

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:

9/21/2023 - 10/23/2023 **Test Report Issue Date:** 11/7/2023 **Test Site/Location:** Element lab., Columbia, MD, USA **Test Report Serial No.:** 1M2309070100-05.A3L

FCC ID:

A3LSMA156U

Applicant Name:

Samsung Electronics Co., Ltd.

Application Type: Model: Additional Model(s): EUT Type: FCC Classification: FCC Rule Part: Test Procedure(s): Certification SM-A156U SM-A15U1/DS, SM-S156V Portable Handset PCS Licensed Transmitter Held to Ear (PCE) 27 ANSI C63.26-2015, KDB 648474 D03 v01r04

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

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

RJ Ortanez Executive Vice President



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				E	RP	
Mode	Bandwidth	Modulation	Tx Frequency Range [MHz]	Max. Power [W]	Max. Power [dBm]	Emission Designator
		π/2 BPSK	3750.0 - 3930.0	0.351	25.45	96M7G7D
	100 MHz	QPSK	3750.0 - 3930.0	0.373	25.71	97M7G7D
		16QAM	3750.0 - 3930.0	0.279	24.46	97M9W7D
		π/2 BPSK	3745.0 - 3935.0	0.360	25.56	87M0G7D
	90 MHz	QPSK	3745.0 - 3935.0	0.379	25.79	87M9G7D
		16QAM	3745.0 - 3935.0	0.281	24.48	87M7W7D
		π/2 BPSK	3740.0 - 3940.0	0.355	25.50	77M4G7D
	80 MHz	QPSK	3740.0 - 3940.0	0.378	25.77	77M7G7D
		16QAM	3740.0 - 3940.0	0.284	24.53	77M5W7D
		π/2 BPSK	3735.0 - 3945.0	0.357	25.53	64M9G7D
	70 MHz	QPSK	3735.0 - 3945.0	0.383	25.83	67M7G7D
		16QAM	3735.0 - 3945.0	0.277	24.43	67M6W7D
		π/2 BPSK	3730.0 - 3950.0	0.348	25.42	58M0G7D
	60 MHz	QPSK	3730.0 - 3950.0	0.371	25.69	58M1G7D
		16QAM	3730.0 - 3950.0	0.277	24.42	58M0W7D
		π/2 BPSK	3725.0 - 3955.0	0.369	25.67	45M9G7D
	50 MHz	QPSK	3725.0 - 3955.0	0.376	25.75	47M6G7D
NR Band n77 PC2		16QAM	3725.0 - 3955.0	0.293	24.66	47M6W7D
(3700 - 3980MHz)		Π/2 BPSK	3720.0 - 3960.0	0.362	25.58	35M9G7D
	40 MHz	QPSK	3720.0 - 3960.0	0.376	25.75	38M1G7D
		16QAM	3720.0 - 3960.0	0.288	24.59	37M9W7D
		π/2 BPSK	3715.0 - 3965.0	0.371	25.69	27M0G7D
	30 MHz	QPSK	3715.0 - 3965.0	0.385	25.85	28M0G7D
		16QAM	3715.0 - 3965.0	0.287	24.58	28M0W7D
		Π/2 BPSK	3712.5 - 3967.5	0.349	25.43	23M0G7D
	25 MHz	QPSK	3712.5 - 3967.5	0.376	25.75	23M2G7D
		16QAM	3712.5 - 3967.5	0.278	24.44	23M3W7D
		π/2 BPSK	3710.0 - 3970.0	0.359	25.55	18M0G7D
	20 MHz	QPSK	3710.0 - 3970.0	0.379	25.78	18M3G7D
		16QAM	3710.0 - 3970.0	0.287	24.58	18M3W7D
		π/2 BPSK	3707.5 - 3972.5	0.352	25.46	12M9G7D
	15 MHz	QPSK	3707.5 - 3972.5	0.375	25.74	13M7G7D
		16QAM	3707.5 - 3972.5	0.286	24.56	13M7W7D
		π/2 BPSK	3705.0 - 3975.0	0.352	25.47	8M59G7D
	10 MHz	QPSK	3705.0 - 3975.0	0.376	25.75	8M62G7D
		16QAM	3705.0 - 3975.0	0.280	24.47	8M62W7D
	1					

EUT Overview – Ant1

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				EI		
Mode	Bandwidth	Modulation	Tx Frequency Range [MHz]	Max. Power [W]	Max. Power [dBm]	Emission Designator
		π/2 BPSK	3500.0	0.354	25.48	96M5G7D
	100 MHz	QPSK	3500.0	0.347	25.40	97M7G7D
		16QAM	3500.0	0.325	25.12	98M0W7D
		π/2 BPSK	3495.0 - 3505.0	0.359	25.55	87M0G7D
	90 MHz	QPSK	3495.0 - 3505.0	0.353	25.47	87M7G7D
		16QAM	3495.0 - 3505.0	0.331	25.19	87M7W7D
		π/2 BPSK	3490.0 - 3510.0	0.356	25.51	77M3G7D
	80 MHz	QPSK	3490.0 - 3510.0	0.349	25.42	77M5G7D
		16QAM	3490.0 - 3510.0	0.325	25.12	77M8W7D
		π/2 BPSK	3485.0 - 3515.0	0.348	25.41	64M3G7D
	70 MHz	QPSK	3485.0 - 3515.0	0.342	25.34	67M9G7D
		16QAM	3485.0 - 3515.0	0.322	25.07	67M6W7D
		π/2 BPSK	3480.0 - 3520.0	0.348	25.41	57M9G7D
	60 MHz	QPSK	3480.0 - 3520.0	0.342	25.34	58M3G7D
		16QAM	3480.0 - 3520.0	0.318	25.02	58M1W7D
	50 MHz	π/2 BPSK	3475.0 - 3525.0	0.339	25.30	46M0G7D
		QPSK	3475.0 - 3525.0	0.334	25.23	47M7G7D
NR Band n77 PC2		16QAM	3475.0 - 3525.0	0.310	24.91	47M8W7D
(3450 - 3550MHz)		π/2 BPSK	3470.0 - 3530.0	0.348	25.41	35M9G7D
	40 MHz	QPSK	3470.0 - 3530.0	0.342	25.34	37M9G7D
		16QAM	3470.0 - 3530.0	0.317	25.01	37M9W7D
	30 MHz	π/2 BPSK	3465.0 - 3535.0	0.358	25.54	27M1G7D
		QPSK	3465.0 - 3535.0	0.356	25.51	27M9G7D
		16QAM	3465.0 - 3535.0	0.328	25.15	27M9W7D
		π/2 BPSK	3462.5 - 3537.5	0.351	25.45	23M0G7D
	25 MHz	QPSK	3462.5 - 3537.5	0.341	25.32	23M2G7D
		16QAM	3462.5 - 3537.5	0.317	25.01	23M3W7D
		π/2 BPSK	3460.0 - 3540.0	0.358	25.53	18M0G7D
	20 MHz	QPSK	3460.0 - 3540.0	0.356	25.51	18M3G7D
		16QAM	3460.0 - 3540.0	0.313	24.95	18M4W7D
		π/2 BPSK	3457.5 - 3542.5	0.358	25.53	13M0G7D
	15 MHz	QPSK	3457.5 - 3542.5	0.348	25.41	13M6G7D
		16QAM	3457.5 - 3542.5	0.324	25.10	13M7W7D
		π/2 BPSK	3455.0 - 3545.0	0.359	25.55	8M66G7D
	10 MHz	QPSK	3455.0 - 3545.0	0.357	25.52	8M65G7D
	TO WIT 12	16QAM	3455.0 - 3545.0	0.321	25.06	8M62W7D
	1		0400.0 - 0040.0	0.021	20.00	SHIDLITTD

EUT Overview – Ant1

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					EIRP		
Mode	Mode Bandwidth		Tx Frequency Range [MHz]	Max. Power [W]	Max. Power [dBm]	Emission Designator	
		π/2 BPSK	3500.0 - 3600.0	0.269	24.30	97M0G7D	
	100 MHz	QPSK	3500.0 - 3600.0	0.262	24.18	99M5G7D	
		16QAM	3500.0 - 3600.0	0.247	23.93	99M2W7D	
		π/2 BPSK	3495.0 - 3605.0	0.268	24.27	87M0G7D	
	90 MHz	QPSK	3495.0 - 3605.0	0.261	24.17	87M9G7D	
		16QAM	3495.0 - 3605.0	0.249	23.95	87M7W7D	
		π/2 BPSK	3490.0 - 3610.0	0.269	24.29	77M5G7D	
	80 MHz	QPSK	3490.0 - 3610.0	0.263	24.19	77M5G7D	
		16QAM	3490.0 - 3610.0	0.248	23.94	78M0W7D	
		π/2 BPSK	3485.0 - 3615.0	0.266	24.24	64M5G7D	
	70 MHz	QPSK	3485.0 - 3615.0	0.257	24.09	67M8G7D	
		16QAM	3485.0 - 3615.0	0.246	23.90	67M6W7D	
		π/2 BPSK	3480.0 - 3620.0	0.274	24.38	58M1G7D	
	60 MHz	QPSK	3480.0 - 3620.0	0.267	24.26	57M9G7D	
		16QAM	3480.0 - 3620.0	0.256	24.07	57M8W7D	
		π/2 BPSK	3475.0 - 3625.0	0.267	24.26	45M9G7D	
	50 MHz	QPSK	3475.0 - 3625.0	0.259	24.12	47M7G7D	
NR Band n78		16QAM	3475.0 - 3625.0	0.251	23.99	47M5W7D	
NR Band n/8		π/2 BPSK	3470.0 - 3630.0	0.281	24.48	36M0G7D	
	40 MHz	QPSK	3470.0 - 3630.0	0.269	24.29	38M1G7D	
		16QAM	3470.0 - 3630.0	0.257	24.10	38M1W7D	
	30 MHz	π/2 BPSK	3465.0 - 3635.0	0.273	24.35	26M9G7D	
		QPSK	3465.0 - 3635.0	0.265	24.23	27M9G7D	
		16QAM	3465.0 - 3635.0	0.254	24.04	27M9W7D	
		π/2 BPSK	3462.5 - 3637.5	0.284	24.53	22M9G7D	
	25 MHz	QPSK	3462.5 - 3637.5	0.276	24.41	23M2G7D	
		16QAM	3462.5 - 3637.5	0.264	24.21	23M2W7D	
		π/2 BPSK	3460.0 - 3640.0	0.276	24.40	18M0G7D	
	20 MHz	QPSK	3460.0 - 3640.0	0.273	24.35	18M2G7D	
		16QAM	3460.0 - 3640.0	0.266	24.24	18M3W7D	
		π/2 BPSK	3457.5 - 3642.5	0.271	24.33	12M9G7D	
	15 MHz	QPSK	3457.5 - 3642.5	0.265	24.22	13M6G7D	
		16QAM	3457.5 - 3642.5	0.250	23.97	13M6W7D	
		π/2 BPSK	3455.0 - 3645.0	0.271	24.32	8M68G7D	
	10 MHz	QPSK	3455.0 - 3645.0	0.264	24.21	8M67G7D	
		16QAM	3455.0 - 3645.0	0.246	23.91	8M61W7D	

EUT Overview – Ant1

				EIRP		
Mode	Bandwidth	Modulation	Tx Frequency Range [MHz]	Max. Power [W]	Max. Power [dBm]	
ND Devel #77 DO0	100 MHz	π/2 BPSK	3500.0	0.021	13.29	
NR Band n77 PC2 (3450 - 3550MHz)		QPSK	3500.0	0.021	13.17	
(3400 - 3000MHZ)		16QAM	3500.0	0.016	12.02	
NR Band n77 PC2 (3700 - 3980MHz)	100 MHz	π/2 BPSK	3750.0 - 3930.0	0.031	14.93	
		QPSK	3750.0 - 3930.0	0.031	14.97	
		16QAM	3750.0 - 3930.0	0.024	13.85	

EUT Overview – Ant2

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				EII	RP
Mode	Bandwidth	Modulation	Tx Frequency Range [MHz]	Max. Power [W]	Max. Power [dBm]
ND Devide 77 DO0	100 MHz	π/2 BPSK	3500.0	0.006	7.54
NR Band n77 PC2		QPSK	3500.0	0.006	7.53
(3450 - 3550MHz)		16QAM	3500.0	0.004	6.28
NR Band n77 PC2 (3700 - 3980MHz)	100 MHz	π/2 BPSK	3750.0 - 3930.0	0.006	7.68
		QPSK	3750.0 - 3930.0	0.006	7.76
		16QAM	3750.0 - 3930.0	0.005	6.63

EUT Overview – Ant3

				Ell	RP
Mode	Bandwidth	Modulation	Tx Frequency Range [MHz]	Max. Power [W]	Max. Power [dBm]
ND Devel #77 DO0	100 MHz	π/2 BPSK	3500.0	0.007	8.24
NR Band n77 PC2		QPSK	3500.0	0.007	8.23
(3450 - 3550MHz)		16QAM	3500.0	0.005	7.24
NR Band n77 PC2 (3700 - 3980MHz)	100 MHz	π/2 BPSK	3750.0 - 3930.0	0.011	10.24
		QPSK	3750.0 - 3930.0	0.011	10.26
		16QAM	3750.0 - 3930.0	0.008	9.12

EUT Overview – Ant4

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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: A3LSMA156U**. 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.: 0679M, 0674M, 0520M, 0499M, 0504M, 0712M, 0705M

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), NFC

2.3 Test Configuration

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

This device supports wireless charging capability and, thus, is subject to the test requirements of KDB 648474 D03 v01r04. Additional radiated spurious emission measurements were performed with the EUT lying flat on an authorized wireless charging pad (WCP) Model: EP-P2400 while operating under normal conditions in a simulated call or data transmission configuration. The worst case radiated emissions data is shown in this report.

2.4 Software and Firmware

Testing was performed on device(s) using software/firmware version 0 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 $P_{g [dBm]}$ – 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
-	AP1-002	EMC Cable and Switch System	1/11/2023	Annual	1/11/2024	AP1-002
-	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
-	MD 1M 18-40	EMC Cable and Switch System	1/11/2023	Annual	1/11/2024	MD 1M 18-40
-	WL40-1	Conducted Cable Set (40GHz)	1/12/2023	Annual	1/12/2024	WL40-1
-	WL25-1	Conducted Cable Set (25GHz)	1/12/2023	Annual	1/12/2024	WL25-1
Anritsu	MA24406A	Microwave Peak Power Sensor	9/7/2023	Annual	9/7/2024	11240
Emco	3115	Horn Antenna (1-18GHz)	8/8/2022	Biennial	8/8/2024	9704-5182
Emco	3116	Horn Antenna (18 - 40GHz)	7/5/2022	Biennial	7/5/2024	9203-2178
Pastermack	MNLC-2	Line Conducted Emission Cable (NM)	1/11/2023	Annual	1/11/2024	NMLC-2
ETS-Lindgren	3816/2NM	Line Impedance Stabilization Network	8/11/2022	Biennial	8/11/2024	114451
ETS Lindgren	3116C	1-18 GHz DRG Horn Antenna	2/27/2023	Biennial	2/27/2024	00218893
ETS Lindgren	3115	Double Ridged Guide Horn	4/12/2022	Biennial	4/12/2024	82333
Com-Power	AL-130	9kHz - 30MHz Loop Antenna	4/13/2022	Biennial	4/13/2025	121034
Keysight Technologies	N9020A	MXA Signal Analyzer	3/15/2023	Annual	3/15/2024	MY54500644
Keysight Technologies	N9030A	PXA Signal Analyzer (44GHz)	3/15/2023	Annual	3/15/2024	MY52350166
Keysight Technologies	N9030A	PXA Signal Analyzer	1/31/2023	Annual	1/31/2024	MY55410501
Keysight Technologies	N9030B	PXA Signal Analyzer, Multi-touch	9/7/2023	Annual	9/7/2024	MY57141001
Rohde & Schwarz	ESU26	EMI Test Receiver (26.5GHz)	9/25/2023	Annual	9/25/2024	100342
Rohde & Schwarz	ESU40	EMI Test Receiver (40GHz)	9/11/2023	Annual	9/11/2024	100348
Rohde & Schwarz	ESW44	EMI Test Receiver 2Hz to 44 GHz	3/1/2023	Annual	3/1/2024	101716
Rohde & Schwarz	FSW67	Signal / Spectrum Analyzer	1/13/2023	Annual	1/13/2024	103200
Sunol	JB5	Bi-Log Antenna (30M - 5GHz)	2/21/2023	Biennial	2/21/2025	A051107
Sunol	JB6	LB6 Antenna	3/2/2023	Biennial	3/2/2025	A082816

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

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

Example: Spurious emission at 3700.40 MHz

The receive spectrum analyzer reading at 3 meters with the EUT on the turntable was -81.0 dBm. The gain of the substituted antenna is 8.1 dBi. The signal generator connected to the substituted antenna terminals is adjusted to produce a reading of -81.0 dBm on the spectrum analyzer. The loss of the cable between the signal generator and the terminals of the substituted antenna is 2.0 dB at 3700.40 MHz. So 6.1 dB is added to the signal generator reading of -30.9 dBm yielding -24.80 dBm. The fundamental EIRP was 25.50 dBm so this harmonic was 25.50 dBm -(-24.80) = 50.3 dBc.

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7.0 TEST RESULTS

7.1 Summary

Company Name:	Samsung Electronics Co., Ltd.
FCC ID:	A3LSMA156U
FCC Classification:	PCS Licensed Transmitter Held to Ear (PCE)
Mode(s):	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	Section 7.2
Ð	Occupied Bandwidth	2.1049(h)	N/A	PASS	Section 7.3
CONDUCTED	Conducted Band Edge / Spurious Emissions (NR Band n77/78)	2.1051, 27.53(I), 27.53(n)	≤ 13 dBm / MHz	PASS	Sections 7.4, 7.5
•	Peak-to-Average Ratio (NR Band n77/78)	27.50(j)(4), 27.50(k)(4)	≤ 13 dB	PASS	Section 7.6
	Frequency Stability	2.1055, 27.54	Fundamental emissions stay within authorized frequency block.	PASS	Section 7.9
RADIATED	Effective Radiated Power / Equivalent Isotropic Radiated Power (NR Band n77/78)	27.50(j)(3), 27.50(k)(3)	≤ 1 Watt EIRP	PASS	Section 7.7
RADI	Radiated Spurious Emissions (NR Band n77/78)	2.1053, 27.53(l), 27.53(n)	≤ 13 dBm / MHz	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

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.
- All conducted emissions measurements are performed with automated test software to 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 Conducted Output Power Data

Test Overview

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

Test Procedure Used

ANSI C63.26-2015 – Section 5.2

Test Settings

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

Test Setup

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



Figure 7-1. Test Instrument & Measurement Setup

Test Notes

- 1. Conducted power measurements were evaluated using various combinations of RB size, RB offset, modulation, and channel bandwidth. Channel bandwidth data is shown in the tables below based only on the channel bandwidths that were supported in this device.
- 2. All other conducted power measurements are contained in the RF exposure report for this filing.
- 3. 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.

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Bandwidth	Modulation	Channel	Frequency [MHz]	RB Size/Offset	Conducted Power [dBm]
		650000	3750.00	1/271	26.63
	π/2 BPSK	656000	3840.00	1 / 136	26.59
F		662000	3930.00	1 / 271	26.67
00 MHz		650000	3750.00	1 / 271	26.60
10	QPSK	656000	3840.00	1 / 136	26.61
	16-QAM	662000 662000	3930.00 3930.00	1 / 271	26.68 25.80
	10-02-001	649668	3745.02	1 / 243	26.61
	π/2 BPSK	656000	3840.00	1/1	26.55
보		662332	3934.98	1 / 122	26.78
2HM 06		649668	3745.02	1 / 243	26.63
6	QPSK	656000	3840.00	1/1	26.63
	16-QAM	662332 662332	3934.98	1 / 122	26.76 25.82
	16-QAIVI	649334	3934.98 3740.01	1 / 122	25.82
	π/2 BPSK	656000	3840.00	1/213	26.60
부		662666	3939.99	1 / 215	26.72
80 MHz		649334	3740.01	1 / 215	26.64
80	QPSK	656000	3840.00	1/1	26.59
		662666	3939.99	1 / 215	26.74
	16-QAM	662666	3939.99	1 / 215	25.87
	π/2 BPSK	649000 656000	3735.00 3840.00	1 / 187 1 / 94	26.51
부	IIIZ DEOR	663000	3945.00	1/94	26.52 26.75
70 MHz		649000	3735.00	1 / 187	26.50
20	QPSK	656000	3840.00	1 / 94	26.77
		663000	3945.00	1 / 94	26.80
	16-QAM	663000	3945.00	1 / 94	25.77
		648668	3730.02	1 / 160	26.42
	π/2 BPSK	656000	3840.00	1/1	26.72
패		663332	3949.98	1 / 81	26.64
60 MHz		648668	3730.02	1 / 160	26.41
99	QPSK	656000	3840.00	1/1	26.43
	16-QAM	663332 663332	3949.98 3949.98	1/81	26.66 25.76
	TO-QAIVI	648334	3725.01	1/131	26.30
	π/2 BPSK	656000	3840.00	1/1	26.48
주		663666	3954.99	1/66	26.89
50 MHz		648334	3725.01	1 / 131	26.29
50	QPSK	656000	3840.00	1/1	26.47
		663666	3954.99	1 / 66	26.72
	16-QAM	663666	3954.99	1 / 66	26.00
	π/2 BPSK QPSK	648000	3720.00	1 / 104	26.20
N		656000 664000	3840.00 3960.00	1/1 1/53	26.47
40 MHz		648000	3720.00	1/104	26.80 26.19
40		656000	3840.00	1/1	26.50
		664000	3960.00	1/53	26.72
	16-QAM	664000	3960.00	1 / 53	25.93
		647668	3715.02	1 / 76	25.96
- N	π/2 BPSK	656000	3840.00	1/1	26.46
30 MHz		664332	3964.98	1/39	26.91
2 0	OPEN	647668	3715.02	1/76	26.02
ę	QPSK	656000 664332	3840.00 3964.98	1 / 1 1 / 39	26.46 26.82
	16-QAM	664332	3964.98	1/39	25.92
		647500	3712.50	1/63	26.02
	π/2 BPSK	656000	3840.00	1/32	26.49
MHz		664500	3967.50	1 / 63	26.65
		647500	3712.50	1 / 63	26.00
25	QPSK	656000	3840.00	1/32	26.61
	10.00	664500	3967.50	1/63	26.72
	16-QAM	664500	3967.50	1/63	25.78
	π/2 BPSK	647334 656000	3710.01 3840.00	1/25	25.97
N	11/2 DP'SK	656000 664666	3840.00	1 / 1 1 / 49	26.45 26.77
20 MHz		647334	3710.01	1 / 25	26.23
20	QPSK	656000	3840.00	1/1	26.43
		664666	3969.99	1 / 49	26.75
	16-QAM	664666	3969.99	1 / 49	25.92
		647168	3707.52	1 / 36	25.75
	π/2 BPSK	656000	3840.00	1 / 19	26.55
Ŧ		664832	3972.48	1/19	26.68
15 MHz	0001/	647168	3707.52	1/36	25.72
-	QPSK	656000	3840.00	1/19	26.69
	16-QAM	664832 664832	3972.48 3972.48	1 / 19 1 / 19	26.71
	10-QAIVI	664832 647000	3972.48	1/19	25.90 25.63
	π/2 BPSK	656000	3840.00	1/22	25.63
N	5. 5. 5.	664332	3975.00	1/22	26.69
÷			3705.00	1/22	25.69
Ŭ H		647000			
10 MHz	QPSK	656000	3840.00	1/1	26.43
10 MH:	QPSK 16-QAM				

Table 7-2. Conducted Power Measurement (NR n77 C-Band) - Ant1

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Bandwidth	Modulation	Channel	Frequency [MHz]	RB Size/Offset	Conducted Power [dBm]
MF	π/2 BPSK	633334	3500.01	1 / 271	26.56
00	QPSK 16-QAM	633334	3500.01	1 / 271	26.58
v -	16-QAM	633334 633000	3500.01 3495.00	1 / 271	25.73
	π/2 BPSK	633334	3495.00	1 / 243 1 / 243	26.30 26.45
N	1.72 Di oit	633666	3504.99	1 / 243	26.63
90 MHz		633000	3495.00	1 / 243	26.35
06	QPSK	633334	3500.01	1 / 243	26.46
		633666	3504.99	1 / 243	26.65
	16-QAM	633666	3504.99	1 / 243	25.80
		632668	3490.02	1 / 215	26.25
м	π/2 BPSK	633334	3500.01	1 / 215	26.43
80 MHz		634000 632668	3510.00 3490.02	1 / 215	26.59
ő	QPSK	633334	3500.01	1 / 215 1 / 215	26.28 26.42
æ	QF SK	634000	3510.00	1 / 215	26.60
	16-QAM	634000	3510.00	1 / 215	25.73
		632334	3485.01	1/1	26.12
	π/2 BPSK	633334	3500.01	1 / 187	26.29
μz		634332	3514.98	1 / 187	26.49
70 MHz		632334	3485.01	1/1	26.14
2	QPSK	633334	3500.01	1 / 187	26.30
		634332	3514.98	1 / 187	26.52
	16-QAM	634332	3514.98	1 / 187	25.68
		632000	3480.00	1/1	25.99
N	π/2 BPSK	633334	3500.01	1 / 160	26.18
60 MHz		634666 632000	3519.99 3480.00	1 / 160 1 / 1	26.49 26.01
100	QPSK	633334	3500.01	1 / 160	26.19
•		634666	3519.99	1 / 160	26.52
	16-QAM	634666	3519.99	1 / 160	25.63
		631668	3475.02	1/1	26.01
	π/2 BPSK	633334	3500.01	1 / 131	26.15
Ηz		635000	3525.00	1 / 131	26.38
50 MHz		631668	3475.02	1/1	26.05
5(QPSK	633334	3500.01	1 / 131	26.11
	40.0414	635000	3525.00	1 / 131	26.41
	16-QAM	635000	3525.00	1 / 131	25.52
	π/2 BPSK	631334 633334	3470.01 3500.01	1 / 1 1 / 104	26.05
N	II/2 DF SK	635332	3529.98	1 / 104	26.06 26.49
40 MHz		631334	3470.01	1/1	26.04
40	QPSK	633334	3500.01	1 / 104	26.12
		635332	3529.98	1 / 104	26.52
	16-QAM	635332	3529.98	1 / 104	25.62
		631000	3465.00	1/1	26.08
	π/2 BPSK	633334	3500.01	1 / 76	25.99
Ŧ		635666	3534.99	1 / 76	26.62
30 MHz	ODSK	631000	3465.00	1/1	26.04
3	QPSK	633334 635666	3500.01 3534.99	1 / 76 1 / 76	26.06
	16-QAM	635666	3534.99	1 / 76	26.69 25.76
		630834	3462.51	1/32	26.05
	π/2 BPSK	633334	3500.01	1 / 63	26.00
¥		635832	3537.48	1 / 63	26.53
25 MHz		630834	3462.51	1 / 32	26.45
25	QPSK	633334	3500.01	1 / 63	25.98
		635832	3537.48	1 / 63	26.50
	16-QAM	635832	3537.48	1 / 63	25.62
		630668	3460.02	1/1	26.16
N	π/2 BPSK	633334 636000	3500.01 3540.00	1 / 25	25.98
20 MHz		630668	3540.00 3460.02	1/25	26.61
50	QPSK	633334	3460.02	1 / 1 1 / 25	26.16 26.25
		636000	3540.00	1 / 25	26.69
	16-QAM	636000	3540.00	1 / 25	25.56
		630500	3457.50	1/1	26.12
	π/2 BPSK	633334	3500.01	1 / 36	25.93
Ŧ		636166	3542.49	1 / 36	26.61
15 MHz		630500	3457.50	1/1	26.14
1	QPSK	633334	3500.01	1 / 36	25.93
	40.000	636166	3542.49	1/36	26.59
	16-QAM	636166 630334	3542.49	1/36	25.71
	π/2 BPSK	630334 633334	3455.01 3500.01	1 / 1 1 / 22	26.10
N	II/2 DPOK	636332	3500.01	1 / 22	25.91 26.63
¥		630334	3455.01	1/1	26.15
9	QPSK	633334	3500.01	1 / 22	26.00
		636332	3544.98	1 / 22	26.70
	16-QAM	636332	3544.98	1 / 22	25.67

Table 7-3. Conducted Power Measurement (NR n77 DoD) – Ant1

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30 MHz 40 MHz 50 MHz 60 MHz 70 MHz 80 MHz 90 MHz 100 MHz	π/2 BPSK 16-QAM π/2 BPSK 0PSK 16-QAM π/2 BPSK QPSK 16-QAM π/2 BPSK QPSK 16-QAM π/2 BPSK QPSK 16-QAM π/2 BPSK 16-QAM 17/2 BPSK 16-QAM π/2 BPSK 16-QAM 17/2 BPSK	633334 636666 640000 633334 636666 640000 633334 633000 636666 640332 633000 636666 640332 633000 636666 640332 636666 640332 636666 640332 636666 6403666 64036666 641332 632000 636666 641332 632000 636666	3500.01 3449.99 3600.00 3500.01 3449.99 3600.00 3500.01 3495.00 349	1/1 1/271 1/136 1/1 1/136 1/1 1/136 1/1 1/271 1/136 1/1 1/243 1/122 1/1 1/122 1/1 1/122 1/1 1/1	25.34 26.14 26.21 25.35 26.08 24.42 25.31 26.01 26.24 25.34 26.24 25.34 26.24 25.34 26.24 26.28 24.44 25.33 26.17 26.21 26.25 26.13 26.10 26.26 26.00 26
40 MHz 50 MHz 60 MHz 70 MHz 80 MHz 90 MHz 1	QPSK 16-QAM π/2 BPSK QPSK 16-QAM	640000 633334 636666 640000 633304 633000 636666 640332 633000 633000 633000 633000 633000 633000 633000 633000 6332668 6336666 640666 641000 632668 641000 632668 641000 632666 641000 632666 641000 632666 641000 632666 641322 636666 641322 636666 641322 636666 641322 636666 641322 632666 641322 632666 641322 632666 641322 632666 641322 632666 641322 632666 641322 632666 641322 632666 641322 632666 641322 632666 632666 632666 632666 632666 632666 632666 632666 632666 632666 632666 632666 632666 632666 6326666 632666 633000 632666 633000 632666 633000 632666 633000 632666 633000 632666 633000 633666 633000 633666 633000 633666 633000 633666 633000 633666 633000 633666 633000 633666 633000 633666 633000 633666 633000 633666 633000 6336 633000 633666 633000 633666 633000 633666 633000 633666 633000 633666 633000 633666 633000 633666 633000 633666 633000 633666 633000 633666 633000 633666 633000 633666 633000 633666 633000 633666 63366 633000 633666 633000 63366 63366 633000 63366 633000 63366 6330000 63366 6330000 63366 63300000000	3600.00 3500.01 3549.99 3600.00 3495.00 3495.00 3495.00 3495.00 3495.00 3495.00 3495.00 3495.00 3490.02 3549.99 3490.02 3549.99 3490.02 3549.99 3490.02 3549.99 3490.02 3485.01 3549.99 3615.00 3485.01 3549.99 3615.00 3485.01 3549.99 3615.00 3485.01 3549.99 3615.00 3485.01 3549.99 3619.98 3649.99 3619.98 3649.99 3619.98 3649.99 3619.98 3649.99	1/136 1/1 1/271 1/136 1/1 1/136 1/1 1/122 1/1 1/122 1/1 1/122 1/1 1/122 1/1 1/1	26.21 25.35 26.08 26.47 24.42 25.31 26.01 26.28 24.44 25.33 26.07 26.28 24.44 25.33 26.17 26.28 24.44 25.36 26.13 26.13 26.13 26.13 26.14 25.26 26.04 25.26 26.05 26.14 26.14 26.14 26.14
40 MHz 50 MHz 60 MHz 70 MHz 80 MHz 90 MHz 1	16-QAM π/2 BPSK QPSK 16-QAM π/2 BPSK 0PSK 16-QAM π/2 BPSK 16-QAM	633334 636666 640000 633334 633000 636666 640332 633000 636666 640332 633000 632668 640666 640666 632668 632668 632668 632668 640666 632668 632668 632668 632666 641000 632334 632666 641000 632334 632666 641000 632334 632666 641032 632666 641332 632666 641332 632666 641332 632666 641332 632666 641332 632666 641332 632666 641332 632666 641332 632666 641332 632666 641332 632666 641332 632666 641332 632666 641332 632666 641332 632666 632666 641332 632666 63266 6326 6	3600.01 3449.99 3600.00 3500.01 3495.00 3495.00 3495.00 3495.00 3495.00 3499.02 3490.02 3490.02 3490.02 3490.02 3490.02 3490.02 3490.02 3490.02 349.99 3609.99 3490.02 3485.01 3549.99 3615.00 3485.01 3549.99 3615.00 3485.01 3485.01 3480.00 3619.98 3480.00 3619.98 3480.00 3619.98 3480.00 3619.98 3480.00 3619.98 3480.00 3619.98 3480.00 3619.98 3480.00 3619.98 3619	1/1 1/271 1/136 1/1 1/243 1/122 1/1 1/243 1/122 1/1 1/223 1/122 1/1 1/215 1/108 1/1 1/215 1/108 1/1 1/187 1/187 1/184 1/1 1/184 1/1 1/184 1/1 1/160 1/1	25.35 26.08 26.47 24.42 25.31 26.24 25.34 26.07 26.28 24.44 25.34 26.07 26.28 24.44 25.33 26.17 26.21 25.36 26.13 26.13 26.13 26.13 26.28 24.43 25.28 26.04 25.26 26.04 25.96 24.39 25.26 26.05 26.14 26.05 26.14 26.06
40 MHz 50 MHz 60 MHz 70 MHz 80 MHz 90 MHz 1	16-QAM π/2 BPSK QPSK 16-QAM π/2 BPSK 0PSK 16-QAM π/2 BPSK 16-QAM	636666 640000 633334 633000 636666 640332 633000 6326666 640332 632668 632668 632668 632668 632668 632668 632668 632668 640666 641000 632334 6326666 641000 632334 6326666 641000 632688 6326666 641000 632688 6326666 641000 632688 6326666 641000 632688 6326666 641000 632688 632666 632666 632668 632666 632666 632668 632666 632668 632668 632668 632668 632668 63200 63268 632000 633268 632000 6332000 633268 632000 6332000 633268 6332000 633268 63320000 633268 6332000 63320000 633268 63320000 633268 63320000 633268 63320000 633268 633268 63326 6320000 6332668 63326 63366 6336	3649.99 3600.00 3500.01 3495.00 3495.00 3495.00 3495.00 3495.00 3499.00 3490.02 3490.02 3490.02 3490.02 3490.02 3490.99 3609.99 3490.02 3549.99 3609.99 3490.02 3549.99 3609.99 3490.02 3549.99 3615.00 3485.01 3549.99 3615.00 3485.01 3549.99 3619.98 3480.00 3549.99 3619.98 3480.00 3549.99 3619.98 3480.00 3549.99 3619.98 3480.00 3549.99 3619.98 3480.00 3549.99 3619.98 3480.00 3549.99 3619.98 3480.00 3549.99 3619.98 3480.00 3549.99 3619.98 3480.00 3549.99 3619.98 3480.00 3549.99 3619.98 3480.00 3549.99 3619.98 3480.00 3549.99 3619.98 3480.00 3549.99 3619.98 3480.00 3549.99 3619.98 3649.00 3549.99 3619.98 3649.00 3549.99 3619.98 3649.00 3549.99 3619.98 3649.00 3549.99 3619.98 3649.00 3549.99 3619.98 3649.00 3549.99 3619.98 3649.00 3549.99 3619.98 3649.00 3549.99 3619.98 3649.00 3649.99 3619.98 3649.00 3649.99 3619.98 3649.00 3649.99 3619.98 3649.00 3649.99 3619.98 3649.00 3649.99 3619.98 3649.00 3649.99 3619.98 3649.00 3649.99 3619.98 3649.00 3649.99 3619.98 3649.00 3649.99 3619.98 3649.00 3649.99 3619.98 3649.00 3649.99 3619.98 3649.00 3649.99 3619.98 3649.00 3649.99 3619.98 3649.00 3649.99 3619.98 3649.00 3649.99 3619.98 3649.00 3649.99 3619.98 3649.00 3649.99 3619.98 3649.00 3649.99 3649.00 3649.99 3649.00 3649.99 364	1/271 1/176 1/1 1/1 1/1 1/122 1/1 1/122 1/1 1/1	26.08 26.47 24.42 25.31 26.01 26.24 25.34 26.24 25.34 26.07 26.28 24.44 25.33 26.07 26.28 24.44 25.33 26.13 26.21 25.36 26.13 26.24 25.36 26.13 26.04 25.26 26.04 25.96 25.96 25.96 25.92 26.05 25.42 26.05 26.14 25.42 26.06
40 MHz 50 MHz 60 MHz 70 MHz 80 MHz	16-QAM π/2 BPSK QPSK 16-QAM π/2 BPSK 0PSK 16-QAM π/2 BPSK 16-QAM	640000 633334 63300 633000 6340 633000 6340 633000 6340 633000 6340 633000 6340 633000 6340 66 6326 6 640 66 6326 6 641000 632 6 6 641000 632 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	3600.00 3500.01 3495.00 3549.99 3604.98 3495.00 3549.99 3604.98 3495.00 3490.02 3549.99 3490.02 3549.99 3490.02 3549.99 3490.02 3549.99 3490.02 3485.01 3549.99 3615.00 3485.01 3549.99 3615.00 3485.01 3549.99 3615.00 3485.01 3549.99 3619.98 3649.99 3619.98 3649.99 3619.98 3480.00	1/136 1/1 1/1 1/243 1/122 1/1 1/243 1/122 1/1 1/122 1/1 1/122 1/108 1/1 1/215 1/108 1/1 1/215 1/108 1/1 1/1187 1/94 1/1 1/187 1/94 1/1 1/160 1/1	26.47 24.42 25.31 26.01 26.24 25.34 26.07 26.24 25.34 26.07 26.24 25.33 26.17 26.21 25.36 26.13 26.13 26.13 26.13 26.24 26.04 25.26 26.04 25.26 26.04 25.26 26.04 25.26 26.04 25.26 26.04 25.26 26.04 25.26 26.04 25.26 26.04 25.26 26.04
40 MHz 50 MHz 60 MHz 70 MHz 80 MHz	π/2 BPSK OPSK 16-QAM π/2 BPSK QPSK 0PSK 0PSK 16-QAM π/2 BPSK QPSK 16-QAM π/2 BPSK 16-QAM	633000 636666 640332 633000 636666 640332 633000 632688 636666 642666 632688 632688 632688 640666 642666 642668 641000 632634 632668 641000 632688 641000 632688 641000 632688 641000 632688 641000 632688 641000 632688 641000 632688 641322 632688 641322 632688 641322 632688 641322 632688 632000 632688 632000 632688 632000 632688 632000 632688 632000 632688 632000 632000 632688 632000 632688 632000 632688 632000 632000 632688 632000 632000 632000 632000 632688 632000 632000 632000 632688 632000 632000 632000 632000 632688 632000 632688 632000 632688 632000 632688 63200 632688 632000 632688 632688 632688 632688 632688 632688 632688 632688 632688 632688 632688 632688 632688 632688 632688 632688 632688 632688 6336868 6336868 632688 6336868 63368 6356868 63568 6356868	3495.00 3549.99 3604.98 3495.00 3495.00 3490.02 3490.02 3490.02 3549.99 3609.99 3490.02 3549.99 3609.99 3490.02 3549.99 3609.99 3490.02 3549.99 3615.00 3485.01 3549.99 3615.00 3485.01 3549.99 3615.00 3485.01 3549.99 3619.98 3649.00 3649.99 3619.98 3649.00 3649.99 3619.98 3649.00 3649.99 3619.98 3649.00 3649.99 3619.98 3649.00 3649.99 3619.98 3649.00 3649.99 3619.98 3649.00 3649.99 3619.98 3649.00 3649.99 3619.98 3649.00 3649.99 3619.98 3649.00 3649.99 3619.98 3649.00 3649.99 3619.98 3649.00 3649.00 3649.99 3619.98 3649.00 3649.00 3649.99 3619.98 3649.00 3649.00 3649.99 3649.00 3649.99 3619.98 3649.00 3649.00 3649.99 3649.00 3649.99 3649.00 3649.99 3649.00 3649.99 3649.00 3649.99 364	1/1 1/243 1/122 1/1 1/243 1/122 1/1 1/122 1/1 1/215 1/108 1/1 1/215 1/108 1/1 1/187 1/94 1/1 1/180 1/1 1/160 1/1	25.31 26.01 26.24 25.34 25.34 26.33 26.17 26.28 24.44 25.36 26.12 26.21 25.36 26.13 26.18 24.43 25.36 26.18 26.44 25.36 26.20 26.04 25.04 25.06 25.96 26.96 26
40 MHz 50 MHz 60 MHz 70 MHz 80 MHz	OPSK 16-QAM π/2 BPSK QPSK 16-QAM π/2 BPSK QPSK 16-QAM π/2 BPSK QPSK 16-QAM π/2 BPSK QPSK 16-QAM π/2 BPSK	636666 640332 6 640332 633000 6 633000 636666 640366 632668 632668 632668 632668 632668 632668 632668 632668 632668 632668 632668 632668 6322668 632668 641000 632666 641000 632666 641000 632666 641332 632666 641332 636666 641332 636666 641332 632666 641332 636666 641332 632666 641332 632666 641332 632666 641332 632666 641332 632000 636666 641332	3649.99 3604.98 3495.00 3549.99 3604.98 3495.00 3490.02 3549.99 3490.02 3549.99 3490.02 3549.99 3490.02 3485.01 3549.99 3615.00 3485.01 3549.99 3615.00 3485.01 3549.99 3615.00 3485.01 3549.99 3619.98 3619.98 3649.99 3619.98 3480.00	1/243 1/122 1/1 1/1243 1/122 1/1 1/125 1/108 1/1 1/215 1/108 1/1 1/11 1/187 1/147 1/187 1/147 1/1	26.01 26.24 25.34 26.07 26.28 24.44 25.33 26.17 26.21 25.36 26.13 26.13 26.13 26.13 26.13 26.13 26.28 26.04 25.28 26.04 25.26 25.96 25.96 25.96 25.96 25.96 25.96 25.96 25.96 25.96 25.96 25.96 25.96 26.05
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40 MHz 50 MHz 60 MHz 70 MHz 80 MHz	16-QAM π/2 BPSK QPSK 16-QAM π/2 BPSK 0PSK 16-QAM π/2 BPSK QPSK	633000 636666 640332 633000 632668 636666 640666 632688 632688 640666 640666 640666 640666 640666 641000 632634 636666 641000 632688 636666 641332 632666 641332 632666 641332 632666 632000 632000 63200 63300 6300000000	3495.00 3549.99 3604.98 3495.00 3490.02 3549.99 3609.99 3490.02 3549.99 3609.99 3490.02 3549.99 3609.99 3490.02 3549.99 3615.00 3485.01 3549.99 3615.00 3485.01 3485.01 3480.00 3549.99 3619.98 3480.00	1/1 1/243 1/122 1/1 1/215 1/108 1/1 1/215 1/108 1/1 1/187 1/94 1/1 1/187 1/94 1/1 1/187 1/194 1/1 1/160 1/1	25.34 26.07 26.28 24.44 25.33 26.17 26.21 25.36 26.18 24.43 25.26 26.02 26.04 25.26 26.04 25.26 26.04 25.26 26.06 25.96 25.42 26.05 25.42 26.06 26.28 26.06 26.06 26.06 26.06 26.07 26
40 MHz 50 MHz 60 MHz 70 MHz 80 MHz	16-QAM π/2 BPSK QPSK 16-QAM π/2 BPSK 0PSK 16-QAM π/2 BPSK QPSK	636666 640332 633000 633000 632668 632668 632668 632668 640666 6432668 641000 632334 638666 641000 632334 638666 641000 632666 641332 636666 641332 636666 641332 636666 641332 636666 641332	3549.99 3604.98 3495.00 3490.02 3549.99 3609.99 3490.02 3490.02 3490.02 3490.02 3490.02 3490.02 3490.02 3485.01 3549.99 3615.00 3485.01 3549.99 3615.00 3485.01 3549.99 3619.98 3649.00 3549.99 3619.98 3649.00	1/243 1/122 1/1 1/1 1/215 1/108 1/1 1/215 1/108 1/1 1/187 1/94 1/1 1/187 1/94 1/1 1/187 1/94 1/1 1/187 1/160 1/1	26.07 26.28 24.44 25.33 26.17 26.21 25.36 26.13 26.13 26.13 26.13 26.13 26.14 25.26 26.04 25.96 25.96 25.96 25.96 25.96 25.42 26.05 26.14 25.43 26.06
40 MHz 50 MHz 60 MHz 70 MHz 80	π/2 BPSK QPSK 16-QAM π/2 BPSK QPSK 16-QAM π/2 BPSK QPSK 16-QAM	633000 632668 636666 636666 632688 636666 640666 632688 632634 632688 641000 632334 636666 641000 632686 632600 632666 641332 632666 641332 632666 641332 632000 63200 63200 632000 630000 6320000000000	3495.00 3490.02 3549.99 3609.99 3490.02 3549.99 3609.99 3490.02 3485.01 3549.99 3615.00 3485.01 3549.99 3615.00 3485.01 3485.01 3485.01 3480.00 3549.99 3619.98 3480.00	1/1 1/1 1/215 1/108 1/1 1/215 1/108 1/1 1/187 1/94 1/1 1/187 1/94 1/1 1/187 1/194 1/1 1/160 1/1 1/160 1/1	24.44 25.33 26.17 26.21 25.36 26.13 26.18 26.18 26.02 26.04 25.06 25.96 25.96 25.96 25.96 25.96 25.42 26.05 25.42 26.05 25.42 26.05
40 MHz 50 MHz 60 MHz 70 MHz 80	π/2 BPSK QPSK 16-QAM π/2 BPSK QPSK 16-QAM π/2 BPSK QPSK 16-QAM	632668 632668 640666 632668 632668 632668 640666 632668 641000 632666 641000 632666 641000 632666 641332 636666 641332 632666 632000 632666 632000 632666 632660 632000 632666 632660 632666 632660 632660 632666 632660 632666 632660 632666 632660 632666 632660 632660 632666 632660 63260 63260 632660 63260 63260 63260 63260 63260 63260 63260 63260 63260 63260 6326660 632660 6326660 6326660 6326660 6326660 6326660 6326660 6326660 632660 6326660 6326660 6326660 6326660 6326660 632660 632660 632660 632660 632660 632660 632660 632660 632660 632660 632660 632660 632660 632660 632660 632660 633660 63560 63560 63560 63560 63560 63560 63560 63560 63560 63560 6356	3490.02 3649.99 3609.99 3490.02 3549.99 3490.02 3485.01 3549.99 3615.00 3485.01 3549.99 3615.00 3485.01 3549.99 3615.00 3485.01 3549.99 3619.98 3649.00 3549.99 3619.98 3619.98 3619.98	1/1 1/215 1/108 1/1 1/215 1/108 1/1 1/108 1/1 1/1 1/187 1/94 1/1 1/187 1/94 1/1 1/187 1/194 1/1 1/160 1/1	25.33 26.17 26.21 25.36 26.13 26.18 24.43 25.28 26.04 25.26 26.04 25.26 26.04 25.96 25.96 24.39 26.05 26.14 25.42 26.06
40 MHz 50 MHz 60 MHz 70 MHz 80	QPSK 16-QAM π/2 BPSK 0PSK 16-QAM π/2 BPSK QPSK 16-QAM	636666 640666 632668 632668 632668 632668 632334 636666 641000 632334 636666 641000 6326666 641332 632000 636666 641332 632000 6326666 641332 632000 6326666	3649.99 3609.99 3490.02 3549.99 3490.02 3485.01 3485.01 3485.01 3485.01 3485.01 3485.01 3485.01 3485.01 3480.00 3485.01 3480.00 3481.99 3619.98 3480.00	1/215 1/108 1/1 1/215 1/108 1/1 1/11 1/187 1/14 1/1 1/187 1/147 1/147 1/147 1/147 1/147 1/140 1/1 1/160 1/1	26.17 26.21 25.36 26.13 26.13 25.28 25.28 26.02 26.04 25.26 26.06 25.96 24.39 25.42 26.05 26.43 25.42 26.05 26.14 25.43 26.06
40 MHz 50 MHz 60 MHz 70 MHz 80	QPSK 16-QAM π/2 BPSK 0PSK 16-QAM π/2 BPSK QPSK 16-QAM	640666 632668 636666 632668 632688 632334 636666 641000 632334 636666 641000 632334 636666 641332 632000 632000 6326666 641332 632000 632066 6320665 6320000000000	3609.99 3490.02 3549.99 3609.99 3490.02 3485.01 3549.99 3615.00 3485.01 3549.99 3615.00 3485.01 3485.01 3485.01 3480.00 3549.99 3619.98 3480.00	1/108 1/1 1/215 1/108 1/1 1/187 1/94 1/1 1/187 1/94 1/1 1/187 1/1 1/180 1/1 1/160 1/1	26.21 25.36 26.13 26.18 24.43 25.28 26.02 25.26 25.26 25.96 24.39 25.42 26.05 25.44 26.05 25.44 26.05
40 MHz 50 MHz 60 MHz 70 MHz 80	16-QAM π/2 BPSK QPSK 16-QAM π/2 BPSK QPSK 16-QAM	632668 632666 640666 632688 632334 636666 641000 632334 636666 641000 632334 632000 632334 632000 632332 632000 636666 641332 632000 636666 641332 632000 636666	3490.02 3649.99 3609.99 3490.02 3485.01 3549.99 3615.00 3485.01 3549.99 3615.00 3485.01 3549.99 3619.98 3619.98 3480.00 3549.99 3619.98 3480.00	1/1 1/215 1/108 1/1 1/1 1/187 1/94 1/1 1/187 1/94 1/1 1/187 1/140 1/1 1/160 1/1	25.36 26.13 26.18 24.43 25.28 26.04 25.26 26.04 25.26 26.06 25.96 25.96 25.96 25.42 26.05 26.14 25.43 26.06
40 MHz 50 MHz 60 MHz 70 MHz 80	16-QAM π/2 BPSK QPSK 16-QAM π/2 BPSK QPSK 16-QAM	640666 632668 632334 636666 641000 632334 636666 641000 632334 632000 636666 641332 632000 636666 641332 632000 636666 641332	3609.99 3490.02 3485.01 3549.99 3615.00 3485.01 3549.99 3615.00 3485.01 3480.00 3549.99 3619.98 3480.00 3549.99 3619.98	1/215 1/108 1/1 1/1 1/187 1/94 1/1 1/187 1/94 1/1 1/187 1/94 1/1 1/187 1/140 1/1 1/160 1/1	26.13 26.18 24.43 25.28 26.02 26.04 25.26 26.06 25.96 24.39 25.42 26.05 26.14 25.43 26.06
40 MHz 50 MHz 60 MHz	π/2 BPSK QPSK 16-QAM π/2 BPSK QPSK 16-QAM	632668 632334 636666 641000 632334 636666 641000 632334 636666 641332 632000 636666 641332 632000 636666 641332 632000 631668	3490.02 3485.01 3649.99 3615.00 3485.01 3485.01 3485.01 3485.01 3485.01 3480.00 3549.99 3619.98 3480.00 3549.99 3619.98 3480.00	1/1 1/1 1/187 1/94 1/1 1/187 1/94 1/1 1/187 1/140 1/1 1/160 1/1 1/160 1/1	24.43 25.28 26.02 26.04 25.26 25.96 24.39 25.42 26.05 26.14 25.43 26.06
40 MHz 50 MHz 60 MHz	π/2 BPSK QPSK 16-QAM π/2 BPSK QPSK 16-QAM	632334 636666 641000 632334 636666 641000 632334 632000 636666 641332 632000 636666 641332 632000 636666	3485.01 3549.99 3615.00 3485.01 3549.99 3615.00 3485.01 3480.00 3549.99 3619.98 3480.00 3549.99 3619.98 3480.00	1/1 1/187 1/94 1/1 1/187 1/187 1/187 1/1 1/1 1/1 1/160 1/1	25.28 26.02 26.04 25.26 25.96 24.39 25.42 26.05 26.14 25.43 26.06
40 MHz 50 MHz 60 MHz	QPSK 16-QAM π/2 BPSK QPSK 16-QAM	636666 641000 632334 636666 641000 632334 632000 636666 641332 632000 636666 641332 632000 631668	3549.99 3615.00 3485.01 3549.99 3615.00 3485.01 3480.00 3549.99 3619.98 3480.00 3549.99 3619.98	1/187 1/94 1/1 1/187 1/94 1/1 1/1 1/160 1/1 1/160 1/1	26.02 26.04 25.26 26.06 25.96 24.39 25.42 26.05 26.14 25.43 26.06
40 MHz 50 MHz 60 MHz	QPSK 16-QAM π/2 BPSK QPSK 16-QAM	641000 632334 636666 641000 632334 632000 636666 641332 632000 636666 641332 632000 631668	3615.00 3485.01 3549.99 3615.00 3485.01 3485.01 3480.00 3549.99 3619.98 3480.00 3549.99 3619.98	1/94 1/1 1/187 1/94 1/1 1/160 1/1 1/1 1/160 1/1	26.04 25.26 26.06 25.96 24.39 25.42 26.05 26.14 25.43 26.06
40 MHz 50 MHz 60 MHz	16-QAM π/2 BPSK QPSK 16-QAM	632334 636666 641000 632334 632000 636666 641332 632000 636666 641332 632000 631668	3485.01 3549.99 3615.00 3485.01 3480.00 3549.99 3619.98 3480.00 3549.99 3619.98 3480.00	1/1 1/187 1/94 1/1 1/1 1/1 1/1 1/1 1/1 1/1 1/100 1/1	25.26 26.06 25.96 24.39 25.42 26.05 26.14 25.43 26.06
40 MHz 50 MHz 60 MHz	16-QAM π/2 BPSK QPSK 16-QAM	636666 641000 632334 632000 636666 641332 632000 636666 641332 632000 631668	3549.99 3615.00 3485.01 3480.00 3549.99 3619.98 3480.00 3549.99 3619.98 3480.00	1/187 1/94 1/1 1/1 1/160 1/1 1/1 1/160 1/1	26.06 25.96 24.39 25.42 26.05 26.14 25.43 26.06
40 MHz 50 MHz	16-QAM π/2 BPSK QPSK 16-QAM	641000 632334 632000 636666 641332 632000 636666 641332 632000 631668	3615.00 3485.01 3480.00 3549.99 3619.98 3480.00 3549.99 3619.98 3480.00	1/94 1/1 1/1 1/160 1/1 1/1 1/160 1/1	25.96 24.39 25.42 26.05 26.14 25.43 26.06
40 MHz 50 MHz	π/2 BPSK QPSK 16-QAM	632000 636666 641332 632000 636666 641332 632000 631668	3480.00 3549.99 3619.98 3480.00 3549.99 3619.98 3480.00	1/1 1/160 1/1 1/1 1/160 1/1	25.42 26.05 26.14 25.43 26.06
40 MHz 50 MHz	QPSK 16-QAM	636666 641332 632000 636666 641332 632000 631668	3549.99 3619.98 3480.00 3549.99 3619.98 3480.00	1/160 1/1 1/1 1/160 1/1	26.05 26.14 25.43 26.06
40 MHz 50 MHz	QPSK 16-QAM	641332 632000 636666 641332 632000 631668	3619.98 3480.00 3549.99 3619.98 3480.00	1/1 1/1 1/160 1/1	26.14 25.43 26.06
40 MHz 50 MHz	16-QAM	632000 636666 641332 632000 631668	3480.00 3549.99 3619.98 3480.00	1 / 1 1 / 160 1 / 1	25.43 26.06
40 MHz 50 MHz	16-QAM	636666 641332 632000 631668	3549.99 3619.98 3480.00	1 / 160 1 / 1	26.06
40 MHz 50 MHz	16-QAM	641332 632000 631668	3619.98 3480.00	1/1	
40 MHz		632000 631668	3480.00		26.13
40 MHz	π/2 BPSK		3475.02		24.56
40 MHz	π/2 BPSK	636666		1/1	25.30
40 MHz			3549.99	1 / 131	25.94
40 MHz		641666	3624.99	1/66	26.37
40 MHz	QPSK	631668 636666	3475.02 3549.99	1/1	25.29
	Qi UK	641666	3624.99	1 / 131	25.94 26.23
	16-QAM	631668	3475.02	1/1	24.48
		631334	3470.01	1/1	25.52
	π/2 BPSK	636666	3549.99	1 / 104	25.95
		642000	3630.00	1/1	26.20
	QPSK	631334 636666	3470.01 3549.99	1 / 1 1 / 104	25.46 25.91
30 MHz		642000	3630.00	1/1	26.15
30 MHz	16-QAM	631334	3470.01	1/1	24.59
30 MHz		631000	3465.00	1/1	25.39
30 MH3	π/2 BPSK	636666	3549.99	1 / 76	25.79
8		642332 631000	3634.98 3465.00	1/1	26.28
	QPSK	636666	3465.00	1/1	25.40 25.81
	UP ON	642332	3634.98	1/1	26.29
	16-QAM	631000	3465.00	1/1	24.53
		630834	3462.51	1/1	25.57
N	π/2 BPSK	636666	3549.99	1/63	25.75
MHz		642500 630834	3637.50 3462.51	1/1	26.09 25.58
25 N	QPSK	630834	3462.51	1/1	25.58
	a, or	642500	3637.50	1/1	26.09
	16-QAM	630834	3462.51	1/1	24.70
		630668	3460.02	1/1	25.44
N	π/2 BPSK	636666	3549.99	1 / 49	25.63
Ŧ		642666	3639.99	1/25	26.12
20 MHz	QPSK	630668 636666	3460.02 3549.99	1 / 25 1 / 25	25.52 25.83
		642666	3639.99	1/1	26.01
	16-QAM	630668	3460.02	1 / 25	24.73
		630500	3457.50	1/1	25.37
N	π/2 BPSK	636666	3549.99	1/36	25.58
Ę		642833	3642.50	1/19	26.12
5	QPSK	630500 636666	3457.50 3549.99	1 / 1 1 / 36	25.39 25.52
-	ur on	642833	3549.99 3642.50	1/36	25.52
	16-QAM	630500	3457.50	1/1	24.46
		630336	3455.04	1/1	25.36
		636666	3549.99	1 / 22	25.56
Ŧ	π/2 BPSK	643000	3645.00	1/1	25.87
10 MHz		630336	3455.04	1/1	25.38
-	π/2 BPSK				25.60
		636666 643000	3549.99 3645.00	1/22	25.90

Table 7-4. Conducted Power Measurement (NR n78) – Ant1

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Bandwidth	Modulation	Channel	Frequency [MHz]	RB Size/Offset	Conducted Power [dBm]
	TT/2 BPSK	650000	3750.00	1 / 136	14.72
		656000	3840.00	1 / 204	14.07
MHz		662000	3930.00	1 / 68	14.04
	QPSK	650000	3750.00	1 / 136	14.80
100		656000	3840.00	1 / 204	14.07
		662000	3930.00	1 / 68	14.14
	16-QAM	650000	3750.00	1 / 136	13.44

Table 7-5. Conducted Power Measurement (NR n77 C-Band) – Ant2

Bandwidth	Modulation	Channel	Frequency [MHz]	RB Size/Offset	Conducted Power [dBm]
MF	π/2 BPSK	633334	3500.01	1 / 136	13.71
100	QPSK	633334	3500.01	1 / 136	13.54
7	16-QAM	633334	3500.01	1 / 136	12.49

Table 7-6. Conducted Power Measurement (NR n77 DoD) – Ant2

Bandwidth	Modulation	Channel	Frequency [MHz]	RB Size/Offset	Conducted Power [dBm]
		650000	3750.00	1 / 136	10.46
T/2 BPSK PW QPSK	π/2 BPSK	656000	3840.00	1 / 136	9.72
		662000	3930.00	1 / 68	9.69
N N		650000	3750.00	1 / 136	10.50
100	QPSK	656000	3840.00	1 / 136	9.70
		662000	3930.00	1 / 68	9.77
	16-QAM	662000	3930.00	1 / 68	8.63

Table 7-7. Conducted Power Measurement (NR n77 C-Band) – Ant3

Bandwidth	Modulation	Channel	Frequency [MHz]	RB Size/Offset	Conducted Power [dBm]
MF	π/2 BPSK	633334	3500.01	1 / 136	11.53
100	QPSK	633334	3500.01	1 / 136	11.52
7	16-QAM	633334	3500.01	1 / 136	10.37

Table 7-8. Conducted Power Measurement (NR n77 DoD) – Ant3

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Bandwidth	Modulation	Channel	Frequency [MHz]	RB Size/Offset	Conducted Power [dBm]
		650000	3750.00	1 / 136	12.70
	π/2 BPSK	656000	3840.00	1 / 204	11.71
MHz		662000	3930.00	1 / 68	12.01
		650000	3750.00	1 / 136	12.77
100	QPSK	656000	3840.00	1 / 204	11.74
		662000	3930.00	1 / 68	11.94
	16-QAM	662000	3930.00	1 / 68	10.65

Table 7-9. Conducted Power Measurement (NR n77 C-Band) – Ant4

Bandwidth	Modulation	Channel	Frequency [MHz]	RB Size/Offset	Conducted Power [dBm]	
MF	π/2 BPSK	633334	3500.01	1 / 136	11.79	
100	QPSK	633334	3500.01	1 / 136	11.75	
7	16-QAM	633334	3500.01	1 / 136	10.61	

Table 7-10. Conducted Power Measurement (NR n77 DoD) – Ant4

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7.3 Occupied Bandwidth

Test Overview

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

Test Procedure Used

ANSI C63.26-2015 - Section 5.4.4

Test Settings

- 1. The signal analyzer's automatic bandwidth measurement capability was used to perform the 99% occupied bandwidth and the 26dB bandwidth. The bandwidth measurement was not influenced by any intermediate power nulls in the fundamental emission.
- 2. RBW = 1 5% of the expected OBW
- 3. VBW \geq 3 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.

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Mode	Bandwidth	Modulation	OBW [MHz]
		π/2 BPSK	96.75
	100MHz	QPSK	97.68
		16QAM	97.91
		π/2 BPSK	86.98
	90MHz	QPSK	87.85
		16QAM	87.67
		π/2 BPSK	77.43
	80MHz	QPSK	77.68
		16QAM	77.53
		π/2 BPSK	64.89
	70MHz	QPSK	67.65
		16QAM	67.65
		π/2 BPSK	58.03
	60MHz	QPSK	58.14
		16QAM	58.03
		π/2 BPSK	45.93
	50MHz	QPSK	47.64
NR-n77/78 PC2		16QAM	47.64
C-Band		π/2 BPSK	35.86
	40MHz	QPSK	38.07
		16QAM	37.85
		π/2 BPSK	27.04
	30MHz	QPSK	27.96
		16QAM	27.99
		π/2 BPSK	23.02
	25MHz	QPSK	23.18
		16QAM	23.30
		π/2 BPSK	18.02
	20MHz	QPSK	18.29
		16QAM	18.26
		π/2 BPSK	12.94
	15MHz	QPSK	13.66
		16QAM	13.67
		π/2 BPSK	8.59
	10MHz	QPSK	8.62
		16QAM	8.62

Table 7-11. Occupied Bandwidth Test Results – Ant1

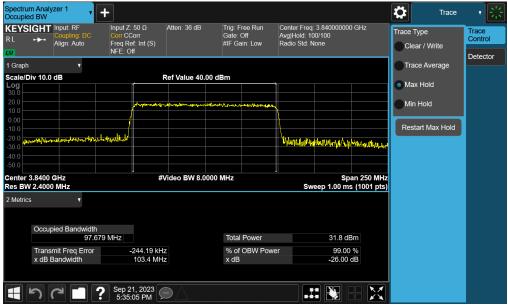
FCC ID: A3LSMA156U		PART 27 MEASUREMENT REPORT					
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NR Band n77PC2 (C-Band) - Ant1

Spectrun Occupied	d BW (• +								\$	Trace	• 2
	GHT ↔	Input: RF Coupling: D Align: Auto	DC C	put Ζ: 50 Ω orr CCorr eq Ref: Int (S) FE: Off	Atten: 36 dB	Gate:	Free Run Off ain: Low	Center Fre Avg Hold: Radio Std:		0 GHz	Trace Typ Clear		Trace Control
1 Graph	_	•	N	FE. UII							Trace	Average	Detector
Scale/Di	iv 10.0	dB			Ref Value 40	.00 dBm					o Max ⊦	lold	
20.0 10.0				jularijsti - d-m	kalanda kalang kalan	alanter alan alah s	han an a	1			Min H	old	
-10.0	ا لماسم ا	www.	Law array way	www				Wingougermen	and the second statements	-may hardwort applicate	Restart	Max Hold	
-40.0													
Center 3 Res BW					#Video BW 8.	0000 MHz		S	Sp weep 1.00 m	an 250 MHz s (1001 pts)			
2 Metrics		Ţ											
	Occup	ied Bandw	/idth 96.745 M⊦	1z		Tota	l Power		33.8 dE	3m			
		mit Freq Er 8andwidth	rror	-731.27 k 102.5 M		% o x dE	f OBW Pow	/er	99.00 -26.00				
	າ	2	? *	Sep 21, 2023 5:26:37 PM	\odot								

Plot 7-1. Occupied Bandwidth Plot (NR Band n77PC2 - 100MHz π/2 BPSK - Full RB - Ant1)



Plot 7-2. Occupied Bandwidth Plot (NR Band n77PC2 - 100MHz QPSK - Full RB - Ant1)

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Spectrur Occupie	dBW		+									Trace	- 7 詳
KEYSI RL		Input: RF Coupling: DC Align: Auto	Freq R	Corr ef: Int (S)	Atten: 36 dB	Gate:	ree Run Off ain: Low	Center Freq Avg Hold: 10 Radio Std: N) GHz	Trace Cle	Type ear / Write	Trace Control
1 Graph		.	NFE: C)ff							Tr	ace Average	Detector
Scale/D	iv 10.0	dB		, I	Ref Value 40.	00 dBm						ix Hold	
30.0 20.0													
10.0				and the second second	naller and the second second	internation company	gallen and a	٩			Mi	n Hold	
0.00 -10.0								1			Res	start Max Hold	
-20.0 -30.0	r. And Mary	hadrodyter	Annahasustanova					Wan, Klai-Uni	ellaldar hay hily	hthere was a stand of the second stand of the second stand			
-40.0 -50.0													
Center 3 Res BW				۱ #۱	Video BW 8.0	000 MHz		Sw		an 250 MHz s (1001 pts)			
2 Metrics		•											
	Occup	ied Bandwid 9	dth 7.908 MHz			Total	Power		31.8 di	3m			
		nit Freq Erro	Dr	-254.48 kH			OBW Powe	er	99.00				
	х ав в	landwidth		103.3 MH:	Z	x dB			-26.00	aв			
	う (? Sep 2 5:35	21, 2023 :15 PM									

Plot 7-3. Occupied Bandwidth Plot (NR Band n77PC2 - 100MHz 16-QAM - Full RB - Ant1)

Spectrum Ana Occupied BW KEYSIGHT R L	Input: RF Coupling: DC	+ Input Z: 50 Ω Corr CCorr Forse Data (Let (C))	Gate: Off Avg				Center Freq: 3.840000000 GHz Avg]Hold: 100/100			Trace	Trace Control
LXI	Align: Auto	Freq Ref: Int (S) NFE: Off		#IF Gain: Low Radio			Raulo Stu. None			Vrite	Detector
1 Graph									Trace A	rerage	Delector
Scale/Div 10.	0 dB		Ref Value 40.0	00 dBm					Max Hol	d	
Log 30.0									Iviax 110	u	
20.0		and the second s	northeology of a line of the second states	ne-t-Ver-selender ^{de}	ngharbanad	(Min Hold	i	
0.00									Destant		
-10.0	man way wat where all	nan manage and							Restart M	lax Hold	
-30.0	And the spectrum and the spectrum and	AR A A A A A A A A A A A A A A A A A A				Williamapler	الا ¹ 44 مارسه الرسه الرسوم	line has been a			
-40.0 -50.0											
Center 3.8400		#	Video BW 8.00	000 MHz	I			an 225 MHz			
Res BW 2.200	00 MHz					Sw	eep 1.00 m	s (1001 pts)			
2 Metrics	▼										
Occu	upied Bandwidth	82 MHz		Total	Power		33.9 d	R			
Tran	smit Freq Error	-395.54 kH	7		OBW Powe	ər	99.00				
	Bandwidth	92.27 MF		x dB	OBWI OW	51	-26.00				
		Sep 21, 2023 5:27:04 PM									
		5:27:04 PM	$\mathbb{D} \triangle$								

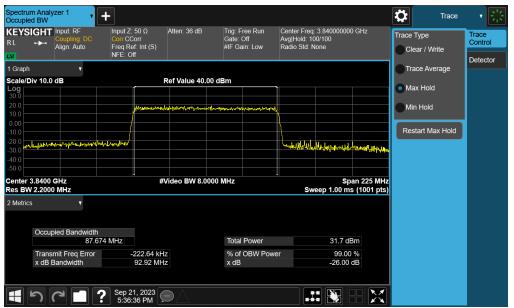
Plot 7-4. Occupied Bandwidth Plot (NR Band n77PC2 - 90MHz π/2 BPSK - Full RB - Ant1)

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Spectrur Occupie	d BW		+									Trace	- * 法
KEYS RL	IGHT ↔	Input: RF Coupling: DC Align: Auto	Freq Re	Corr ef: Int (S)	Atten: 36 dB	Gate:	ree Run Off ain: Low	Center Freq Avg Hold: 1 Radio Std: 1) GHz	Trace T Cle	īype ar / Write	Trace Control
LN 1 Graph	_	T	NFE: O	#							Tra	ce Average	Detector
Scale/D 30.0 20.0	oiv 10.0	dB		F	Ref Value 40.		dural dila da da				 Ma: Min 	K Hold	
10.0 0.00 -10.0 -20.0			mitheauther								Rest	art Max Hold	
-30.0 -40.0 -50.0	Nerden	ung laung ang ang ang ang ang ang ang ang ang a	nulukakensiko w					WM.Whythe	alandura	ldhidi bilini ad			
Center 3 Res BW				. #\	/ideo BW 8.0	000 MHz		Sw	Sp veep 1.00 ms	an 225 MHz s (1001 pts)			
2 Metrics		▼ bied Bandwic 87	ith 7.852 MHz			Total	Power		31.7 dE	3m			
		mit Freq Erro 3andwidth		.150.90 kHz 92.76 MHz		% of x dB	OBW Powe	er	99.00 -26.00				
	5		Sep 2 5:36:	1, 2023 27 PM	\Box								

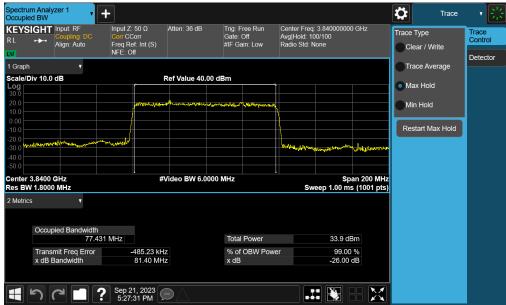
Plot 7-5. Occupied Bandwidth Plot (NR Band n77PC2 - 90MHz QPSK - Full RB - Ant1)



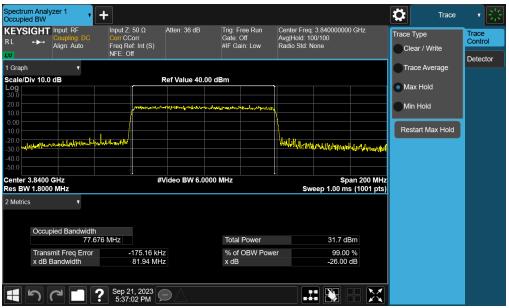
Plot 7-6. Occupied Bandwidth Plot (NR Band n77PC2 - 90MHz 16-QAM - Full RB - Ant1)

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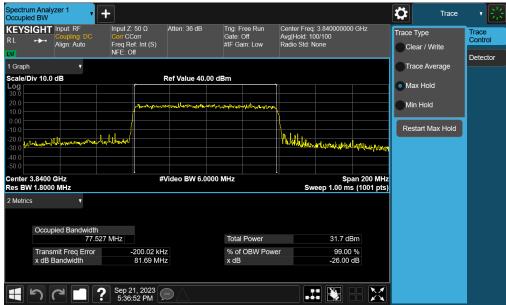
Plot 7-7. Occupied Bandwidth Plot (NR Band n77PC2 - 80MHz π/2 BPSK - Full RB - Ant1)



Plot 7-8. Occupied Bandwidth Plot (NR Band n77PC2 - 80MHz QPSK - Full RB - Ant1)

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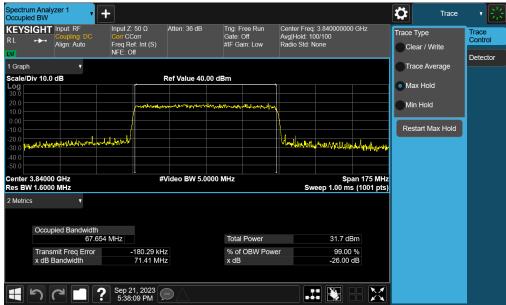
Plot 7-9. Occupied Bandwidth Plot (NR Band n77PC2 - 80MHz 16-QAM - Full RB - Ant1)

Spectrum Analyzer 1 Occupied BW KEYSIGHT Input: RF	+ Input Ζ: 50 Ω	Atten: 36 dB	Trig: Free Run	Center	Freq: 3.840000	0000 GHz	‡	Trace	• 崇
RL +++ Coupling: DC Align: Auto	Corr CCorr Freq Ref: Int (S) NFE: Off		Gate: Off #IF Gain: Low	Avg Ho	id: 100/100 Std: None		Trace Type Clear / Wri	te Co	ace ontrol
1 Graph v	_		_				Trace Aver	age	
Scale/Div 10.0 dB	R	ef Value 40.00 d	Bm				Max Hold		
20.0	Amerikation	พระพุษธรรษฐาติขอ _{าส} ารกระบบคว	and many when any when				Min Hold		
-10.0							Restart Max	K Hold	
-20.0 -30.0 -40.0 -50.0	And a start and a start			hale here	hologen and the state of the second se	han fall hills and a	u		
Center 3.84000 GHz Res BW 1.6000 MHz	! #Vi	ideo BW 5.0000	MHz			Span 175 MH: ms (1001 pts			
2 Metrics v									
Occupied Bandwidth 64.89	91 MHz		Total Power		33.7	7 dBm			
Transmit Freq Error x dB Bandwidth	-1.6546 MHz 68.14 MHz		% of OBW Pow x dB	wer		.00 % 00 dB			
	Sep 21, 2023 5:27:53 PM								

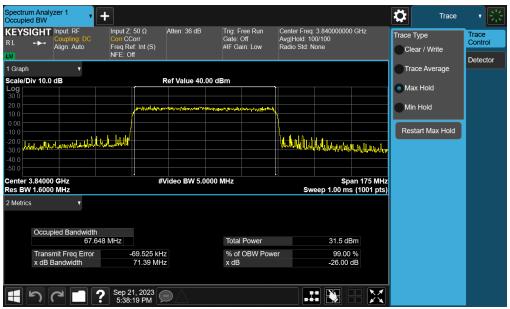
Plot 7-10. Occupied Bandwidth Plot (NR Band n77PC2 - 70MHz π/2 BPSK - Full RB - Ant1)

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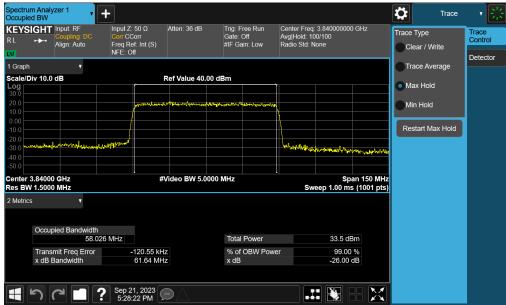
Plot 7-11. Occupied Bandwidth Plot (NR Band n77PC2 - 70MHz QPSK - Full RB - Ant1)



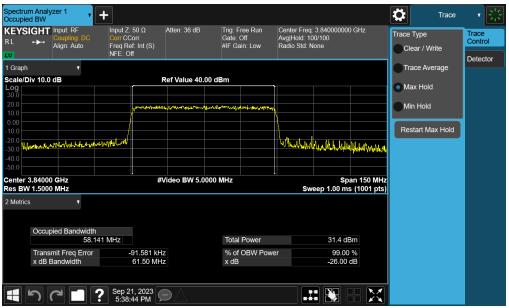
Plot 7-12. Occupied Bandwidth Plot (NR Band n77PC2 - 70MHz 16-QAM - Full RB - Ant1)

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Plot 7-13. Occupied Bandwidth Plot (NR Band n77PC2 - 60MHz π/2 BPSK - Full RB - Ant1)



Plot 7-14. Occupied Bandwidth Plot (NR Band n77PC2 - 60MHz QPSK - Full RB - Ant1)

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Occupie		+							\$	Trace	- * 👫
RL	IGHT Input: RF Coupling: DC Align: Auto	Input Z: 50 Ω Corr CCorr Freq Ref: Int (S) NFE: Off	Atten: 36 dB	Trig: Free Gate: Off #IF Gain: I	Ave	enter Freq: /g Hold: 10 adio Std: N		GHz	Trace Typ Clear	e / Write	Trace Control
1 Graph	•	NFE. UI							Trace	Average	Detector
Log 30.0	liv 10.0 dB		Ref Value 40.0	0 dBm					💿 Max H	lold	
20.0 10.0 0.00		moraly	MANNAN	unan and and a	malnum				Min H		
-10.0 -20.0 -30.0	an and the standard and a second	and as MNN 1			<u> </u>	when	ԱՈՐՈՒՐԵՐՆԱՆՈՐՆՈ	nuthbrandly	Restar	t Max Hold	
-40.0 -50.0	3.84000 GHz		#Video BW 5.00	000 MHz			Sn	an 150 MHz			
	/ 1.5000 MHz		#11020 011 3.00			Swe		(1001 pts)			
	Occupied Bandwidtl	h									
		032 MHz		Total Po	wer		31.4 dE	۶m			
	Transmit Freq Error x dB Bandwidth	-35.074 61.42 N		% of OB x dB	W Power		99.00 -26.00				
	500	Sep 21, 2023 5:38:34 PM	\odot								

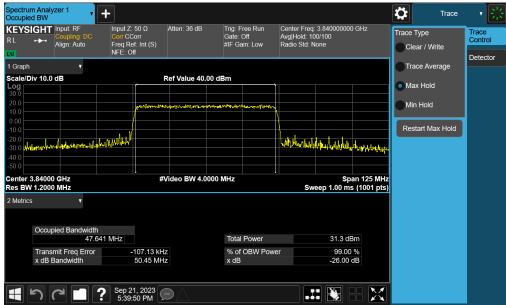
Plot 7-15. Occupied Bandwidth Plot (NR Band n77PC2 - 60MHz 16-QAM - Full RB - Ant1)



Plot 7-16. Occupied Bandwidth Plot (NR Band n77PC2 - 50MHz π/2 BPSK - Full RB - Ant1)

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Plot 7-17. Occupied Bandwidth Plot (NR Band n77PC2 - 50MHz QPSK - Full RB - Ant1)

Spectrum Analyzer 1 Occupied BW KEYSIGHT RL \leftarrow Coupling: DC Align: Auto		Atten: 36 dB	Trig: Free Run Gate: Off #IF Gain: Low	Center Freq: 3.840000000 0 Avg Hold: 100/100 Radio Std: None	ЭНz	Trace Type Clear / Write	Trace Control
1 Graph v Scale/Div 10.0 dB Log 20 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	all and a second s	Ref Value 40.00 d	IBm ৵Վմիդապետորեատենի	นาาของสนองชาวาต มีปลุปปลองรูกอย _{างก่} น	thymatratics	 Trace Average Max Hold Min Hold Restart Max Hold 	Detector
Center 3.84000 GHz Res BW 1.2000 MHz 2 Metrics v Occupied Bandwidth 47.643		fideo BW 4.0000	MHz Total Power	Spar Sweep 1.00 ms (31.3 dBn			
Transmit Freq Error x dB Bandwidth	-20.670 kHz 50.31 MHz Sep 21, 2023 5:39:59 PM		% of OBW Powe x dB	er 99.00 % -26.00 dE			

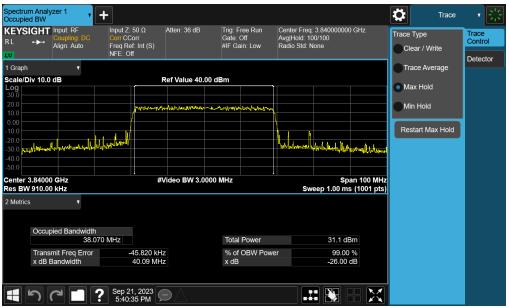
Plot 7-18. Occupied Bandwidth Plot (NR Band n77PC2 - 50MHz 16-QAM - Full RB - Ant1)

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Plot 7-19. Occupied Bandwidth Plot (NR Band n77PC2 - 40MHz π/2 BPSK - Full RB - Ant1)



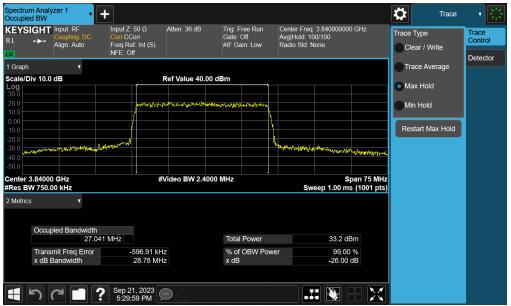
Plot 7-20. Occupied Bandwidth Plot (NR Band n77PC2 - 40MHz QPSK - Full RB - Ant1)

FCC ID: A3LSMA156U		PART 27 MEASUREMENT REPORT	Approved by: Technical Manager
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Occupie		•	+									Trace	· *
L KEYS	IGHT Input: I Coupli Align: J	ng: DC	Input Z: Corr CC Freq Re	orr f: Int (S)	Atten: 36 dB	Gate:	Free Run Off ain: Low	Center Freq Avg Hold: 1 Radio Std: 1) GHz	Trace ⁻ Cle	Type ear / Write	Trace Control
1 Graph		v	NFE: Of								Tra	ice Average	Detector
Scale/D Log 30.0	iv 10.0 dB				Ref Value 40.	00 dBm					• Ma	x Hold	
20.0 10.0				angengenege	in minhala men	৵[⋏]⋖⋶⋑⋳⋎⋕⋕ ⋏⋒ _⋑ ⋏⋳⋓	and markers the state				Mir	n Hold	
-10.0 -20.0	margarethan	dia Mort	Jul Para					when when	- with white da	Antone and	Res	tart Max Hold	
-40.0 -50.0									4				
	3.84000 GHz / 910.00 kHz			#	Video BW 3.0	000 MHz		Sw	Sp reep 1.00 ms	an 100 MHz s (1001 pts)			
2 Metrics	Occupied Ba		51 MHz			Tota	l Power		31.1 dE	am			
	Transmit Fre x dB Bandwi	q Error		40.335 kH 40.02 MH			OBW Pow	er	99.00 -26.00	%			
	って		? Sep 21 5:40:2	I, 2023 26 PM	\mathbb{D}								

Plot 7-21. Occupied Bandwidth Plot (NR Band n77PC2 - 40MHz 16-QAM - Full RB - Ant1)



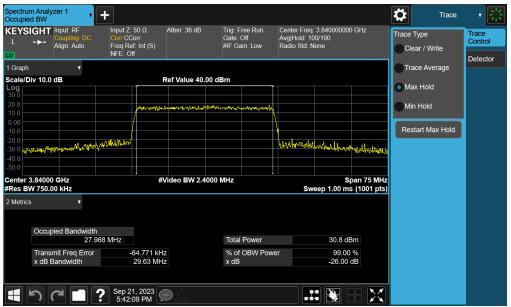
Plot 7-22. Occupied Bandwidth Plot (NR Band n77PC2 - 30MHz π/2 BPSK - Full RB - Ant1)

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Spectrum An Occupied BV	v *	+				Trace	- 7 影
RL +	Coupling: DC	Input Z: 50 Ω Corr CCorr Freq Ref: Int (S) NFE: Off	Atten: 36 dB	Trig: Free Run Gate: Off #IF Gain: Low	Center Freq: 3.840000000 GHz Avg Hold: 100/100 Radio Std: None	Trace Type Clear / Write	Trace Control
LXI 1 Graph		NFE. UII				Trace Average	Detector
Scale/Div 10 Log 30.0 20.0	0.0 dB		Ref Value 40.0			Max Hold	
10.0 0.00 -10.0 -20.0				hull-hall-hall-hall-hall-hall-hall-hall-		Restart Max Hold	
-30.0 -40.0 -50.0	www.www.www.	al Waller and an an			halabahalabahalabahalabahalabahalabahalabaha	ninda.	
Center 3.840 #Res BW 75			#Video BW 2.40	00 MHz	Span 75 Sweep 1.00 ms (100		
2 Metrics Occ	v cupied Bandwidtl			24.0			
	27. nsmit Freq Error B Bandwidth	963 MHz -32.406 H 29.65 M		Total Power % of OBW Pow x dB	31.1 dBm er 99.00 % -26.00 dB		
۲		Sep 21, 2023 5:42:01 PM	\Box			X	

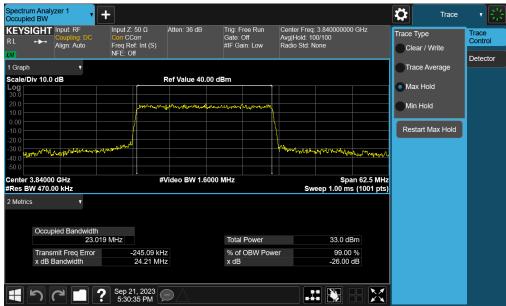
Plot 7-23. Occupied Bandwidth Plot (NR Band n77PC2 - 30MHz QPSK - Full RB - Ant1)



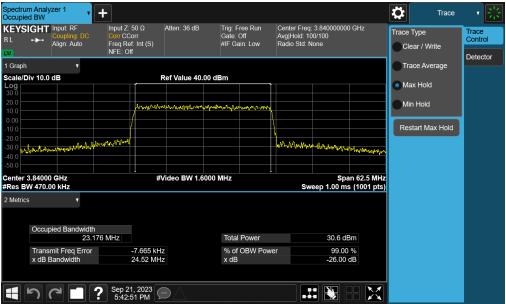
Plot 7-24. Occupied Bandwidth Plot (NR Band n77PC2 - 30MHz 16-QAM - Full RB - Ant1)

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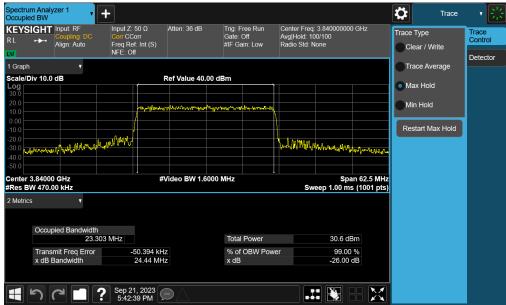
Plot 7-25. Occupied Bandwidth Plot (NR Band n77PC2 - 25MHz π/2 BPSK - Full RB - Ant1)



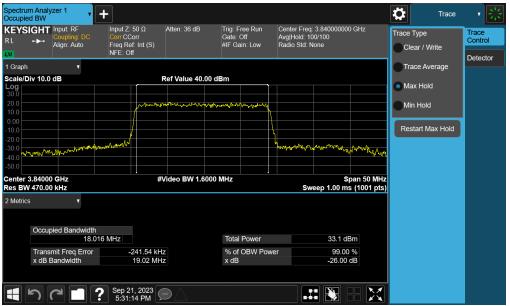
Plot 7-26. Occupied Bandwidth Plot (NR Band n77PC2 - 25MHz QPSK - Full RB - Ant1)

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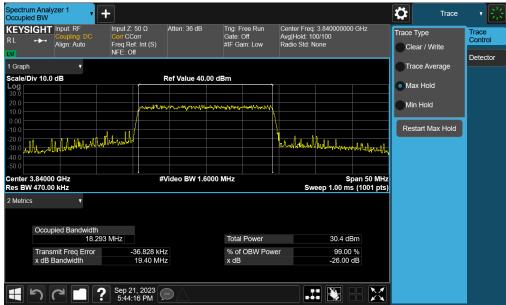
Plot 7-27. Occupied Bandwidth Plot (NR Band n77PC2 - 25MHz 16-QAM - Full RB - Ant1)



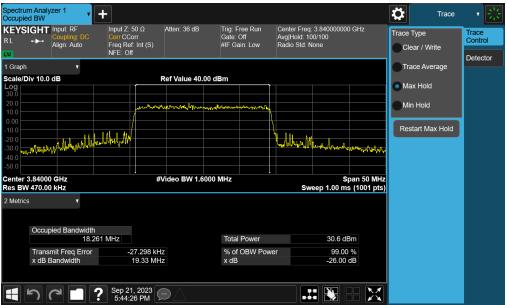
Plot 7-28. Occupied Bandwidth Plot (NR Band n77PC2 - 20MHz π/2 BPSK - Full RB - Ant1)

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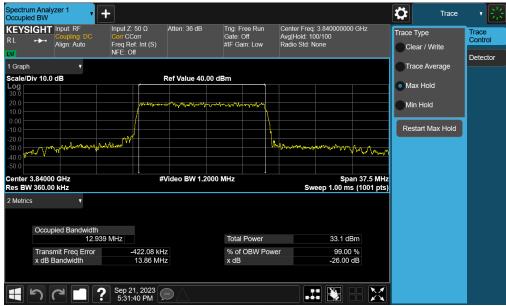
Plot 7-29. Occupied Bandwidth Plot (NR Band n77PC2 - 20MHz QPSK - Full RB - Ant1)



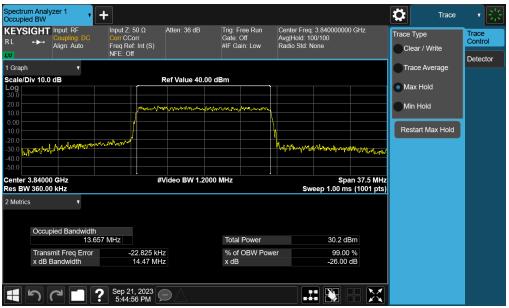
Plot 7-30. Occupied Bandwidth Plot (NR Band n77PC2 - 20MHz 16-QAM - Full RB - Ant1)

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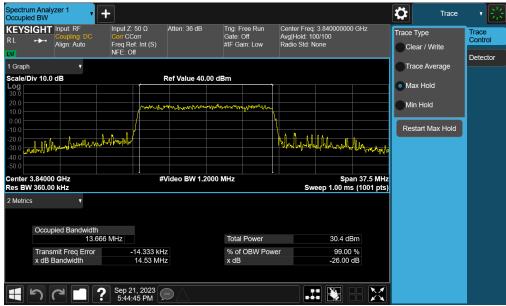
Plot 7-31. Occupied Bandwidth Plot (NR Band n77PC2 - 15MHz π/2 BPSK - Full RB - Ant1)



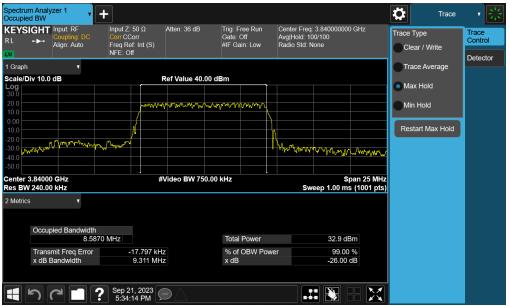
Plot 7-32. Occupied Bandwidth Plot (NR Band n77PC2 - 15MHz QPSK - Full RB - Ant1)

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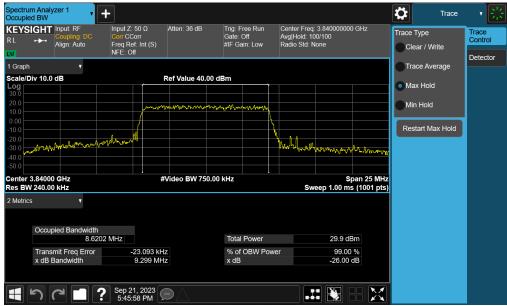
Plot 7-33. Occupied Bandwidth Plot (NR Band n77PC2 - 15MHz 16-QAM - Full RB - Ant1)



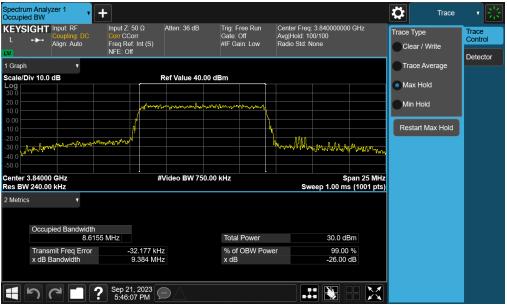
Plot 7-34. Occupied Bandwidth Plot (NR Band n77PC2 - 10MHz π/2 BPSK - Full RB - Ant1)

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Plot 7-35. Occupied Bandwidth Plot (NR Band n77PC2 - 10MHz QPSK - Full RB - Ant1)



Plot 7-36. Occupied Bandwidth Plot (NR Band n77PC2 - 10MHz 16-QAM - Full RB - Ant1)

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Mode	Bandwidth	Modulation	OBW [MHz]
		π/2 BPSK	96.53
	100MHz	QPSK	97.68
		16QAM	98.02
		π/2 BPSK	87.05
	90MHz	QPSK	87.67
		16QAM	87.71
		π/2 BPSK	77.28
	80MHz	QPSK	77.53
		16QAM	77.78
		π/2 BPSK	64.30
	70MHz	QPSK	67.86
		16QAM	67.61
		π/2 BPSK	57.89
	60MHz	QPSK	58.30
		16QAM	58.11
		π/2 BPSK	45.97
	50MHz	QPSK	47.69
NR-n77/78 PC2		16QAM	47.76
DoD		π/2 BPSK	35.91
	40MHz	QPSK	37.93
		16QAM	37.95
		π/2 BPSK	27.08
	30MHz	QPSK	27.93
		16QAM	27.94
		π/2 BPSK	23.00
	25MHz	QPSK	23.23
		16QAM	23.26
		π/2 BPSK	17.99
	20MHz	QPSK	18.28
		16QAM	18.41
		π/2 BPSK	12.99
	15MHz	QPSK	13.61
		16QAM	13.70
	4.01.4	π/2 BPSK	8.66
	10MHz	QPSK	8.65
		16QAM	8.62

Table 7-12. Occupied Bandwidth Test Results – Ant1

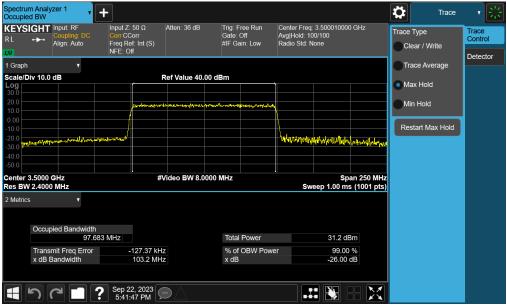
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NR Band n77PC2 DoD – Ant1

Spectrum Occupied	BW		+								₽	Trace	, j
	Coup	:: RF bling: DC :: Auto	Input Z: 50 Corr CCorr Freq Ref: In		n: 36 dB	Gate:	iree Run Off ain: Low	Center Freq Avg Hold: 10 Radio Std: N) GHz	Trace Type Clear / V	Vrite	Trace Control
LXI 1 Graph		•	NFE: Off								Trace Av	/erage	Detector
Scale/Div Log 30.0	/ 10.0 dB				/alue 40.0						Max Hol		
20.0 10.0 0.00				and many hour	∼~/ <mark>antiplani</mark> kan	ana yata di Jua A	********				Min Hold		
-10.0 -20.0 -30.0		Manadelington	and a stand					hummenter	and the state of t	~	Restart M		
-40.0 -50.0	5000 GHz			#Vide	o BW 8.00	00 MHz			Sp	an 250 MHz			
	2.4000 MHz	<u>z</u>						Sw	eep 1.00 ms				
C	Occupied E	Bandwidth											
		96.53	0 MHz			Total	Power		33.4 dE	3m			
	Transmit Fi x dB Bandv			1.84 kHz 2.2 MHz		% of x dB	OBW Powe	er	99.00 -26.00				
4	7 (2		Sep 22, 2 5:34:44	2023 PM 💬	\wedge			ļ					

Plot 7-37. Occupied Bandwidth Plot (NR Band n77PC2 DoD- 100MHz π/2 BPSK - Full RB - Ant1)



Plot 7-38. Occupied Bandwidth Plot (NR Band n77PC2 DoD- 100MHz QPSK - Full RB - Ant1)

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Spectrur Occupie	dBW		+									Trace	- * 法
KEYSI RL	IGHT ·≁·	Input: RF Coupling: DC Align: Auto	Freq Re	Corr ef: Int (S)	Atten: 36 dB	Gate:	ree Run Off ain: Low	Center Freq Avg Hold: 1 Radio Std: 1		0 GHz	Trace ⁻ Cle	Type ar / Write	Trace Control
LN 1 Graph		•	NFE: O								Tra	ice Average	Detector
Scale/D Log 30.0 20.0	iv 10.0	dB			Ref Value 40.							x Hold 1 Hold	
10.0 0.00 -10.0					4,2 ¹ 4-0,19,096,193,473,073,19	en al frank and a start a						tart Max Hold	
-20.0 -30.0 -40.0 -50.0	الإلىيين وسعدا	han affan yn yn de dydanen	Andrew Market					iiniindadh	htrakshikali _N y	hrhdlænluknar			
Center 3 Res BW				#\	/ideo BW 8.0	000 MHz		Sv		an 250 MHz s (1001 pts)			
2 Metrics		T											
	Occup	vied Bandwid 98	th .020 MHz			Total	Power		31.0 dl	Зm			
		mit Freq Erro 3andwidth	r -	194.45 kH; 103.2 MH;		% of x dB	OBW Powe	er	99.00 -26.00				
	う (2, 2023 57 PM									

Plot 7-39. Occupied Bandwidth Plot (NR Band n77PC2 DoD- 100MHz 16-QAM - Full RB - Ant1)

Spectrur Occupie KEYSI R L	d BW	zer 1 Input: RF Coupling: Align: Aut	DC	hput Z: Corr CC Freq Re NFE: Of	orr f: Int (S)	Atten: 36 dB	Ga	te: C	ee Run Off in: Low	Center F Avg Hold Radio St	d: 10		0 GHz	Trace Typ Clear		Trace Control
1 Graph		•												Trace	Average	Detector
Scale/D	iv 10.0	dB				Ref Value 40	.00 dBm							- · · ·		
Log 30.0														Max H	lold	
20.0					ليتوس والإولام الموتر	والعراس والمعاري والمحالي		n an						Min H	old	
0.00				(]						
-10.0				/										Restart	t Max Hold	
-30.0	اسر موادو _س مر	NITHONN	man	- and the second second						White was	e-de	phonorphoneth	and the second			
-40.0																
Center	3.5000 (GHz				/ideo BW 8.0	0000 MH	,				Sn	an 225 MHz			
Res BW											Sw		s (1001 pts)			
2 Metrics		•														
	Occup	ied Band														
				9 MHz					Power			33.3 dl				
		nit Freq E andwidth			466.33 kH 92.12 MH			of (dB	OBW Powe	er		99.00 -26.00				
		anannau					X	æ				20.00	48			
				0 0	0000	~ ^										
	າ (5:35:	2, 2023 34 PM											

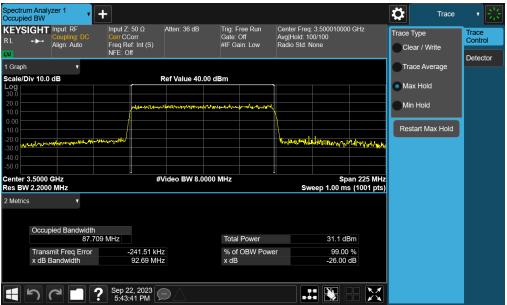
Plot 7-40. Occupied Bandwidth Plot (NR Band n77PC2 DoD- 90MHz π/2 BPSK - Full RB - Ant1)

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Spectrur Occupie	d BW		+									Trace	- * 法
RL		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 Freq Avg Hold: 1 Radio Std: 1) GHz	Trace T Clea	ype ar / Write	Trace Control
Lvi 1 Graph		*	NFE: Of								Trac	ce Average	Detector
Log 30.0 20.0	0iv 10.0 d				Ref Value 40.		an and a start				MaxMin	Hold Hold	
10.0 0.00 -10.0 -20.0	المرجر م	munut	anal-rate for the product					Wathant	nut Matalilarum	1 Juto A. M	Rest	art Max Hold	
-40.0													
	/ 2.2000			#\	/ideo BW 8.0	000 MHz		Sw	Sp veep 1.00 m	an 225 MHz s (1001 pts)			
2 Metrics		▼ ed Bandwidth 87.0	n 673 MHz			Total	Power		30.9 dI	3m			
		nit Freq Error andwidth		9.755 kHz 93.08 MHz		% of x dB	OBW Powe	er	99.00 -26.00				
	5		? Sep 22 5:43:	2, 2023 32 PM	\mathbf{D}								

Plot 7-41. Occupied Bandwidth Plot (NR Band n77PC2 DoD- 90MHz QPSK - Full RB - Ant1)



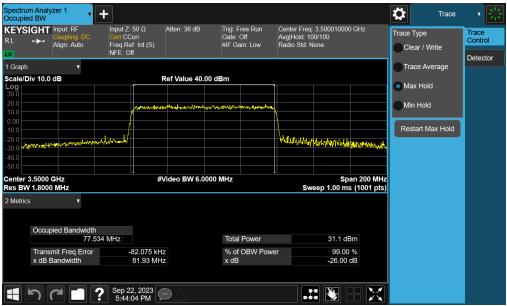
Plot 7-42. Occupied Bandwidth Plot (NR Band n77PC2 DoD- 90MHz 16-QAM - Full RB - Ant1)

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Öccup	rum Anal bied BW		+								₽	Trace	- 7 詳
KEY RL	SIGHT	Input: RF Coupling: DC Align: Auto	Freq Re	Corr ef: Int (S)	Atten: 36 dB Trig: Free Run Gate: Off #IF Gain: Low		Center Freq: 3.500010000 GHz Avg Hold: 100/100 Radio Std: None			Trace T Clea	ype ar / Write	Trace Control	
1 Gra	oh		NFE: O	off							Trac	ce Average	Detector
	/Div 10.0	dB		, F	Ref Value 40.0	00 dBm					 Max 		
30.0 20.0				purport	Marina ang ang ang ang ang ang ang ang ang a	ternant belantikustrand	and an and a star of the star					Hold	
0.00 -10.0											Rest	art Max Hold	
-40.0	ypeljangtimet (†	growthe way and the second	and a start					hannelle	- and the second s	and the second second			
	er 3.5000			#\	/ideo BW 6.00	000 MHz				an 200 MHz			
2 Metr	W 1.800 rics	U MHZ						SW	eep 1.00 m	s (1001 pts)			
	Occu	pied Bandwid 77	ith 7.276 MHz			Total	Power		33.2 df	3m			
		smit Freq Erro Bandwidth	Dr -	-329.91 kHz 81.63 MHz		% of x dB	OBW Pow	er	99.00 -26.00				
	5	2	Sep 2 5:36:	2, 2023 :00 PM				ļ.					

Plot 7-43. Occupied Bandwidth Plot (NR Band n77PC2 DoD- 80MHz π/2 BPSK - Full RB - Ant1)



Plot 7-44. Occupied Bandwidth Plot (NR Band n77PC2 DoD- 80MHz QPSK - Full RB - Ant1)

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Occupie		۲	+									Trace	- 7 法
KEYS RL	Align: Auto Freq Ref: Int		orr f: Int (S)	Gate:		ree Run Off in: Low	Off Avg Hold: 100/10) GHz	Trace T Clea	ype ar / Write	Trace Control	
1 Graph		•	NFE: O	ff								ce Average	Detector
	0iv 10.0 dB			,I	Ref Value 40.0	10 dBm		•			 Max 		
30.0 20.0				mann	monthermontree	manalense	aldauterten					Hold	
10.0 0.00											<u> </u>	art Max Hold	
-10.0 -20.0 -30.0	unkappin Mallocrean	May And Maria	tin theme					Patrillapines	actional physic	MULLANN	Resi		
-40.0 -50.0										1 a signadu			
	3.8400 GHz / 1.8000 MHz			. #	Video BW 6.00	000 MHz		ı Sw		an 200 MHz s (1001 pts)			
2 Metric	s	T											
	Occupied Ba	ndwidth											
	Occupied Ba		27 MHz			Total	Power		31.7 dl	3m			
	Transmit Free x dB Bandwid			200.02 kH 81.69 MH		% of x dB	OBW Pow	er	99.00 -26.00				
	って		? Sep 2 5:36:	1, 2023 52 PM									

Plot 7-45. Occupied Bandwidth Plot (NR Band n77PC2 DoD- 80MHz 16-QAM - Full RB - Ant1)

Occupie	Align: Auto Freq Ref: Int (S)				Corr ef: Int (S)	Atten: 36 dB	Gate: Off Avg Hd			Avg Hold: 10	nter Freq: 3.500010000 GHz gHold: 100/100 dio Std: None			Trace Type Clear / Write		
1 Graph		•											Trace A	verage	Detector	
Scale/D	iv 10.0 (dB				Ref Value 40	0.00 dBm						Max Ho	Id		
Log 30.0									+				Widx Ho	iu iu		
20.0					Alteratives	we want	-	helemen	ŀη				Min Hol	d		
0.00									4							
-10.0									t				Restart M	Max Hold		
-20.0	a free and a star	wannend	muy	and the state of the state						- Munhan	and the start	water a variable				
-40.0									+							
Center 3	50004	<u></u>				Video BW 5.	0000 MU-		ļ			pan 175 MHz				
Res BW					#	VIGEO BVV 5.				Sw		ns (1001 pts)				
2 Metrics	;	•														
	Occup	ied Band	width													
	oocup	ioa-Bana		01 MHz			Tot	al Power			32.9	dBm				
		nit Freq I		-	1.6946 MF			of OBW P	owe	۲		00 %				
	x dB B	andwidth	۱		68.26 MH	z	x d	В			-26.0	0 dB				
	う (7		Sep 2 5:36:	2, 2023 27 PM	$\square \triangle$										

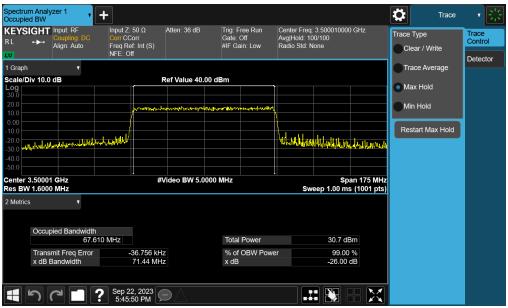
Plot 7-46. Occupied Bandwidth Plot (NR Band n77PC2 DoD- 70MHz π/2 BPSK - Full RB - Ant1)

FCC ID: A3LSMA156U		PART 27 MEASUREMENT REPORT					
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Occupie		+								\$	Trace	- 7 ※
L	KEYSIGHT Input: RF L →→ Coupling: DC Align: Auto Align: Auto NFE: Off		orr f: Int (S)	Gate: Off Av		Center Freq: 3.500010000 GHz Avg Hold: 100/100 Radio Std: None			Trace Ty Clea	rpe r / Write	Trace Control	
1 Graph	• Viv 10.0 dB	NFE: U		Value 40.00 d	Bm					Trac	e Average	Detector
Log 30.0 20.0				value 40.00 น		-				 Max Min I 		
10.0 0.00 -10.0 -20.0							4 Controller Lathered	mhhalmaa		Resta	rt Max Hold	
-30.0 444 -40.0 -50.0	and an							******************	litelihenellere			
	3.50001 GHz / 1.6000 MHz		#Vide	eo BW 5.0000	MHz		Sw	Spa veep 1.00 ms	an 175 MHz s (1001 pts)			
2 Metrics	Occupied Bandwid	th 2.856 MHz			Total	Power		30.9 dE	2			
	Transmit Freq Erro x dB Bandwidth	r	-3.586 kHz 71.42 MHz			OBW Powe	er	99.00 -26.00	%			
	500	? Sep 2 5:45:	2, 2023 43 PM	\triangle								

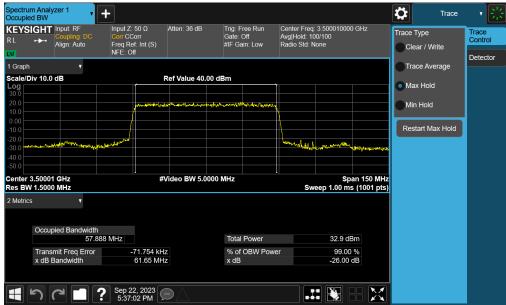
Plot 7-47. Occupied Bandwidth Plot (NR Band n77PC2 DoD- 70MHz QPSK - Full RB - Ant1)



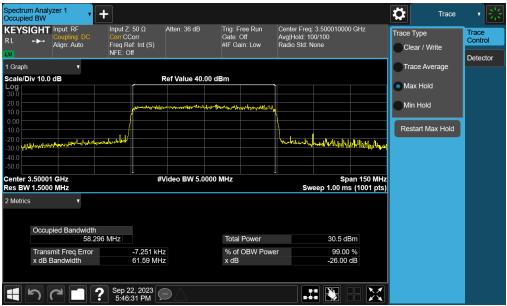
Plot 7-48. Occupied Bandwidth Plot (NR Band n77PC2 DoD- 70MHz 16-QAM - Full RB - Ant1)

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Plot 7-49. Occupied Bandwidth Plot (NR Band n77PC2 DoD- 60MHz π/2 BPSK - Full RB - Ant1)



Plot 7-50. Occupied Bandwidth Plot (NR Band n77PC2 DoD- 60MHz QPSK - Full RB - Ant1)

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Spectrur Occupie	d BW		+									Trace	- * 法
KEYS RL	Align: Auto Freq Ref: Int (orr f: Int (S)	Atten: 36 dB	Gate: Off Av		Avg Hold: 1	Center Freq: 3.500010000 GHz Avg Hold: 100/100 Radio Std: None			ype ar / Write	Trace Control	
LN 1 Graph		v	NFE: 01								Trac	e Average	Detector
Scale/D Log 30.0 20.0	0iv 10.0	dB			Ref Value 40.		un seis Mails.				 Max Min 	Hold Hold	
10.0 0.00 -10.0												art Max Hold	
-20.0 -30.0 ** -40.0 -50.0	hymrywyddfr	ninghar har dhirron	Nordand LN Ingerter/					AN BY LY AN	Union Shold	artaqoʻyoTalikobilya			
Center : Res BW				: #\	/ideo BW 5.0	000 MHz		Sw	Sp veep 1.00 m	an 150 MHz s (1001 pts)			
2 Metrics		▼ bied Bandwidt	h										
	Transi	58. mit Freq Error	107 MHz	24.561 kHz	z		Power OBW Powe	er	30.7 dE 99.00				
	x dB E	3andwidth		61.55 MHz	z	x dB			-26.00	dB			
	5			2, 2023 40 PM									

Plot 7-51. Occupied Bandwidth Plot (NR Band n77PC2 DoD- 60MHz 16-QAM - Full RB - Ant1)

Spectrum Analyzer 1				Trace	- 、 崇
KEYSIGHT Input RF Input Z: 50 Ω RL → Coupling DC Orr CCorr Align: Auto Freq Ref: Int (S) NFE: Off	Ga	ate: Off	Center Freq: 3.500010000 GHz Avg Hold: 100/100 Radio Std: None	Trace Type Clear / Write	Trace Control
1 Graph v				Trace Average	Detector
Scale/Div 10.0 dB	Ref Value 40.00 dBm	n		Max Hold	
	or Angle Warder and	unclingen angelende		Min Hold	
-10.0				Restart Max Hold	
-20.0 -30.0 -40.0			Malania and allographic and		
-50.0	Video BW 4.0000 MH		Span 125 MH		
Res BW 1.2000 MHz			Sweep 1.00 ms (1001 pts		
2 Metrics v					
Occupied Bandwidth 45.969 MHz	Т	Total Power	32.7 dBm		
Transmit Freq Error-972.32 kHx dB Bandwidth48.85 MH		% of OBW Power ‹ dB	99.00 % -26.00 dB		
5:37:28 PM					

Plot 7-52. Occupied Bandwidth Plot (NR Band n77PC2 DoD- 50MHz π/2 BPSK - Full RB - Ant1)

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Occupie		+							\$	Trace	- 7 法
RL	Align: Auto Freq Ref: Int (S)			Gate: Off		Center Freq: 3.500010000 GHz Avg[Hold: 100/100 Radio Std: None			Trace Type Clear / Write		Trace Control
LNI 1 Graph	•	NFE: Off							Trace	Average	Detector
Log 30.0	Div 10.0 dB		Ref Value 4	10.00 dBm					🔵 Max H	łold	
20.0 10.0 0.00		, an	๛ฃ๚๚๛ๅ๚๚๛๛๛๛๚๚๛๛๛๛	nthe manual and the	an a	{			Min H		
-10.0 -20.0 -30.0	water and the second	holimbulu				halistanist liter	tellulmander	444mA-ph l .He	Restar	t Max Hold	
-40.0	0.50001.011							405 Mill			
Res BW	3.50001 GHz / 1.2000 MHz		#Video BW 4	4.0000 MHZ		Sw		an 125 MHz s (1001 pts)			
2 Metrics	s v Occupied Bandwidth										
		686 MHz		Total	Power		30.6 dl	Зm			
	Transmit Freq Error x dB Bandwidth		511 kHz 41 MHz	% of x dB	OBW Powe	er	99.00 -26.00				
	500	Sep 22, 2 5:47:18 F									

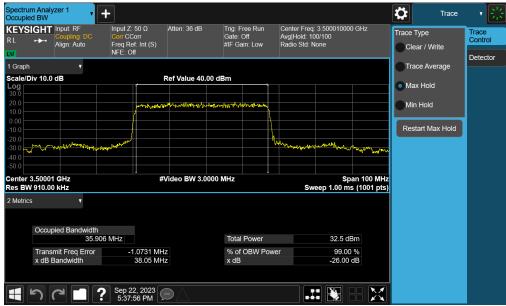
Plot 7-53. Occupied Bandwidth Plot (NR Band n77PC2 DoD- 50MHz QPSK - Full RB - Ant1)

Spectrum Analyzer 1 Occupied BW KEYSIGHT Input: RF RL + Coupling: DC Align: Auto	Hoput Z: 50 Ω Corr CCorr Freq Ref: Int (S)	Atten: 36 dB	Gate:	iree Run Off ain: Low	Center Freq Avg Hold: 10 Radio Std: N		GHz	Trace Type	Trace	Trace Control
1 Graph	NFE: Off							Trace Ave		Detector
Scale/Div 10.0 dB		Ref Value 40.0	0 dBm					Max Hold		
20.0 10.0 0.00	provide NM	ไห ระจะๆะไสารารสงานวิ	Managerthamo	ารรถใจจะที่เลงเจ				Min Hold		
-10.0 -20.0 -30.0 -40.0 -50.0	North Marine Ma				Lannidayio	r-windled, Lydad	wr.HWr.elur.st.e	Restart Ma	x Hold	
-50.00 Center 3.50001 GHz #Video BW 4.0000 MHz Span 125 MHz Res BW 1.2000 MHz Sweep 1.00 ms (1001 pts)										
2 Metrics v										
Occupied Bandwidth 47.75	6 MHz		Total	Power		30.6 dB	im			
Transmit Freq Error x dB Bandwidth	-55.581 kH 50.43 MH		% of x dB	OBW Powe	۲ ا	99.00 -26.00 c				
1 777	Sep 22, 2023 5:47:28 PM									

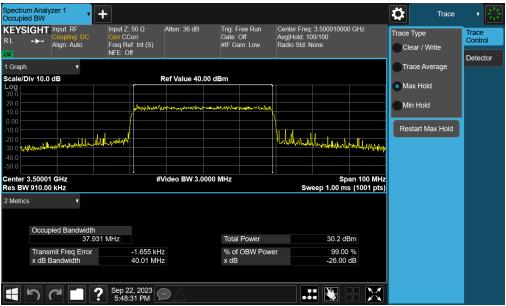
Plot 7-54. Occupied Bandwidth Plot (NR Band n77PC2 DoD- 50MHz 16-QAM - Full RB - Ant1)

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Plot 7-55. Occupied Bandwidth Plot (NR Band n77PC2 DoD- 40MHz π/2 BPSK - Full RB - Ant1)



Plot 7-56. Occupied Bandwidth Plot (NR Band n77PC2 DoD- 40MHz QPSK - Full RB - Ant1)

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