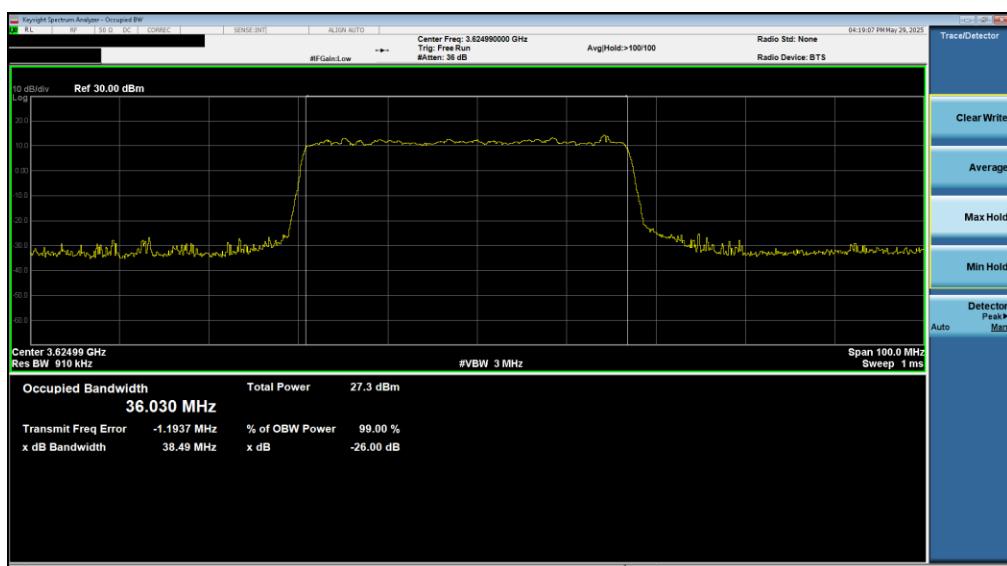


FCC ID: C3K2119	PART 96 MEASUREMENT REPORT			Approved by: Technical Manager
Test Report S/N: 1M2504010035-01-R3.C3K	Test Dates: 05/05/2025 - 06/17/2025	EUT Type: Modular Approval - Host Integration (Portable Computing Device)		Page 28 of 146

NR Band n48 – Ant6

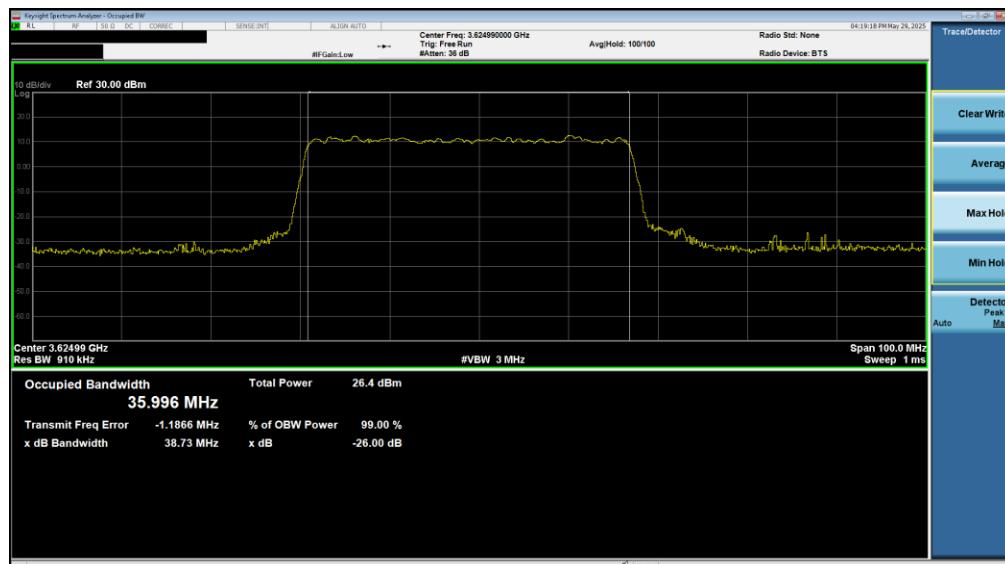


Plot 7-17. Occupied Bandwidth Plot (NR Band n48 - 40MHz $\pi/2$ BPSK - Full RB Configuration - Ant6)

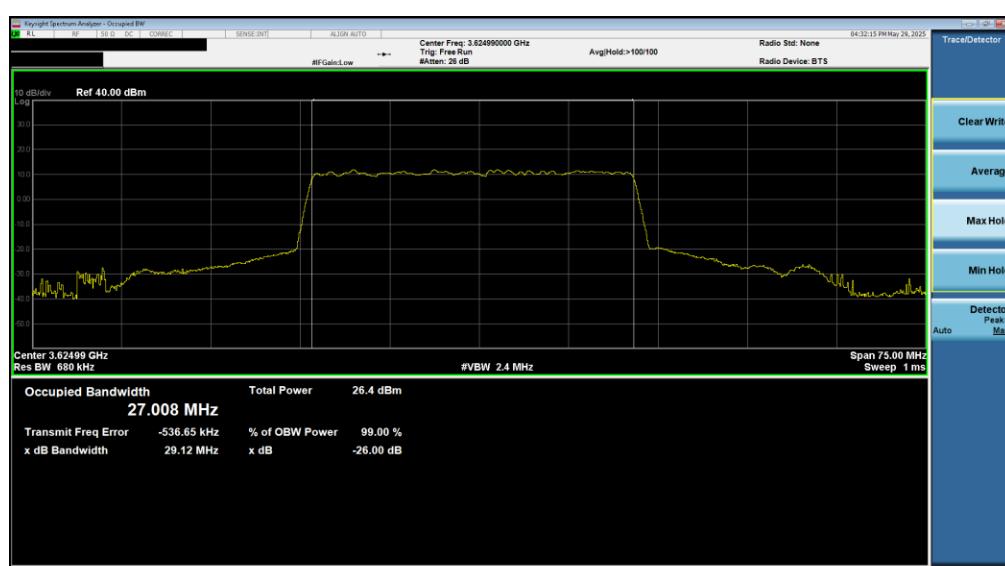


Plot 7-18. Occupied Bandwidth Plot (NR Band n48 - 40MHz QPSK - Full RB Configuration - Ant6)

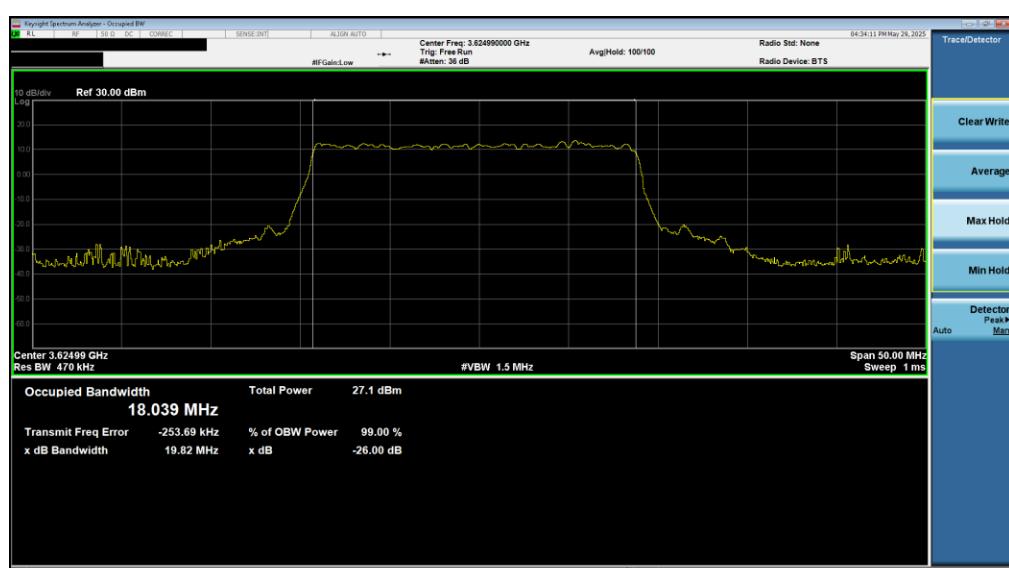
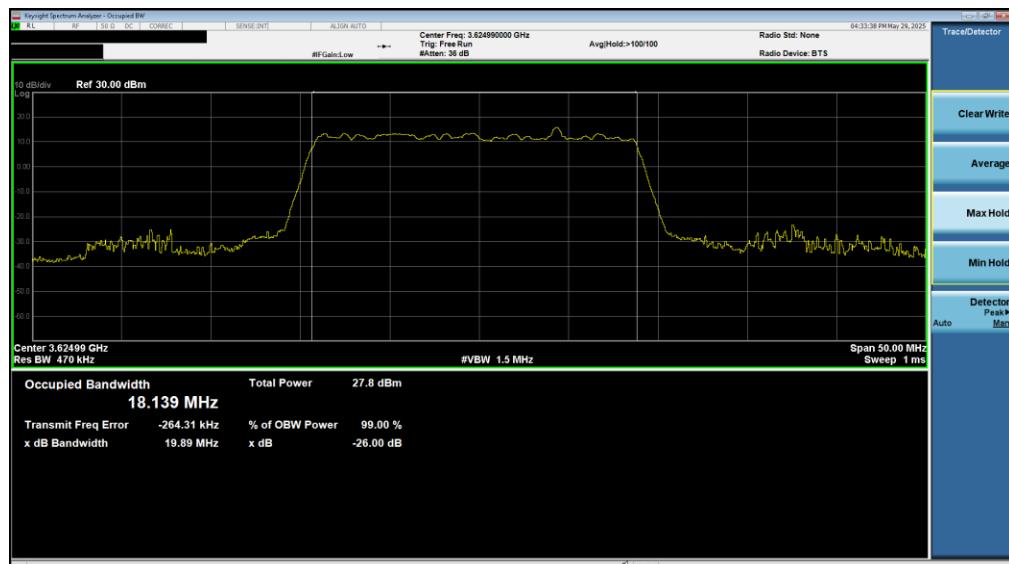
FCC ID: C3K2119	PART 96 MEASUREMENT REPORT			Approved by: Technical Manager
Test Report S/N: 1M2504010035-01-R3.C3K	Test Dates: 05/05/2025 – 06/17/2025	EUT Type: Modular Approval - Host Integration (Portable Computing Device)		Page 29 of 146



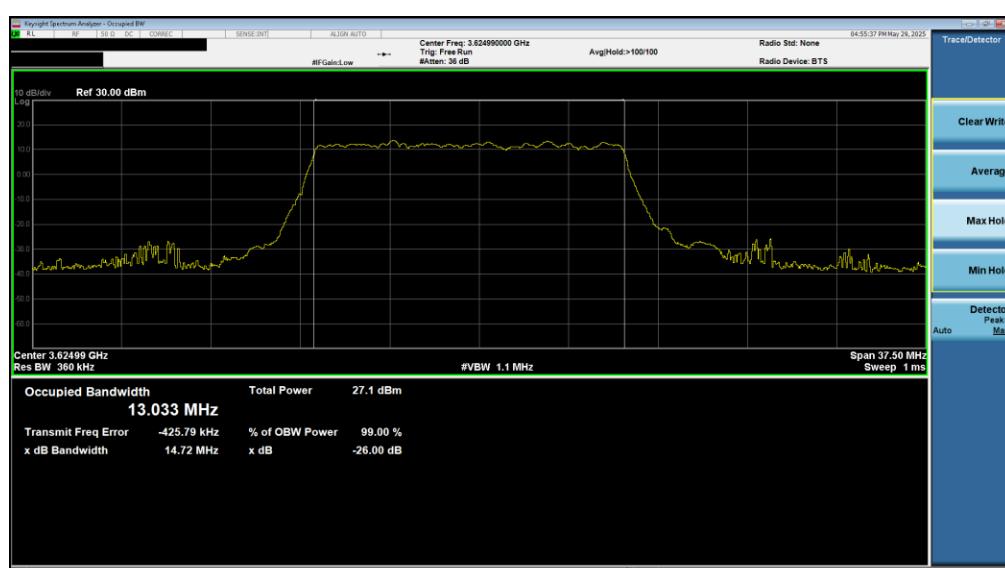
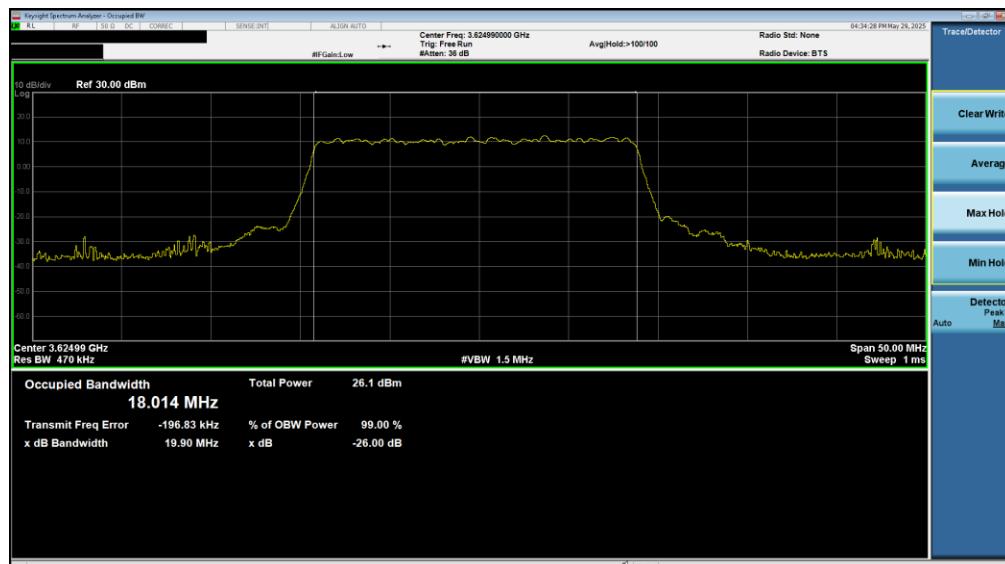
FCC ID: C3K2119	PART 96 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2504010035-01-R3.C3K	Test Dates: 05/05/2025 - 06/17/2025	EUT Type: Modular Approval - Host Integration (Portable Computing Device)	Page 30 of 146



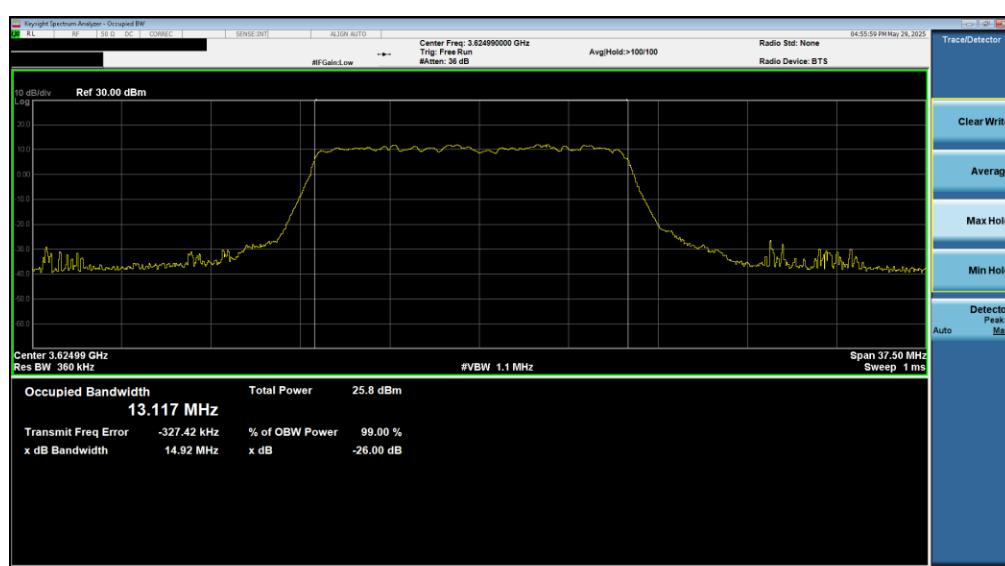
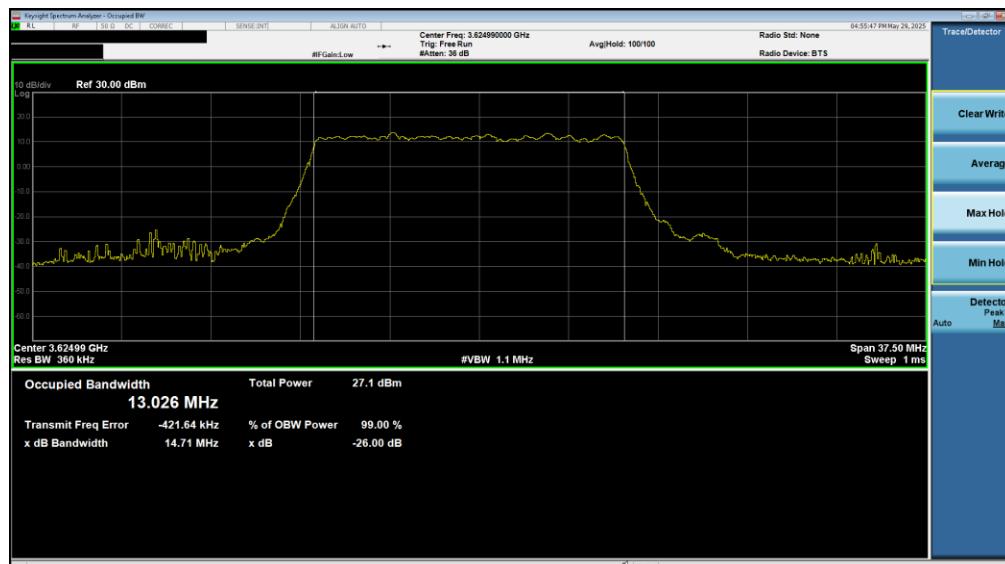
FCC ID: C3K2119	PART 96 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2504010035-01-R3.C3K	Test Dates: 05/05/2025 - 06/17/2025	EUT Type: Modular Approval - Host Integration (Portable Computing Device)	Page 31 of 146



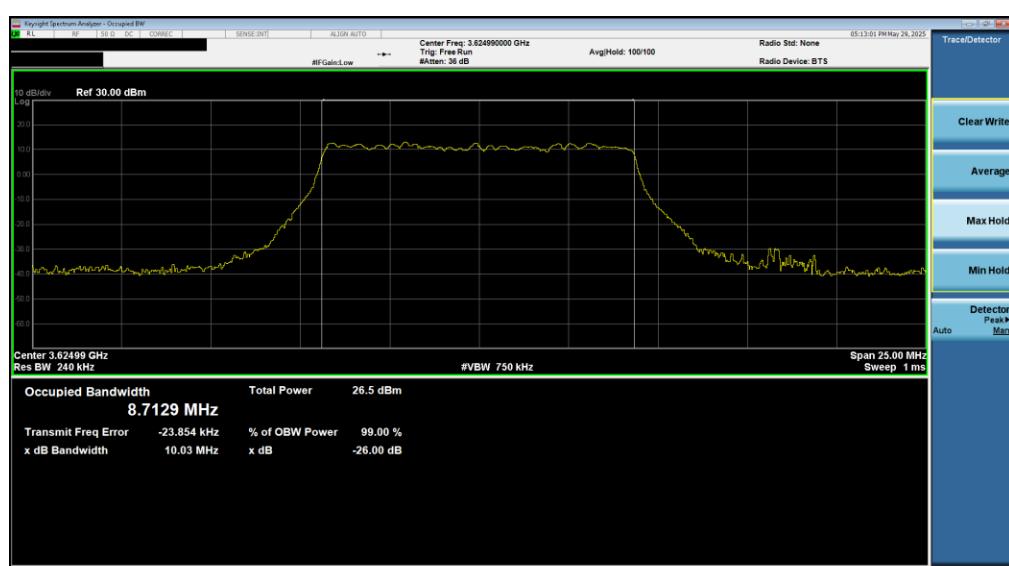
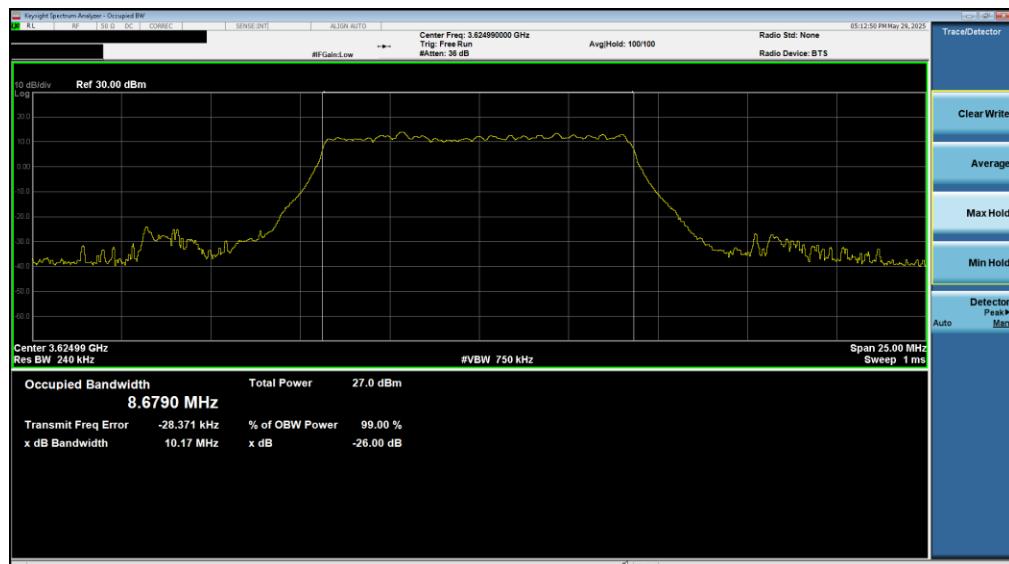
FCC ID: C3K2119	PART 96 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2504010035-01-R3.C3K	Test Dates: 05/05/2025 – 06/17/2025	EUT Type: Modular Approval - Host Integration (Portable Computing Device)	Page 32 of 146



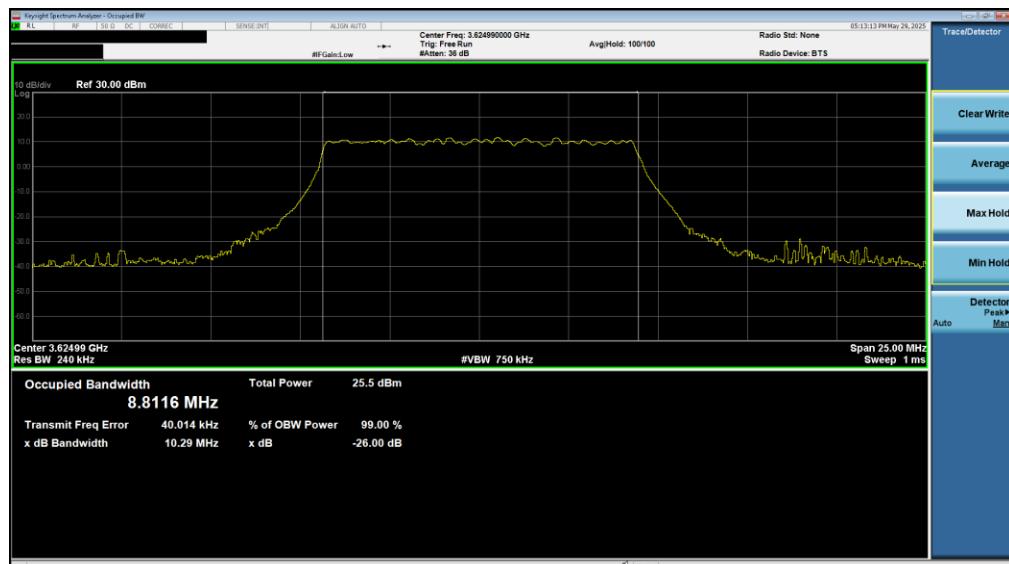
FCC ID: C3K2119	PART 96 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2504010035-01-R3.C3K	Test Dates: 05/05/2025 – 06/17/2025	EUT Type: Modular Approval - Host Integration (Portable Computing Device)	Page 33 of 146



FCC ID: C3K2119	PART 96 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2504010035-01-R3.C3K	Test Dates: 05/05/2025 – 06/17/2025	EUT Type: Modular Approval - Host Integration (Portable Computing Device)	Page 34 of 146



FCC ID: C3K2119	PART 96 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2504010035-01-R3.C3K	Test Dates: 05/05/2025 – 06/17/2025	EUT Type: Modular Approval - Host Integration (Portable Computing Device)	Page 35 of 146



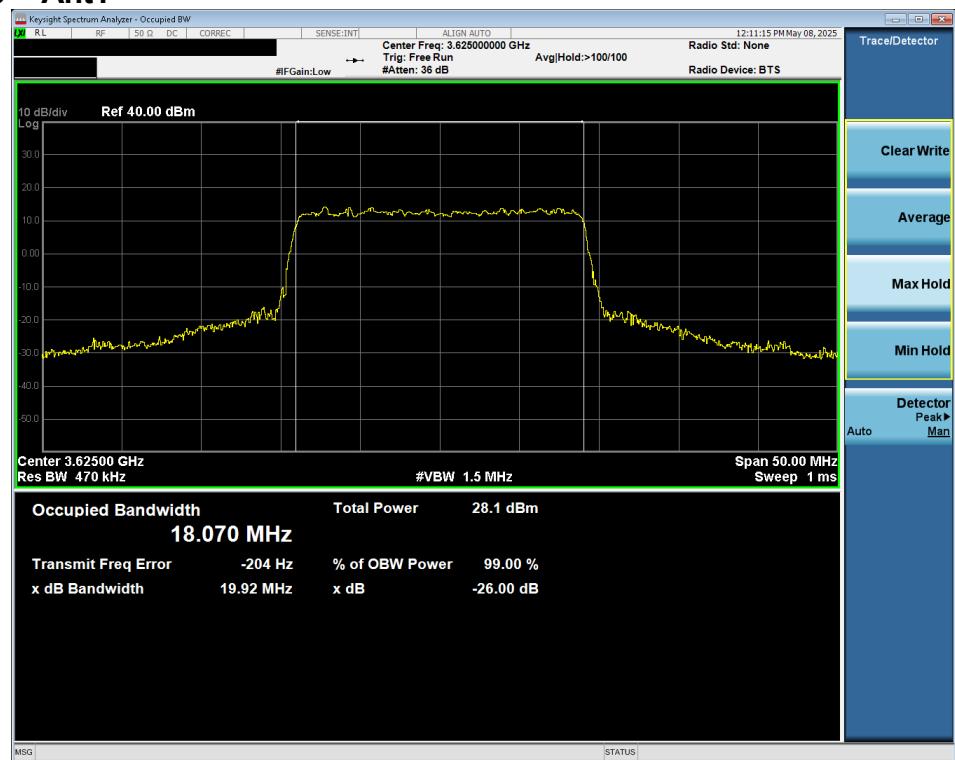
FCC ID: C3K2119	PART 96 MEASUREMENT REPORT			Approved by: Technical Manager
Test Report S/N: 1M2504010035-01-R3.C3K	Test Dates: 05/05/2025 – 06/17/2025	EUT Type: Modular Approval - Host Integration (Portable Computing Device)	Page 36 of 146	

Mode	Bandwidth	Modulation	OBW [MHz]
LTE-B48	20 MHz	QPSK	18.07
		16QAM	17.98
	15 MHz	QPSK	13.52
		16QAM	13.56
	10 MHz	QPSK	9.00
		16QAM	9.04
	5 MHz	QPSK	4.51
		16QAM	4.53
NR-n48	40MHz	$\pi/2$ BPSK	35.98
		QPSK	35.95
		16QAM	36.03
	30MHz	$\pi/2$ BPSK	26.84
		QPSK	27.01
		16QAM	26.96
	20MHz	$\pi/2$ BPSK	18.02
		QPSK	18.02
		16QAM	18.04
	15MHz	$\pi/2$ BPSK	13.02
		QPSK	12.98
		16QAM	13.08
	10 MHz	$\pi/2$ BPSK	8.76
		QPSK	8.66
		16QAM	8.82

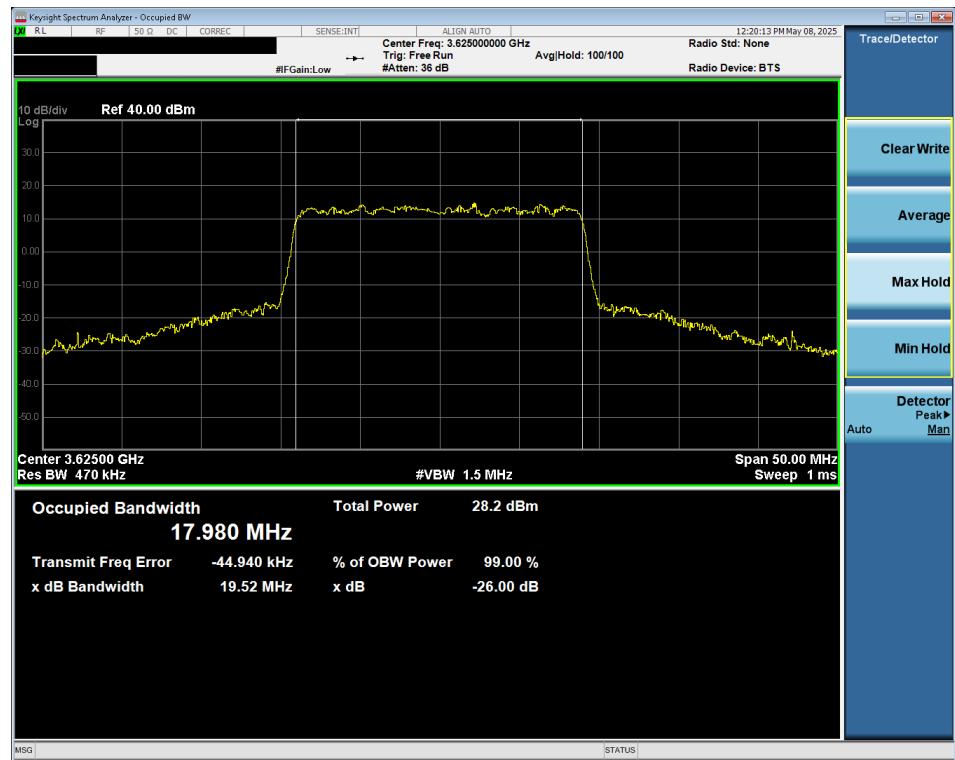
Table 7-11. Occupied Bandwidth Test Results – Ant1

FCC ID: C3K2119	PART 96 MEASUREMENT REPORT			Approved by: Technical Manager
Test Report S/N: 1M2504010035-01-R3.C3K	Test Dates: 05/05/2025 – 06/17/2025	EUT Type: Modular Approval - Host Integration (Portable Computing Device)		Page 37 of 146

LTE Band 48 – Ant1

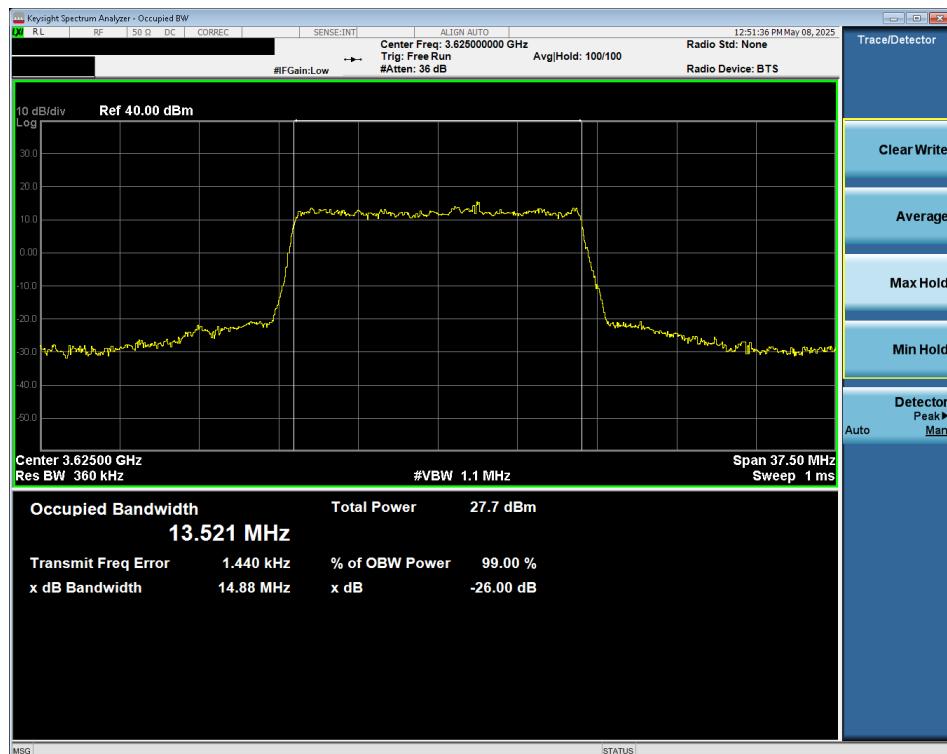


Plot 7-32. Occupied Bandwidth Plot (LTE Band 48 - 20MHz QPSK - Full RB Configuration - Ant1)

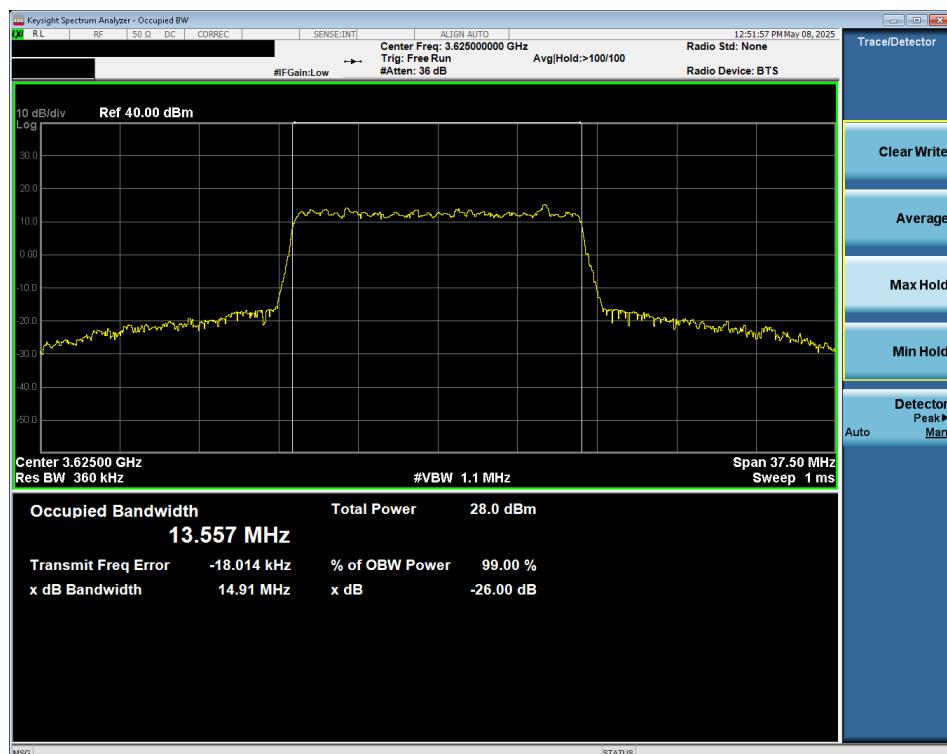


Plot 7-33. Occupied Bandwidth Plot (LTE Band 48 - 20MHz 16-QAM - Full RB Configuration - Ant1)

FCC ID: C3K2119	PART 96 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2504010035-01-R3.C3K	Test Dates: 05/05/2025 – 06/17/2025	EUT Type: Modular Approval - Host Integration (Portable Computing Device)	Page 38 of 146

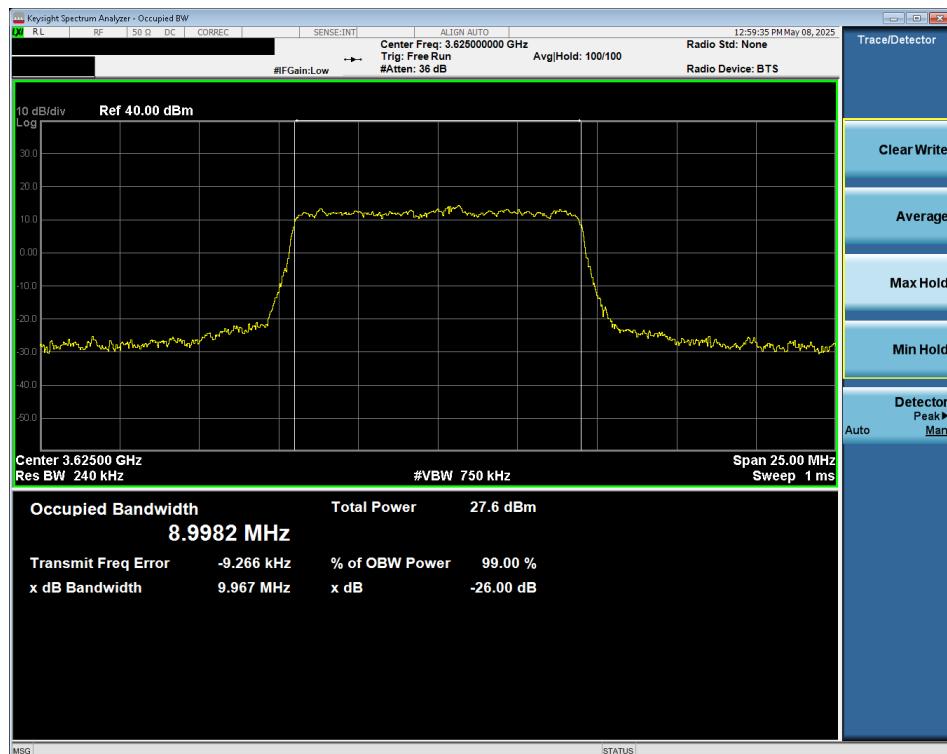


Plot 7-34. Occupied Bandwidth Plot (LTE Band 48 - 15MHz QPSK - Full RB Configuration - Ant1)

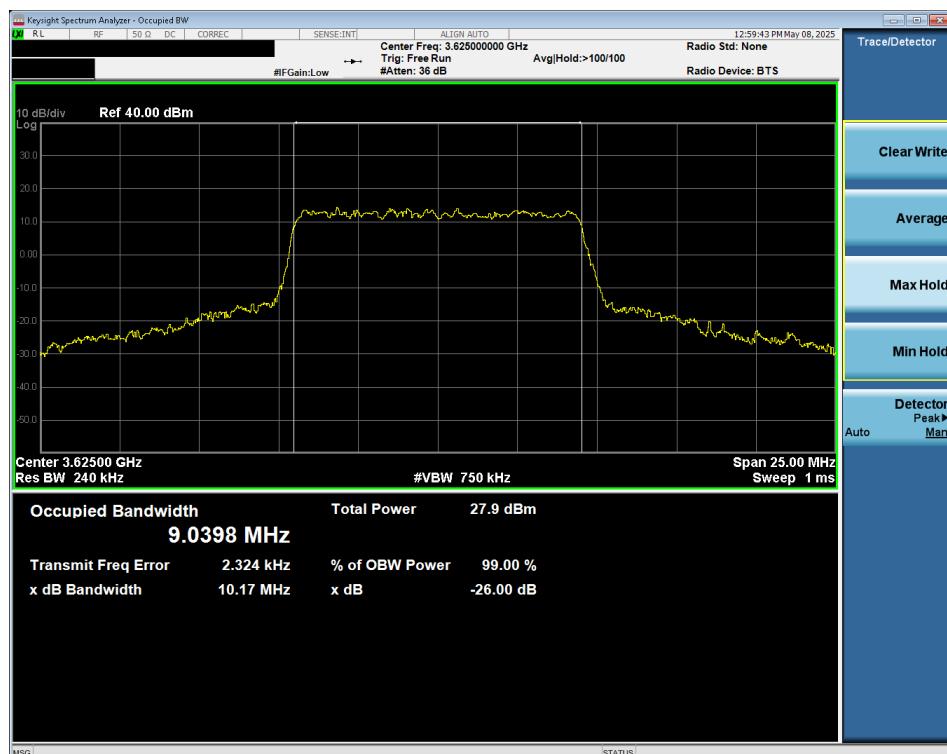


Plot 7-35. Occupied Bandwidth Plot (LTE Band 48 - 15MHz 16-QAM - Full RB Configuration - Ant1)

FCC ID: C3K2119	PART 96 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2504010035-01-R3.C3K	Test Dates: 05/05/2025 – 06/17/2025	EUT Type: Modular Approval - Host Integration (Portable Computing Device)	Page 39 of 146

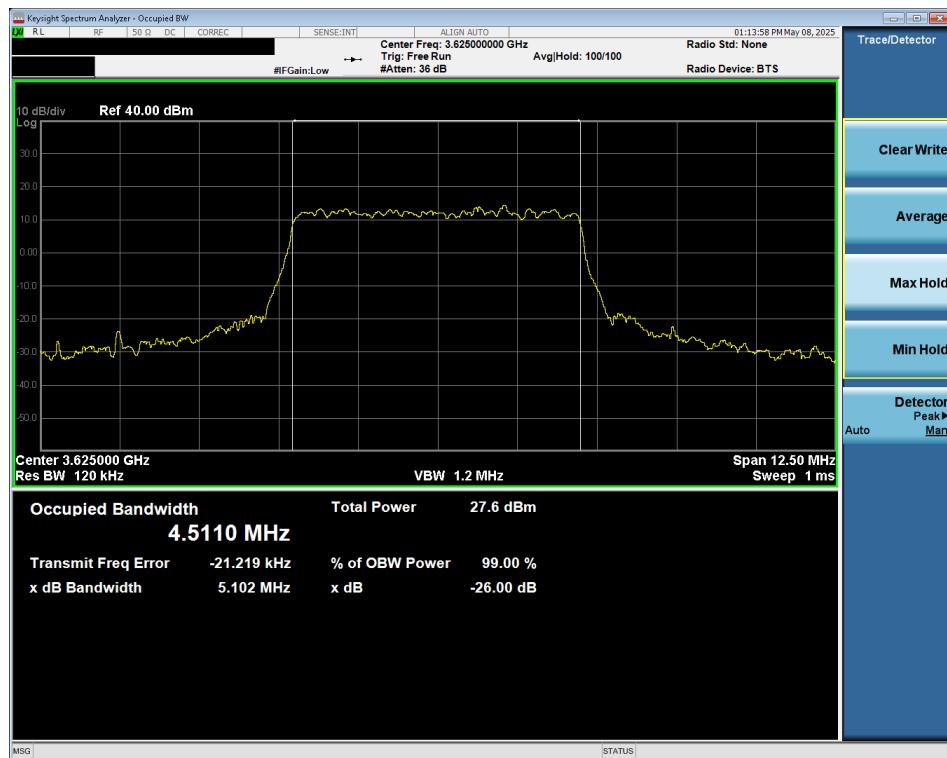


Plot 7-36. Occupied Bandwidth Plot (LTE Band 48 - 10MHz QPSK - Full RB Configuration - Ant1)



Plot 7-37. Occupied Bandwidth Plot (LTE Band 48 - 10MHz 16-QAM - Full RB Configuration - Ant1)

FCC ID: C3K2119	PART 96 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2504010035-01-R3.C3K	Test Dates: 05/05/2025 – 06/17/2025	EUT Type: Modular Approval - Host Integration (Portable Computing Device)	Page 40 of 146



Plot 7-38. Occupied Bandwidth Plot (LTE Band 48 - 5MHz QPSK - Full RB Configuration - Ant1)



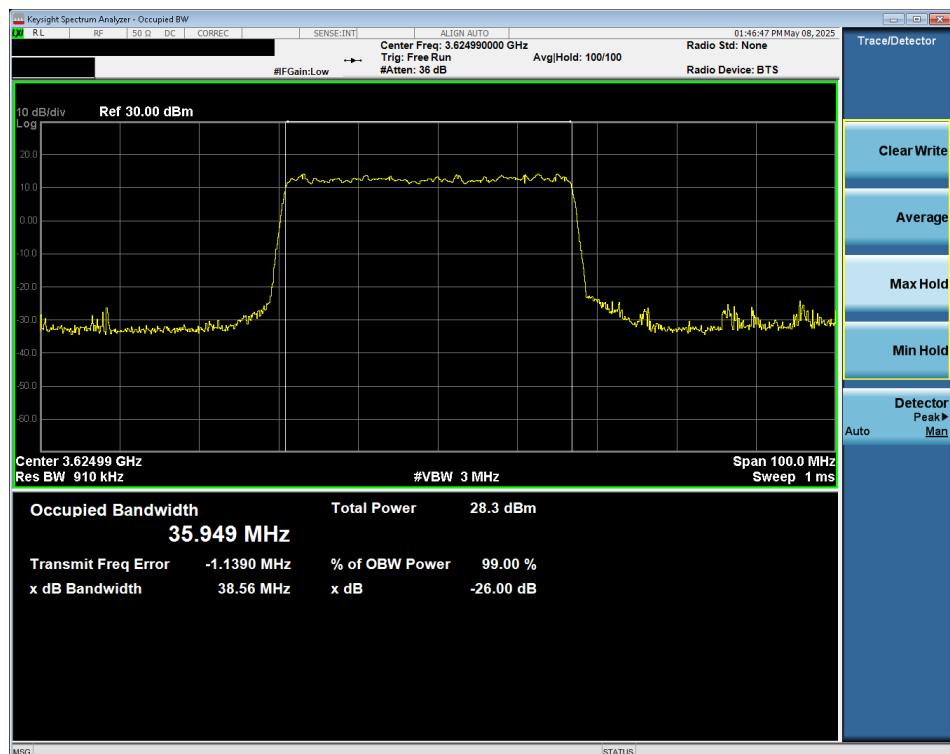
Plot 7-39. Occupied Bandwidth Plot (LTE Band 48 - 5MHz 16-QAM - Full RB Configuration - Ant1)

FCC ID: C3K2119	PART 96 MEASUREMENT REPORT			Approved by: Technical Manager
Test Report S/N: 1M2504010035-01-R3.C3K	Test Dates: 05/05/2025 – 06/17/2025	EUT Type: Modular Approval - Host Integration (Portable Computing Device)		Page 41 of 146

NR Band n48 – Ant1



Plot 7-40. Occupied Bandwidth Plot (NR Band n48 - 40MHz $\pi/2$ BPSK - Full RB Configuration - Ant1)



Plot 7-41. Occupied Bandwidth Plot (NR Band n48 - 40MHz QPSK - Full RB Configuration - Ant1)

FCC ID: C3K2119	PART 96 MEASUREMENT REPORT			Approved by: Technical Manager
Test Report S/N: 1M2504010035-01-R3.C3K	Test Dates: 05/05/2025 – 06/17/2025	EUT Type: Modular Approval - Host Integration (Portable Computing Device)		Page 42 of 146



Plot 7-42. Occupied Bandwidth Plot (NR Band n48 - 40MHz 16-QAM - Full RB Configuration - Ant1)



Plot 7-43. Occupied Bandwidth Plot (NR Band n48 - 30MHz π/2 BPSK - Full RB Configuration - Ant1)

FCC ID: C3K2119	PART 96 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2504010035-01-R3.C3K	Test Dates: 05/05/2025 – 06/17/2025	EUT Type: Modular Approval - Host Integration (Portable Computing Device)	Page 43 of 146



Plot 7-44. Occupied Bandwidth Plot (NR Band n48 - 30MHz QPSK - Full RB Configuration - Ant1)

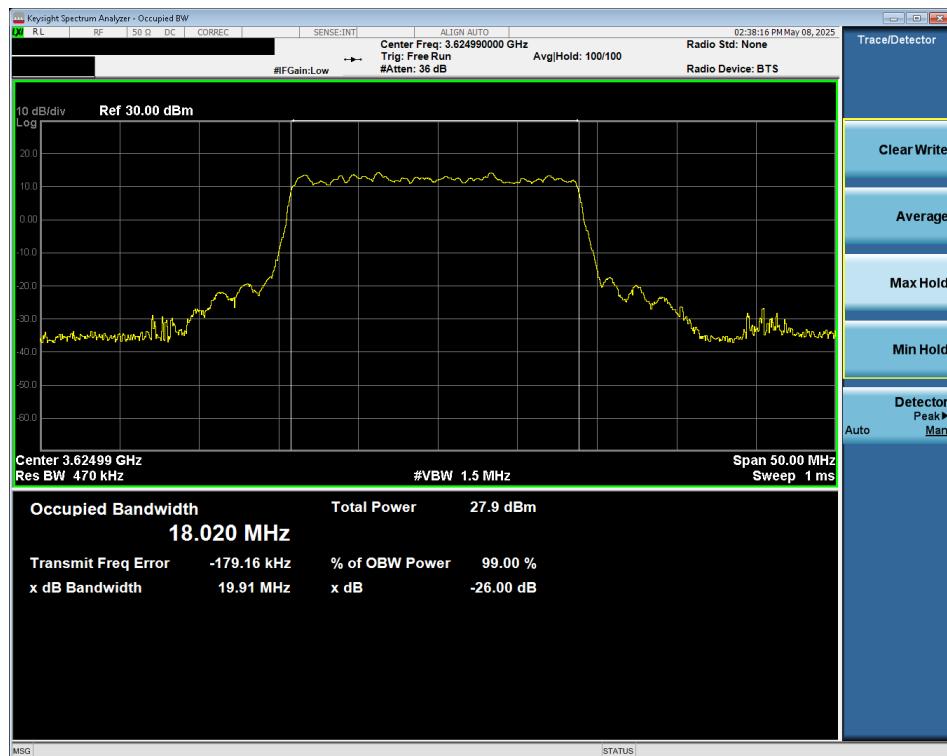


Plot 7-45. Occupied Bandwidth Plot (NR Band n48 - 30MHz 16-QAM - Full RB Configuration - Ant1)

FCC ID: C3K2119	PART 96 MEASUREMENT REPORT			Approved by: Technical Manager
Test Report S/N: 1M2504010035-01-R3.C3K	Test Dates: 05/05/2025 – 06/17/2025	EUT Type: Modular Approval - Host Integration (Portable Computing Device)		Page 44 of 146



Plot 7-46. Occupied Bandwidth Plot (NR Band n48 - 20MHz $\pi/2$ BPSK - Full RB Configuration - Ant1)



Plot 7-47. Occupied Bandwidth Plot (NR Band n48 - 20MHz QPSK - Full RB Configuration - Ant1)

PART 96 MEASUREMENT REPORT			Approved by: Technical Manager
FCC ID: C3K2119	Test Report S/N: 1M2504010035-01-R3.C3K	Test Dates: 05/05/2025 – 06/17/2025	EUT Type: Modular Approval - Host Integration (Portable Computing Device)
			Page 45 of 146

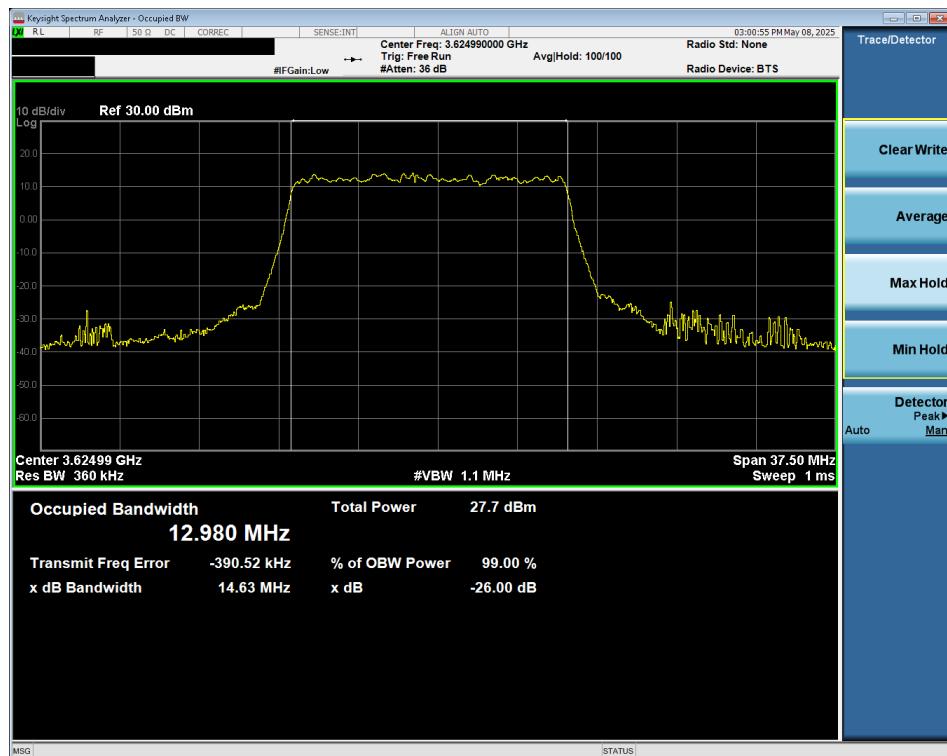


Plot 7-48. Occupied Bandwidth Plot (NR Band n48 - 20MHz 16-QAM - Full RB Configuration - Ant1)

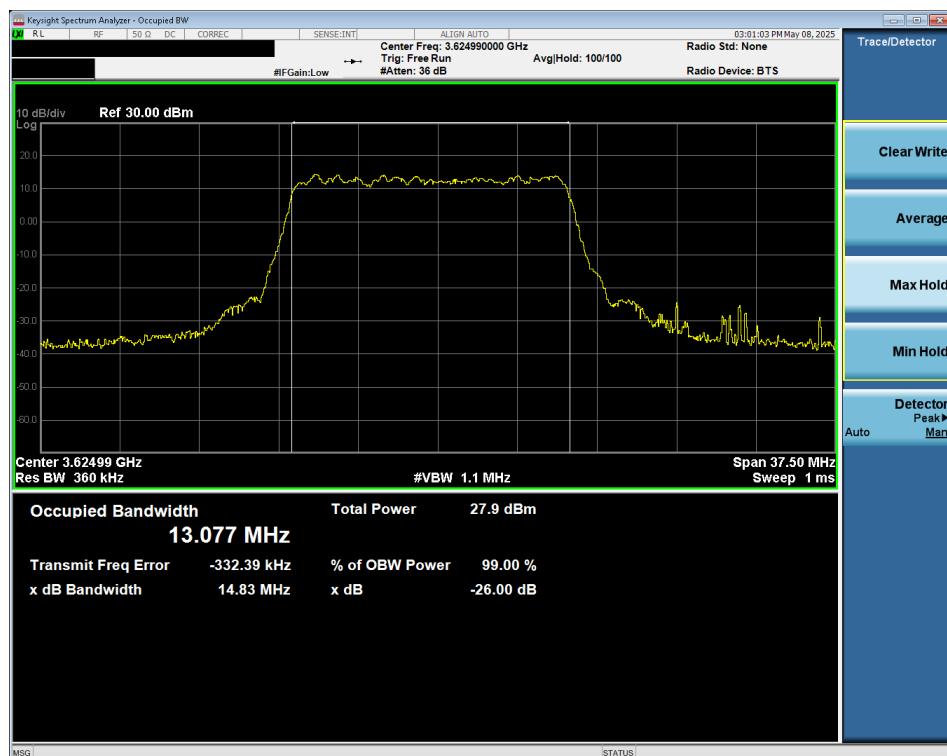


Plot 7-49. Occupied Bandwidth Plot (NR Band n48 - 15MHz π/2 BPSK - Full RB Configuration - Ant1)

FCC ID: C3K2119	PART 96 MEASUREMENT REPORT			Approved by: Technical Manager
Test Report S/N: 1M2504010035-01-R3.C3K	Test Dates: 05/05/2025 – 06/17/2025	EUT Type: Modular Approval - Host Integration (Portable Computing Device)		Page 46 of 146

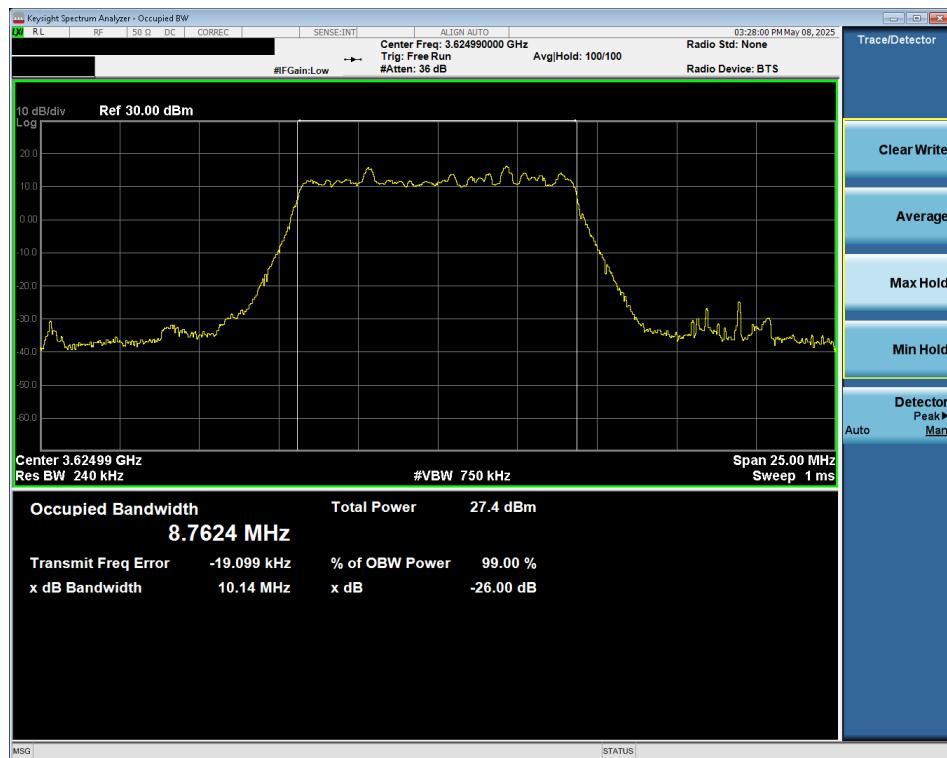


Plot 7-50. Occupied Bandwidth Plot (NR Band n48 - 15MHz QPSK - Full RB Configuration - Ant1)

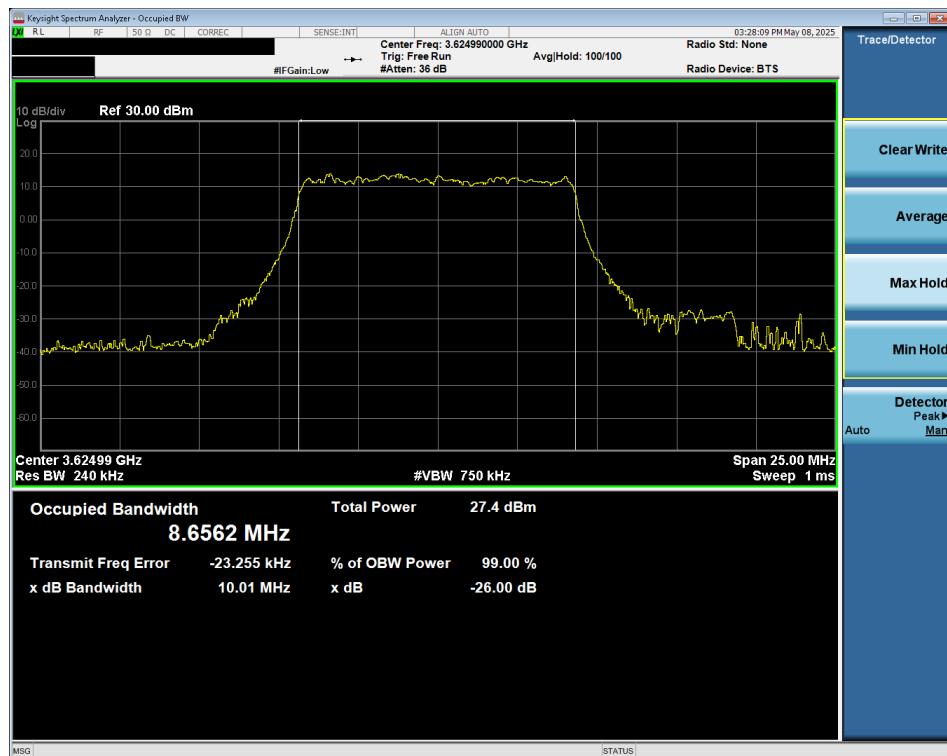


Plot 7-51. Occupied Bandwidth Plot (NR Band n48 - 15MHz 16-QAM - Full RB Configuration - Ant1)

FCC ID: C3K2119	PART 96 MEASUREMENT REPORT			Approved by: Technical Manager
Test Report S/N: 1M2504010035-01-R3.C3K	Test Dates: 05/05/2025 – 06/17/2025	EUT Type: Modular Approval - Host Integration (Portable Computing Device)		Page 47 of 146

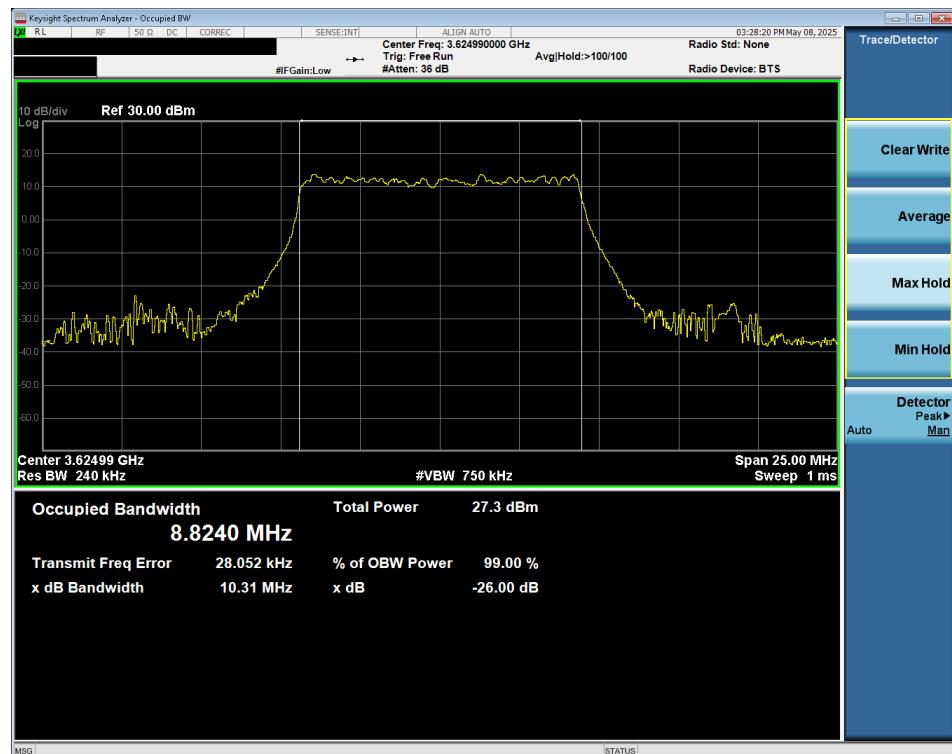


Plot 7-52. Occupied Bandwidth Plot (NR Band n48 - 10MHz $\pi/2$ BPSK - Full RB Configuration - Ant1)



Plot 7-53. Occupied Bandwidth Plot (NR Band n48 - 10MHz QPSK - Full RB Configuration - Ant1)

FCC ID: C3K2119	PART 96 MEASUREMENT REPORT			Approved by: Technical Manager
Test Report S/N: 1M2504010035-01-R3.C3K	Test Dates: 05/05/2025 – 06/17/2025	EUT Type: Modular Approval - Host Integration (Portable Computing Device)		Page 48 of 146



Plot 7-54. Occupied Bandwidth Plot (NR Band n48 - 10MHz 16-QAM - Full RB Configuration - Ant1)

FCC ID: C3K2119	PART 96 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2504010035-01-R3.C3K	Test Dates: 05/05/2025 – 06/17/2025	EUT Type: Modular Approval - Host Integration (Portable Computing Device)	Page 49 of 146

Mode	Bandwidth	Modulation	OBW [MHz]
NR-n48	40MHz	$\pi/2$ BPSK	0.52
		QPSK	0.57
		16QAM	0.63

Table 7-12. Occupied Bandwidth Test Results – SRS Ant3

Mode	Bandwidth	Modulation	OBW [MHz]
NR-n48	40MHz	$\pi/2$ BPSK	0.52
		QPSK	0.64
		16QAM	0.64

Table 7-13. Occupied Bandwidth Test Results – SRS Ant4

Mode	Bandwidth	Modulation	OBW [MHz]
UL MIMO NR-48	40MHz	$\pi/2$ BPSK	35.90
		QPSK	37.95
		16QAM	38.13

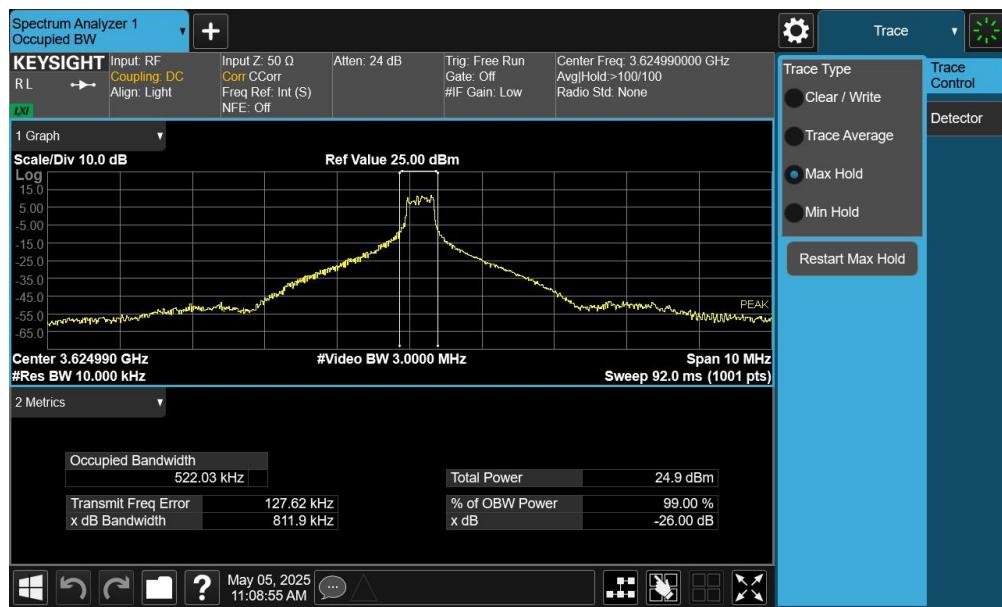
Table 7-14. Occupied Bandwidth Test Results – UL MIMO Ant6

Mode	Bandwidth	Modulation	OBW [MHz]
UL MIMO NR-48	40MHz	$\pi/2$ BPSK	35.91
		QPSK	35.82
		16QAM	35.90

Table 7-15. Occupied Bandwidth Test Results – UL MIMO Ant1

FCC ID: C3K2119	PART 96 MEASUREMENT REPORT			Approved by: Technical Manager
Test Report S/N: 1M2504010035-01-R3.C3K	Test Dates: 05/05/2025 – 06/17/2025	EUT Type: Modular Approval - Host Integration (Portable Computing Device)		Page 50 of 146

NR Band n48 – SRS Ant3

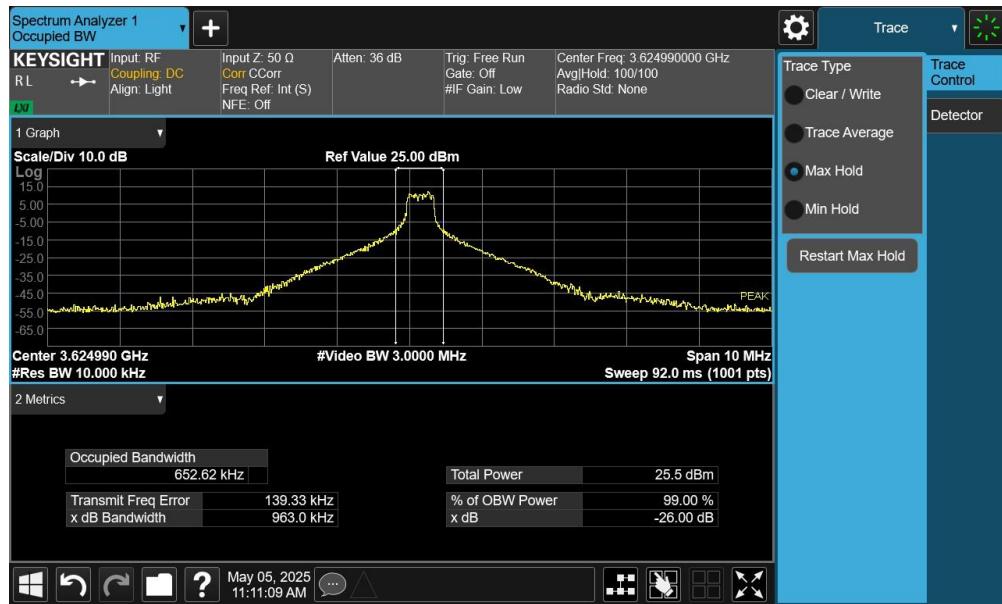


Plot 7-55. Occupied Bandwidth Plot (NR Band n48 - 40MHz $\pi/2$ BPSK - Full RB Configuration – SRS Ant3)



Plot 7-56. Occupied Bandwidth Plot (NR Band n48 - 40MHz QPSK - Full RB Configuration – SRS Ant3)

FCC ID: C3K2119	PART 96 MEASUREMENT REPORT			Approved by: Technical Manager
Test Report S/N: 1M2504010035-01-R3.C3K	Test Dates: 05/05/2025 – 06/17/2025	EUT Type: Modular Approval - Host Integration (Portable Computing Device)		Page 51 of 146



Plot 7-57. Occupied Bandwidth Plot (NR Band n48 - 40MHz 16-QAM - Full RB Configuration – SRS Ant3)

FCC ID: C3K2119	PART 96 MEASUREMENT REPORT			Approved by: Technical Manager
Test Report S/N: 1M2504010035-01-R3.C3K	Test Dates: 05/05/2025 – 06/17/2025	EUT Type: Modular Approval - Host Integration (Portable Computing Device)		Page 52 of 146