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PART 27 MEASUREMENT REPORT

Applicant Name:

Samsung Electronics Co., Ltd.
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Yeongtong-gu, Suwon-si
Gyeonggi-do, 16677, Korea

Date of Testing:

09/03/2024 – 11/24/2024

Test Report Issue Date:

12/04/2024

Test Site/Location:

Element Lab. Yongin-Si, Gyeonggi-do, South Korea

Test Report Serial No.:

1M2408260070-08.A3L

FCC ID:

A3LSMS938JPN

Applicant Name:

Samsung Electronics Co., Ltd.

Application Type:

Certification

Model:

SC-52F

Additional Model(s):

SCG32

EUT Type:

Portable Handset

FCC Classification:

PCS Licensed Transmitter Held to Ear (PCE)

FCC Rule Part:

27

Test Procedure(s):

ANSI C63.26-2015, KDB 648474 D03 v01r04

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

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

Prepared by

Reviewed by

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Antenna-F						
Mode	Bandwidth	Modulation	Tx Frequency Range [MHz]	EIRP		Emission Designator
				Max. Power [W]	Max. Power [dBm]	
LTE Band 41 (PC3)	20 MHz	QPSK	2506.0 - 2680.0	0.201	23.03	18M0G7D
		16QAM	2506.0 - 2680.0	0.152	21.81	18M1W7D
	15 MHz	QPSK	2503.5 - 2682.5	0.203	23.07	13M5G7D
		16QAM	2503.5 - 2682.5	0.143	21.56	13M5W7D
	10 MHz	QPSK	2501.0 - 2685.0	0.201	23.04	9M00G7D
		16QAM	2501.0 - 2685.0	0.143	21.55	9M02W7D
	5 MHz	QPSK	2498.5 - 2687.5	0.200	23.01	4M52G7D
		16QAM	2498.5 - 2687.5	0.136	21.34	4M52W7D

Antenna-B						
Mode	Bandwidth	Modulation	Tx Frequency Range [MHz]	EIRP		Emission Designator
				Max. Power [W]	Max. Power [dBm]	
LTE Band 41 (PC3)	20 MHz	QPSK	2506.0 - 2680.0	0.171	22.34	18M0G7D
		16QAM	2506.0 - 2680.0	0.143	21.55	18M0W7D
	15 MHz	QPSK	2503.5 - 2682.5	0.184	22.64	13M5G7D
		16QAM	2503.5 - 2682.5	0.127	21.04	13M5W7D
	10 MHz	QPSK	2501.0 - 2685.0	0.186	22.68	9M04G7D
		16QAM	2501.0 - 2685.0	0.131	21.16	9M01W7D
	5 MHz	QPSK	2498.5 - 2687.5	0.186	22.69	4M53G7D
		16QAM	2498.5 - 2687.5	0.155	21.90	4M54W7D

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Antenna-F						
Mode	Bandwidth	Modulation	Tx Frequency Range [MHz]	EIRP		Emission Designator
				Max. Power [W]	Max. Power [dBm]	
NR Band n41(PC2) Default	100 MHz	TT/2 BPSK	2546.0 - 2640.0	0.254	24.06	97M0G7D
		QPSK	2546.0 - 2640.0	0.215	23.33	98M1G7D
		16QAM	2546.0 - 2640.0	0.183	22.62	98M1W7D
	90 MHz	TT/2 BPSK	2541.0 - 2645.0	0.271	24.32	87M2G7D
		QPSK	2541.0 - 2645.0	0.228	23.58	88M0G7D
		16QAM	2541.0 - 2645.0	0.183	22.61	88M1W7D
	80 MHz	TT/2 BPSK	2536.0 - 2650.0	0.272	24.35	77M5G7D
		QPSK	2536.0 - 2650.0	0.242	23.84	77M9G7D
		16QAM	2536.0 - 2650.0	0.188	22.74	77M9W7D
	70 MHz	TT/2 BPSK	2531.0 - 2655.0	0.250	23.98	64M6G7D
		QPSK	2531.0 - 2655.0	0.230	23.61	67M7G7D
		16QAM	2531.0 - 2655.0	0.185	22.68	67M8W7D
	60 MHz	TT/2 BPSK	2526.0 - 2660.0	0.255	24.06	58M2G7D
		QPSK	2526.0 - 2660.0	0.214	23.30	58M2G7D
		16QAM	2526.0 - 2660.0	0.166	22.21	58M3W7D
	50 MHz	TT/2 BPSK	2521.0 - 2665.0	0.262	24.18	46M0G7D
		QPSK	2521.0 - 2665.0	0.232	23.65	47M8G7D
		16QAM	2521.0 - 2665.0	0.190	22.79	47M8W7D
	45 MHz	TT/2 BPSK	2518.5 - 2667.5	0.265	24.22	38M8G7D
		QPSK	2518.5 - 2667.5	0.207	23.16	42M7G7D
		16QAM	2518.5 - 2667.5	0.167	22.21	42M6W7D
	40 MHz	TT/2 BPSK	2516.0 - 2670.0	0.262	24.19	35M8G7D
		QPSK	2516.0 - 2670.0	0.209	23.20	38M1G7D
		16QAM	2516.0 - 2670.0	0.169	22.27	38M1W7D
	35 MHz	TT/2 BPSK	2513.5 - 2672.5	0.254	24.05	32M3G7D
		QPSK	2513.5 - 2672.5	0.221	23.44	33M0G7D
		16QAM	2513.5 - 2672.5	0.169	22.28	33M0W7D
	30 MHz	TT/2 BPSK	2511.0 - 2675.0	0.273	24.35	27M0G7D
		QPSK	2511.0 - 2675.0	0.238	23.76	28M0G7D
		16QAM	2511.0 - 2675.0	0.196	22.93	28M1W7D
	25 MHz	TT/2 BPSK	2508.5 - 2677.5	0.274	24.37	23M0G7D
		QPSK	2508.5 - 2677.5	0.239	23.78	23M4G7D
		16QAM	2508.5 - 2677.5	0.198	22.96	23M3W7D
	20 MHz	TT/2 BPSK	2506.0 - 2680.0	0.274	24.37	18M1G7D
		QPSK	2506.0 - 2680.0	0.248	23.94	18M3G7D
		16QAM	2506.0 - 2680.0	0.191	22.80	18M4W7D
	15 MHz	TT/2 BPSK	2550.0 - 2682.5	0.269	24.30	12M9G7D
		QPSK	2550.0 - 2682.5	0.209	23.20	13M6G7D
		16QAM	2550.0 - 2682.5	0.173	22.38	13M6W7D
	10 MHz	TT/2 BPSK	2545.0 - 2685.0	0.262	24.19	8M60G7D
		QPSK	2545.0 - 2685.0	0.204	23.10	8M63G7D
		16QAM	2545.0 - 2685.0	0.169	22.27	8M64W7D

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Antenna-B						
Mode	Bandwidth	Modulation	Tx Frequency Range [MHz]	EIRP		Emission Designator
				Max. Power [W]	Max. Power [dBm]	
NR Band n41(PC2) Switching	100 MHz	TT/2 BPSK	2546.0 - 2640.0	0.285	24.54	97M0G7D
		QPSK	2546.0 - 2640.0	0.289	24.61	97M9G7D
		16QAM	2546.0 - 2640.0	0.247	23.92	98M1W7D
	90 MHz	TT/2 BPSK	2541.0 - 2645.0	0.284	24.54	87M2G7D
		QPSK	2541.0 - 2645.0	0.252	24.02	87M9G7D
		16QAM	2541.0 - 2645.0	0.229	23.60	88M0W7D
	80 MHz	TT/2 BPSK	2536.0 - 2650.0	0.295	24.69	77M3G7D
		QPSK	2536.0 - 2650.0	0.271	24.33	77M8G7D
		16QAM	2536.0 - 2650.0	0.232	23.66	77M7W7D
	70 MHz	TT/2 BPSK	2531.0 - 2655.0	0.271	24.33	64M5G7D
		QPSK	2531.0 - 2655.0	0.282	24.50	67M7G7D
		16QAM	2531.0 - 2655.0	0.243	23.85	67M8W7D
	60 MHz	TT/2 BPSK	2526.0 - 2660.0	0.266	24.25	58M1G7D
		QPSK	2526.0 - 2660.0	0.226	23.55	58M2G7D
		16QAM	2526.0 - 2660.0	0.194	22.89	58M1W7D
	50 MHz	TT/2 BPSK	2521.0 - 2665.0	0.274	24.37	46M0G7D
		QPSK	2521.0 - 2665.0	0.264	24.22	47M7G7D
		16QAM	2521.0 - 2665.0	0.236	23.72	47M7W7D
	45 MHz	TT/2 BPSK	2518.5 - 2677.5	0.281	24.49	38M8G7D
		QPSK	2518.5 - 2677.5	0.278	24.45	42M6G7D
		16QAM	2518.5 - 2677.5	0.264	24.21	42M7W7D
	40 MHz	TT/2 BPSK	2516.0 - 2670.0	0.315	24.98	35M9G7D
		QPSK	2516.0 - 2670.0	0.291	24.64	38M0G7D
		16QAM	2516.0 - 2670.0	0.249	23.97	38M0W7D
	35 MHz	TT/2 BPSK	2513.5 - 2672.5	0.286	24.57	32M3G7D
		QPSK	2513.5 - 2672.5	0.273	24.36	32M9G7D
		16QAM	2513.5 - 2672.5	0.239	23.78	32M9W7D
	30 MHz	TT/2 BPSK	2511.0 - 2675.0	0.304	24.83	26M9G7D
		QPSK	2511.0 - 2675.0	0.326	25.14	28M0G7D
		16QAM	2511.0 - 2675.0	0.231	23.64	27M9W7D
	25 MHz	TT/2 BPSK	2508.5 - 2677.5	0.307	24.86	22M9G7D
		QPSK	2508.5 - 2677.5	0.276	24.41	23M3G7D
		16QAM	2508.5 - 2677.5	0.238	23.76	23M3W7D
	20 MHz	TT/2 BPSK	2506.0 - 2680.0	0.306	24.85	18M0G7D
		QPSK	2506.0 - 2680.0	0.277	24.42	18M3G7D
		16QAM	2506.0 - 2680.0	0.244	23.88	18M3W7D
	15 MHz	TT/2 BPSK	2503.5 - 2682.5	0.300	24.77	12M9G7D
		QPSK	2503.5 - 2682.5	0.279	24.46	13M5G7D
		16QAM	2503.5 - 2682.5	0.247	23.92	13M6W7D
	10 MHz	TT/2 BPSK	2501.0 - 2685.0	0.289	24.61	8M60G7D
		QPSK	2501.0 - 2685.0	0.271	24.33	8M58G7D
		16QAM	2501.0 - 2685.0	0.249	23.96	8M56W7D

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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 Suwon Laboratory located at 13, Heungdeok 1-ro, Giheung-gu, Yongin-si, Gyeonggi-do, 16954, South Korea. 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 Materials Technology Suwon, Ltd. located in Yongin-si, Gyeonggi-do, 16954, South Korea.

- Element Materials Technology Suwon, Ltd. is an ISO 17025-2017 accredited test facility under the American Association for Laboratory Accreditation(A2LA) with Certificate number 2041.04 for Specific Absorption Rate (SAR), and Electromagnetic Compatibility (EMC) & Telecommunications testing for FCC and Innovation, Science, and Economic Development Canada rules.
- Element Materials Technology Suwon, Ltd. facility is accredited, designated, and recognized in accordance with the provision of Radio Wave Act and International Standard ISO/IEC 17025:2017 under the National Radio Research Agency.
 - Designation Number / CABID: KR0169
 - Test Firm Registration Number of FCC: 417945
 - Test Firm Registration Number of ISED: 26168

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2.0 PRODUCT INFORMATION

2.1 Equipment Description

The Equipment Under Test (EUT) is the **Samsung Portable Handset FCC ID: A3LSMS938JPN**. 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.: 0340M, 0569M, 0096M, 0093M, 1005M, 1269M, 0459M, 0565M, 0487M, 1424M, 1438M, 0584M

2.2 Device Capabilities

This device contains the following capabilities:

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

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

2.3 Test Configuration

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

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

2.4 Software and Firmware

Testing was performed on device(s) using software/firmware version S938QOPU0AXJK 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:

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

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

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

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

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.

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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 ($\pm$ dB)
Conducted Bench Top Measurements	1.95
Radiated Disturbance (<1GHz)	4.10
Radiated Disturbance (>1GHz)	4.82
Radiated Disturbance (>18GHz)	4.96

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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
Agilent	N9030A	PXA Signal Analyzer	2024-07-08	Annual	2025-07-08	
Anritsu	S820E	Cable and Antenna Analyzer	2024-07-09	Annual	2025-07-08	1839097
Anritsu	MA24106A	USB Power Sensor	2024-07-09	Annual	2025-07-08	1244512
Anritsu	MT8000A	Radio Communication Test Station	2024-09-05	Annual	2025-09-04	6272337405
Com-Power	AL-130	9kHz - 30MHz Loop Antenna	2024-10-07	Biennial	2026-10-06	10160045
Espec	SH-242	Environmental Chamber	2024-07-09	Annual	2025-07-08	93011064
Fairview Microwave	FM2CP1122-10	2.92mm Directional Coupler	2024-07-09	Annual	2025-07-08	1946
Keysight Technologies	N9030B	PXA Signal Analyzer	2024-07-08	Annual	2025-07-08	MY57143278
Mini-Circuits	BW-N10W5+	Attenuator	2024-04-08	Annual	2025-04-07	TEMPNO.01-151
Mini-Circuits	BW-N10W5+	Attenuator	2024-04-08	Annual	2025-04-07	TEMPNO.01-150
NARDA	180-442A-KF	Horn Antenna (small)	2024-01-16	Annual	2025-01-15	T058701-03
Rohde & Schwarz	SMB100A03	Signal Generator	2024-01-11	Annual	2025-01-10	182487
Rohde & Schwarz	CMW500	Wideband Radio Communication Tester	2024-01-11	Annual	2025-01-10	171075
Rohde & Schwarz	FSW43	Signal and Spectrum Analyzer	2024-01-11	Annual	2025-01-10	101955
Rohde & Schwarz	SFUNIT-Rx	Shielded Filter Unit	2024-01-11	Annual	2025-01-10	102131
Schwarzbeck	VULB9162	Broadband TRILOG Antenna	2023-06-01	Biennial	2025-05-31	9162-217
Sunol	DRH-118	Horn Antenna	2023-01-26	Biennial	2025-01-25	A060215

Table 5-1. Test Equipment

Notes:

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.

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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: A3LSMS938JPN
 FCC Classification: PCS Licensed Transmitter Held to Ear (PCE)
 Mode(s): LTE/NR

Test Condition	Test Description	FCC Part Section(s)	Test Limit	Test Result	Reference
CONDUCTED	Transmitter Conducted Output Power*	2.1046(a), 2.1046(c)	N/A	PASS	Section 7.2
	Occupied Bandwidth	2.1049(h)	N/A	PASS	Section 7.3
	Conducted Band Edge / Spurious Emissions (LTE Band 41; NR Band n41)	2.1051, 27.53(m)(4)	Undesirable emissions must meet the limits detailed in 27.53(m)(4)	PASS	Sections 7.4, 7.5
	Frequency Stability	2.1055, 27.54	Fundamental emissions stay within authorized frequency block	PASS	Section 7.8
RADIATED	Equivalent Isotropic Radiated Power (LTE Band 41; NR Band n41)	27.50(h)(2)	≤ 2 Watts max. EIRP	PASS	Section 7.6
	Radiated Spurious Emissions (LTE Band 41; NR Band n41)	2.1053, 27.53(m)	Undesirable emissions must meet the limits detailed in 27.53(m)	PASS	Section 7.7

* 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.
4. 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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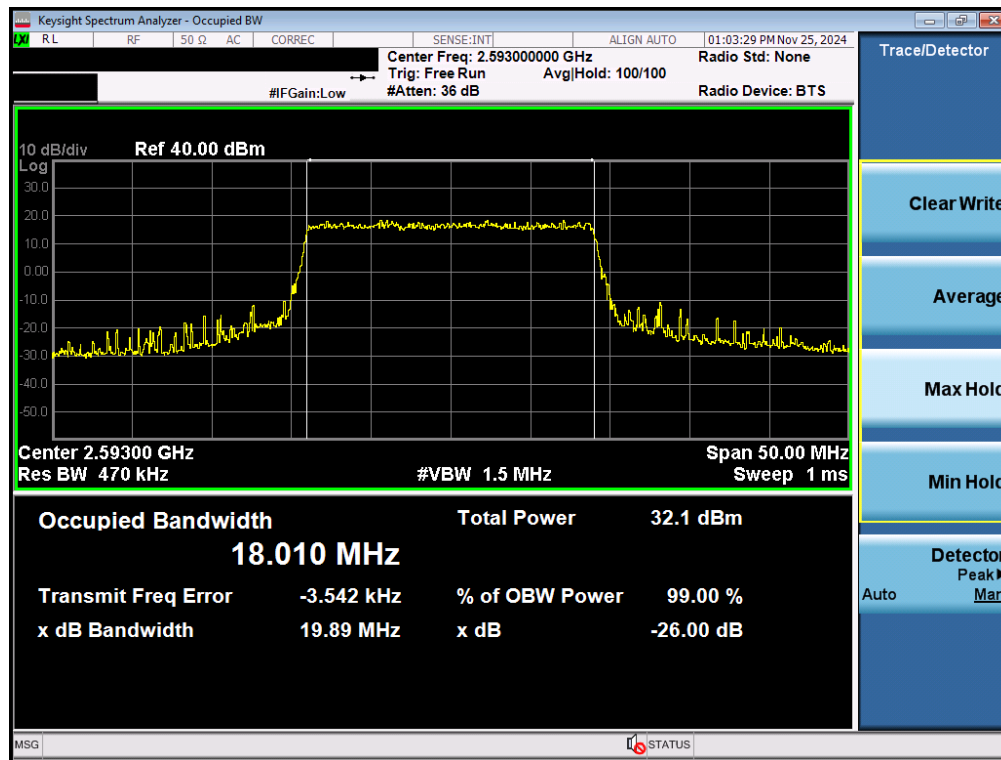
5. Data was leveraged from model SM-S938U for the certification of SC-52F. See Table 7-2 for spotcheck results.

FCC Rules	Test Item	Test Case	Units	Limit	Reference Model: SM-S938U	Variant Model: SC-52F	Deviation (dB)	Max Deviation (dB)	Pass/Fail
27	Conducted Output Power	High Ch., 20MHz, QPSK, Ant B	dBm	N/A	24.53	24.21	-0.32	1	PASS
	Occupied Bandwidth	High Ch., 20MHz, QPSK, Ant B	dBm	8	18.044	18.01	-	N/A	PASS
	EIRP	High Ch., 20MHz, QPSK, Ant B	dBm	33.01	22.34	22.57	0.23	3	PASS
	RSE	Mid Ch., 20MHz, 5186MHz, Ant B	dBm	-25	-61.54	-61.87	-0.33	3	PASS

Table 7-2. Summary of Spot-checks

Modulation	Channel	Frequency [MHz]	RB Size/Offset	Conducted Power [dBm]
QPSK	41490	2680.0	1 / 50	24.21

Table 7-3. Conducted Power Measurement (Spot-check)



Plot 7-1. Occupied Bandwidth Plot (Spot-check)

Bandwidth	Mod.	Frequency [MHz]	Ant. Pol. [H/V]	EUT Pol.	Antenna Height [cm]	Turntable Azimuth [degree]	Ant. Gain [dBi]	RB Size/Offset	Substitute Level [dBm]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
2	QPSK	2680.0	H	X	111	153	9.53	1 / 50	13.04	22.57	0.181	33.01	-10.44

Table 7-4. EIRP Measurement (Spot-check)

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Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
5186.00	H	-	-	-75.84	2.23	33.39	-61.87	-25.00	-36.87

Table 7-5. Radiated Spurious Measurement (Spot-check)

1. Each spot check test on the EUT was performed using the same procedure and setting that were used to perform the test on the corresponding reference device.
2. All test cases were performed to verify the variant EUT is still in compliance with the spot checked results to the reference device and was performed using the guidance of ANSI C63.26-2015.

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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.

A-MPR is implemented in this device when operating at Power Class 2 in LTE Band 41 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 Procedure Used

ANSI C63.26-2015 – Section 5.2

Test Settings

1. Span = 2 x OBW to 3 x 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.

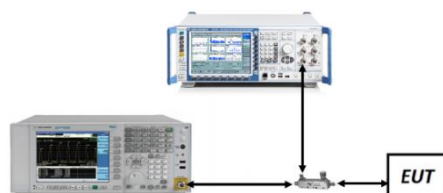


Figure 7-1. Test Instrument & Measurement Setup

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]
20 MHz	QPSK	39750	2506.0	1 / 0	24.93
		40620	2593.0	1 / 0	24.97
		41490	2680.0	1 / 99	24.90
	16-QAM	39750	2506.0	1 / 0	24.23
15 MHz	QPSK	39725	2503.5	1 / 74	24.97
		40620	2593.0	1 / 74	24.97
		41515	2682.5	1 / 74	24.99
	16-QAM	41515	2682.5	1 / 74	24.37
10 MHz	QPSK	39700	2501.0	1 / 25	24.94
		40620	2593.0	1 / 25	24.92
		41540	2685.0	1 / 25	24.99
	16-QAM	39700	2501.0	1 / 25	23.97
5 MHz	QPSK	39675	2498.5	1 / 12	24.91
		40620	2593.0	1 / 0	24.98
		41565	2687.5	1 / 12	24.95
	16-QAM	41565	2687.5	1 / 12	23.85

Table 7-2. Conducted Power Data (LTE Band 41(PC3) – Ant F)

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Bandwidth	Modulation	Channel	Frequency [MHz]	RB Size/Offset	Conducted Power [dBm]
100 MHz	π/2 BPSK	509202	2546.01	1 / 271	26.48
		518598	2592.99	1 / 136	26.67
		528000	2640.00	1 / 1	26.40
	QPSK	509202	2546.01	1 / 271	25.69
		518598	2592.99	1 / 136	25.88
		528000	2640.00	1 / 1	25.53
90 MHz	π/2 BPSK	509202	2546.01	1 / 271	25.27
		508200	2541.00	1 / 243	26.97
		518598	2592.99	1 / 122	26.52
	QPSK	528996	2644.98	1 / 1	26.39
		508200	2541.00	1 / 243	26.23
		518598	2592.99	1 / 122	25.63
80 MHz	π/2 BPSK	528996	2644.98	1 / 1	25.19
		508200	2541.00	1 / 243	25.54
		507204	2536.02	1 / 215	26.99
	QPSK	518598	2592.99	1 / 1	26.89
		529998	2649.99	216 / 0	26.36
		507204	2536.02	1 / 215	26.49
70 MHz	π/2 BPSK	518598	2592.99	1 / 1	26.03
		529998	2649.99	1 / 108	24.95
		507204	2536.02	1 / 215	25.67
	QPSK	506202	2531.01	1 / 187	26.62
		518598	2592.99	1 / 94	26.59
		531000	2655.00	1 / 94	26.43
60 MHz	π/2 BPSK	506202	2531.01	1 / 187	26.25
		518598	2592.99	1 / 94	25.69
		531000	2655.00	1 / 94	24.71
	QPSK	506202	2531.01	1 / 187	25.60
		505200	2526.00	1 / 160	26.67
		518598	2592.99	1 / 81	26.67
50 MHz	π/2 BPSK	531996	2659.98	1 / 81	26.03
		505200	2526.00	1 / 160	25.94
		518598	2592.99	1 / 81	25.57
	QPSK	531996	2659.98	1 / 81	25.03
		505200	2526.00	1 / 160	25.11
		504204	2521.02	1 / 131	26.39
45 MHz	π/2 BPSK	518598	2592.99	1 / 1	26.80
		532998	2664.99	1 / 66	26.02
		504204	2521.02	1 / 131	25.63
	QPSK	518598	2592.99	1 / 1	26.20
		532998	2664.99	1 / 66	25.08
		518598	2592.99	1 / 1	25.39
40 MHz	π/2 BPSK	503700	2518.50	1 / 104	26.13
		518598	2592.99	1 / 53	26.84
		533496	2667.50	1 / 53	26.60
	QPSK	503700	2518.50	1 / 104	25.19
		518598	2592.99	1 / 53	25.71
		533496	2667.50	1 / 53	25.45
35 MHz	π/2 BPSK	518598	2592.99	1 / 53	24.82
		503202	2516.01	1 / 104	26.09
		518598	2592.99	1 / 53	26.80
	QPSK	534000	2670.00	1 / 53	26.24
		503202	2516.01	1 / 104	24.94
		518598	2592.99	1 / 53	25.76
30 MHz	π/2 BPSK	534000	2670.00	1 / 53	25.21
		518598	2592.99	1 / 53	24.87
		502704	2513.52	1 / 39	26.49
	QPSK	518598	2592.99	1 / 1	26.66
		534498	2672.49	1 / 1	26.33
		502704	2513.52	1 / 39	25.54
25 MHz	π/2 BPSK	518598	2592.99	1 / 39	25.99
		534498	2672.49	1 / 1	25.07
		518598	2592.99	1 / 39	24.88
	QPSK	502200	2511.00	1 / 39	26.26
		518598	2592.99	1 / 1	26.97
		534996	2674.98	1 / 1	26.81
20 MHz	π/2 BPSK	502200	2511.00	1 / 39	24.74
		518598	2592.99	1 / 1	26.32
		534996	2674.98	1 / 1	25.46
	QPSK	518598	2592.99	1 / 1	25.53
		501702	2508.51	1 / 25	26.45
		518598	2592.99	1 / 1	26.99
15 MHz	π/2 BPSK	535500	2677.50	1 / 1	26.62
		501702	2508.51	1 / 25	25.29
		518598	2592.99	1 / 1	26.34
	QPSK	535500	2677.50	1 / 1	25.30
		518598	2592.99	1 / 1	25.56
		501204	2506.02	1 / 25	26.10
10 MHz	π/2 BPSK	518598	2592.99	1 / 1	26.98
		535998	2679.99	1 / 1	26.05
		501204	2506.02	1 / 25	25.11
	QPSK	518598	2592.99	1 / 1	26.50
		535998	2679.99	1 / 1	25.01
		518598	2592.99	1 / 1	25.41
10 MHz	π/2 BPSK	501204	2506.02	1 / 49	26.35
		518598	2592.99	1 / 1	26.91
		535998	2679.99	1 / 1	26.33
	QPSK	501204	2506.02	1 / 18	25.13
		518598	2592.99	1 / 1	25.76
		535998	2679.99	1 / 18	25.07
10 MHz	π/2 BPSK	518598	2592.99	1 / 1	24.98
		501204	2506.02	1 / 49	26.05
		518598	2592.99	1 / 1	26.80
	QPSK	535998	2679.99	1 / 1	26.01
		501204	2506.02	1 / 49	24.65
		518598	2592.99	1 / 25	25.66
10 MHz	π/2 BPSK	535998	2679.99	1 / 1	24.44
		518598	2592.99	1 / 25	24.88

Table 7-3. Conducted Power Data (NR Band n41 – Default – Ant F)

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Bandwidth	Modulation	Channel	Frequency [MHz]	RB Size/Offset	Conducted Power [dBm]
100 MHz	π/2 BPSK	509202	2546.01	270 / 0	26.23
		518598	2592.99	270 / 0	26.35
		528000	2640.00	270 / 0	26.35
	QPSK	509202	2546.01	270 / 0	25.80
		518598	2592.99	270 / 0	26.19
		528000	2640.00	270 / 0	26.20
	16-QAM	518598	2592.99	270 / 0	25.21
90 MHz	π/2 BPSK	506200	2541.00	243 / 0	26.14
		518598	2592.99	243 / 0	26.31
		528996	2644.98	243 / 0	26.34
	QPSK	506200	2541.00	1 / 122	25.99
		518598	2592.99	1 / 1	26.09
		528996	2644.98	243 / 0	25.61
	16-QAM	506200	2541.00	1 / 122	25.27
80 MHz	π/2 BPSK	507204	2536.02	216 / 0	26.32
		518598	2592.99	216 / 0	26.42
		529998	2649.99	216 / 0	26.50
	QPSK	507204	2536.02	216 / 0	25.69
		518598	2592.99	1 / 1	26.24
		529998	2649.99	216 / 0	25.92
	16-QAM	518598	2592.99	1 / 1	25.04
70 MHz	π/2 BPSK	506202	2531.01	180 / 0	26.15
		518598	2592.99	180 / 0	26.37
		531000	2655.00	180 / 0	26.13
	QPSK	506202	2531.01	180 / 0	25.69
		518598	2592.99	180 / 0	25.92
		531000	2655.00	180 / 0	26.09
	16-QAM	531000	2655.00	180 / 0	25.05
60 MHz	π/2 BPSK	505200	2526.00	1 / 160	26.47
		518598	2592.99	162 / 0	26.37
		531996	2659.98	162 / 0	26.05
	QPSK	505200	2526.00	1 / 160	25.69
		518598	2592.99	162 / 0	25.78
		531996	2659.98	162 / 0	25.14
	16-QAM	518598	2592.99	162 / 0	24.75
50 MHz	π/2 BPSK	504204	2521.02	128 / 0	26.03
		518598	2592.99	128 / 0	26.58
		532998	2664.99	128 / 0	26.18
	QPSK	504204	2521.02	1 / 131	25.83
		518598	2592.99	128 / 0	25.97
		532998	2664.99	128 / 0	25.81
	16-QAM	504204	2521.02	1 / 131	24.94
45 MHz	π/2 BPSK	503700	2518.50	1 / 53	26.30
		518598	2592.99	1 / 104	26.72
		533496	2667.50	1 / 53	26.30
	QPSK	503700	2518.50	1 / 53	26.16
		518598	2592.99	1 / 104	26.08
		533496	2667.50	100 / 0	26.04
	16-QAM	533496	2667.50	100 / 0	25.41
40 MHz	π/2 BPSK	503202	2516.01	100 / 0	26.31
		518598	2592.99	100 / 0	26.82
		534000	2670.00	100 / 0	26.79
	QPSK	503202	2516.01	1 / 104	25.98
		518598	2592.99	100 / 0	26.20
		534000	2670.00	100 / 0	26.23
	16-QAM	503202	2516.01	1 / 104	25.40
35 MHz	π/2 BPSK	502704	2513.52	1 / 39	26.01
		518598	2592.99	1 / 76	26.35
		534498	2672.49	1 / 1	26.38
	QPSK	502704	2513.52	1 / 39	25.75
		518598	2592.99	1 / 76	25.86
		534498	2672.49	1 / 1	25.95
	16-QAM	534498	2672.49	1 / 1	24.98
30 MHz	π/2 BPSK	502200	2511.00	75 / 0	26.06
		518598	2592.99	75 / 0	26.62
		534996	2674.98	75 / 0	26.63
	QPSK	502200	2511.00	75 / 0	25.40
		518598	2592.99	75 / 0	26.26
		534996	2674.98	75 / 0	26.73
	16-QAM	518598	2592.99	75 / 0	25.24
25 MHz	π/2 BPSK	501702	2508.51	1 / 25	26.07
		518598	2592.99	1 / 49	26.79
		535500	2677.50	1 / 25	26.67
	QPSK	501702	2508.51	1 / 25	25.66
		518598	2592.99	1 / 49	26.04
		535500	2677.50	1 / 25	26.00
	16-QAM	518598	2592.99	1 / 49	25.16
20 MHz	π/2 BPSK	501204	2506.02	50 / 0	26.03
		518598	2592.99	50 / 0	26.64
		535998	2679.99	50 / 0	26.66
	QPSK	501204	2506.02	50 / 0	25.58
		518598	2592.99	50 / 0	26.00
		535998	2679.99	50 / 0	26.01
	16-QAM	518598	2592.99	50 / 0	25.19
15 MHz	π/2 BPSK	501204	2506.02	50 / 0	26.02
		518598	2592.99	50 / 0	26.73
		535998	2679.99	50 / 0	26.58
	QPSK	501204	2506.02	1 / 18	25.96
		518598	2592.99	50 / 0	26.33
		535998	2679.99	1 / 18	26.05
	16-QAM	518598	2592.99	50 / 0	25.14
10 MHz	π/2 BPSK	501204	2506.02	50 / 0	26.13
		518598	2592.99	1 / 1	26.75
		535998	2679.99	50 / 0	26.42
	QPSK	501204	2506.02	1 / 1	25.60
		518598	2592.99	50 / 0	26.26
		535998	2679.99	1 / 1	25.92
	16-QAM	535998	2679.99	50 / 0	25.17

Table 7-4. Conducted Power Data (NR Band n41 – Switching – Ant B)

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Power State	Band	Bandwidth (PCC + SCC)	PCC					SCC					ULCA Tx. Power [dBm]
			Modulation	UL Channel	UL Frequency	UL # RB	UL RB Offset	Modulation	UL Channel	UL Frequency	UL # RB	UL RB Offset	
Max	LTE B41 (PC3)	20MHz + 20MHz	QPSK	41490	2680.0	1	0	QPSK	41292	2660.2	1	99	23.24
			QPSK	39750	2506	100	0	QPSK	39948	2525.8	100	0	21.67
			16-QAM	39750	2506	100	0	16-QAM	39948	2525.8	100	0	20.52
			64-QAM	39750	2506	100	0	64-QAM	39948	2525.8	100	0	20.48
			256-QAM	39750	2506	100	0	256-QAM	39948	2525.8	100	0	18.92

Table 7-5. Conducted Power Data (LTE Band 41(PC3) – Ant F)

Power State	Band	Bandwidth (PCC + SCC)	PCC					SCC					ULCA Tx. Power [dBm]
			Modulation	UL Channel	UL Frequency	UL # RB	UL RB Offset	Modulation	UL Channel	UL Frequency	UL # RB	UL RB Offset	
Max	LTE B41 (PC3)	20MHz + 20MHz	QPSK	41490	2680.0	1	0	QPSK	41292	2660.2	1	99	23.24
			QPSK	39750	2506	100	0	QPSK	39948	2525.8	100	0	21.67
			16-QAM	39750	2506	100	0	16-QAM	39948	2525.8	100	0	20.52
			64-QAM	39750	2506	100	0	64-QAM	39948	2525.8	100	0	20.48
			256-QAM	39750	2506	100	0	256-QAM	39948	2525.8	100	0	18.92

Table 7-6. Conducted Power Data (LTE Band 41(PC3) – Ant B)

FCC ID: A3LSMS938JPN	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2408260070-08.A3L	Test Dates: 09/03/2024 – 11/24/2024	EUT Type: Portable Handset	Page 19 of 132

7.3 Occupied Bandwidth

Test Overview

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

Test Procedure Used

ANSI C63.26-2015 – Section 5.4.4

Test Settings

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

Test Setup

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

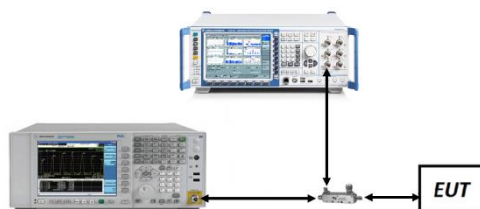


Figure 7-2. Test Instrument & Measurement Setup

Test Notes

None.

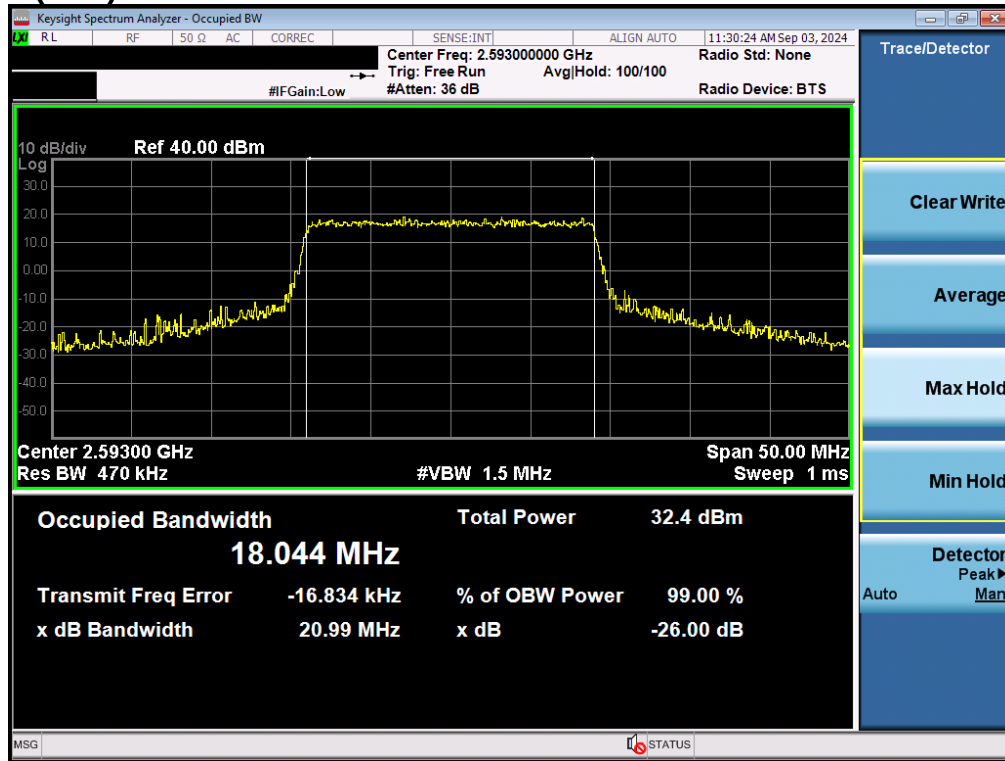
FCC ID: A3LSMS938JPN	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2408260070-08.A3L	Test Dates: 09/03/2024 – 11/24/2024	EUT Type: Portable Handset	Page 20 of 132

Mode	Bandwidth	Modulation	OBW [MHz]
LTE-B41PC3	20MHz	QPSK	18.04
		16QAM	18.02
	15MHz	QPSK	13.54
		16QAM	13.52
	10MHz	QPSK	9.04
		16QAM	9.01
	5MHz	QPSK	4.53
		16QAM	4.54

Table 7-6. Occupied Bandwidth Test Results – LTE – Ant B

FCC ID: A3LSMS938JPN	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2408260070-08.A3L	Test Dates: 09/03/2024 – 11/24/2024	EUT Type: Portable Handset	Page 21 of 132

LTE Band 41(PC3) – Ant B

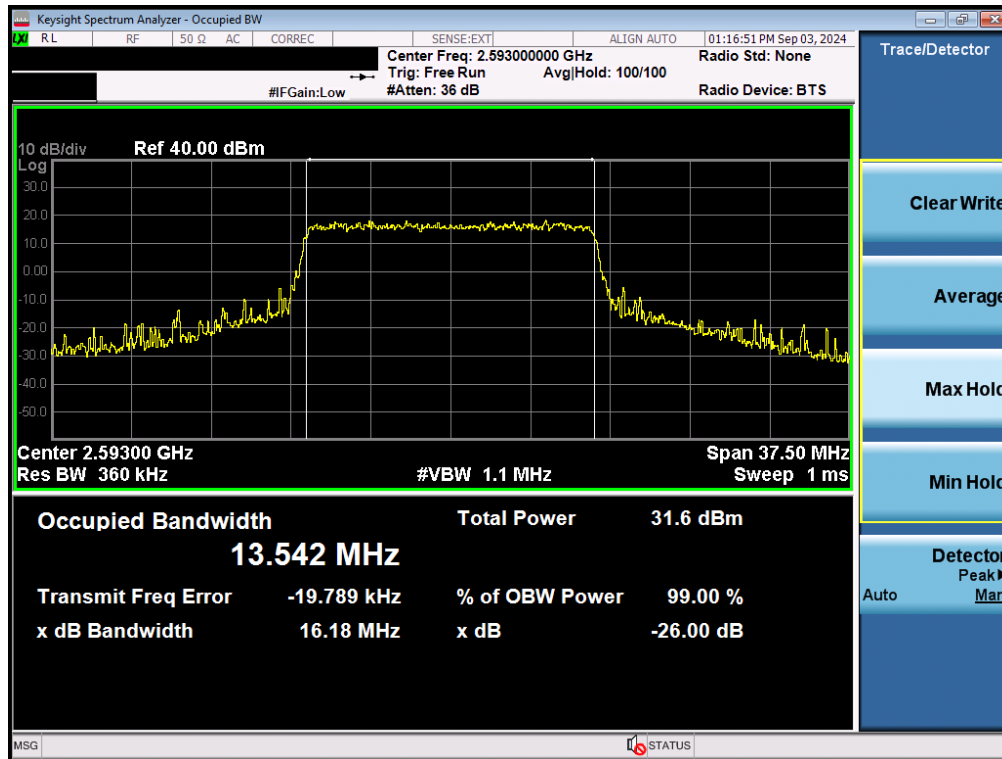


Plot 7-7. Occupied Bandwidth Plot (LTE Band 41(PC3)- 20MHz QPSK - Full RB - Ant B)

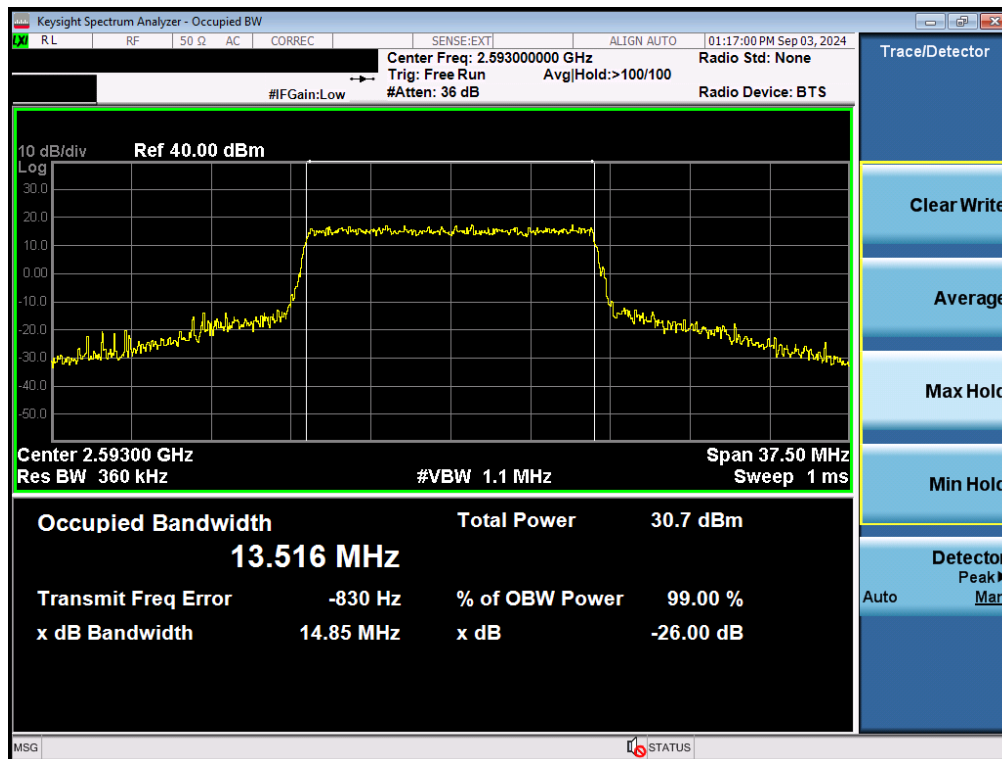


Plot 7-8. Occupied Bandwidth Plot (LTE Band 41(PC3)- 20MHz 16-QAM - Full RB - Ant B)

FCC ID: A3LSMS938JPN	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2408260070-08.A3L	Test Dates: 09/03/2024 – 11/24/2024	EUT Type: Portable Handset	Page 22 of 132

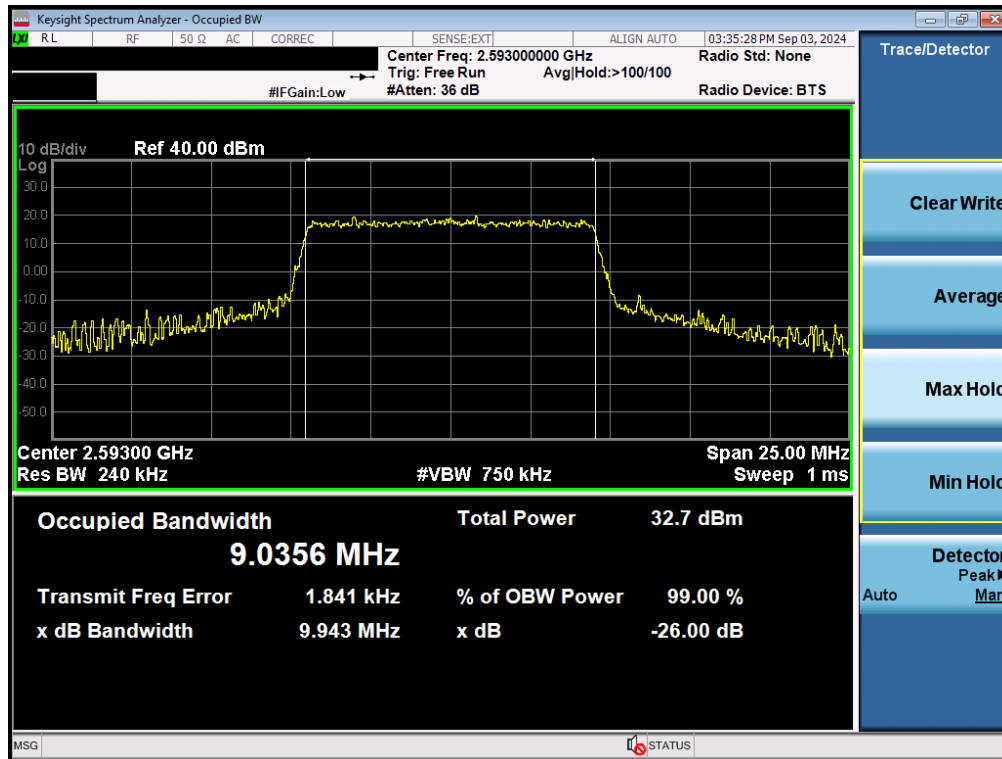


Plot 7-9. Occupied Bandwidth Plot (LTE Band 41(PC3)- 15MHz QPSK - Full RB - Ant B)

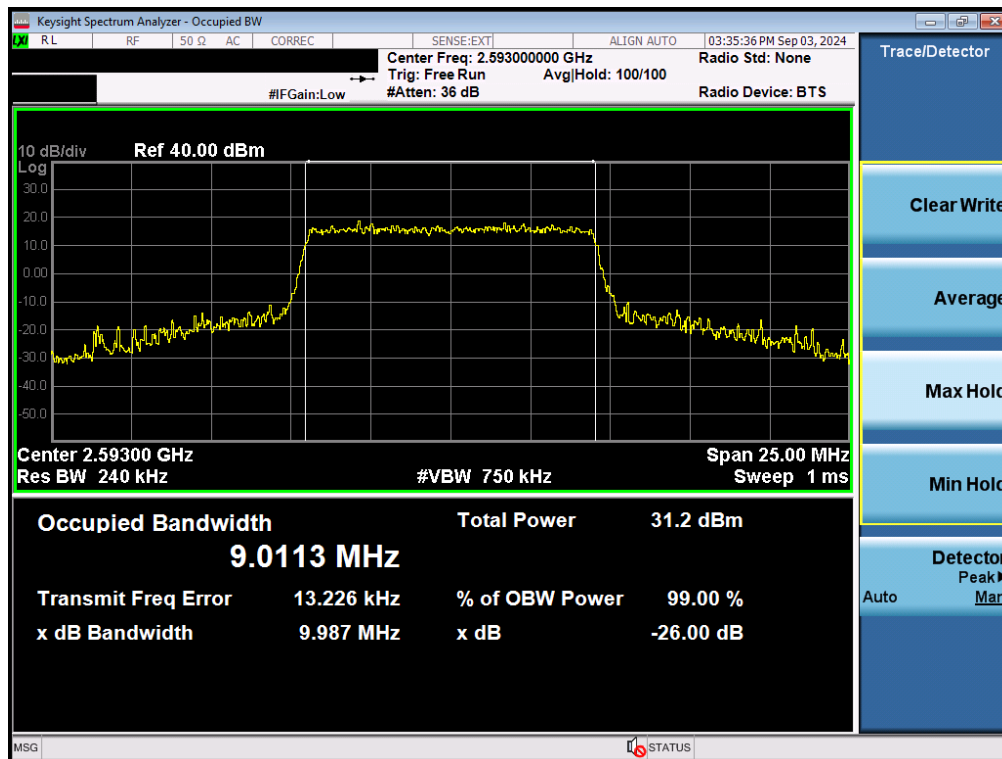


Plot 7-10. Occupied Bandwidth Plot (LTE Band 41(PC3)- 15MHz 16-QAM - Full RB - Ant B)

FCC ID: A3LSMS938JPN	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2408260070-08.A3L	Test Dates: 09/03/2024 – 11/24/2024	EUT Type: Portable Handset	Page 23 of 132

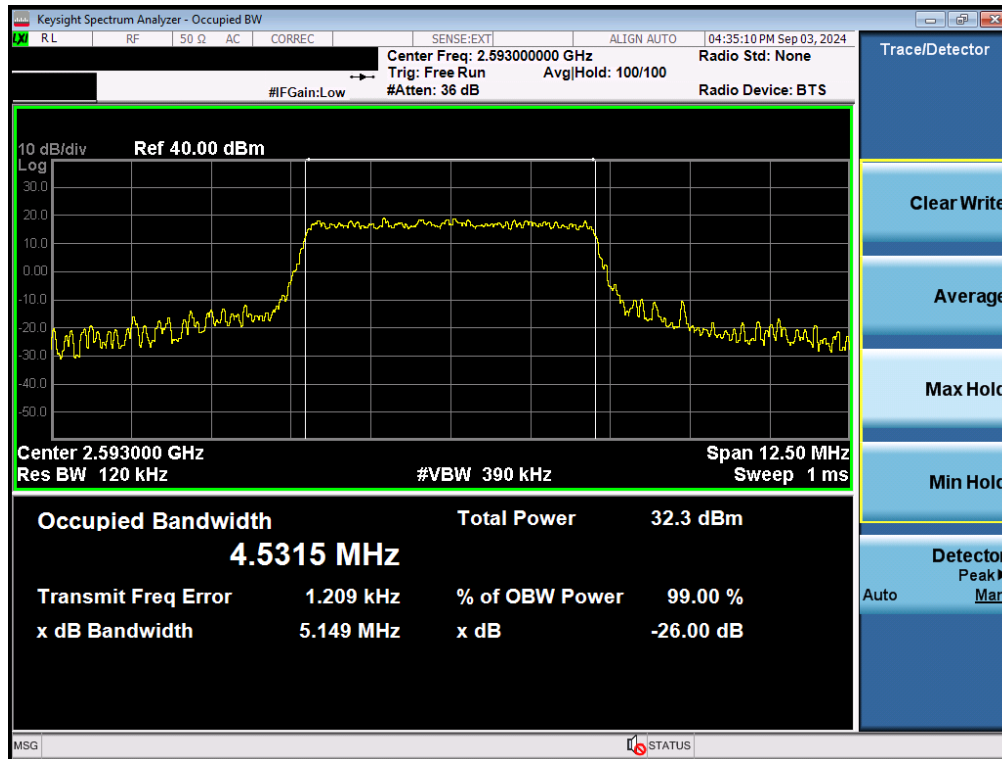


Plot 7-11. Occupied Bandwidth Plot (LTE Band 41(PC3)- 10MHz QPSK - Full RB - Ant B)



Plot 7-12. Occupied Bandwidth Plot (LTE Band 41(PC3)- 10MHz 16-QAM - Full RB - Ant B)

FCC ID: A3LSMS938JPN	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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Plot 7-13. Occupied Bandwidth Plot (LTE Band 41(PC3)- 5MHz QPSK - Full RB - Ant B)



Plot 7-14. Occupied Bandwidth Plot (LTE Band 41(PC3)- 5MHz 16-QAM - Full RB - Ant B)

FCC ID: A3LSMS938JPN	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2408260070-08.A3L	Test Dates: 09/03/2024 – 11/24/2024	EUT Type: Portable Handset	Page 25 of 132

Mode	Bandwidth	Modulation	OBW [MHz]
NR-n41PC2	100MHz	$\pi/2$ BPSK	97.00
		QPSK	98.13
		16QAM	98.13
	90MHz	$\pi/2$ BPSK	87.21
		QPSK	87.96
		16QAM	88.13
	80MHz	$\pi/2$ BPSK	77.49
		QPSK	77.88
		16QAM	77.86
	70MHz	$\pi/2$ BPSK	64.56
		QPSK	67.72
		16QAM	67.83
	60MHz	$\pi/2$ BPSK	58.19
		QPSK	58.25
		16QAM	58.31
	50MHz	$\pi/2$ BPSK	45.95
		QPSK	47.80
		16QAM	47.83
	45MHz	$\pi/2$ BPSK	38.75
		QPSK	42.67
		16QAM	42.62
	40MHz	$\pi/2$ BPSK	35.80
		QPSK	38.12
		16QAM	38.06
	35MHz	$\pi/2$ BPSK	32.27
		QPSK	32.96
		16QAM	32.98
	30MHz	$\pi/2$ BPSK	26.98
		QPSK	27.99
		16QAM	28.09
	25MHz	$\pi/2$ BPSK	22.96
		QPSK	23.35
		16QAM	23.31
	20MHz	$\pi/2$ BPSK	18.05
		QPSK	18.34
		16QAM	18.39
	15MHz	$\pi/2$ BPSK	12.99
		QPSK	13.58
		16QAM	13.61
	10MHz	$\pi/2$ BPSK	8.60
		QPSK	8.58
		16QAM	8.56

Table 7-7. Occupied Bandwidth Test Results – NR – Ant F – Default

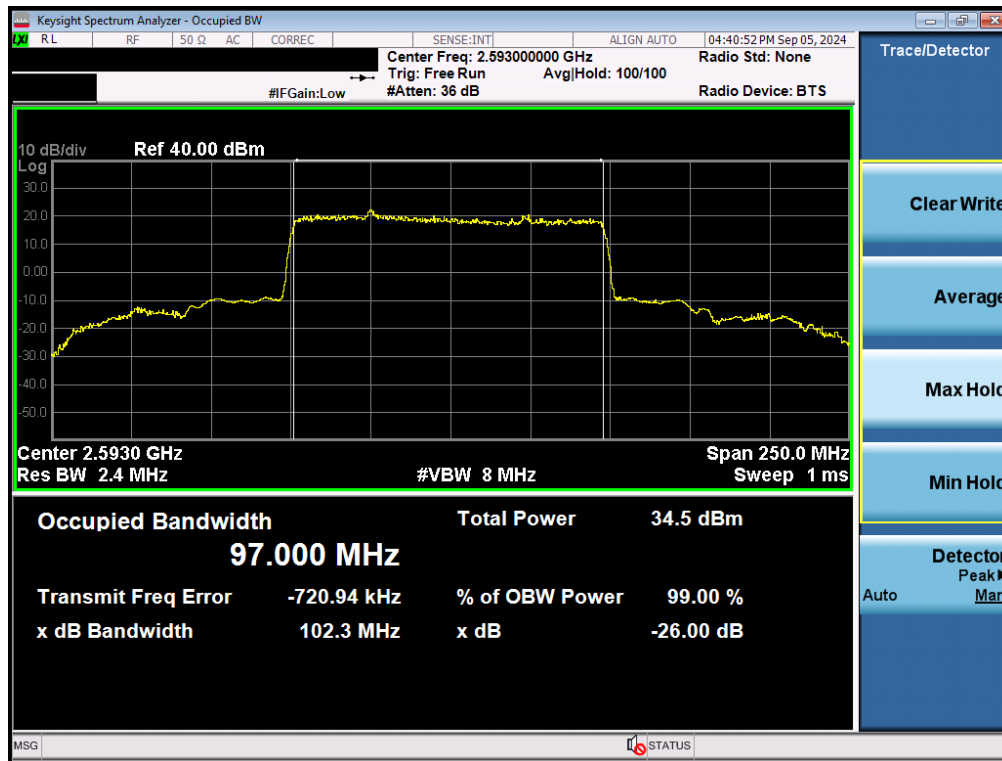
FCC ID: A3LSMS938JPN	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2408260070-08.A3L	Test Dates: 09/03/2024 – 11/24/2024	EUT Type: Portable Handset	Page 26 of 132

Mode	Bandwidth	Modulation	OBW [MHz]
NR-n41PC2	100MHz	$\pi/2$ BPSK	97.00
		QPSK	97.94
		16QAM	98.12
	90MHz	$\pi/2$ BPSK	87.22
		QPSK	87.93
		16QAM	87.95
	80MHz	$\pi/2$ BPSK	77.35
		QPSK	77.85
		16QAM	77.65
	70MHz	$\pi/2$ BPSK	64.50
		QPSK	67.71
		16QAM	67.77
	60MHz	$\pi/2$ BPSK	58.12
		QPSK	58.16
		16QAM	58.10
	50MHz	$\pi/2$ BPSK	45.98
		QPSK	47.70
		16QAM	47.72
	45MHz	$\pi/2$ BPSK	38.77
		QPSK	42.60
		16QAM	42.66
	40MHz	$\pi/2$ BPSK	35.88
		QPSK	38.02
		16QAM	37.97
	35MHz	$\pi/2$ BPSK	32.31
		QPSK	32.95
		16QAM	32.92
	30MHz	$\pi/2$ BPSK	26.91
		QPSK	28.01
		16QAM	27.95
	25MHz	$\pi/2$ BPSK	22.93
		QPSK	23.29
		16QAM	23.29
	20MHz	$\pi/2$ BPSK	18.01
		QPSK	18.34
		16QAM	18.33
	15MHz	$\pi/2$ BPSK	12.89
		QPSK	13.64
		16QAM	13.62
	10MHz	$\pi/2$ BPSK	8.63
		QPSK	8.61
		16QAM	8.63

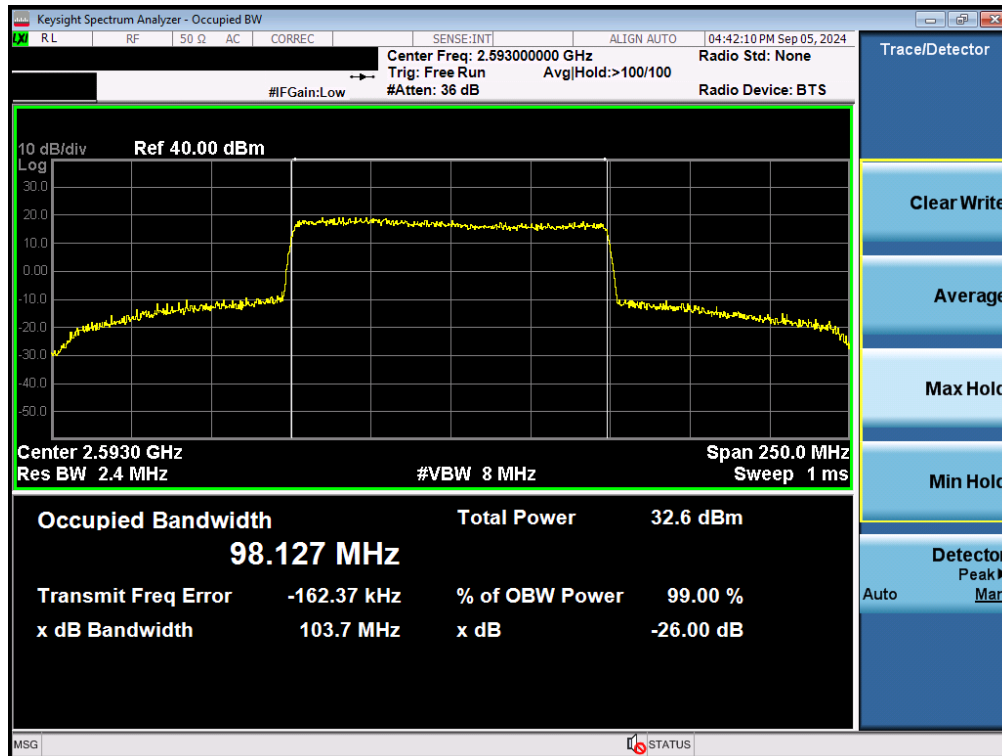
Table 7-8. Occupied Bandwidth Test Results – NR – Ant B – Switching

FCC ID: A3LSMS938JPN	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2408260070-08.A3L	Test Dates: 09/03/2024 – 11/24/2024	EUT Type: Portable Handset	Page 27 of 132

NR Band n41(PC2) – Ant F – Default

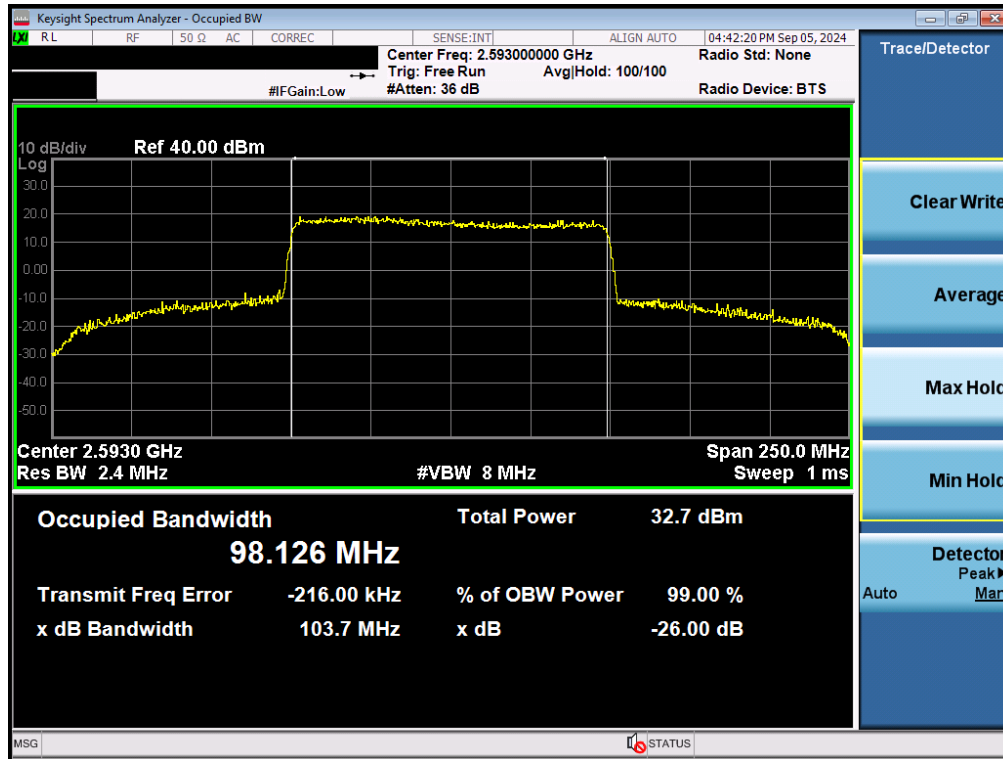


Plot 7-15. Occupied Bandwidth Plot (NR Band n41 - 100MHz $\pi/2$ BPSK - Full RB - Ant F)

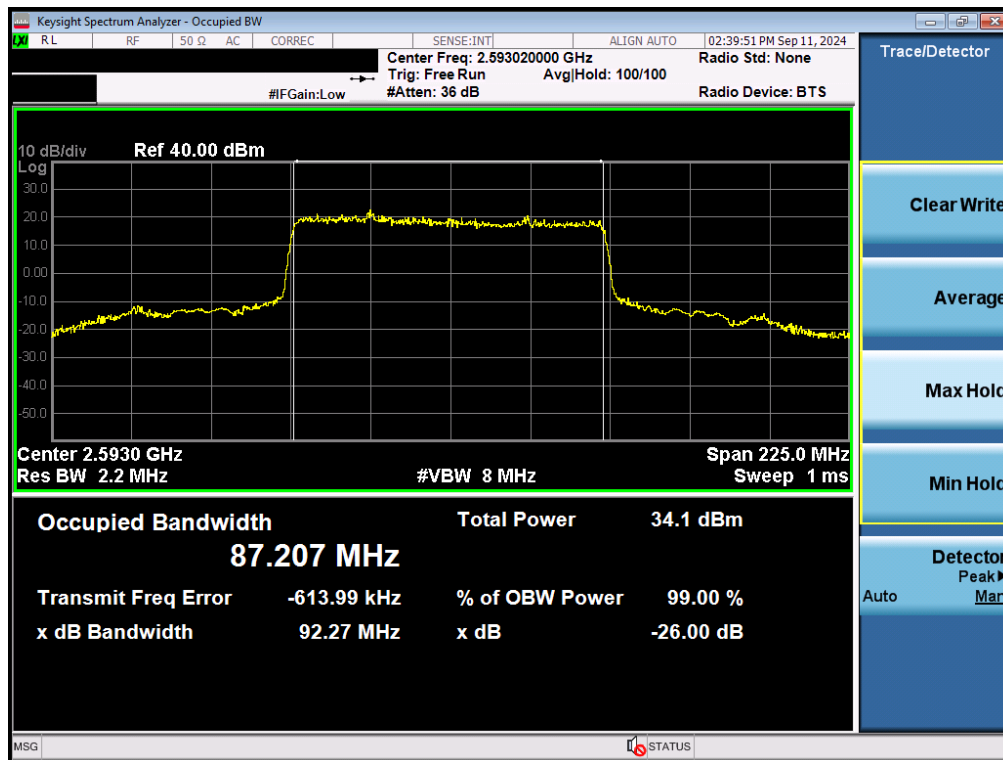


Plot 7-16. Occupied Bandwidth Plot (NR Band n41 - 100MHz QPSK - Full RB - Ant F)

FCC ID: A3LSMS938JPN	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2408260070-08.A3L	Test Dates: 09/03/2024 – 11/24/2024	EUT Type: Portable Handset	Page 28 of 132

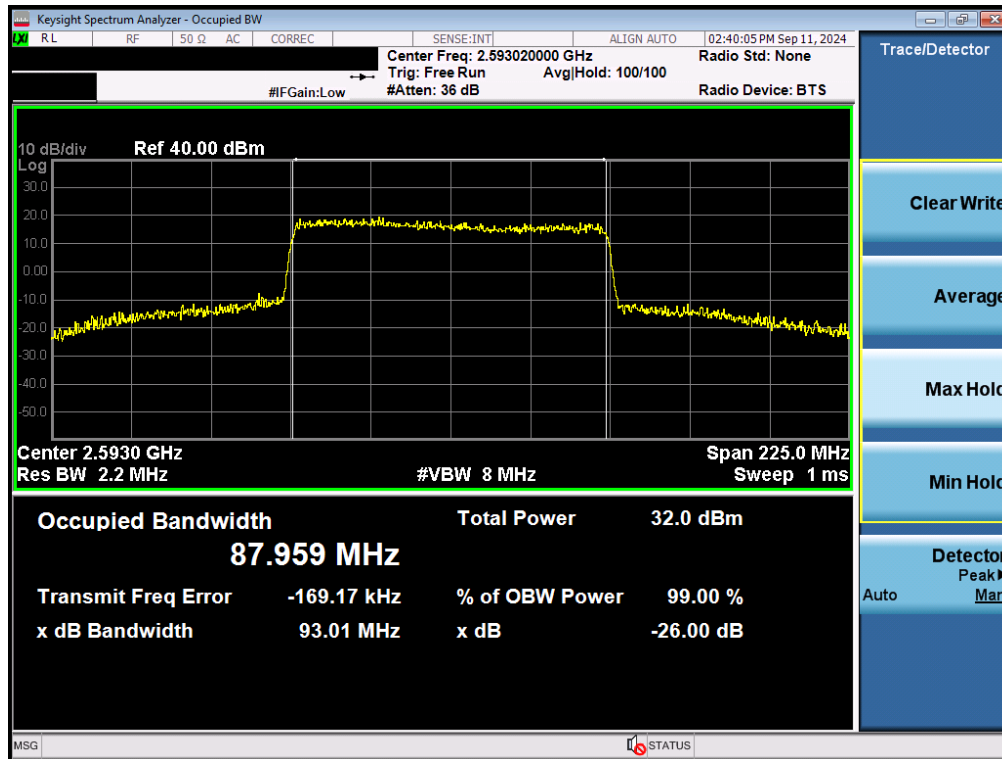


Plot 7-17. Occupied Bandwidth Plot (NR Band n41 - 100MHz 16-QAM - Full RB - Ant F)

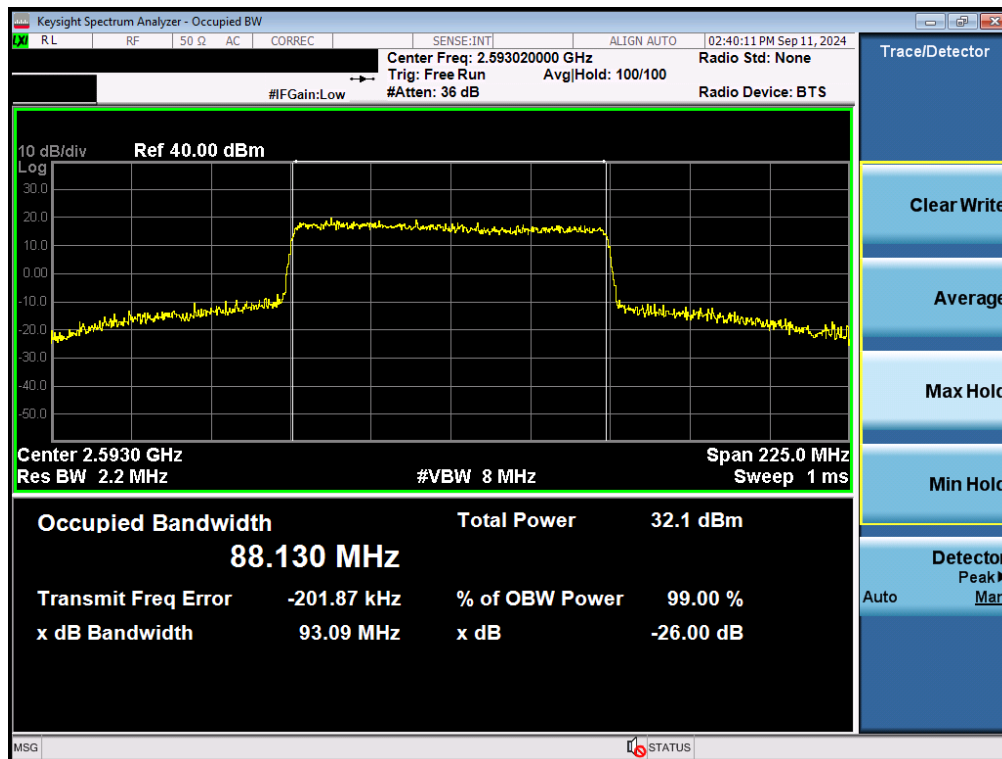


Plot 7-18. Occupied Bandwidth Plot (NR Band n41 - 90MHz $\pi/2$ BPSK - Full RB - Ant F)

FCC ID: A3LSMS938JPN	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2408260070-08.A3L	Test Dates: 09/03/2024 – 11/24/2024	EUT Type: Portable Handset	Page 29 of 132

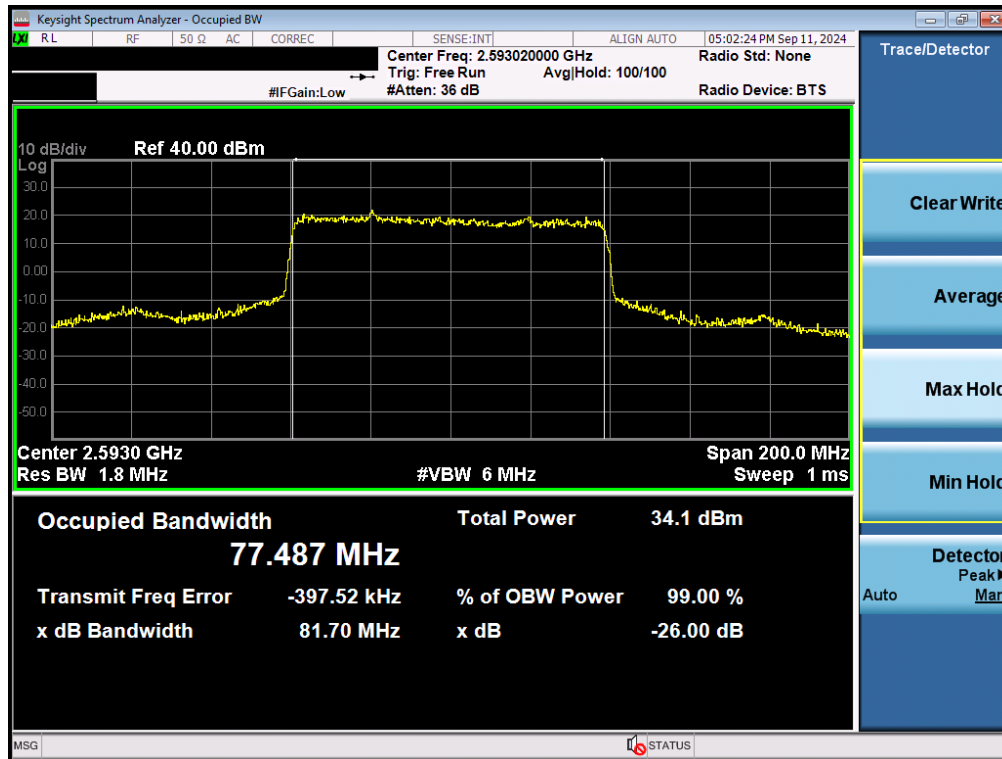


Plot 7-19. Occupied Bandwidth Plot (NR Band n41 - 90MHz QPSK - Full RB - Ant F)

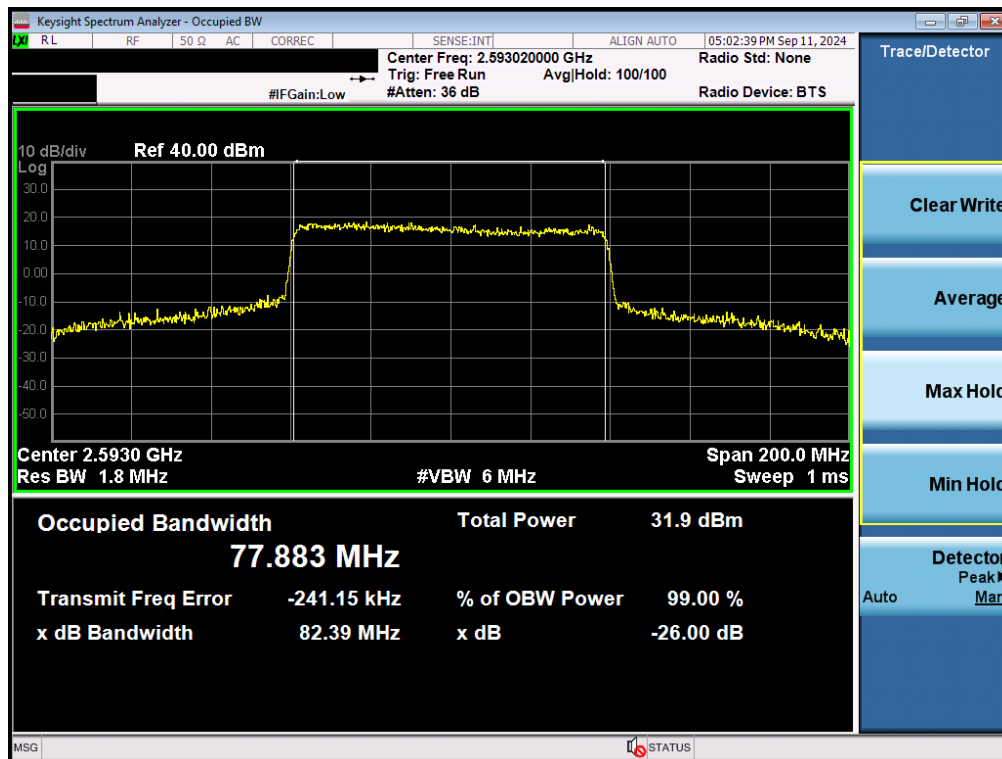


Plot 7-20. Occupied Bandwidth Plot (NR Band n41 - 90MHz 16-QAM - Full RB - Ant F)

FCC ID: A3LSMS938JPN	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2408260070-08.A3L	Test Dates: 09/03/2024 – 11/24/2024	EUT Type: Portable Handset	Page 30 of 132

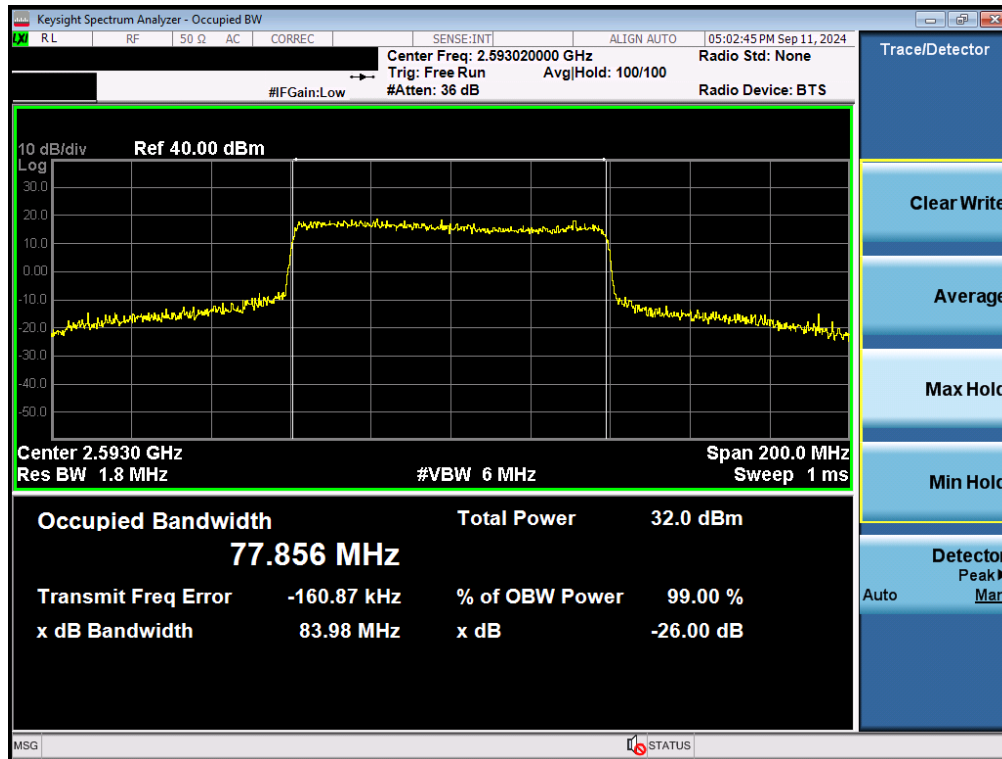


Plot 7-21. Occupied Bandwidth Plot (NR Band n41 - 80MHz $\pi/2$ BPSK - Full RB - Ant F)

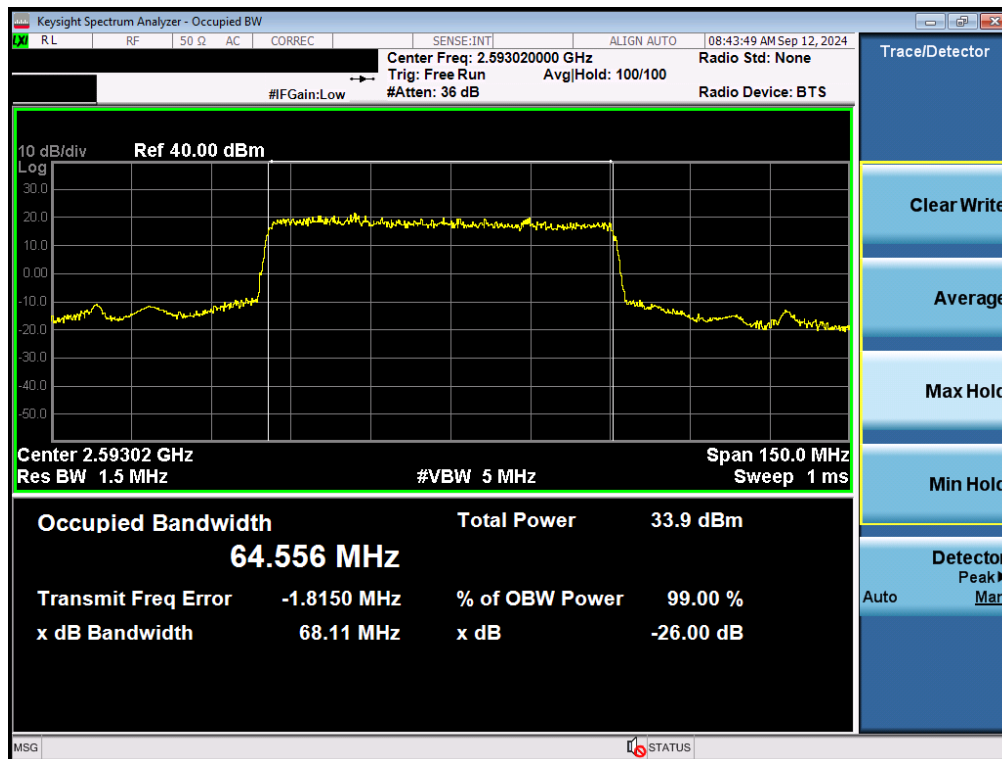


Plot 7-22. Occupied Bandwidth Plot (NR Band n41 - 80MHz QPSK - Full RB - Ant F)

FCC ID: A3LSMS938JPN	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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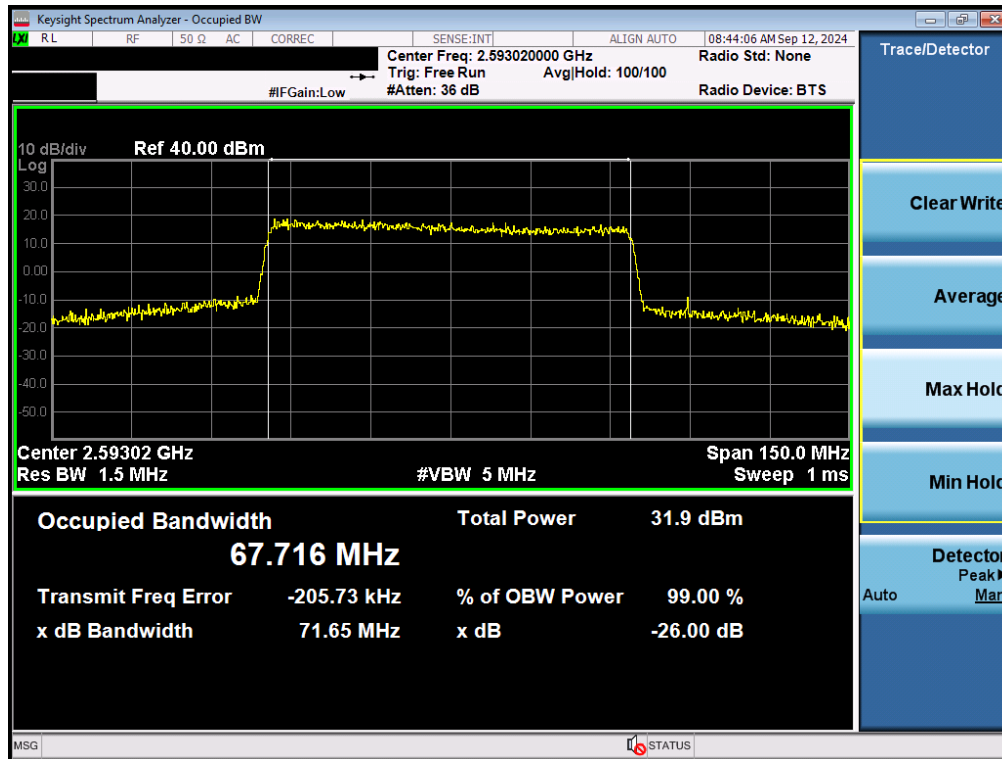


Plot 7-23. Occupied Bandwidth Plot (NR Band n41 - 80MHz 16-QAM - Full RB - Ant F)

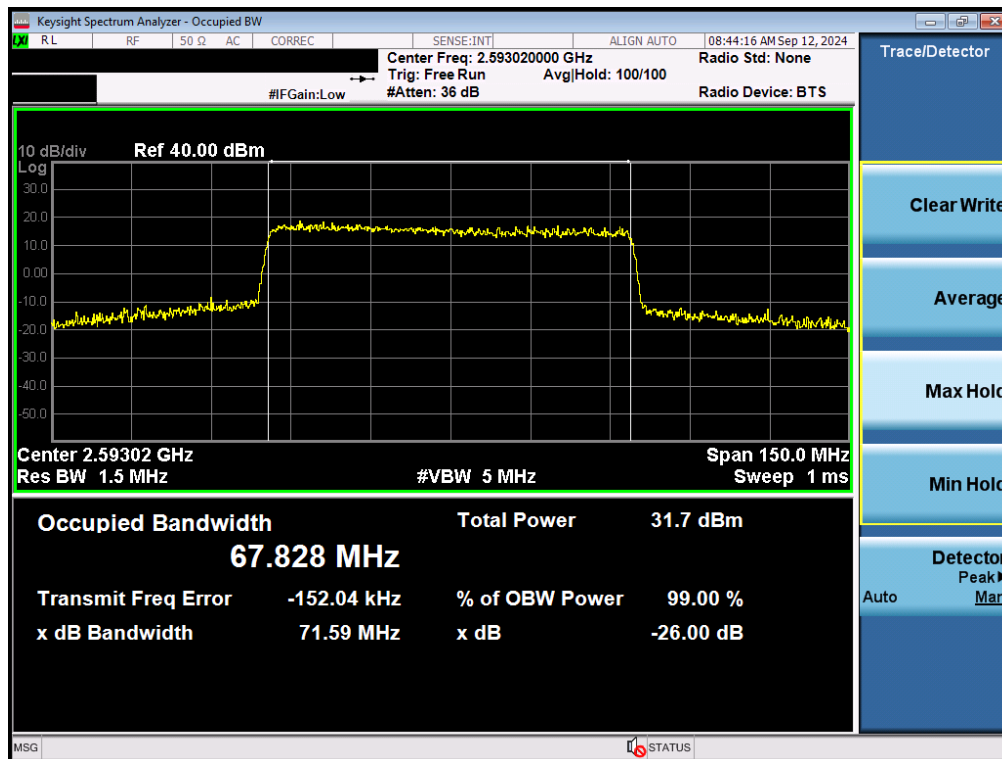


Plot 7-24. Occupied Bandwidth Plot (NR Band n41 - 70MHz 7 π /2 BPSK - Full RB - Ant F)

FCC ID: A3LSMS938JPN	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2408260070-08.A3L	Test Dates: 09/03/2024 - 11/24/2024	EUT Type: Portable Handset	Page 32 of 132

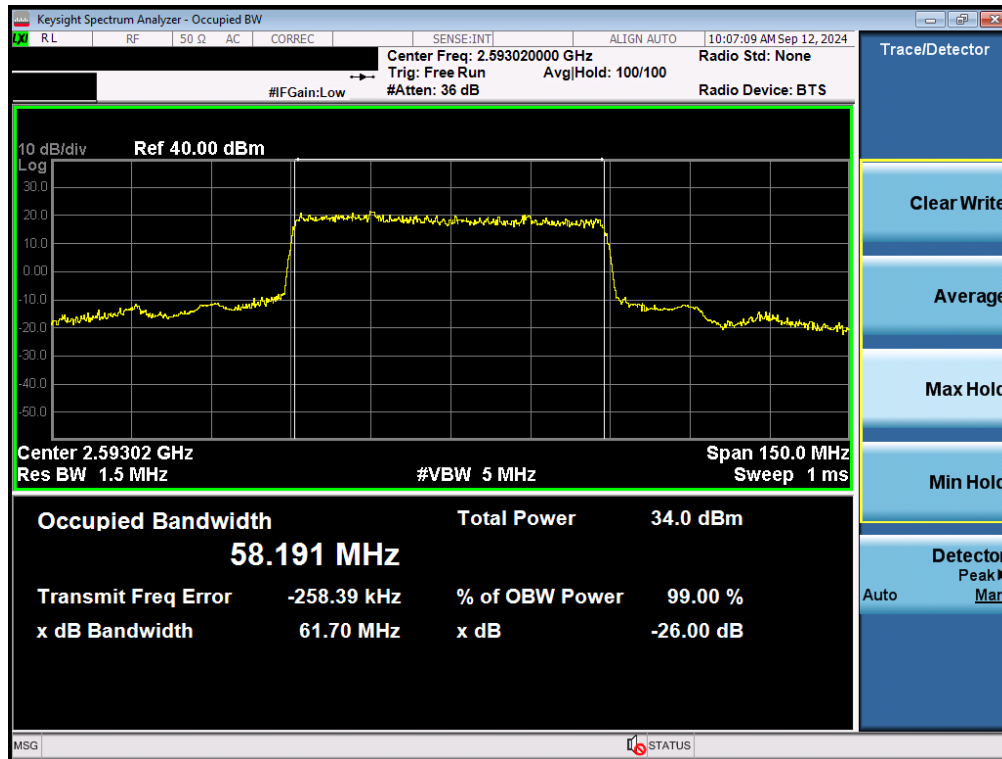


Plot 7-25. Occupied Bandwidth Plot (NR Band n41 - 70MHz QPSK - Full RB - Ant F)

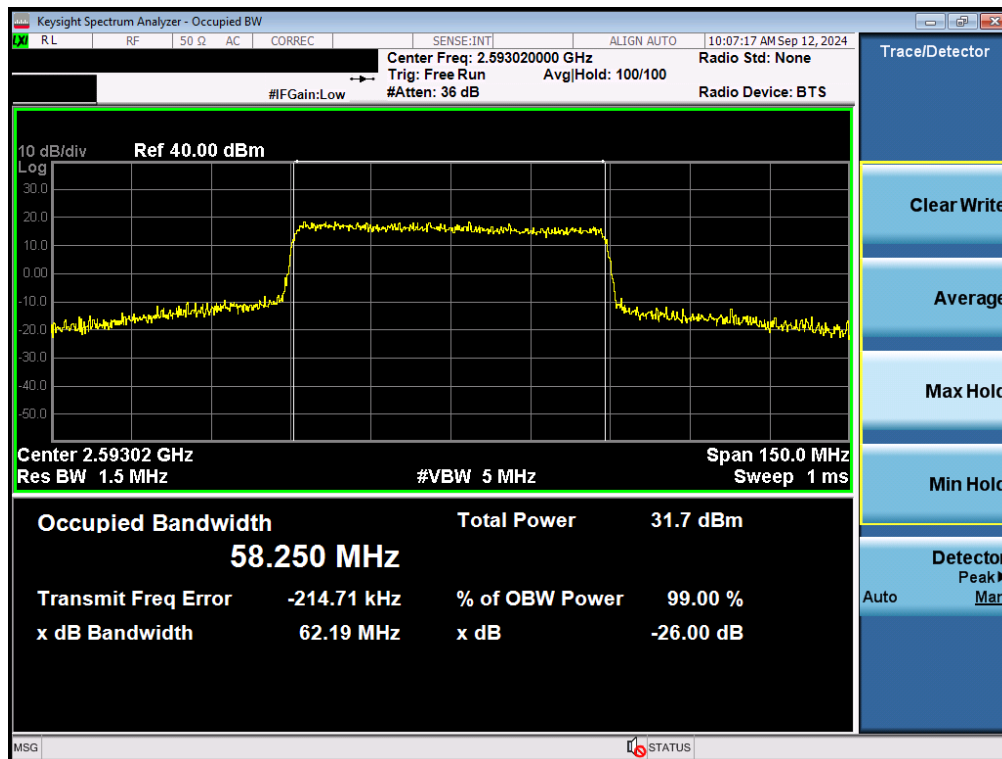


Plot 7-26. Occupied Bandwidth Plot (NR Band n41 - 70MHz 16-QAM - Full RB - Ant F)

FCC ID: A3LSMS938JPN	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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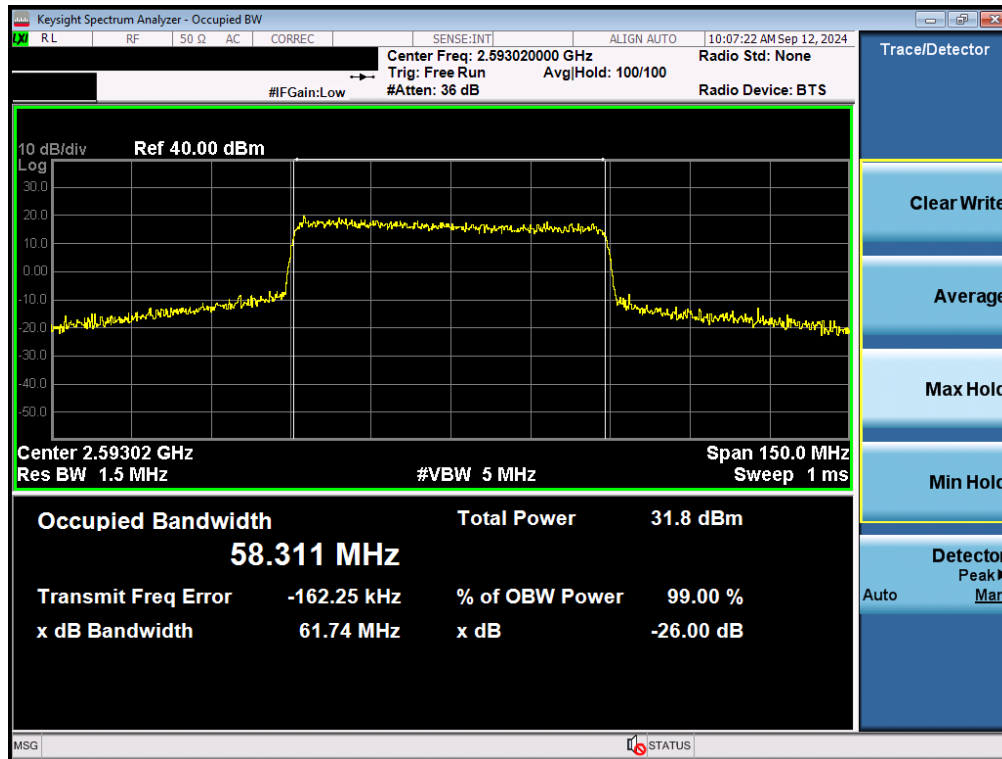


Plot 7-27. Occupied Bandwidth Plot (NR Band n41 - 60MHz $\pi/2$ BPSK - Full RB - Ant F)

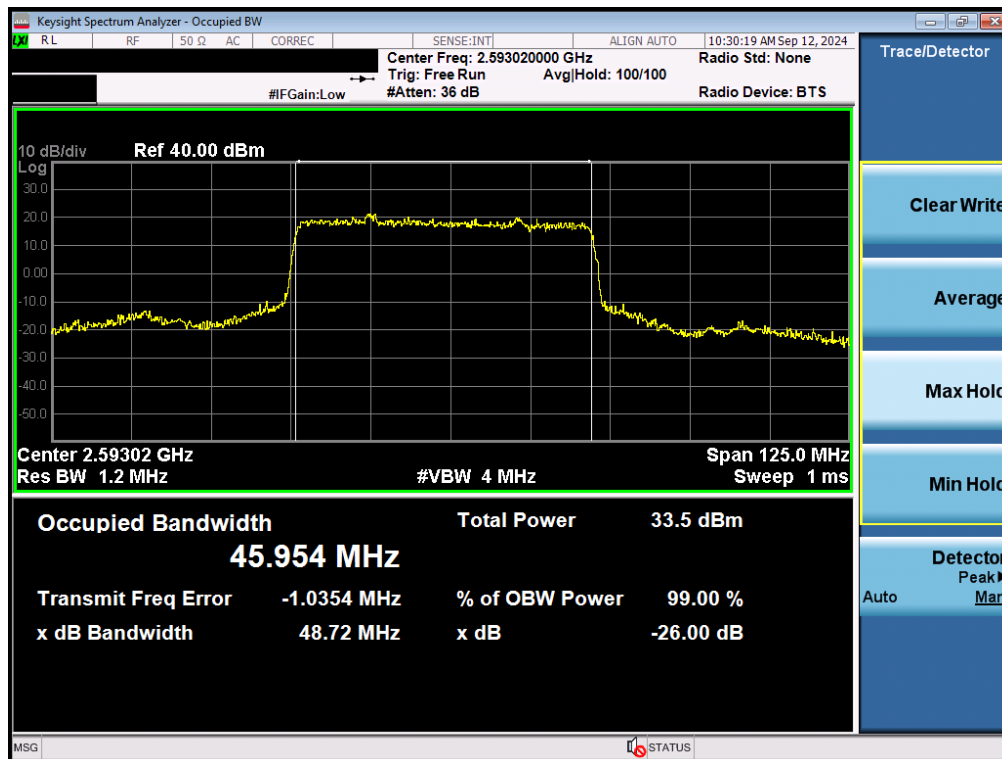


Plot 7-28. Occupied Bandwidth Plot (NR Band n41 - 60MHz QPSK - Full RB - Ant F)

FCC ID: A3LSMS938JPN	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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Plot 7-29. Occupied Bandwidth Plot (NR Band n41 - 60MHz 16-QAM - Full RB - Ant F)

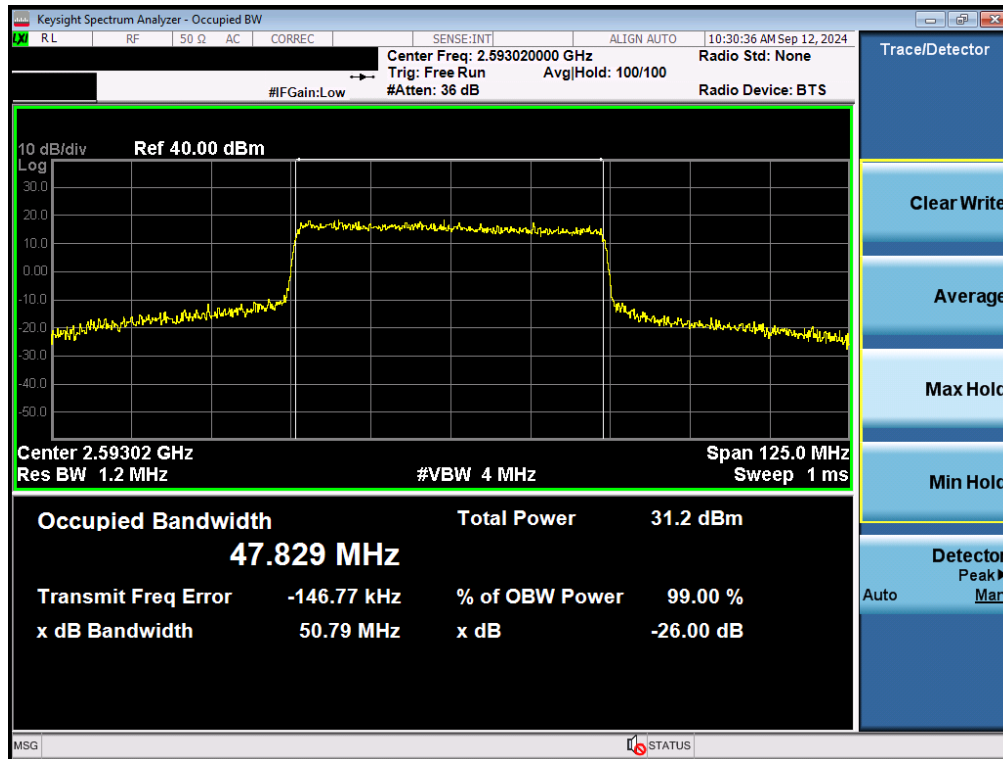


Plot 7-30. Occupied Bandwidth Plot (NR Band n41 - 50MHz $\pi/2$ BPSK - Full RB - Ant F)

FCC ID: A3LSMS938JPN	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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Plot 7-31. Occupied Bandwidth Plot (NR Band n41 - 50MHz QPSK - Full RB - Ant F)

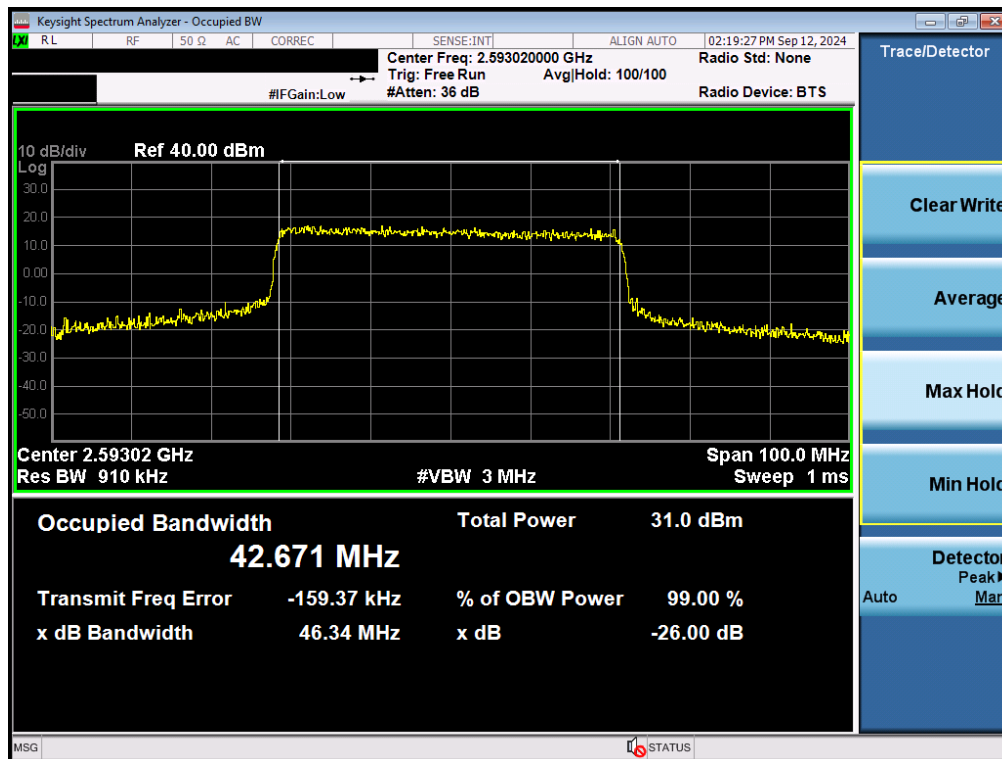


Plot 7-32. Occupied Bandwidth Plot (NR Band n41 - 50MHz 16-QAM - Full RB - Ant F)

FCC ID: A3LSMS938JPN	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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Plot 7-33. Occupied Bandwidth Plot (NR Band n41 - 45MHz $\pi/2$ BPSK - Full RB - Ant F)

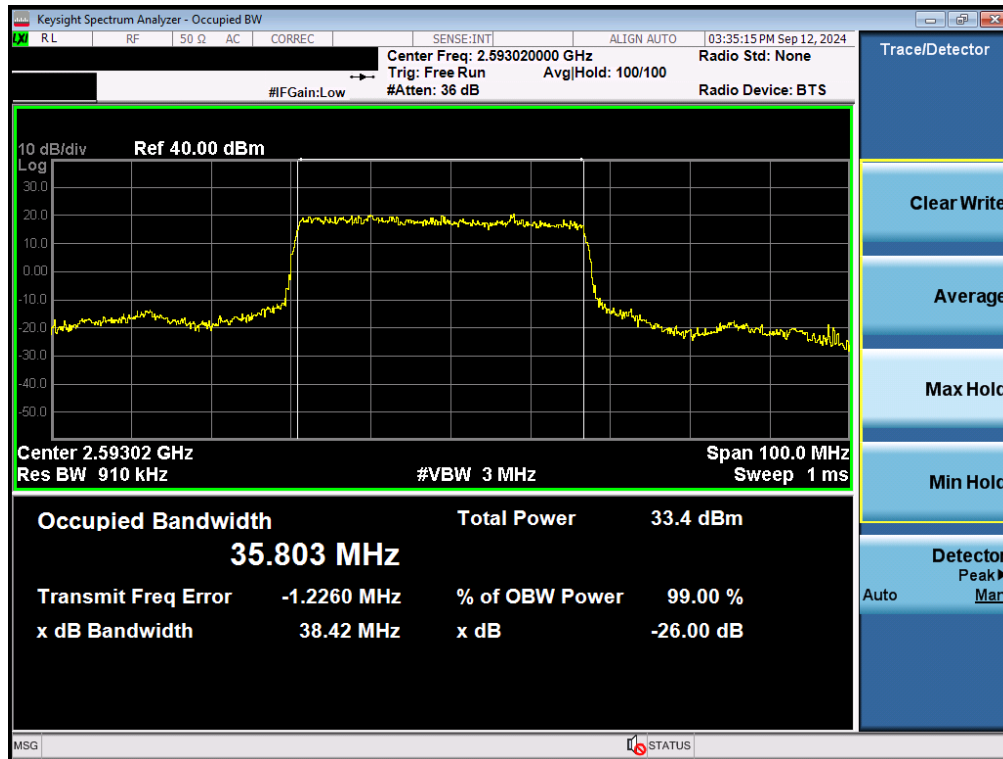


Plot 7-34. Occupied Bandwidth Plot (NR Band n41 - 45MHz QPSK - Full RB - Ant F)

FCC ID: A3LSMS938JPN	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2408260070-08.A3L	Test Dates: 09/03/2024 – 11/24/2024	EUT Type: Portable Handset	Page 37 of 132

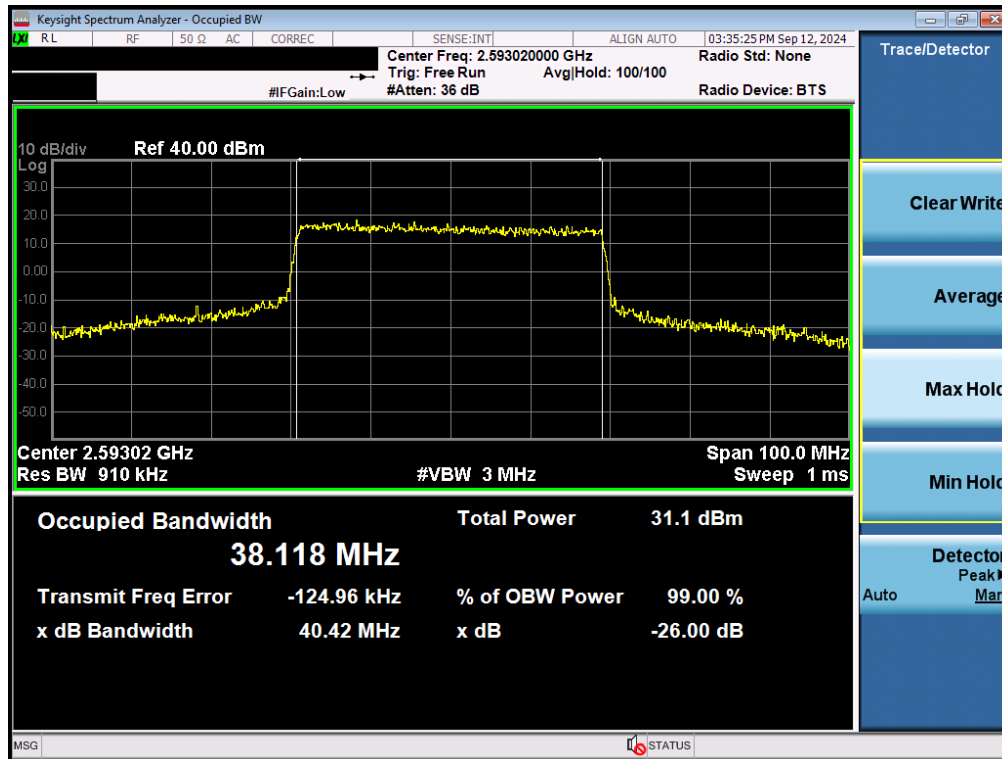


Plot 7-35. Occupied Bandwidth Plot (NR Band n41 - 45MHz 16-QAM - Full RB - Ant F)



Plot 7-36. Occupied Bandwidth Plot (NR Band n41 - 40MHz $\pi/2$ BPSK - Full RB - Ant F)

FCC ID: A3LSMS938JPN	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2408260070-08.A3L	Test Dates: 09/03/2024 – 11/24/2024	EUT Type: Portable Handset	Page 38 of 132

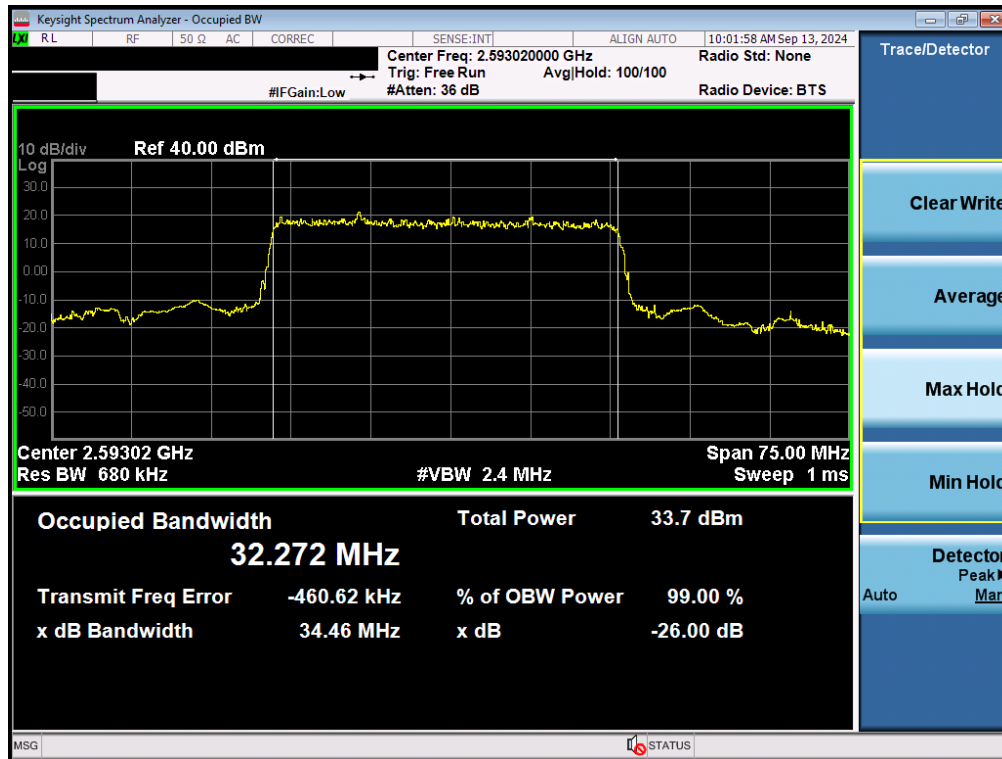


Plot 7-37. Occupied Bandwidth Plot (NR Band n41 - 40MHz QPSK - Full RB - Ant F)

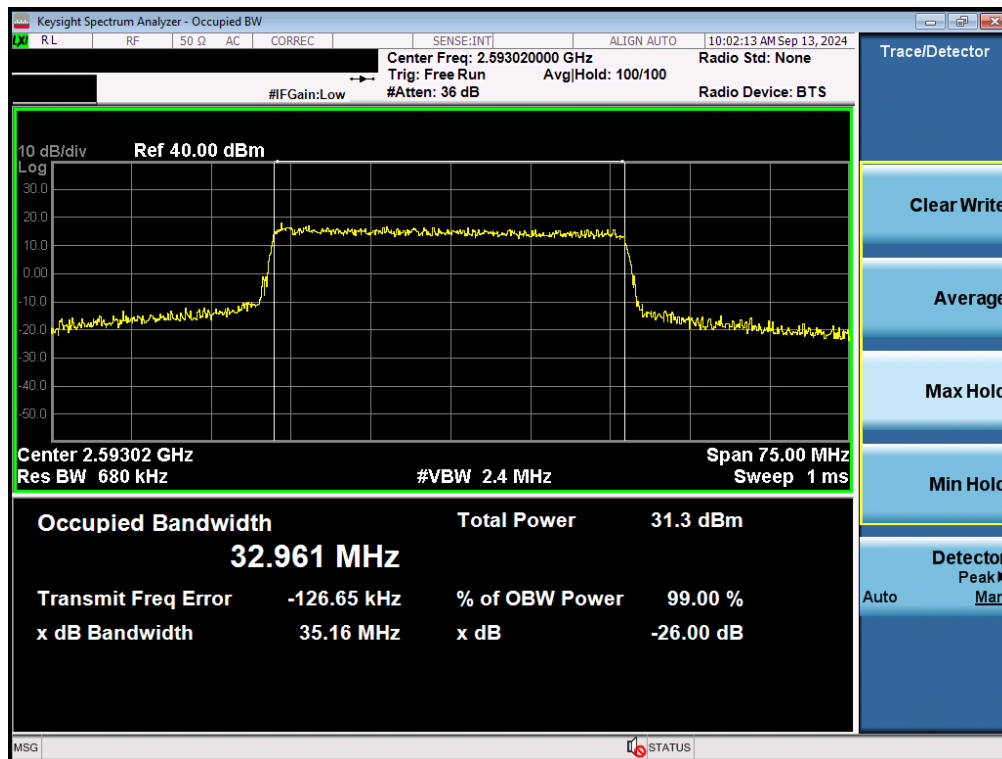


Plot 7-38. Occupied Bandwidth Plot (NR Band n41 - 40MHz 16-QAM - Full RB - Ant F)

FCC ID: A3LSMS938JPN	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2408260070-08.A3L	Test Dates: 09/03/2024 – 11/24/2024	EUT Type: Portable Handset	Page 39 of 132

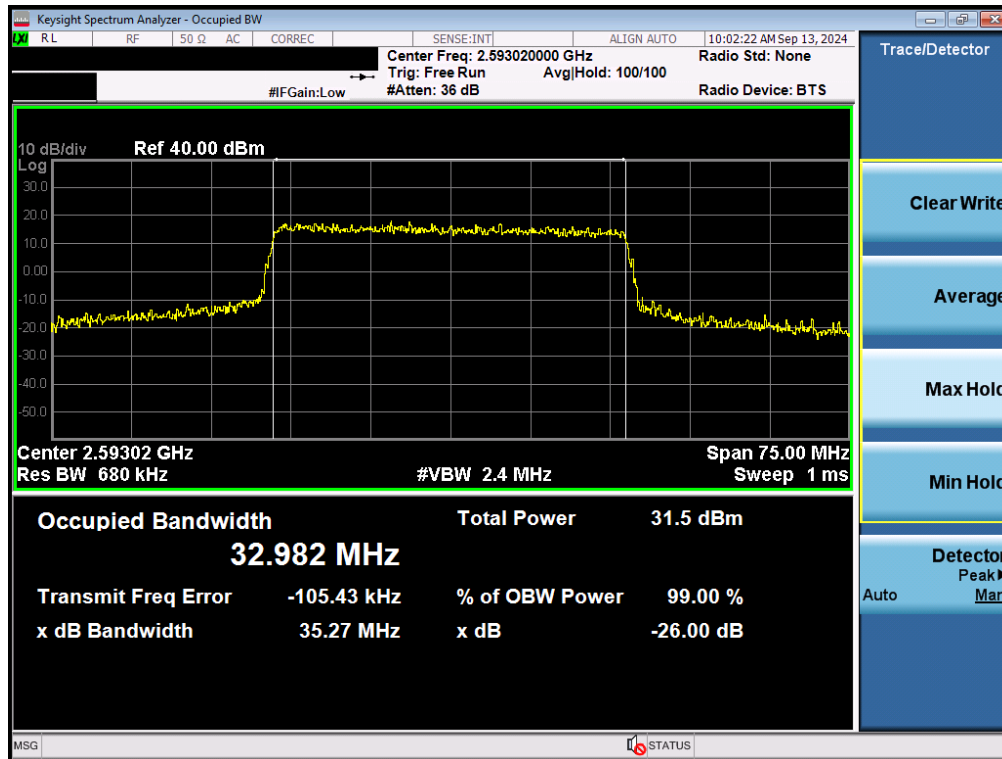


Plot 7-39. Occupied Bandwidth Plot (NR Band n41 - 35MHz $\pi/2$ BPSK - Full RB - Ant F)

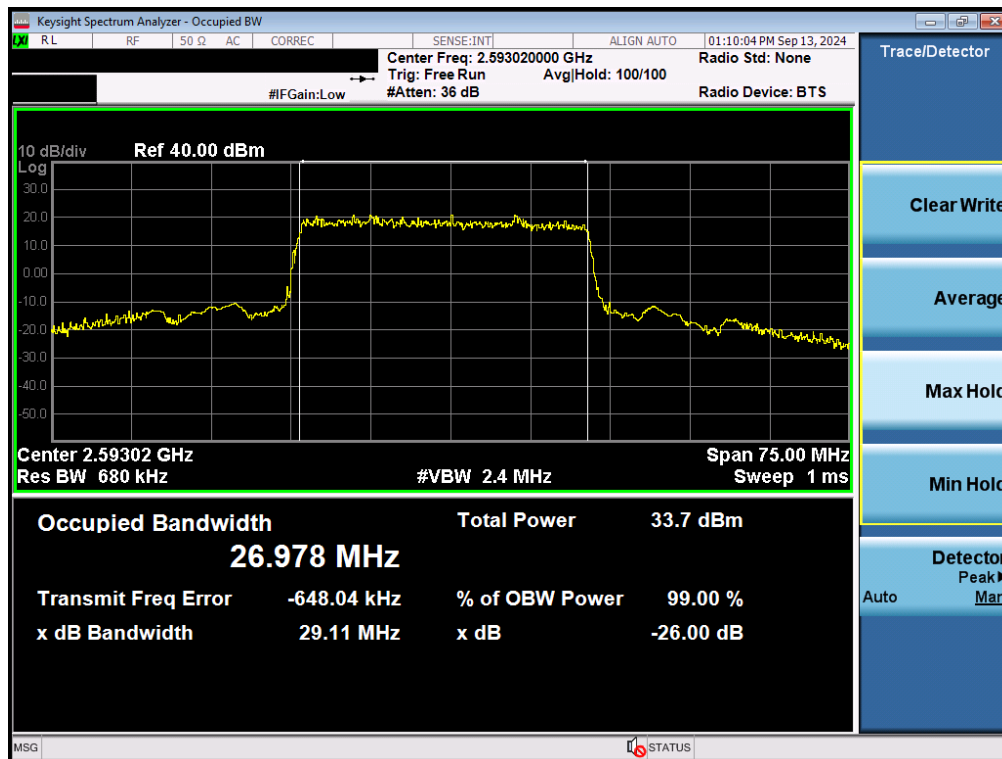


Plot 7-40. Occupied Bandwidth Plot (NR Band n41 - 35MHz QPSK - Full RB - Ant F)

FCC ID: A3LSMS938JPN	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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Plot 7-41. Occupied Bandwidth Plot (NR Band n41 - 35MHz 16-QAM - Full RB - Ant F)



Plot 7-42. Occupied Bandwidth Plot (NR Band n41 - 30MHz $\pi/2$ BPSK - Full RB - Ant F)

FCC ID: A3LSMS938JPN	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2408260070-08.A3L	Test Dates: 09/03/2024 – 11/24/2024	EUT Type: Portable Handset	Page 41 of 132

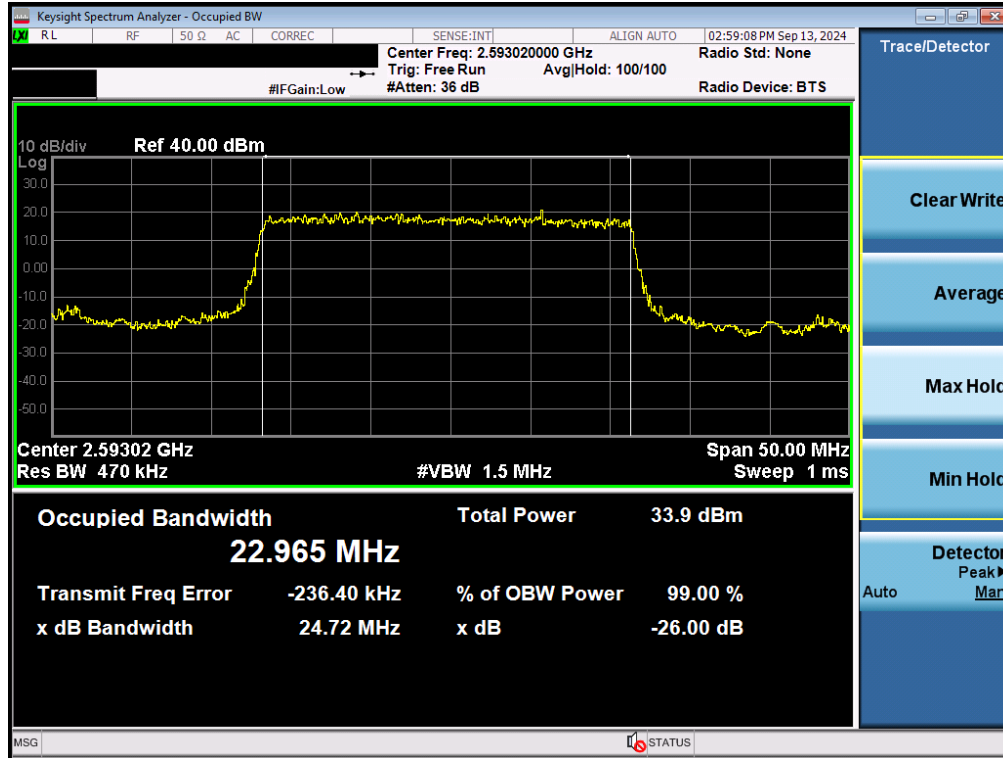


Plot 7-43. Occupied Bandwidth Plot (NR Band n41 - 30MHz QPSK - Full RB - Ant F)

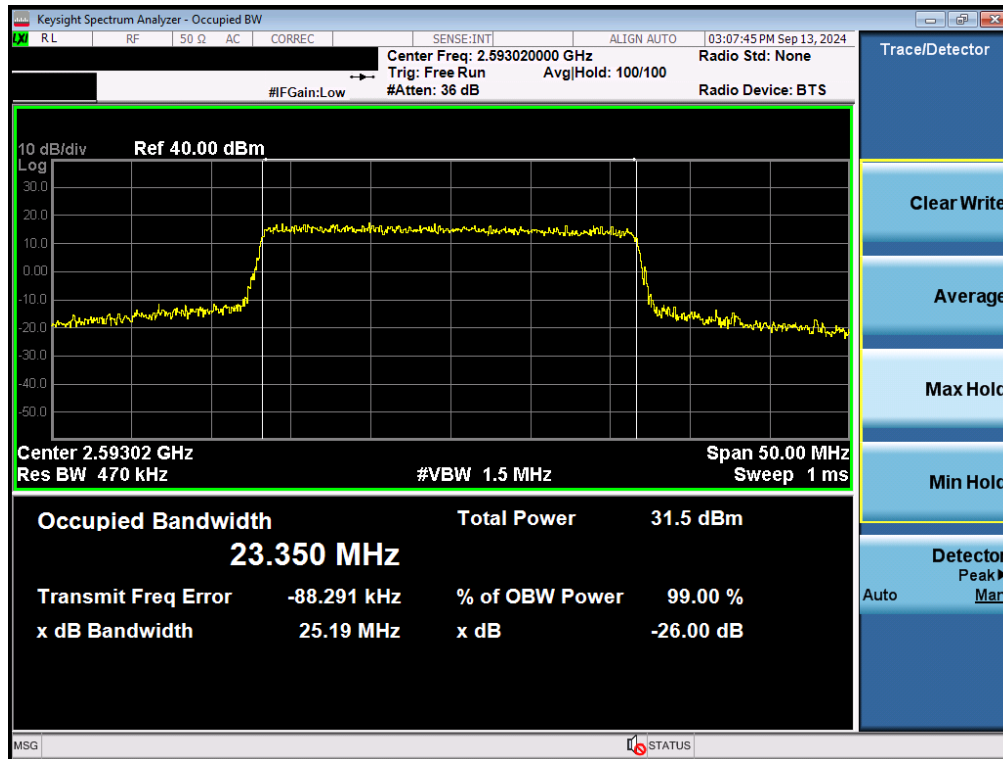


Plot 7-44. Occupied Bandwidth Plot (NR Band n41 - 30MHz 16-QAM - Full RB - Ant F)

FCC ID: A3LSMS938JPN	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2408260070-08.A3L	Test Dates: 09/03/2024 – 11/24/2024	EUT Type: Portable Handset	Page 42 of 132

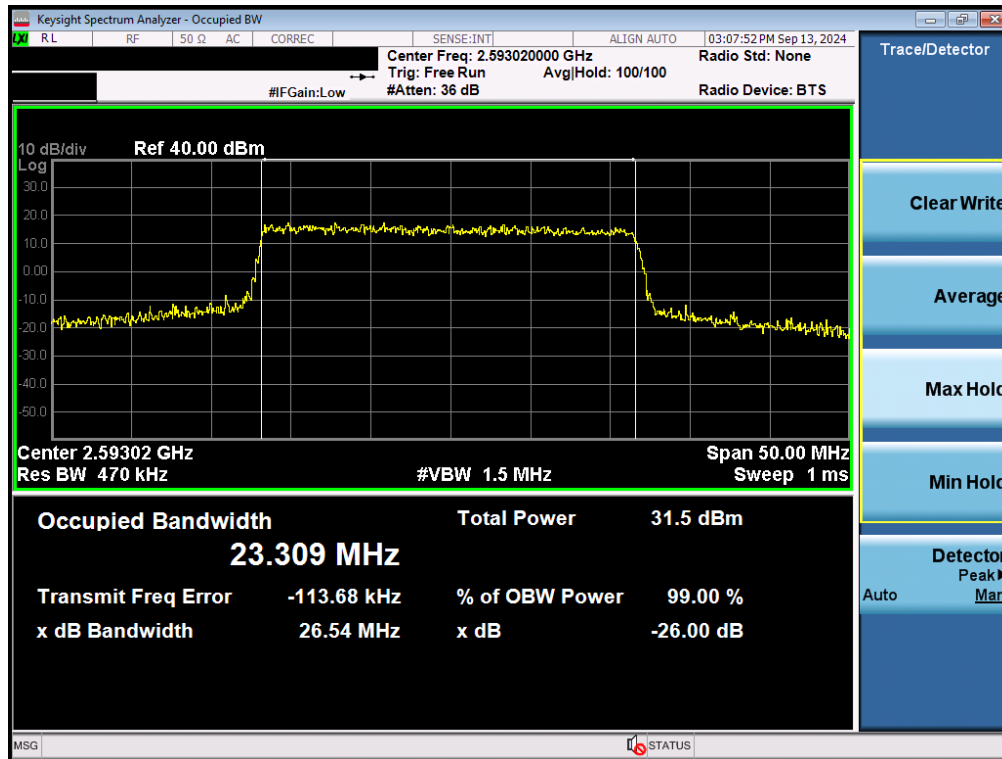


Plot 7-45. Occupied Bandwidth Plot (NR Band n41 - 25MHz $\pi/2$ BPSK - Full RB - Ant F)

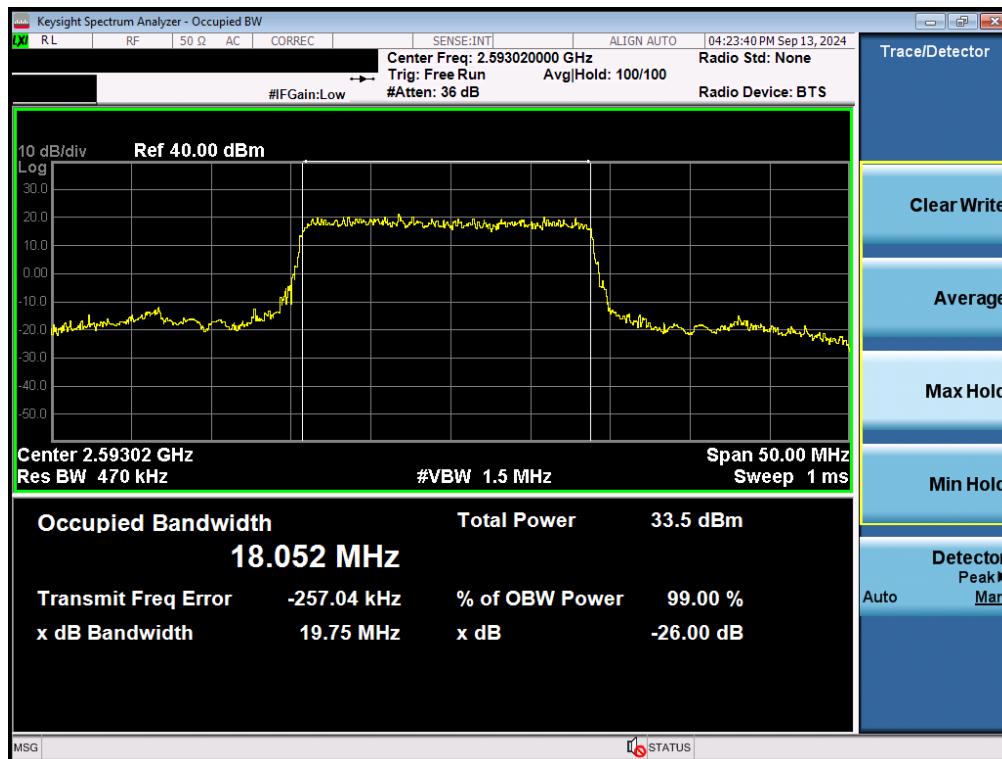


Plot 7-46. Occupied Bandwidth Plot (NR Band n41 - 25MHz QPSK - Full RB - Ant F)

FCC ID: A3LSMS938JPN	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2408260070-08.A3L	Test Dates: 09/03/2024 – 11/24/2024	EUT Type: Portable Handset	Page 43 of 132

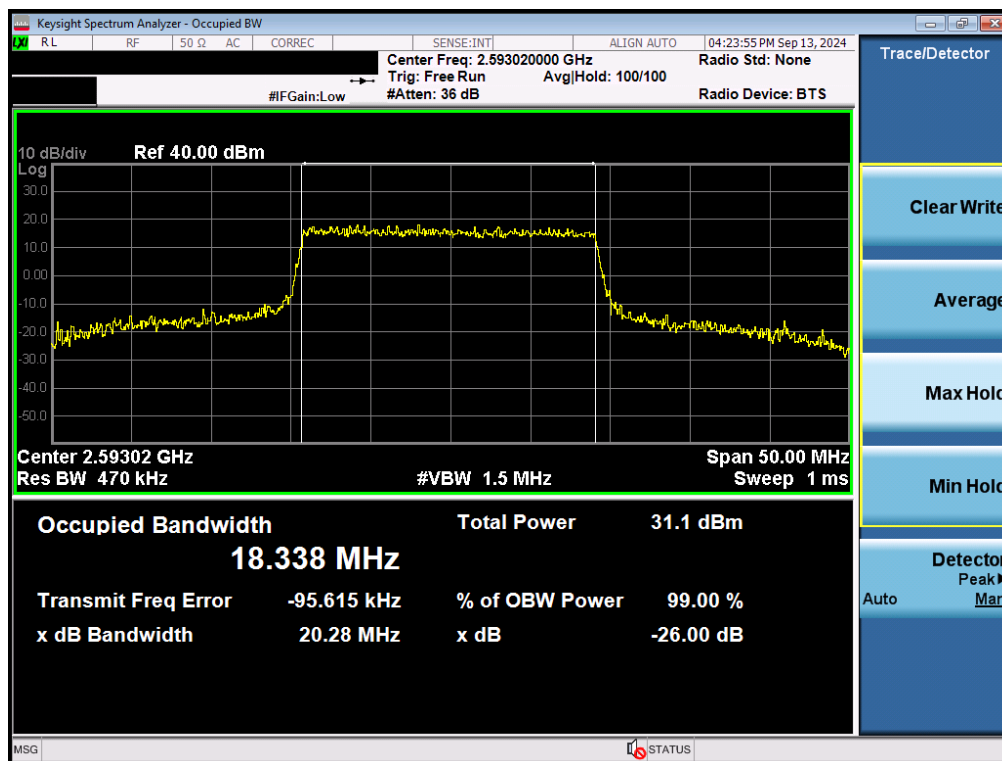


Plot 7-47. Occupied Bandwidth Plot (NR Band n41 - 25MHz 16-QAM - Full RB - Ant F)

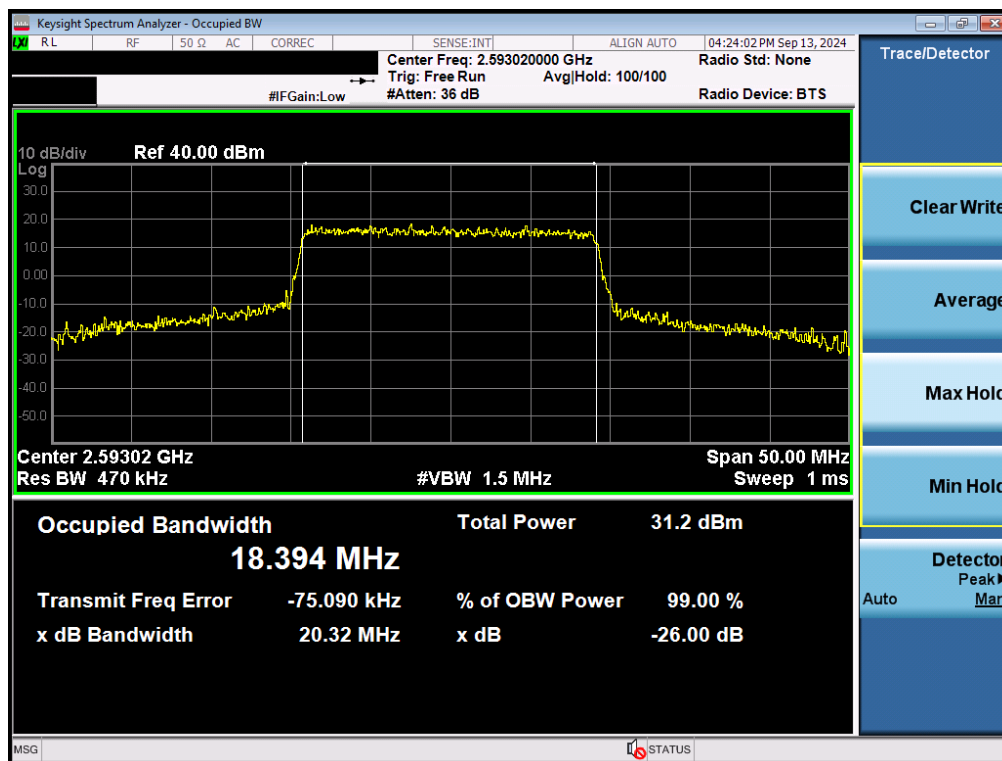


Plot 7-48. Occupied Bandwidth Plot (NR Band n41 - 20MHz $\pi/2$ BPSK - Full RB - Ant F)

FCC ID: A3LSMS938JPN	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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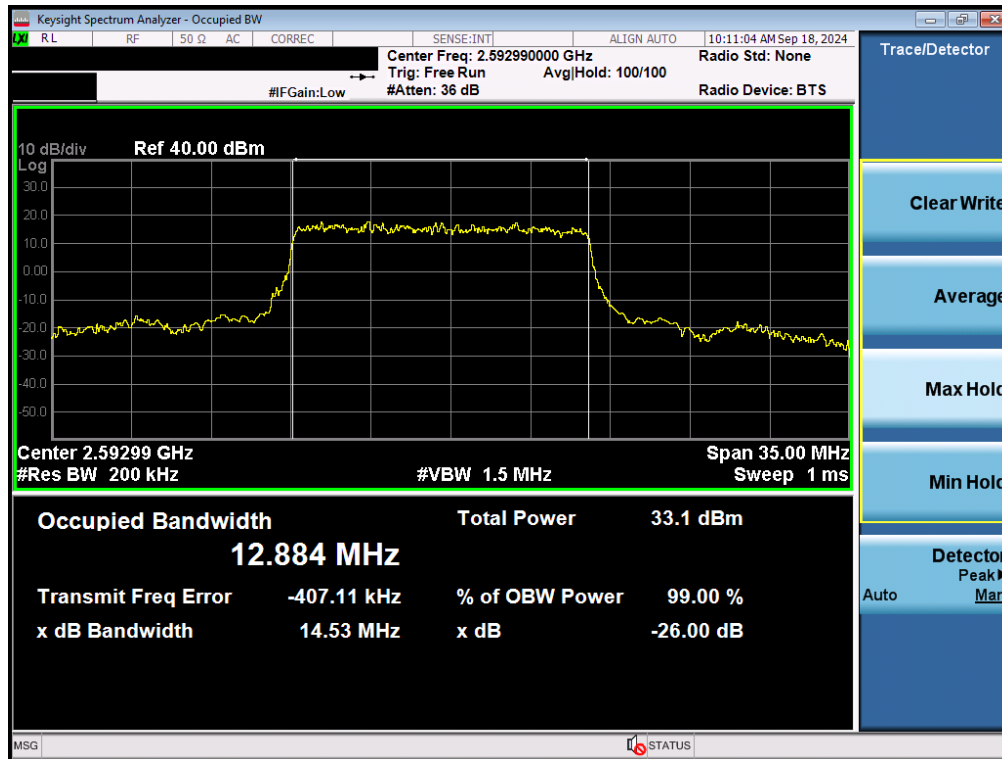


Plot 7-49. Occupied Bandwidth Plot (NR Band n41 - 20MHz QPSK - Full RB - Ant F)

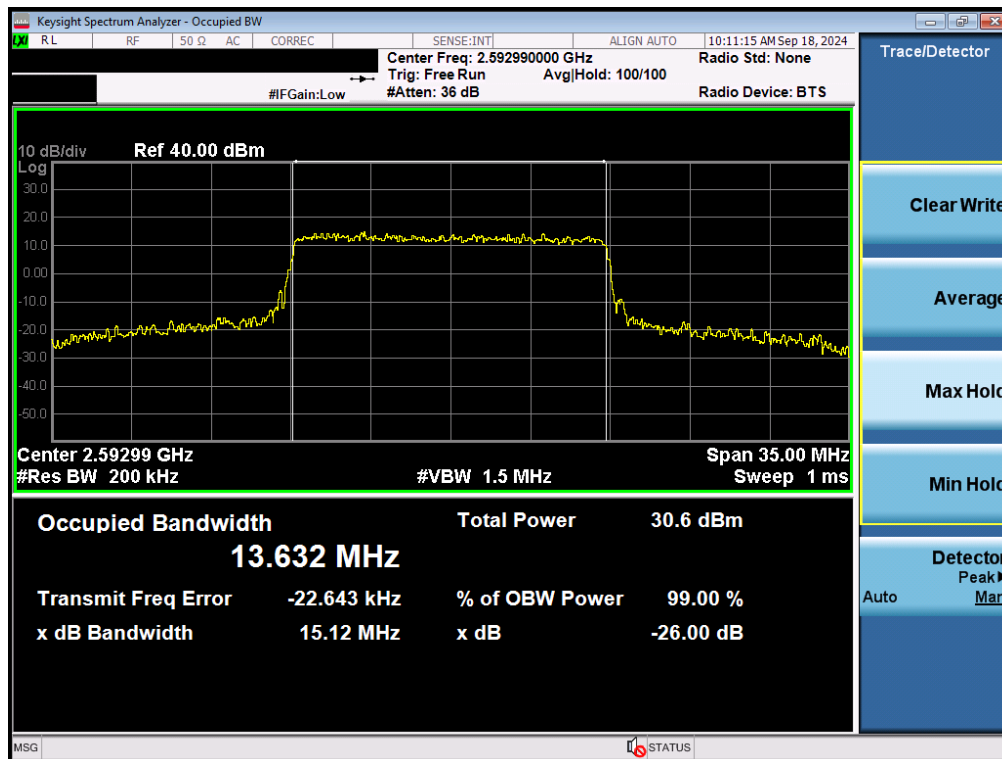


Plot 7-50. Occupied Bandwidth Plot (NR Band n41 - 20MHz 16-QAM - Full RB - Ant F)

FCC ID: A3LSMS938JPN	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2408260070-08.A3L	Test Dates: 09/03/2024 – 11/24/2024	EUT Type: Portable Handset	Page 45 of 132

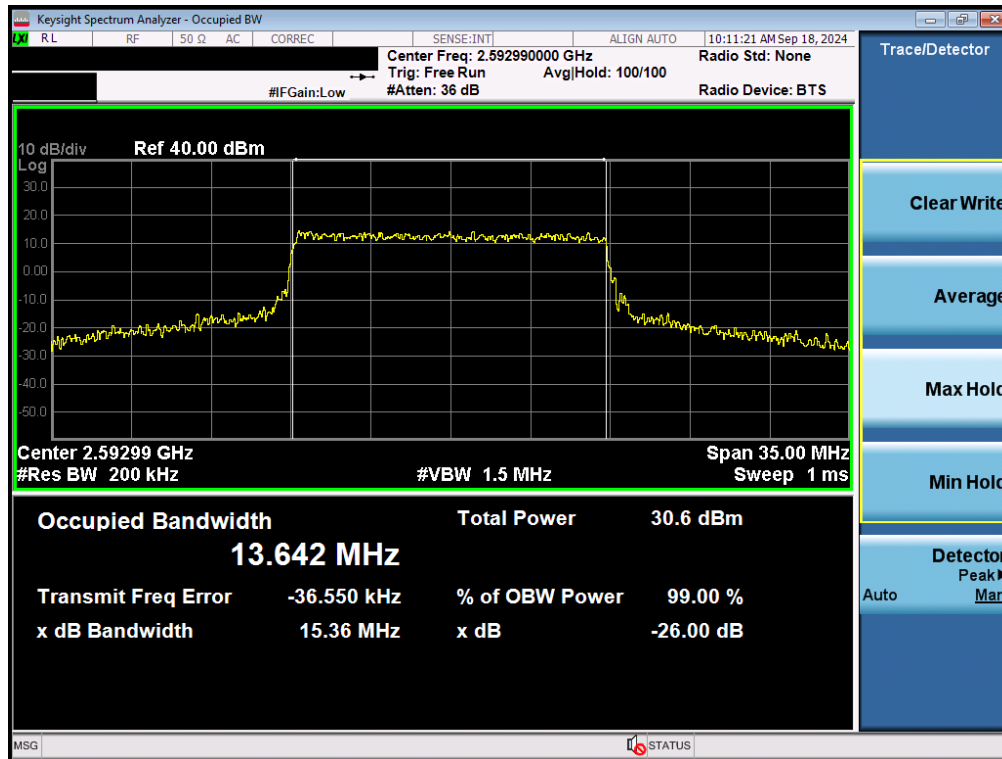


Plot 7-51. Occupied Bandwidth Plot (NR Band n41 - 15MHz $\pi/2$ BPSK - Full RB - Ant F)



Plot 7-52. Occupied Bandwidth Plot (NR Band n41 - 15MHz QPSK - Full RB - Ant F)

FCC ID: A3LSMS938JPN	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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Plot 7-53. Occupied Bandwidth Plot (NR Band n41 - 15MHz 16-QAM - Full RB - Ant F)

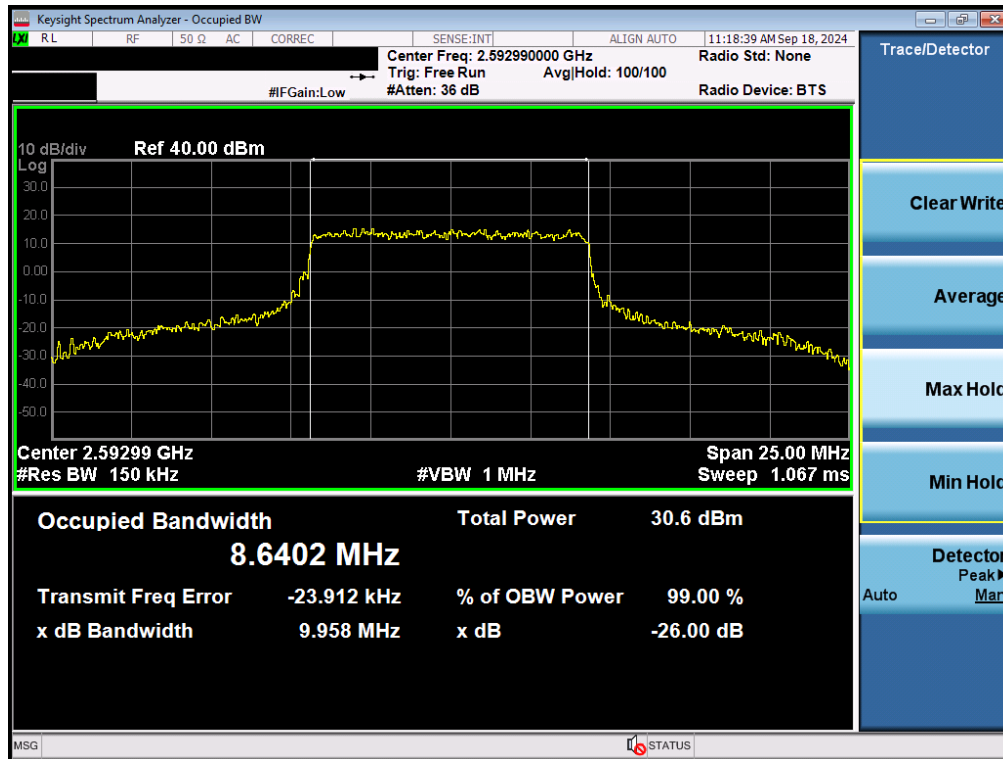


Plot 7-54. Occupied Bandwidth Plot (NR Band n41 - 10MHz $\pi/2$ BPSK - Full RB - Ant F)

FCC ID: A3LSMS938JPN	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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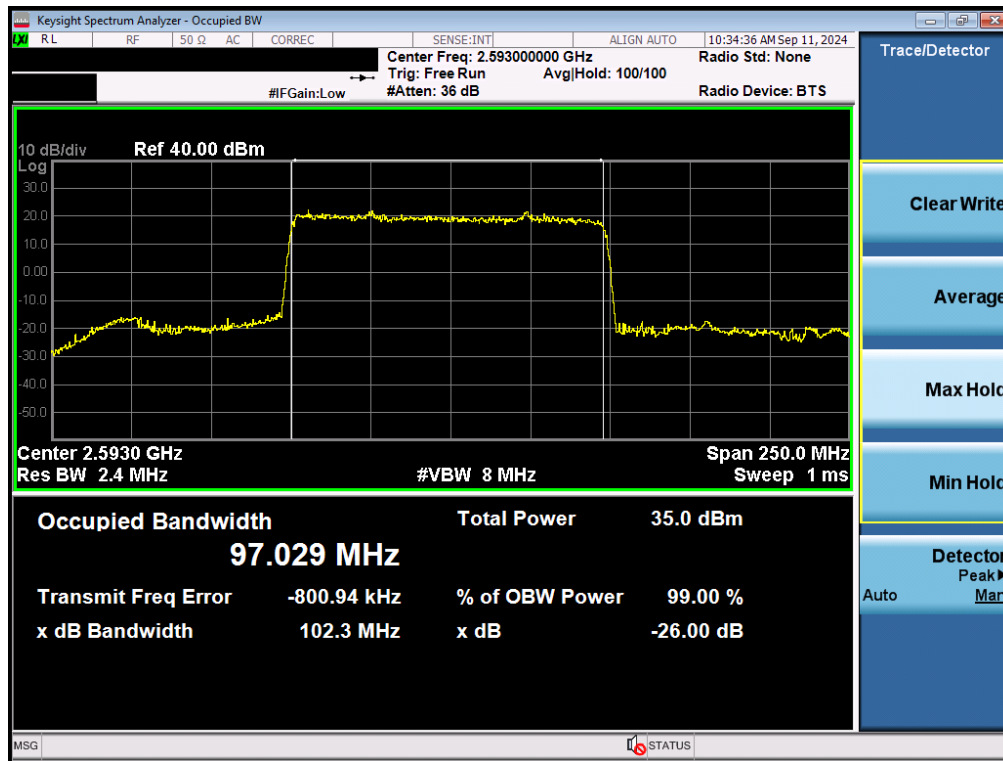
Plot 7-55. Occupied Bandwidth Plot (NR Band n41 - 10MHz QPSK - Full RB - Ant F)



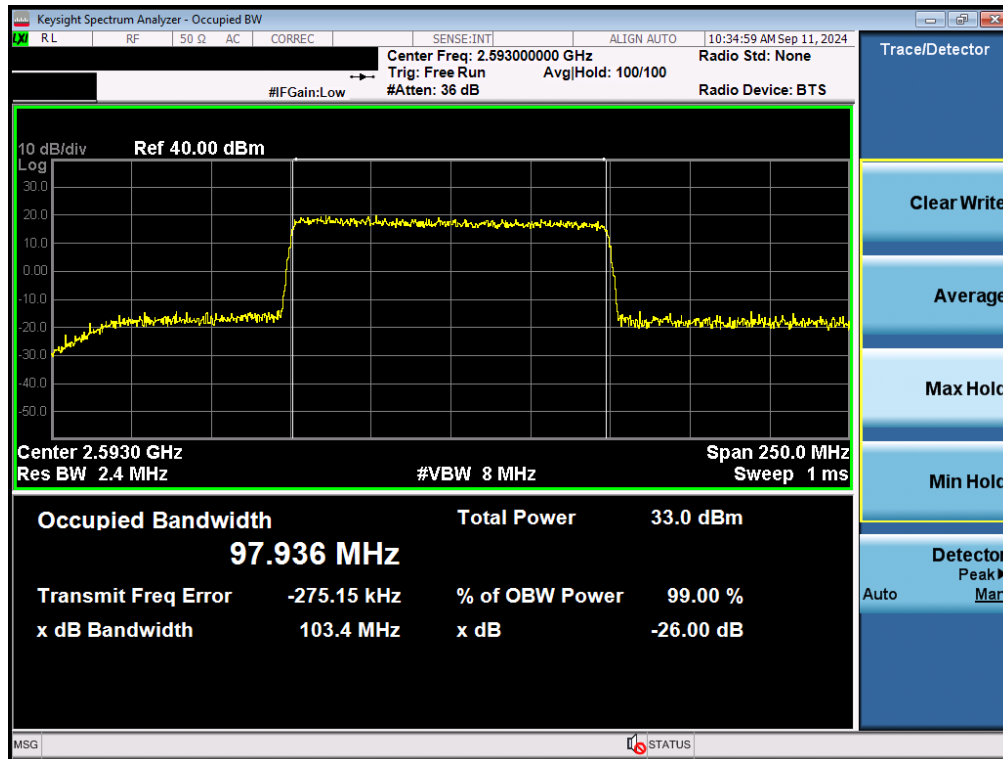
Plot 7-56. Occupied Bandwidth Plot (NR Band n41 - 10MHz 16-QAM - Full RB - Ant F)

FCC ID: A3LSMS938JPN	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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NR Band n41(PC2) – Ant B – Switching

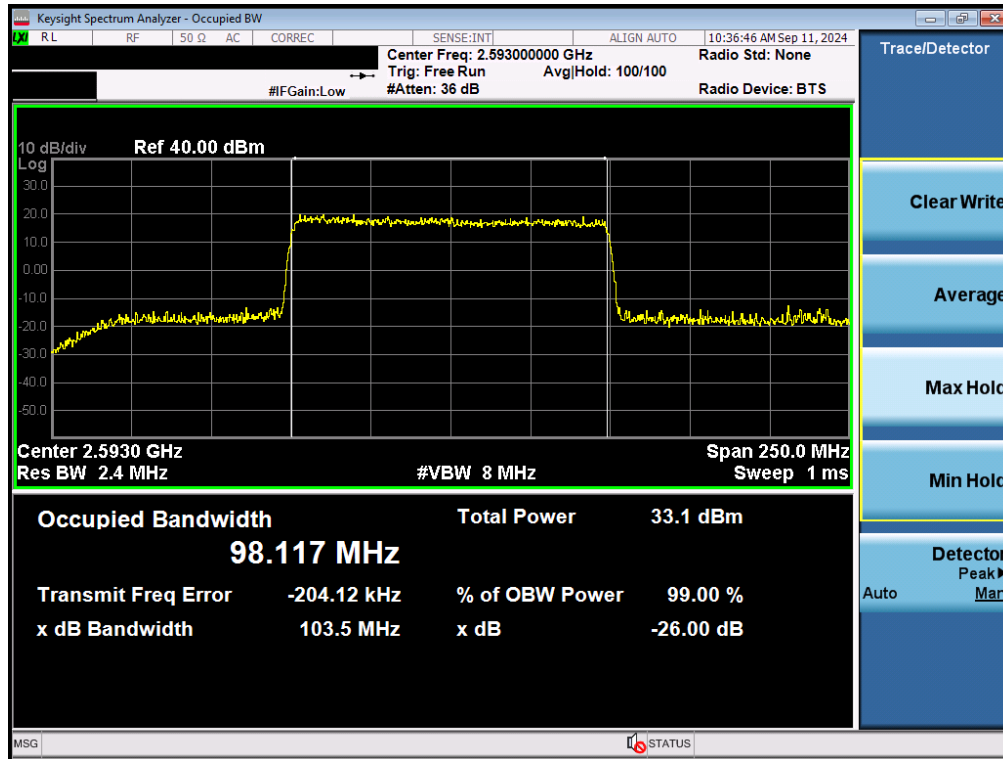


Plot 7-57. Occupied Bandwidth Plot (NR Band n41 - 100MHz $\pi/2$ BPSK - Full RB - Ant B)



Plot 7-58. Occupied Bandwidth Plot (NR Band n41 - 100MHz QPSK - Full RB - Ant B)

FCC ID: A3LSMS938JPN	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2408260070-08.A3L	Test Dates: 09/03/2024 – 11/24/2024	EUT Type: Portable Handset	Page 49 of 132

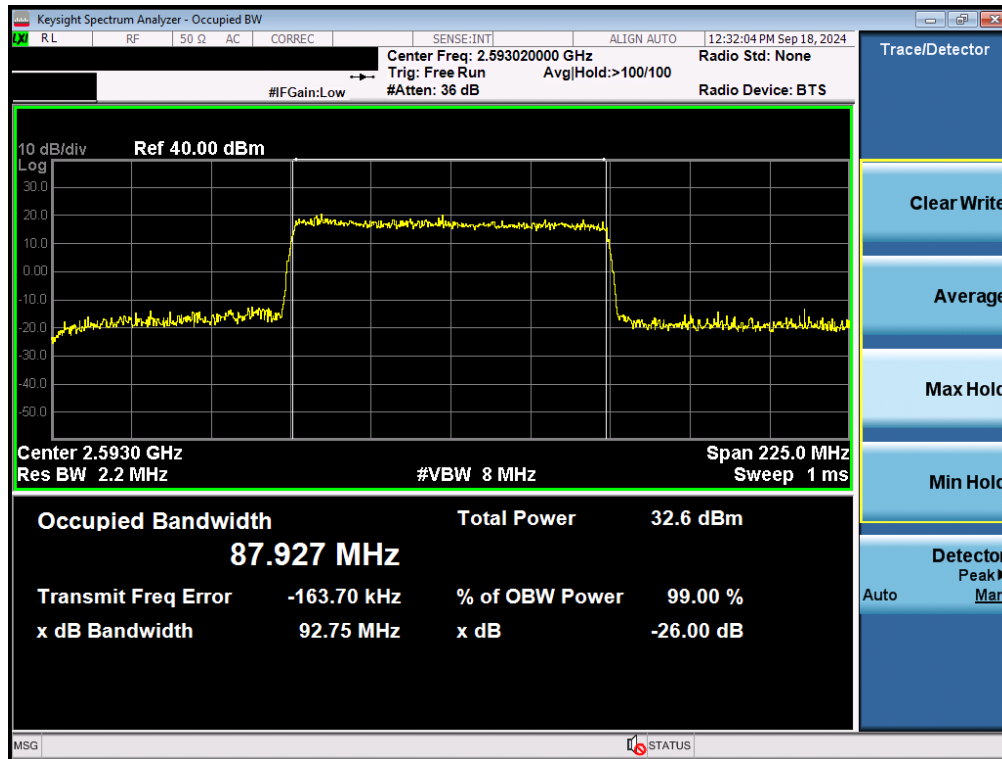


Plot 7-59. Occupied Bandwidth Plot (NR Band n41 - 100MHz 16-QAM - Full RB - Ant B)

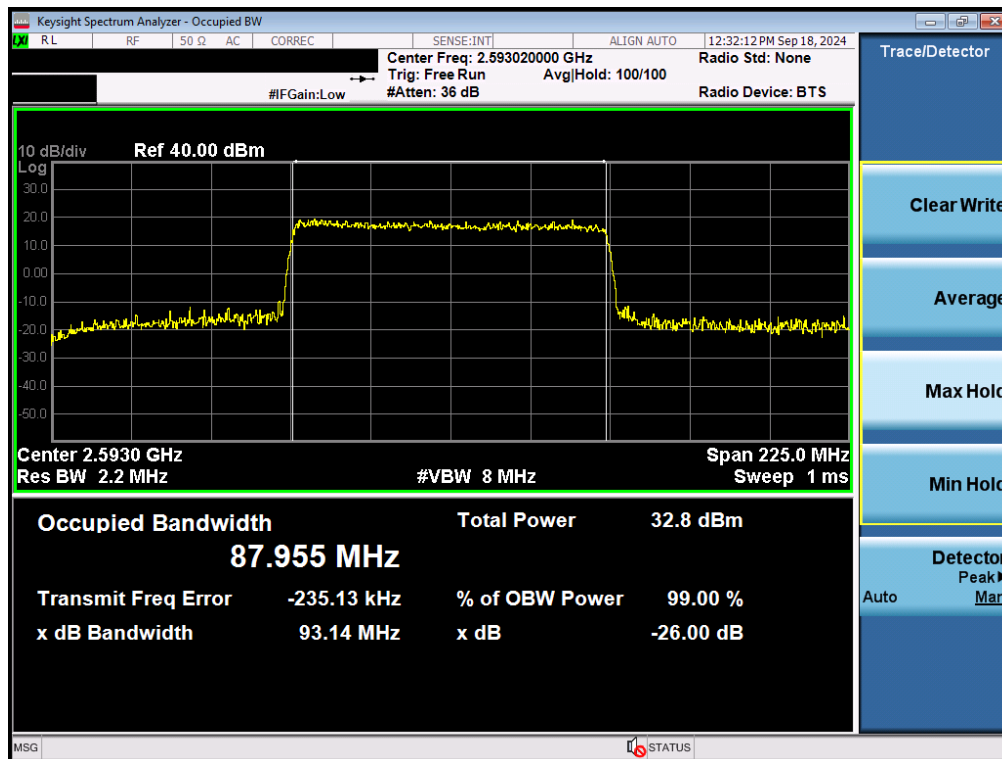


Plot 7-60. Occupied Bandwidth Plot (NR Band n41 - 90MHz $\pi/2$ BPSK - Full RB - Ant B)

FCC ID: A3LSMS938JPN	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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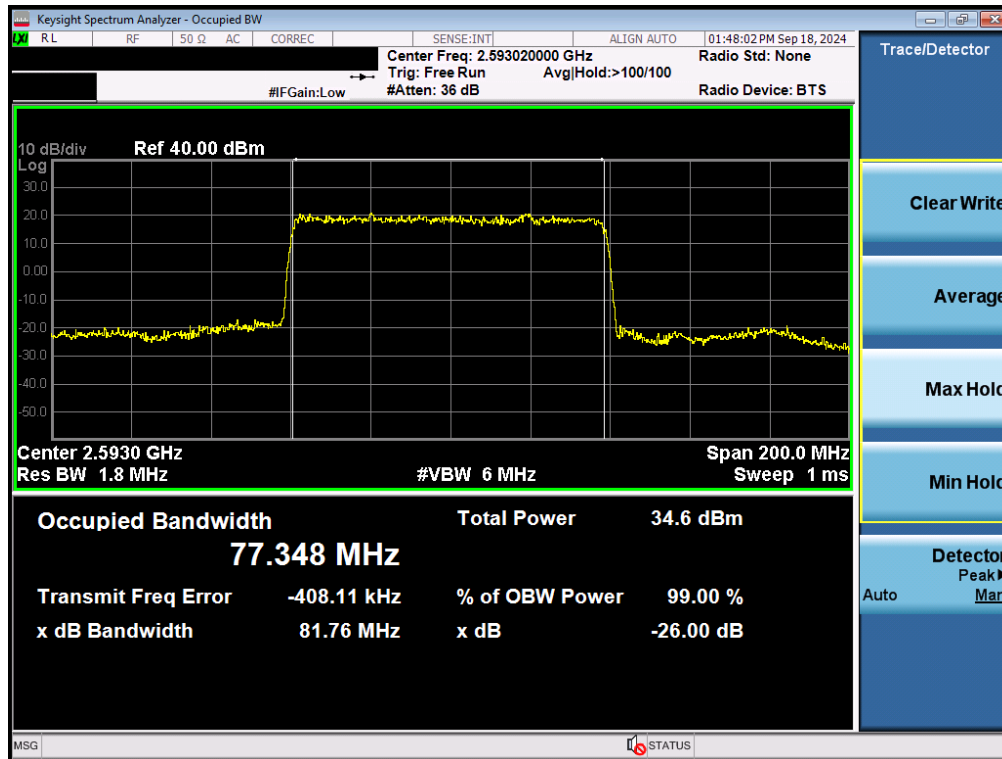


Plot 7-61. Occupied Bandwidth Plot (NR Band n41 - 90MHz QPSK - Full RB - Ant B)

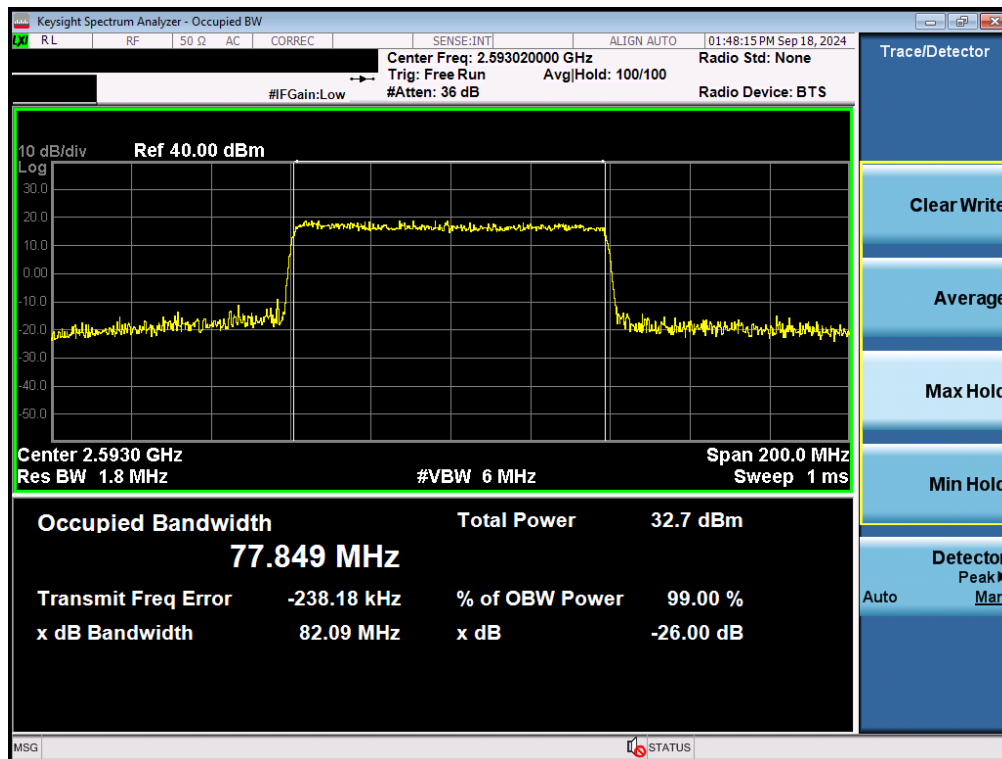


Plot 7-62. Occupied Bandwidth Plot (NR Band n41 - 90MHz 16-QAM - Full RB - Ant B)

FCC ID: A3LSMS938JPN	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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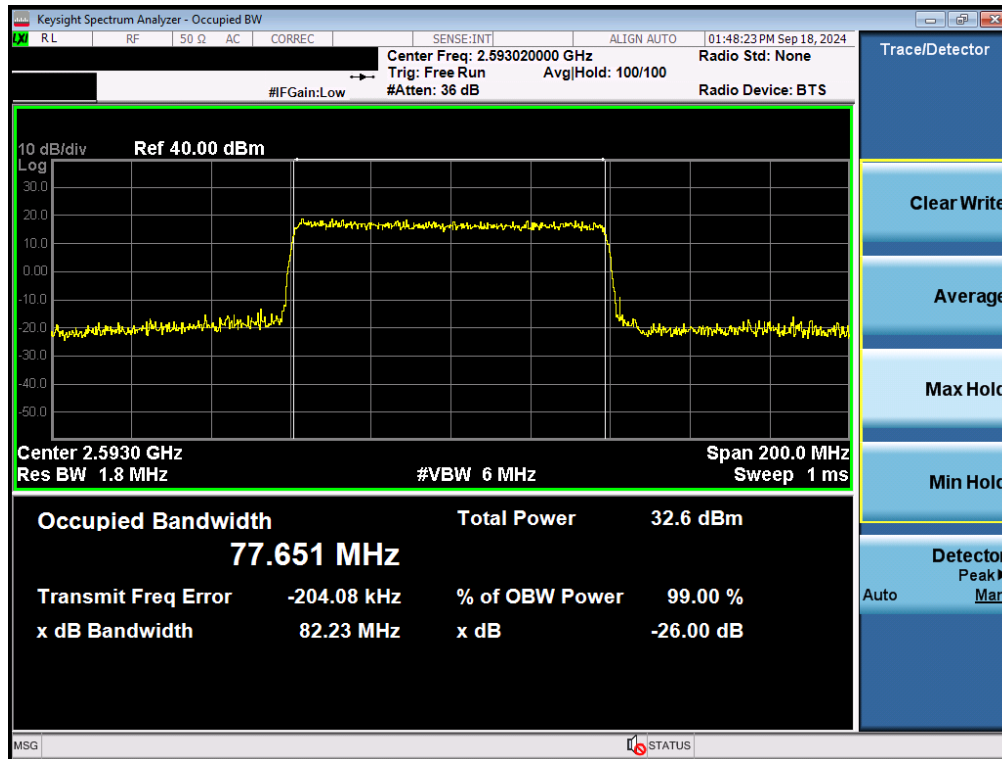


Plot 7-63. Occupied Bandwidth Plot (NR Band n41 - 80MHz $\pi/2$ BPSK - Full RB - Ant B)

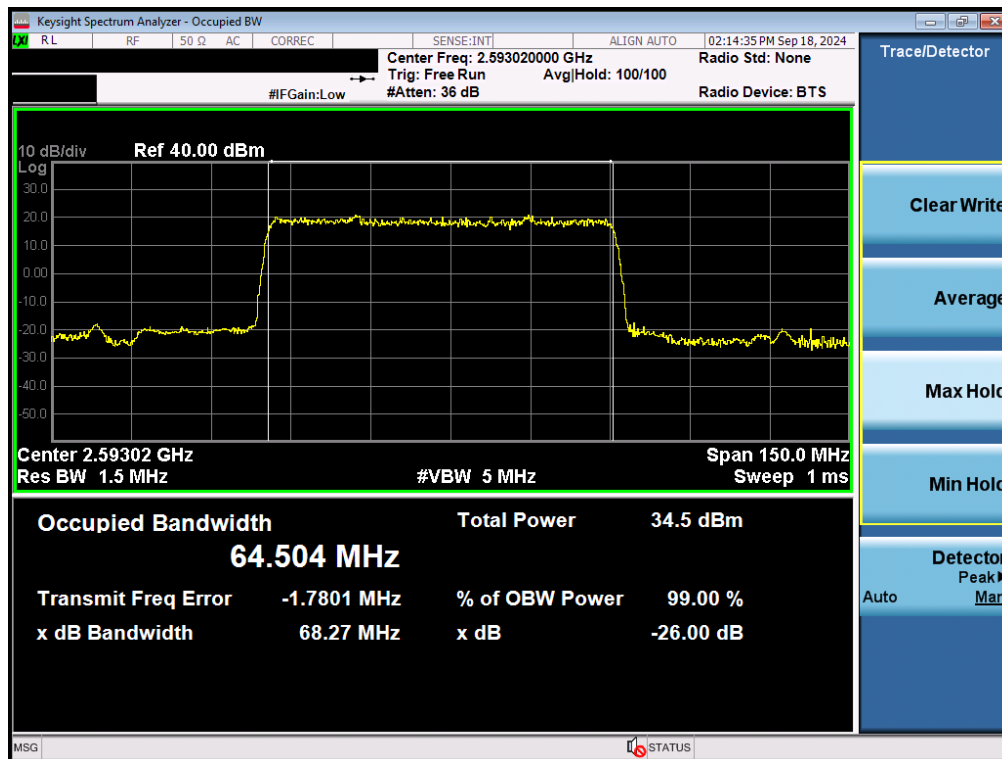


Plot 7-64. Occupied Bandwidth Plot (NR Band n41 - 80MHz QPSK - Full RB - Ant B)

FCC ID: A3LSMS938JPN	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2408260070-08.A3L	Test Dates: 09/03/2024 – 11/24/2024	EUT Type: Portable Handset	Page 52 of 132

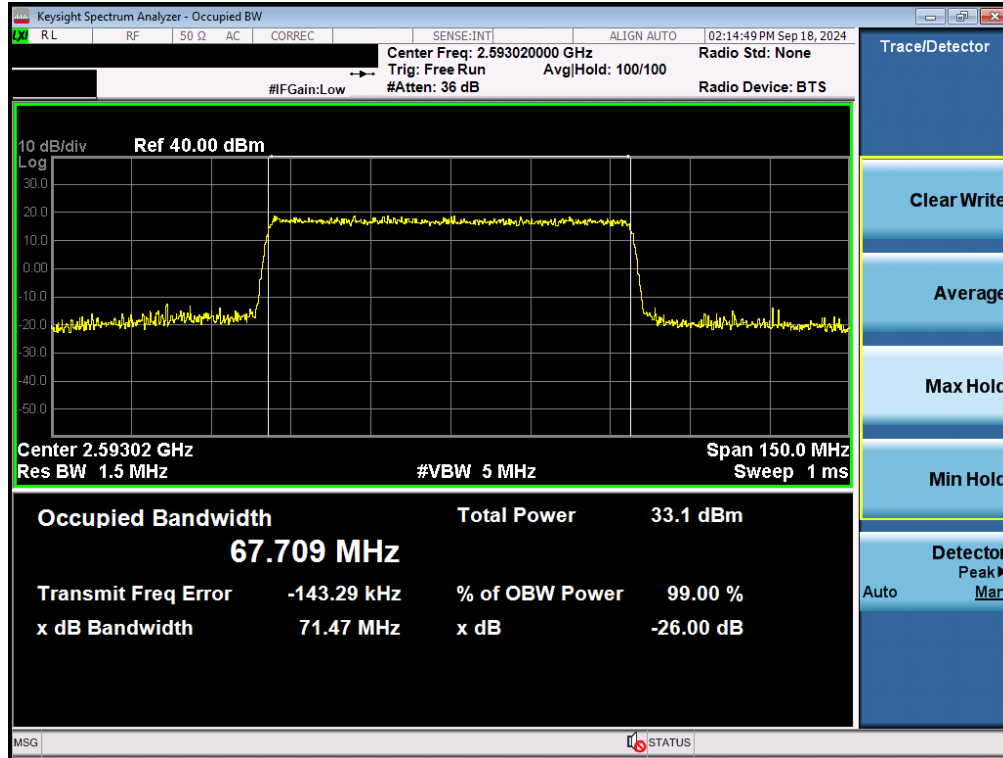


Plot 7-65. Occupied Bandwidth Plot (NR Band n41 - 80MHz 16-QAM - Full RB - Ant B)

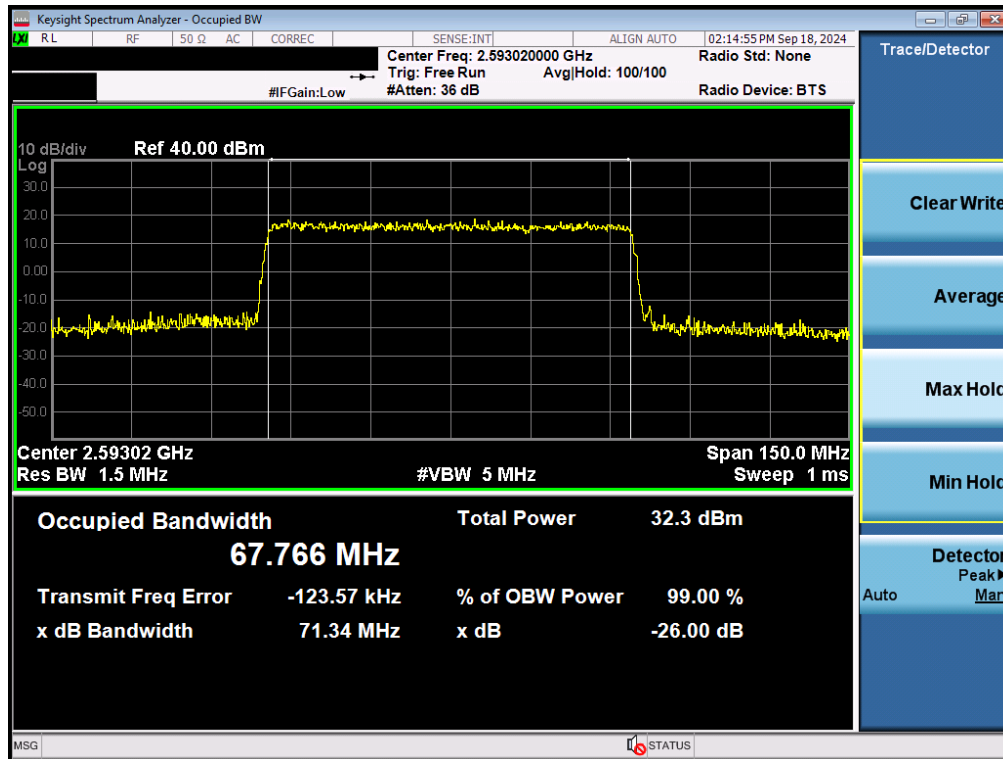


Plot 7-66. Occupied Bandwidth Plot (NR Band n41 - 70MHz 7 π /2 BPSK - Full RB - Ant B)

FCC ID: A3LSMS938JPN	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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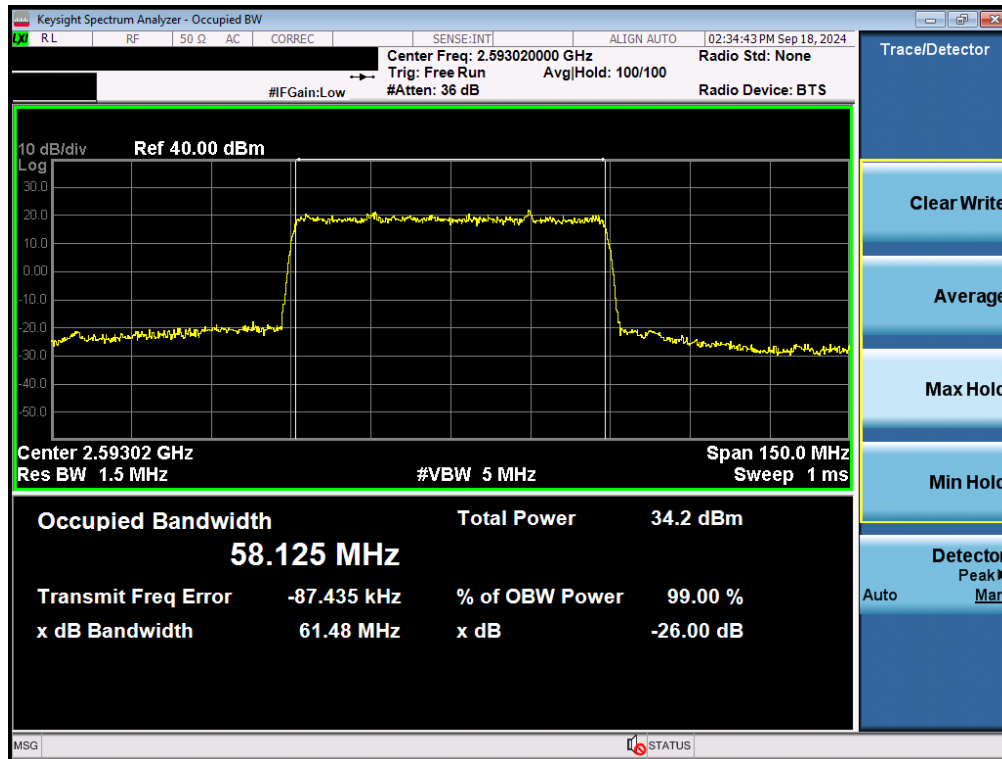


Plot 7-67. Occupied Bandwidth Plot (NR Band n41 - 70MHz QPSK - Full RB - Ant B)

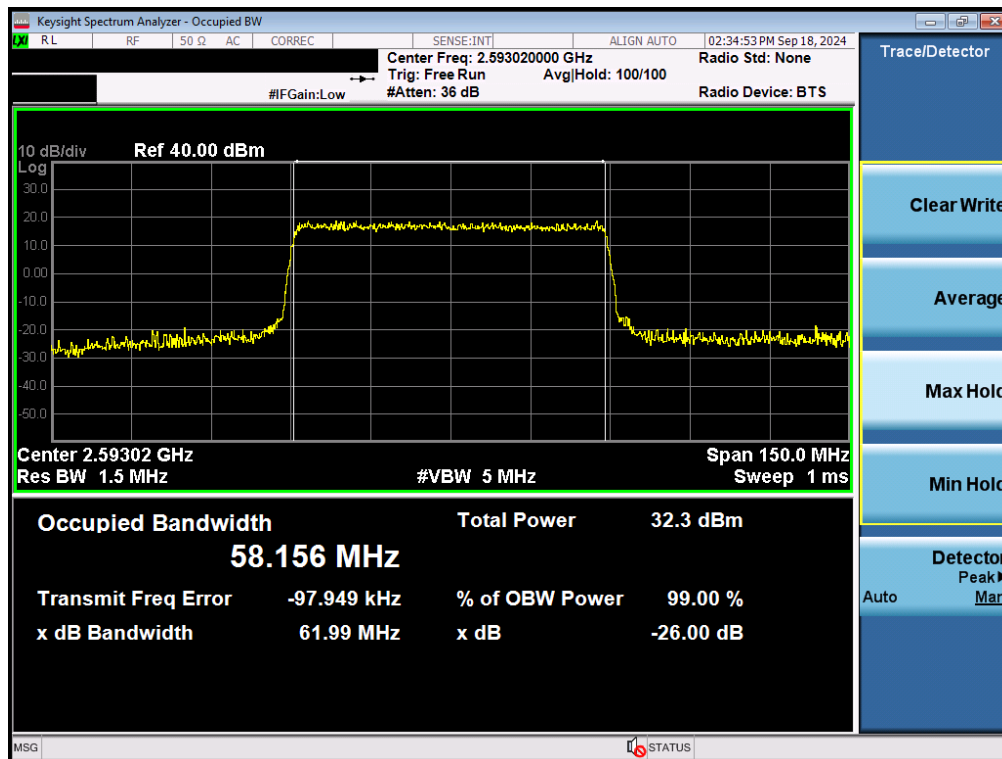


Plot 7-68. Occupied Bandwidth Plot (NR Band n41 - 70MHz 16-QAM - Full RB - Ant B)

FCC ID: A3LSMS938JPN	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2408260070-08.A3L	Test Dates: 09/03/2024 – 11/24/2024	EUT Type: Portable Handset	Page 54 of 132

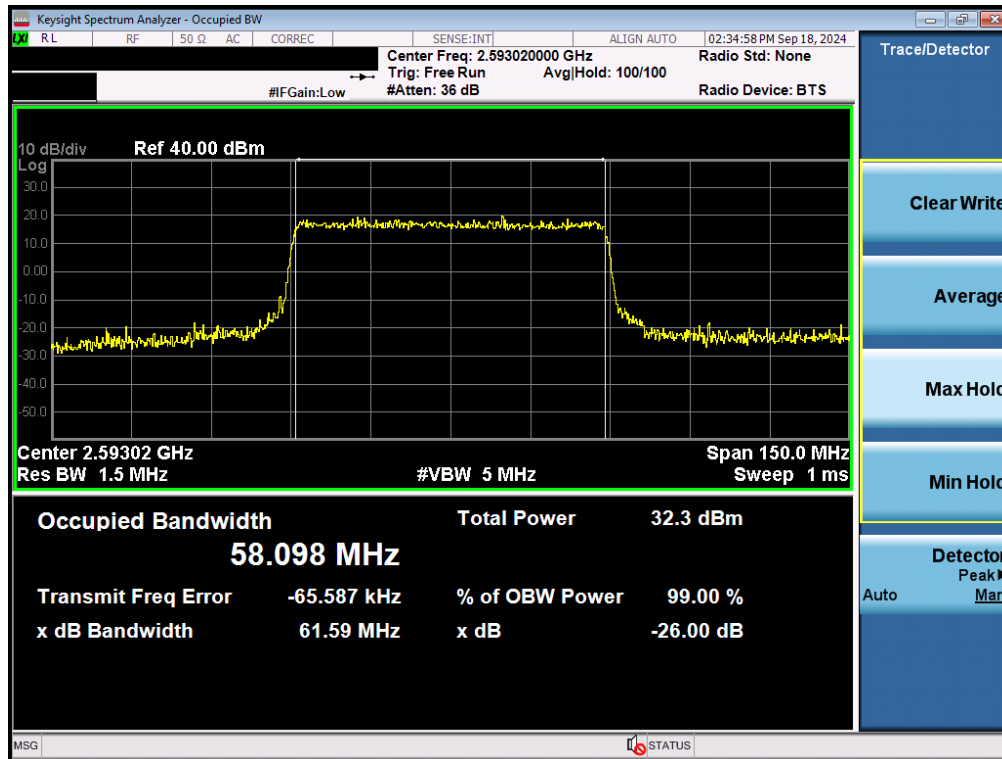


Plot 7-69. Occupied Bandwidth Plot (NR Band n41 - 60MHz $\pi/2$ BPSK - Full RB - Ant B)

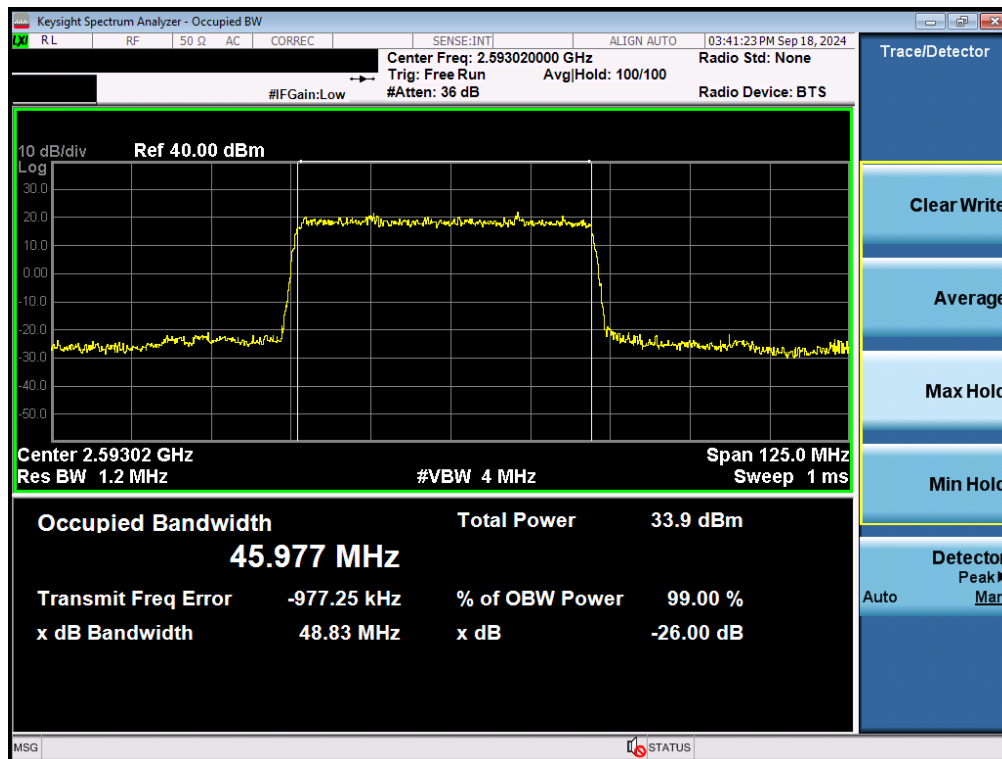


Plot 7-70. Occupied Bandwidth Plot (NR Band n41 - 60MHz QPSK - Full RB - Ant B)

FCC ID: A3LSMS938JPN	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2408260070-08.A3L	Test Dates: 09/03/2024 – 11/24/2024	EUT Type: Portable Handset	Page 55 of 132

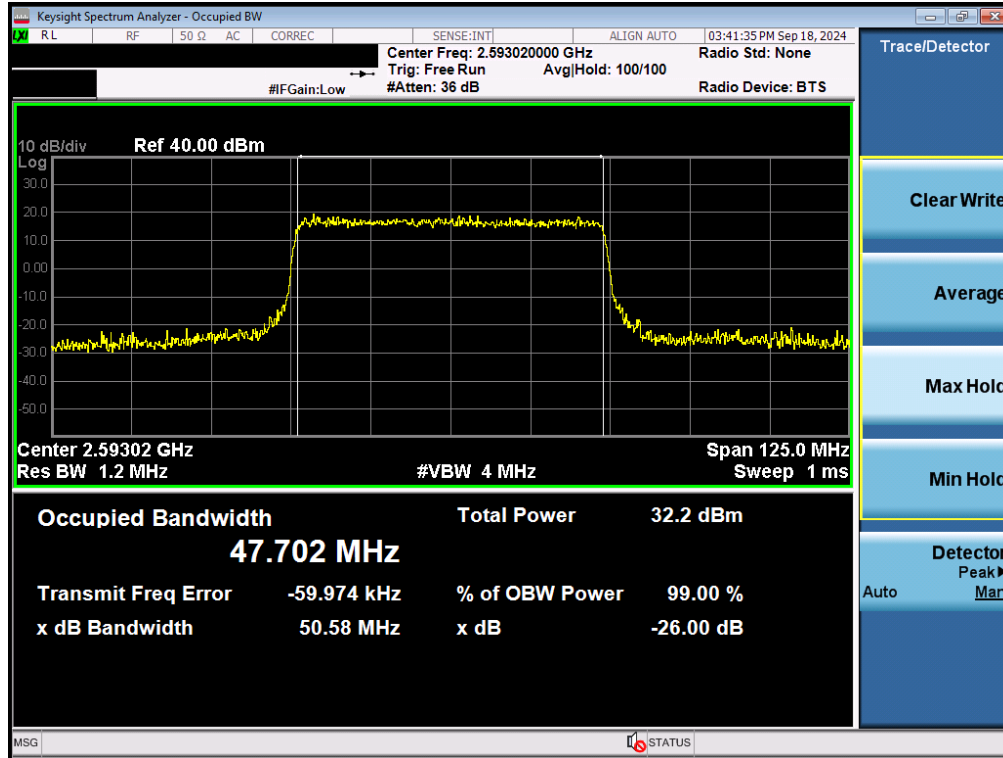


Plot 7-71. Occupied Bandwidth Plot (NR Band n41 - 60MHz 16-QAM - Full RB - Ant B)

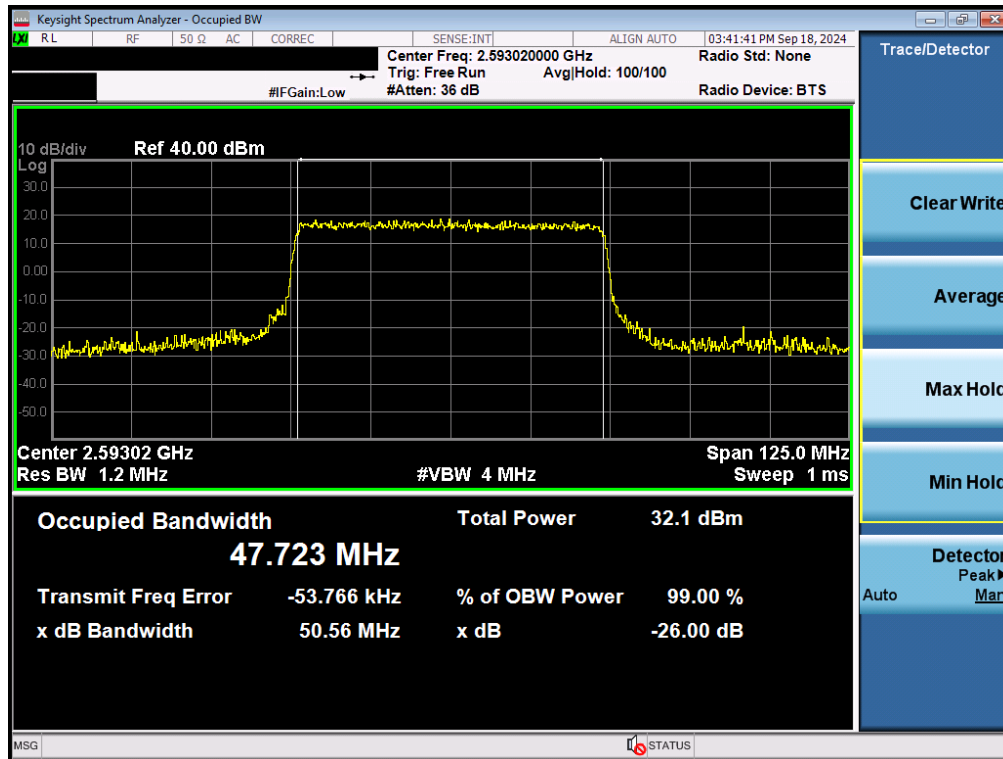


Plot 7-72. Occupied Bandwidth Plot (NR Band n41 - 50MHz $\pi/2$ BPSK - Full RB - Ant B)

FCC ID: A3LSMS938JPN	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2408260070-08.A3L	Test Dates: 09/03/2024 - 11/24/2024	EUT Type: Portable Handset	Page 56 of 132

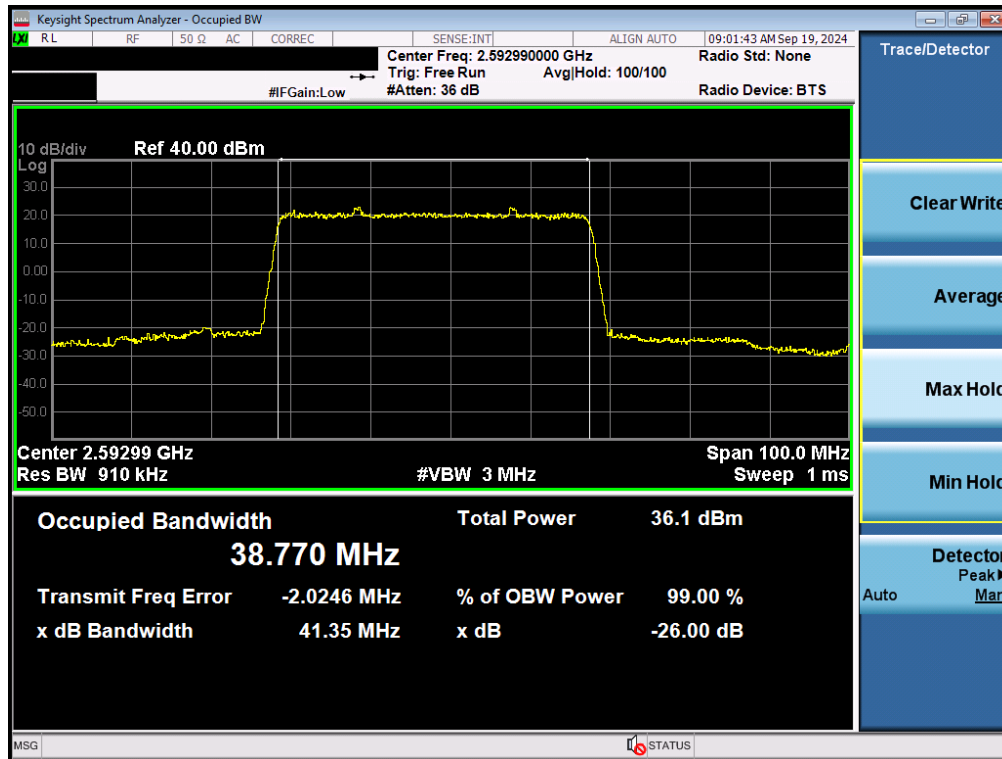


Plot 7-73. Occupied Bandwidth Plot (NR Band n41 - 50MHz QPSK - Full RB - Ant B)

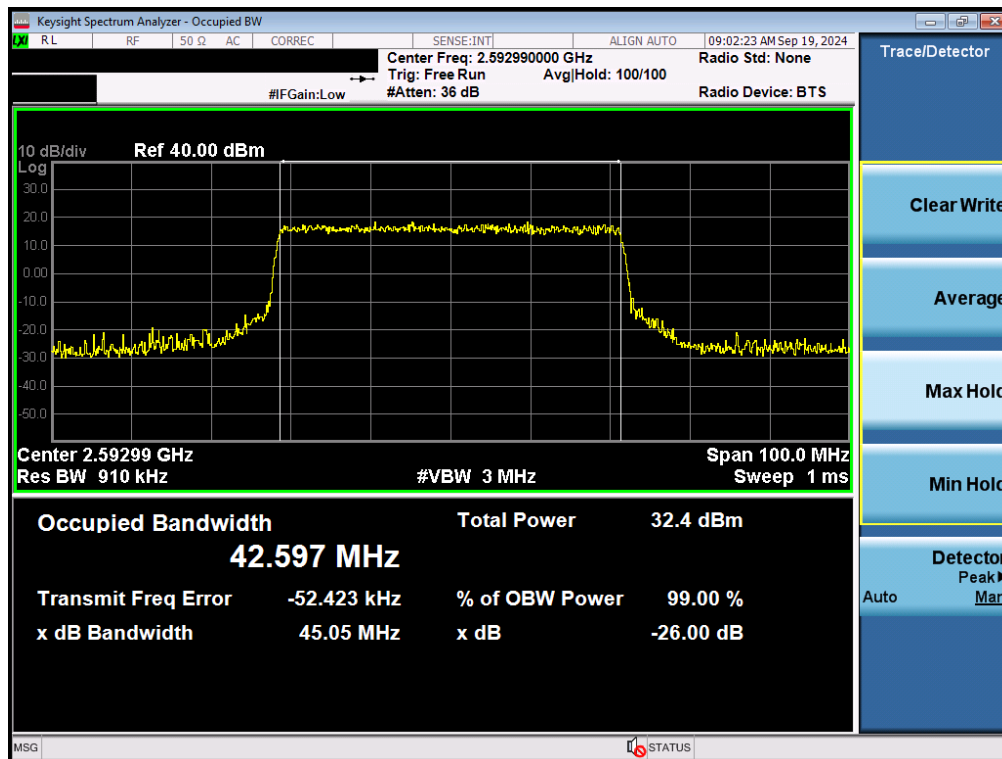


Plot 7-74. Occupied Bandwidth Plot (NR Band n41 - 50MHz 16-QAM - Full RB - Ant B)

FCC ID: A3LSMS938JPN	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2408260070-08.A3L	Test Dates: 09/03/2024 – 11/24/2024	EUT Type: Portable Handset	Page 57 of 132

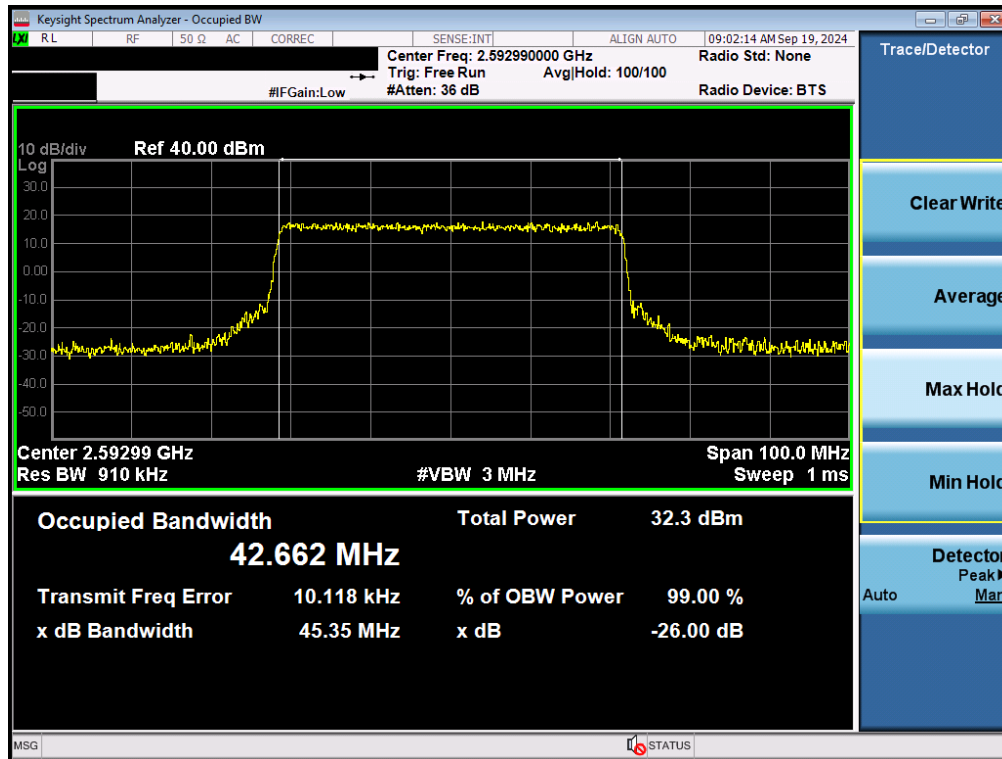


Plot 7-75. Occupied Bandwidth Plot (NR Band n41 - 45MHz $\pi/2$ BPSK - Full RB - Ant B)

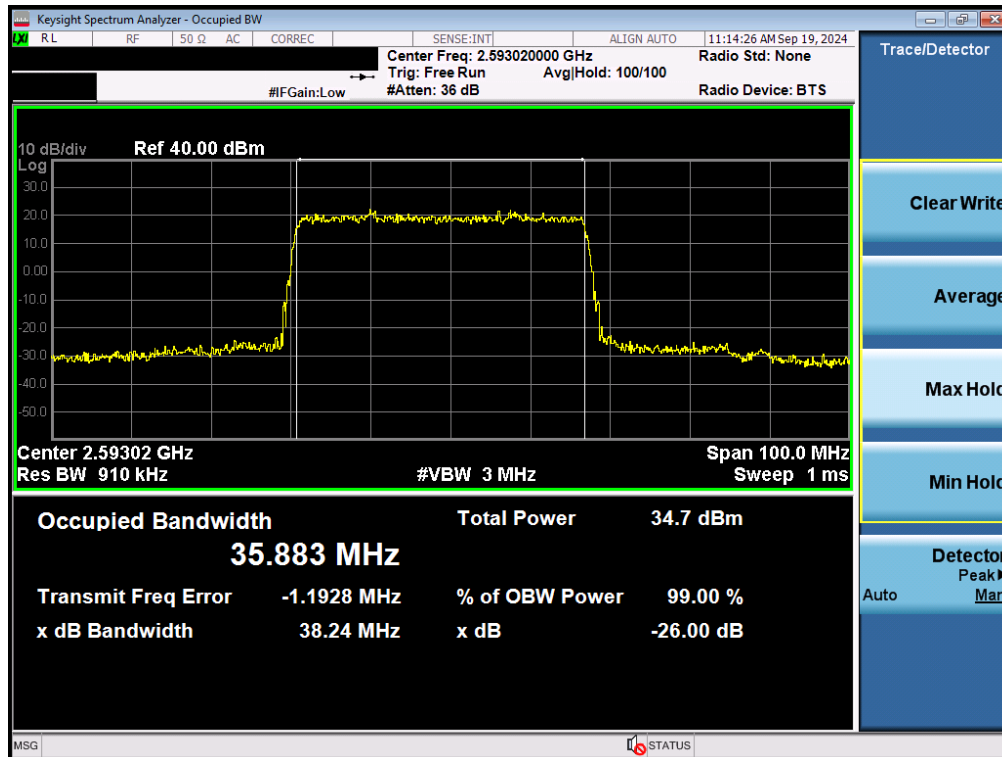


Plot 7-76. Occupied Bandwidth Plot (NR Band n41 - 45MHz QPSK - Full RB - Ant B)

FCC ID: A3LSMS938JPN	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2408260070-08.A3L	Test Dates: 09/03/2024 – 11/24/2024	EUT Type: Portable Handset	Page 58 of 132

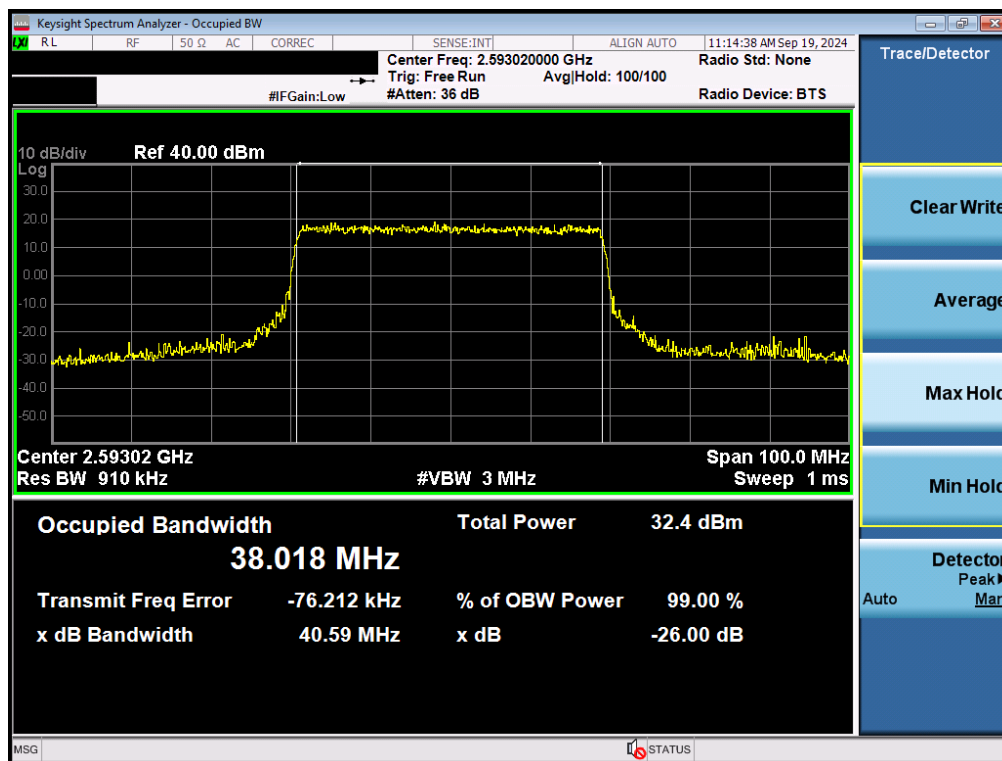


Plot 7-77. Occupied Bandwidth Plot (NR Band n41 - 45MHz 16-QAM - Full RB - Ant B)

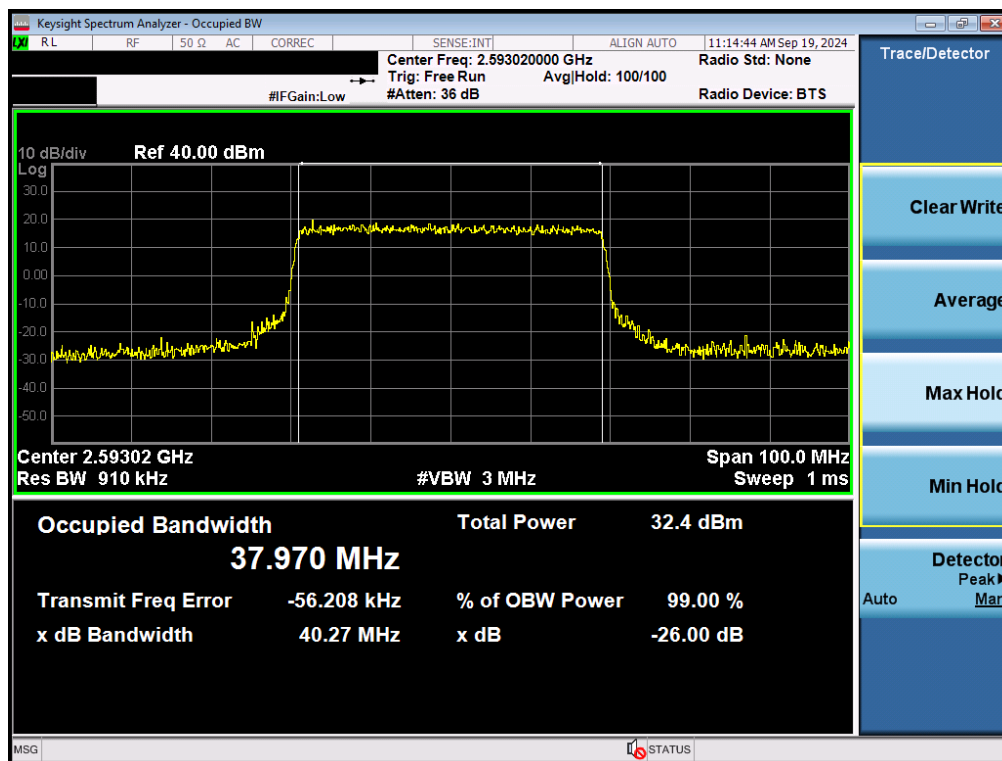


Plot 7-78. Occupied Bandwidth Plot (NR Band n41 - 40MHz $\pi/2$ BPSK - Full RB - Ant B)

FCC ID: A3LSMS938JPN	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2408260070-08.A3L	Test Dates: 09/03/2024 – 11/24/2024	EUT Type: Portable Handset	Page 59 of 132

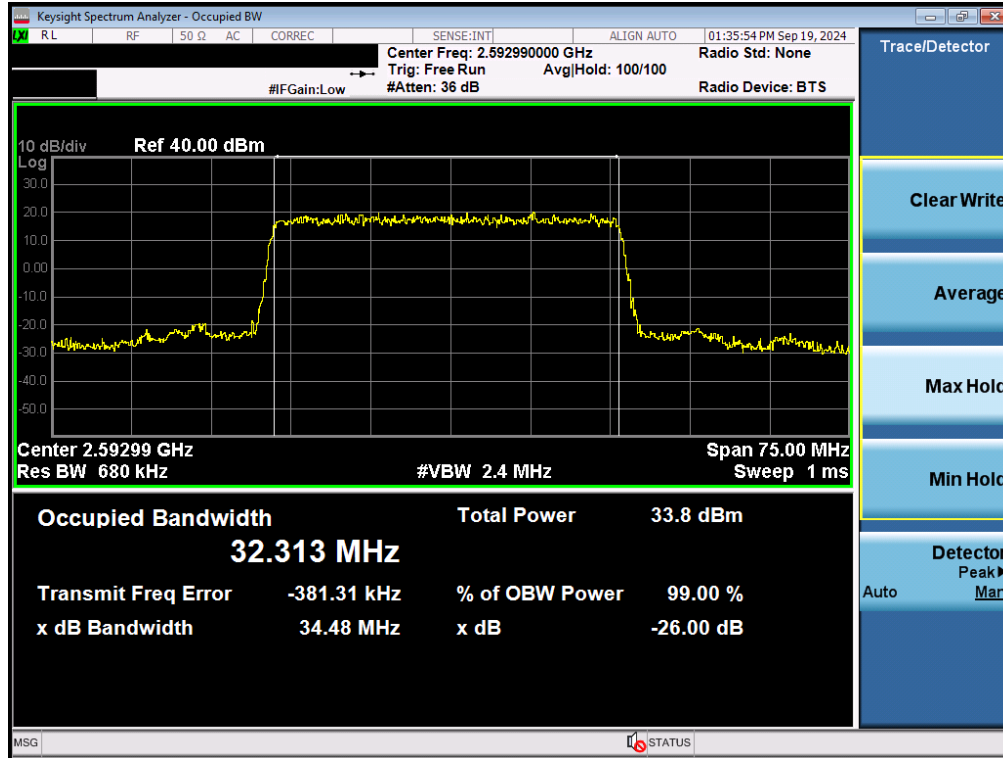


Plot 7-79. Occupied Bandwidth Plot (NR Band n41 - 40MHz QPSK - Full RB - Ant B)

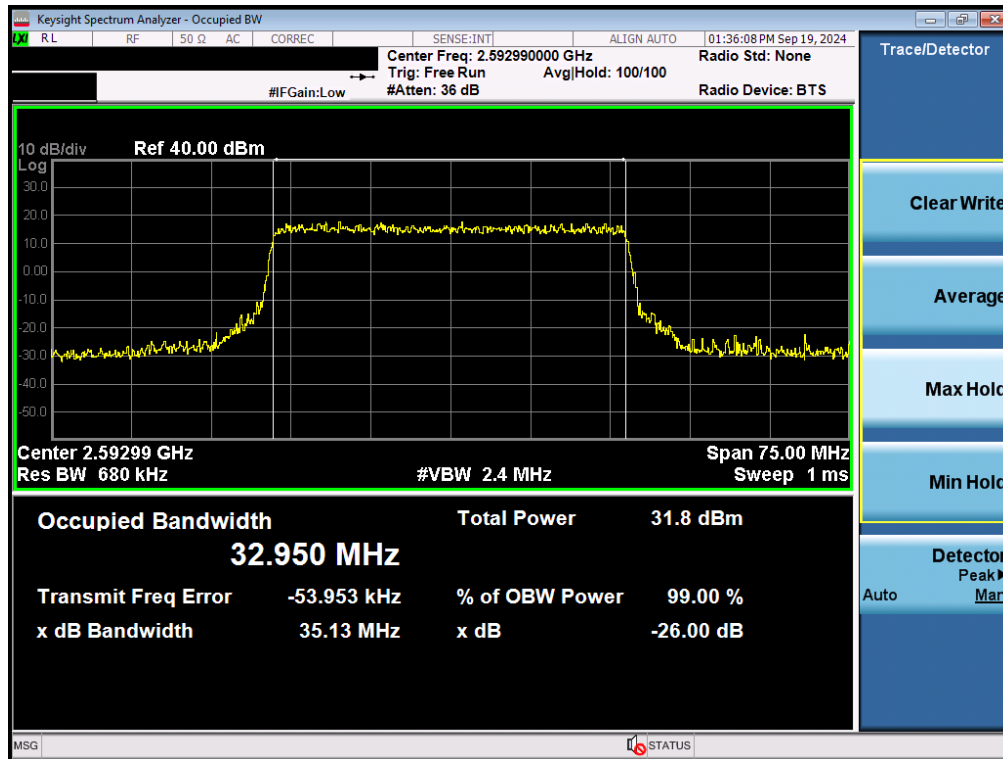


Plot 7-80. Occupied Bandwidth Plot (NR Band n41 - 40MHz 16-QAM - Full RB - Ant B)

FCC ID: A3LSMS938JPN	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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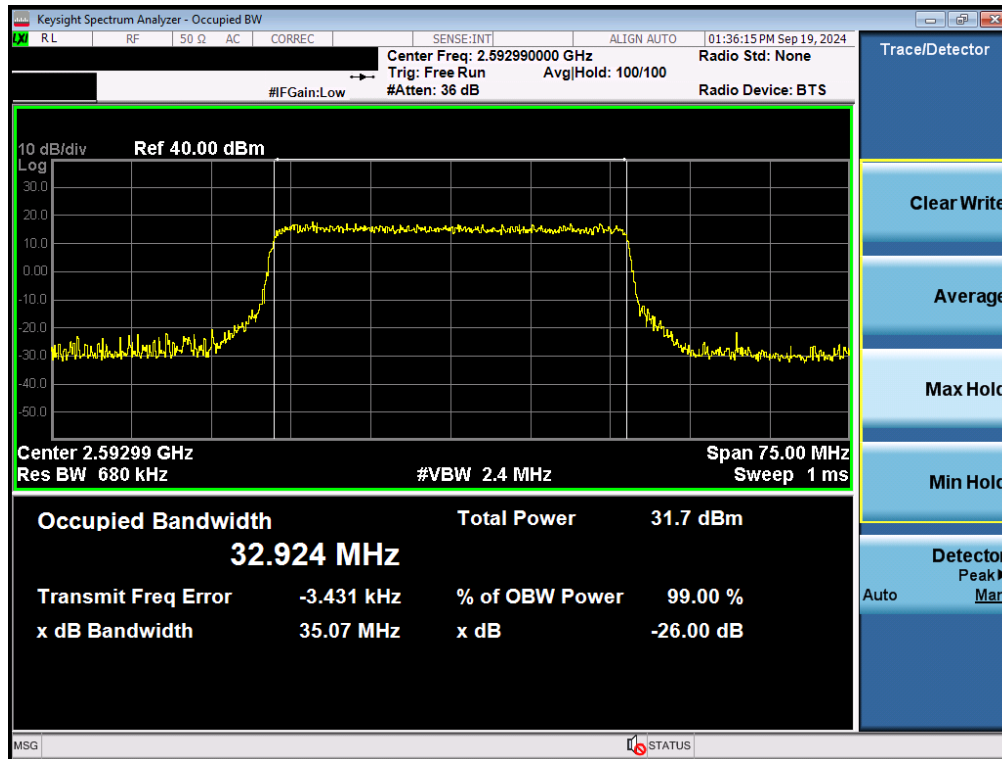


Plot 7-81. Occupied Bandwidth Plot (NR Band n41 - 35MHz $\pi/2$ BPSK - Full RB - Ant B)

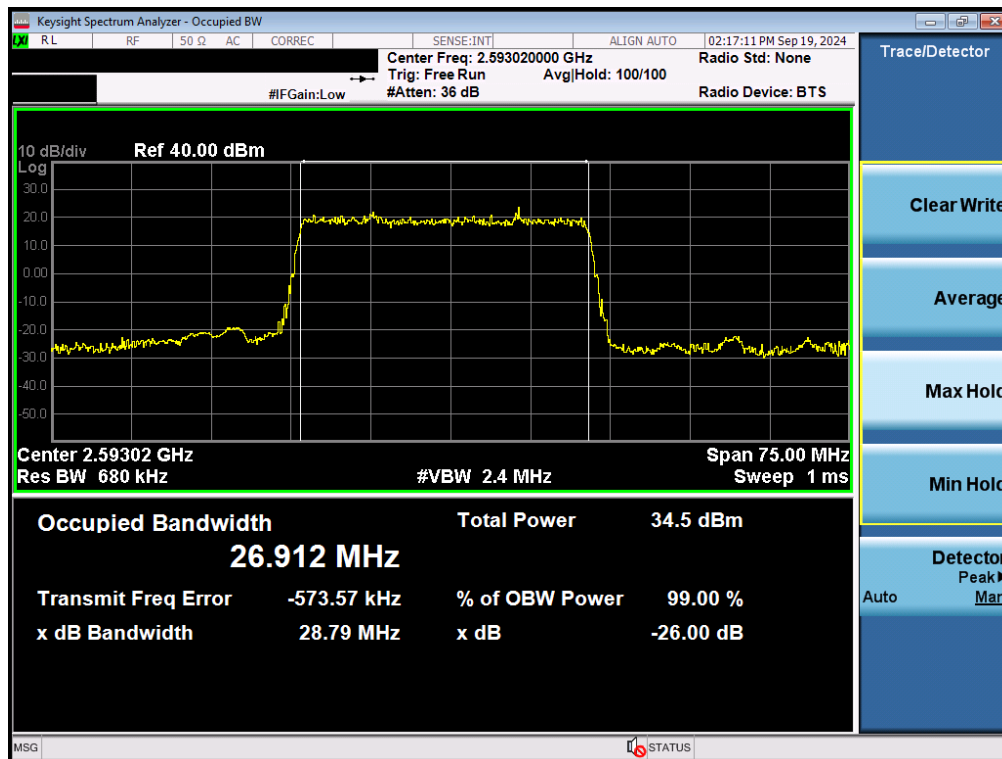


Plot 7-82. Occupied Bandwidth Plot (NR Band n41 - 35MHz QPSK - Full RB - Ant B)

FCC ID: A3LSMS938JPN	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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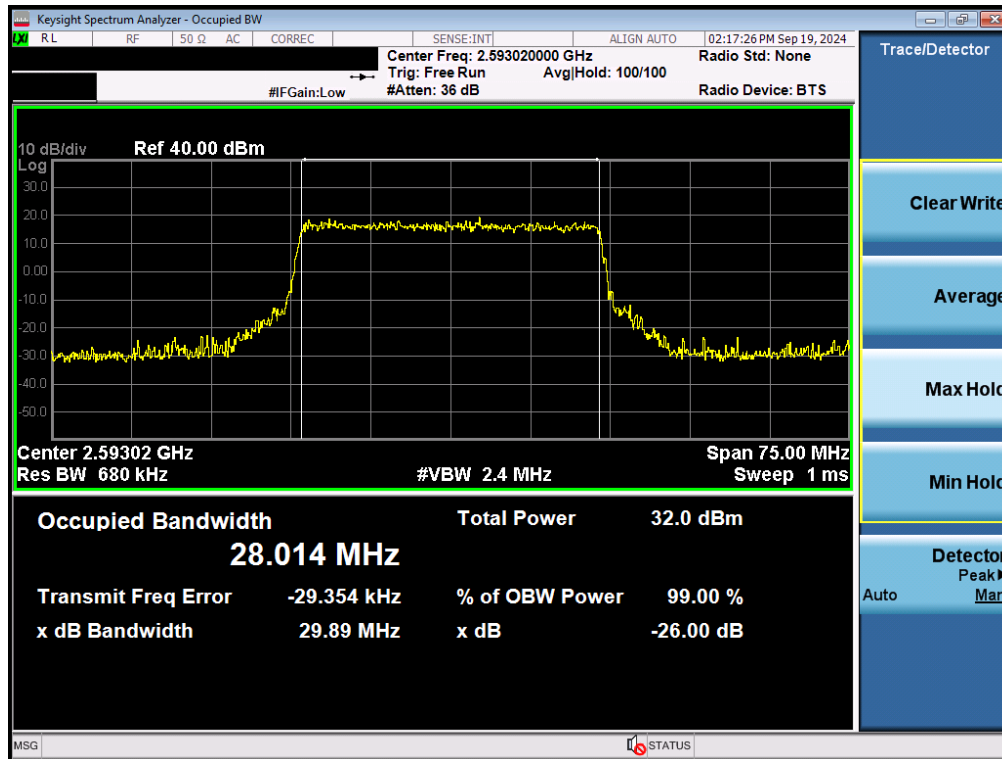


Plot 7-83. Occupied Bandwidth Plot (NR Band n41 - 35MHz 16-QAM - Full RB - Ant B)

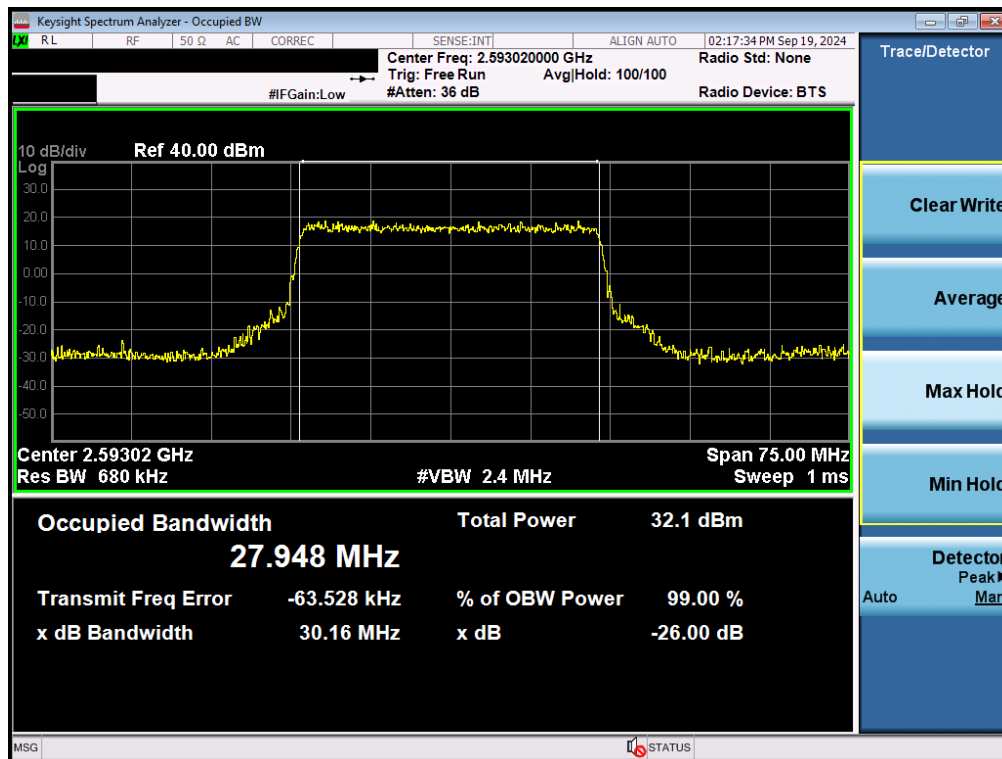


Plot 7-84. Occupied Bandwidth Plot (NR Band n41 - 30MHz $\pi/2$ BPSK - Full RB - Ant B)

FCC ID: A3LSMS938JPN	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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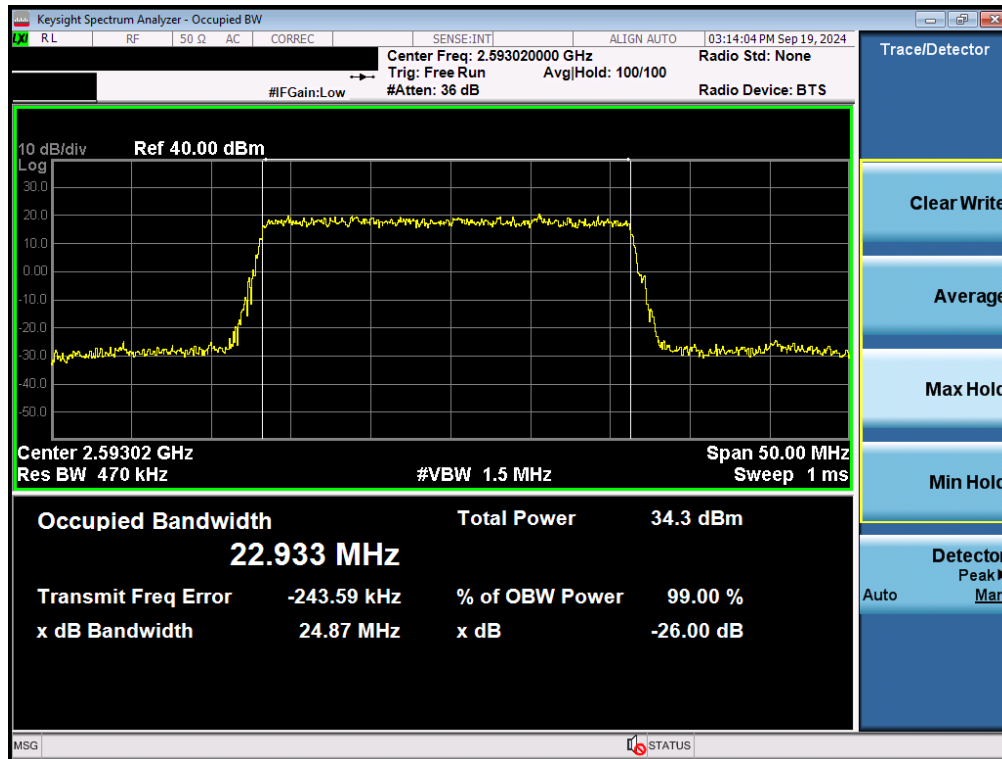


Plot 7-85. Occupied Bandwidth Plot (NR Band n41 - 30MHz QPSK - Full RB - Ant B)

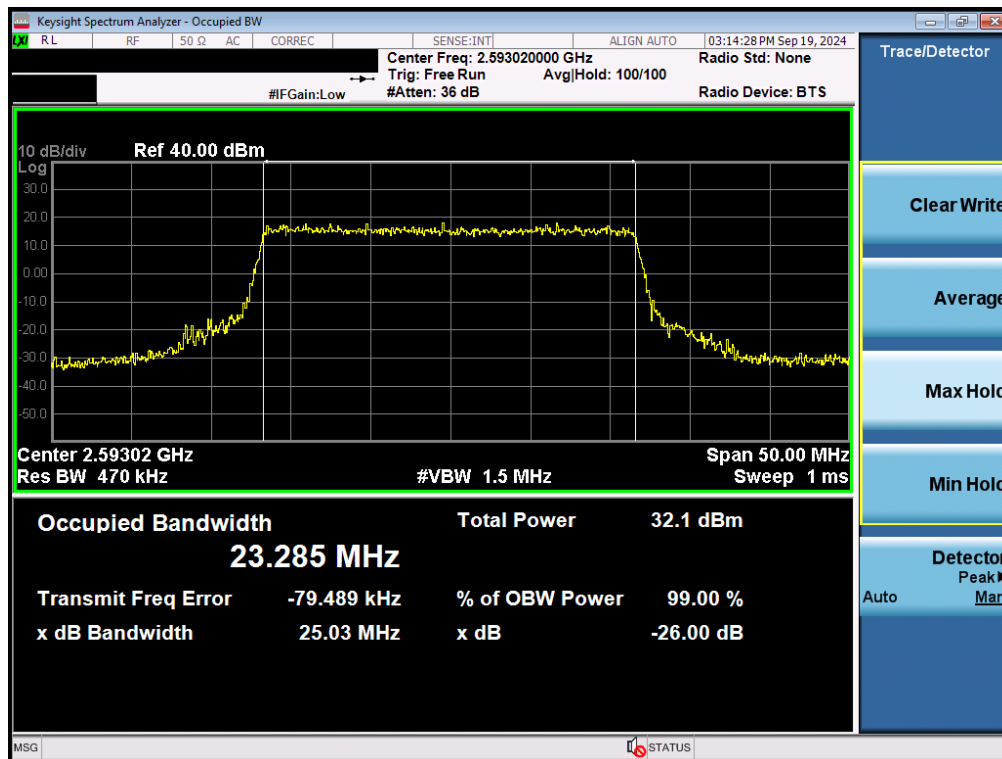


Plot 7-86. Occupied Bandwidth Plot (NR Band n41 - 30MHz 16-QAM - Full RB - Ant B)

FCC ID: A3LSMS938JPN	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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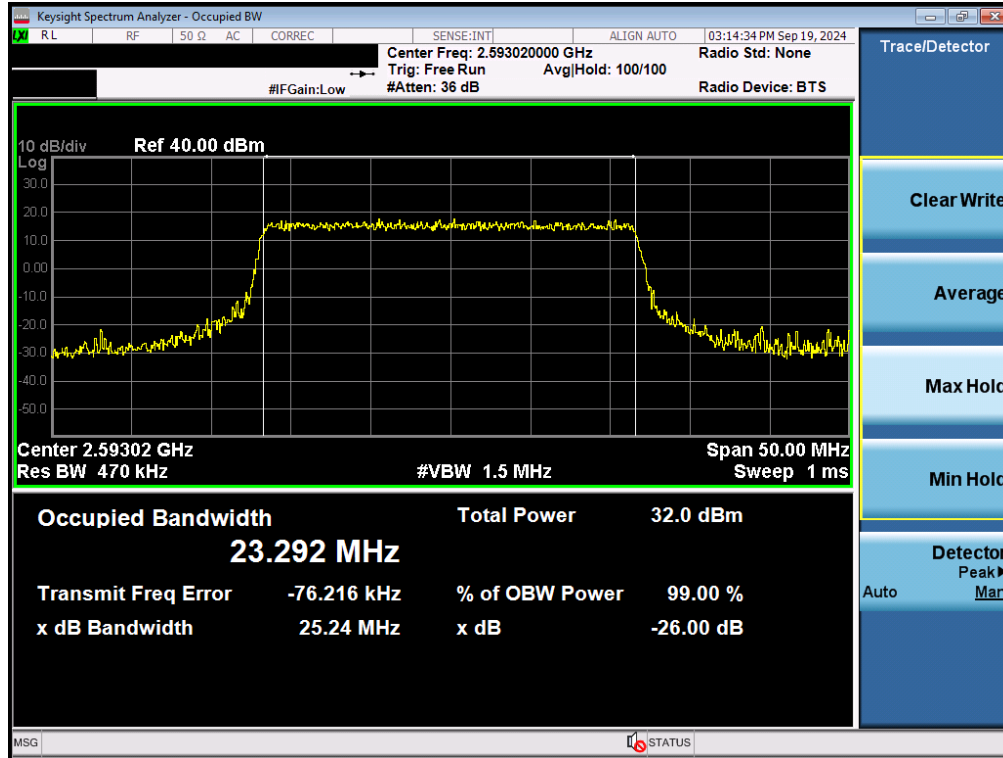


Plot 7-87. Occupied Bandwidth Plot (NR Band n41 - 25MHz $\pi/2$ BPSK - Full RB - Ant B)

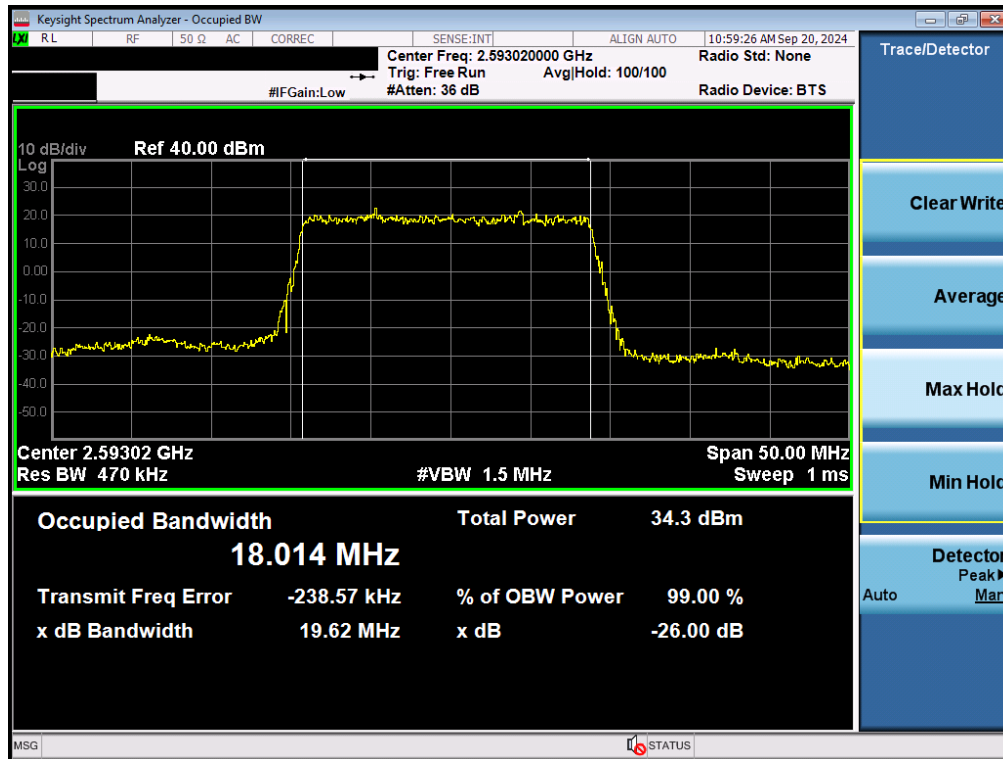


Plot 7-88. Occupied Bandwidth Plot (NR Band n41 - 25MHz QPSK - Full RB - Ant B)

FCC ID: A3LSMS938JPN	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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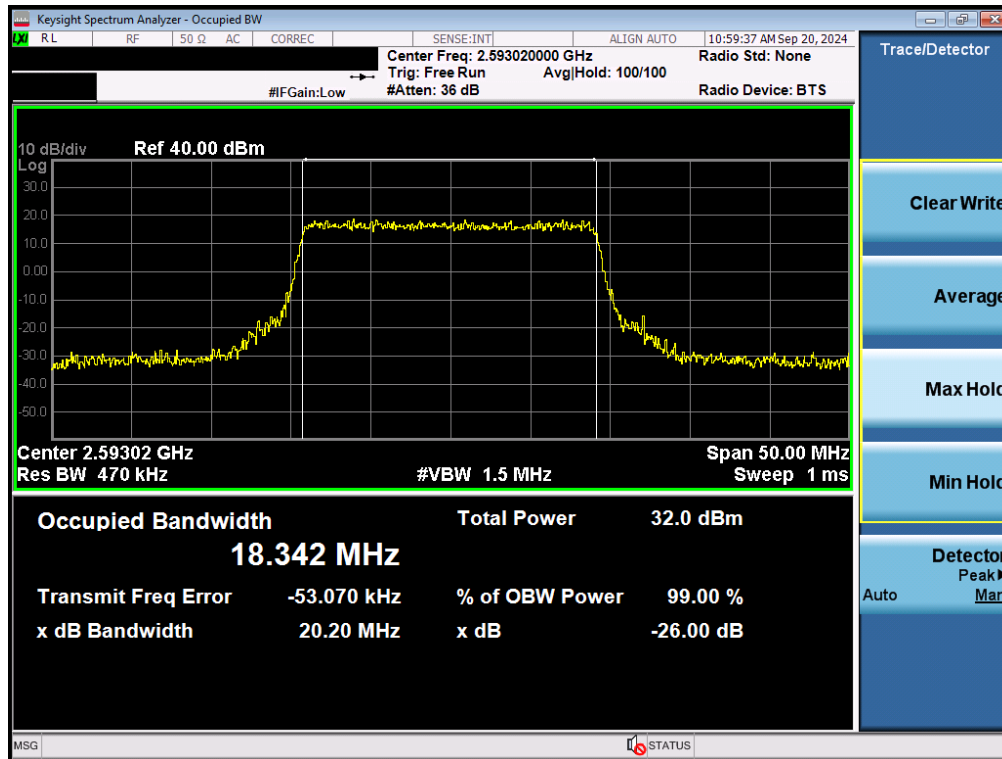


Plot 7-89. Occupied Bandwidth Plot (NR Band n41 - 25MHz 16-QAM - Full RB - Ant B)

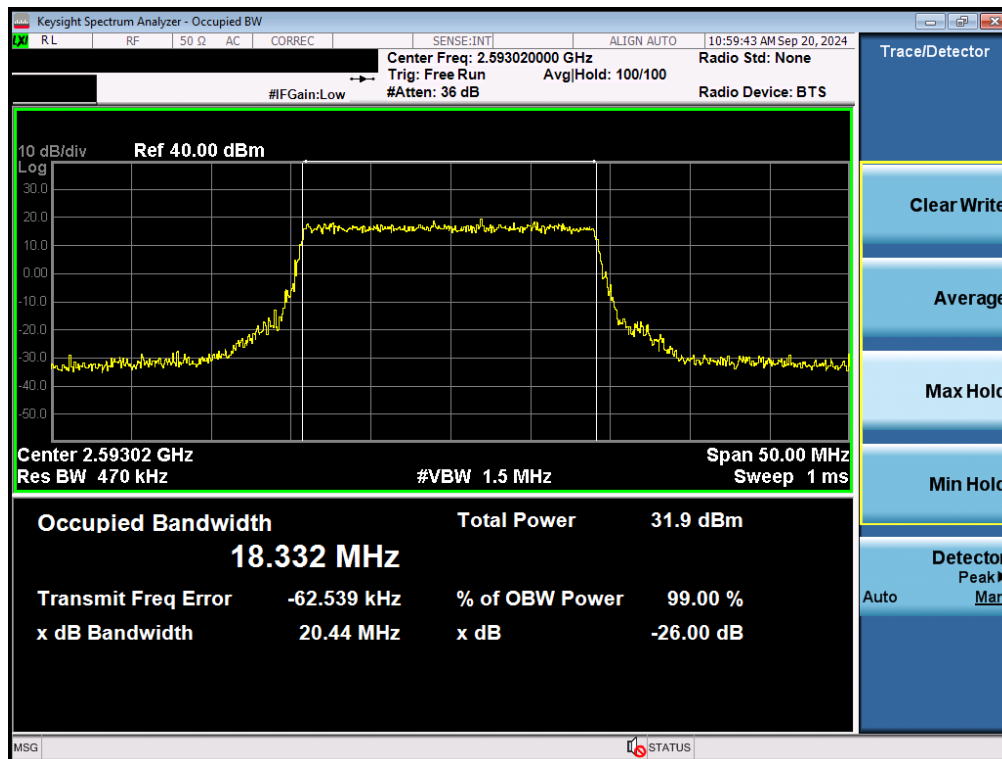


Plot 7-90. Occupied Bandwidth Plot (NR Band n41 - 20MHz $\pi/2$ BPSK - Full RB - Ant B)

FCC ID: A3LSMS938JPN	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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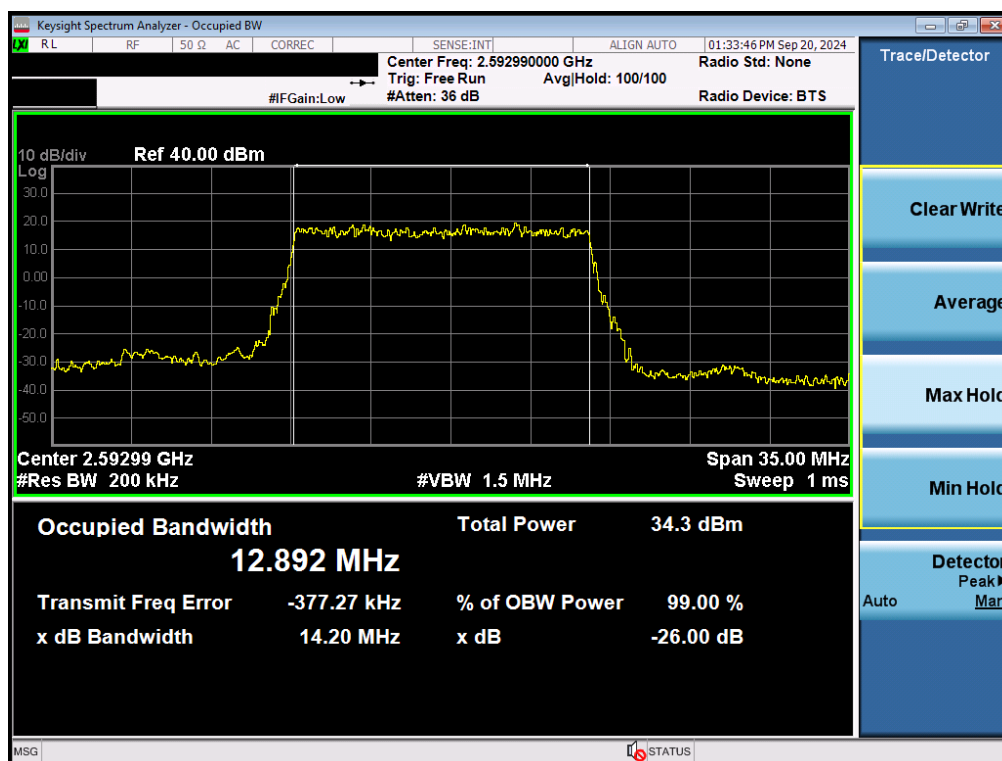


Plot 7-91. Occupied Bandwidth Plot (NR Band n41 - 20MHz QPSK - Full RB - Ant B)

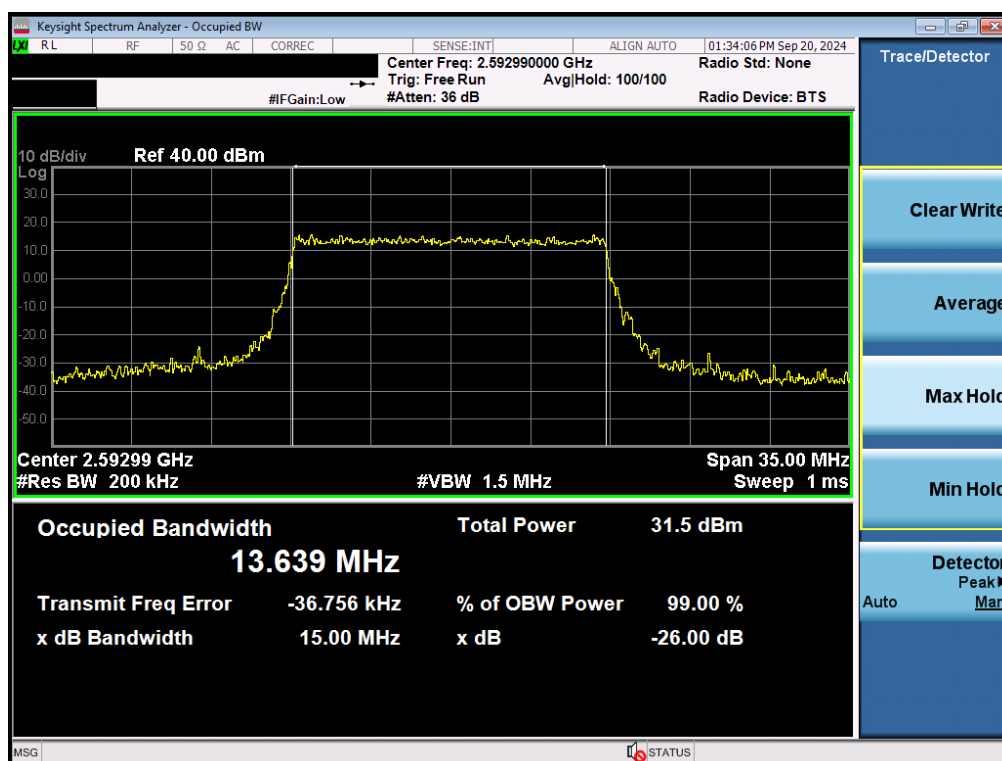


Plot 7-92. Occupied Bandwidth Plot (NR Band n41 - 20MHz 16-QAM - Full RB - Ant B)

FCC ID: A3LSMS938JPN	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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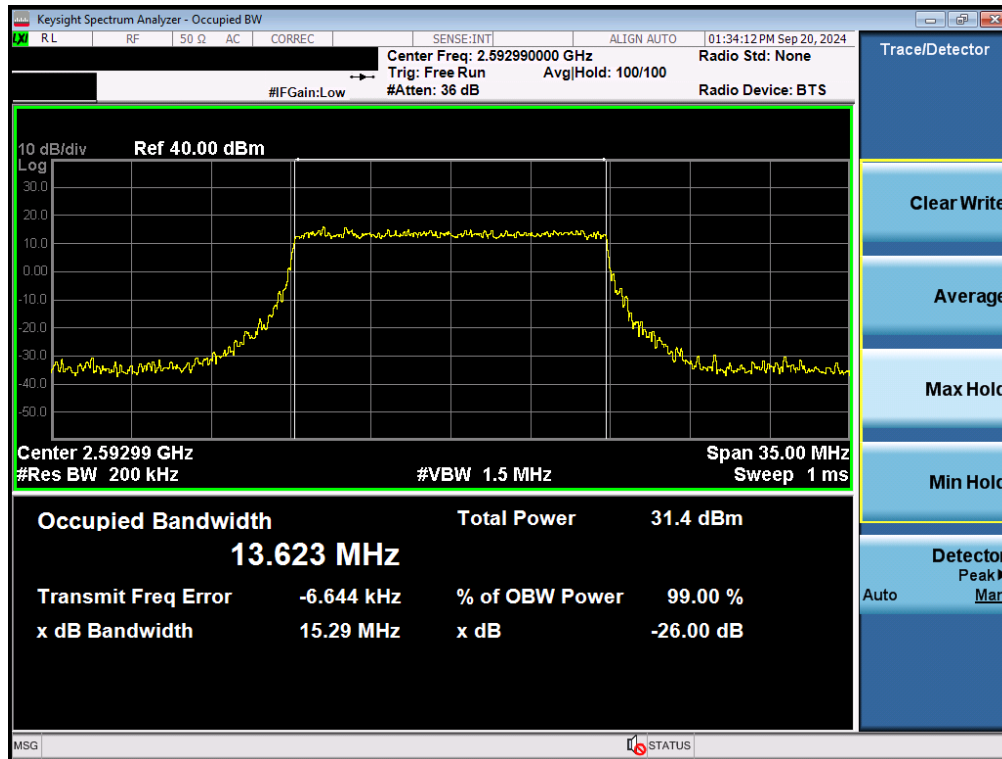


Plot 7-93. Occupied Bandwidth Plot (NR Band n41 - 15MHz $\pi/2$ BPSK - Full RB - Ant B)



Plot 7-94. Occupied Bandwidth Plot (NR Band n41 - 15MHz QPSK - Full RB - Ant B)

FCC ID: A3LSMS938JPN	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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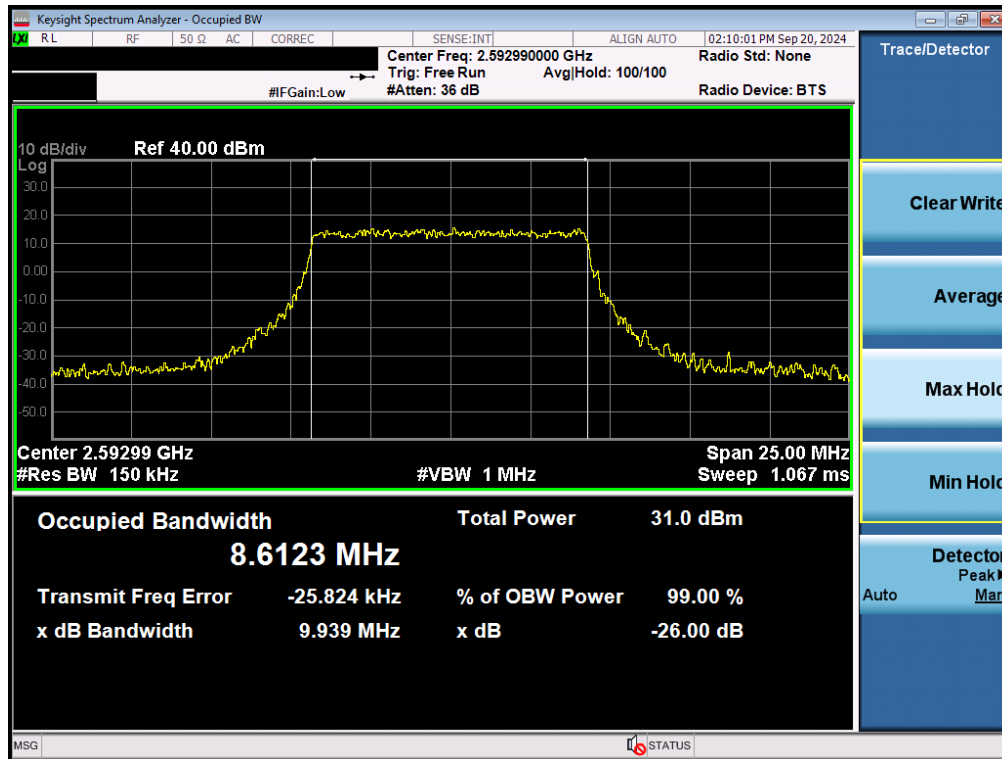


Plot 7-95. Occupied Bandwidth Plot (NR Band n41 - 15MHz 16-QAM - Full RB - Ant B)



Plot 7-96. Occupied Bandwidth Plot (NR Band n41 - 10MHz $\pi/2$ BPSK - Full RB - Ant B)

FCC ID: A3LSMS938JPN	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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Plot 7-97. Occupied Bandwidth Plot (NR Band n41 - 10MHz QPSK - Full RB - Ant B)



Plot 7-98. Occupied Bandwidth Plot (NR Band n41 - 10MHz 16-QAM - Full RB - Ant B)

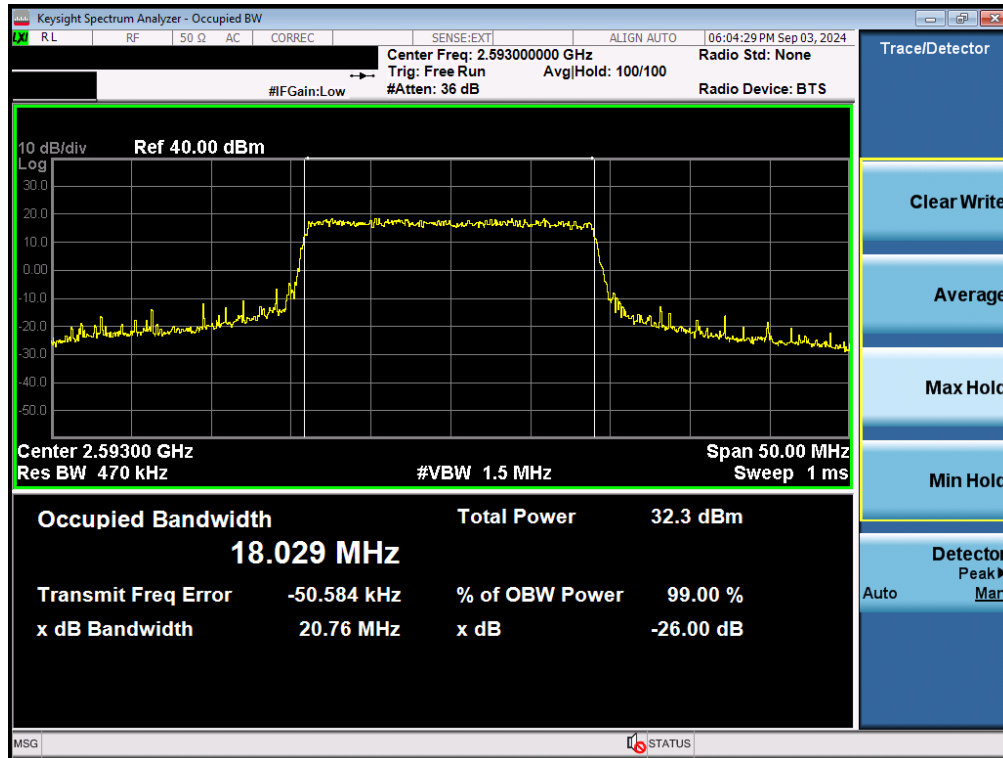
FCC ID: A3LSMS938JPN	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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Mode	Bandwidth	Modulation	OBW [MHz]
LTE-B41PC3	20MHz	QPSK	18.03
		16QAM	18.05
	15MHz	QPSK	13.53
		16QAM	13.51
	10MHz	QPSK	9.00
		16QAM	9.02
	5MHz	QPSK	4.52
		16QAM	4.52

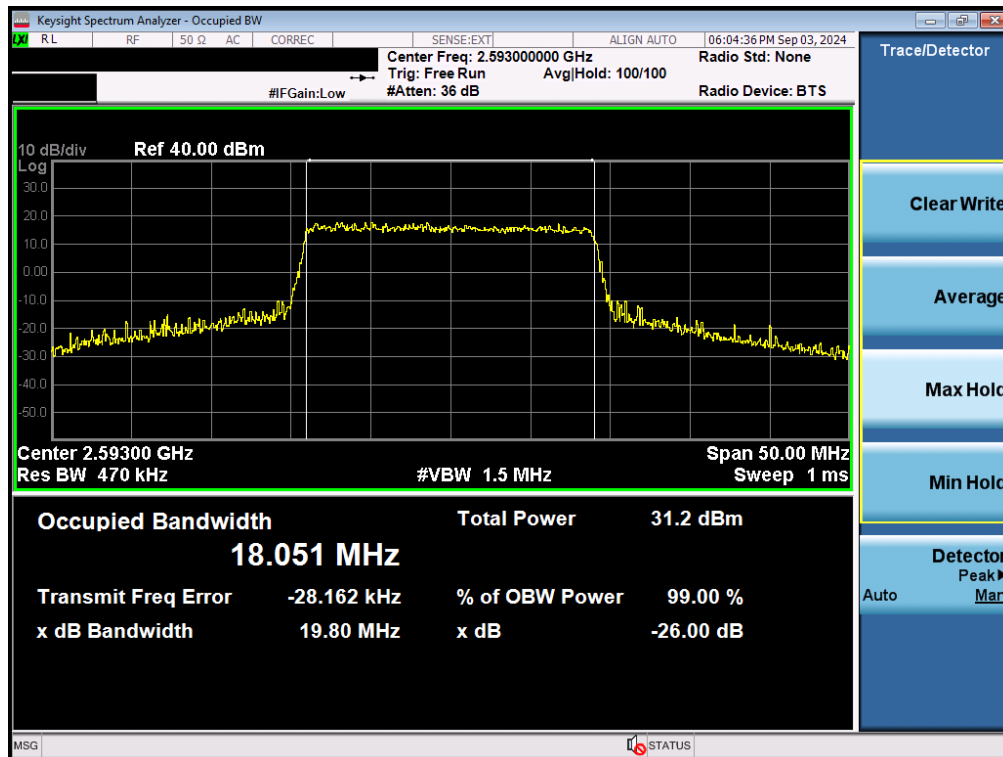
Table 7-9. Occupied Bandwidth Test Results – LTE – Ant F

FCC ID: A3LSMS938JPN	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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LTE Band 41(PC3)– Ant F

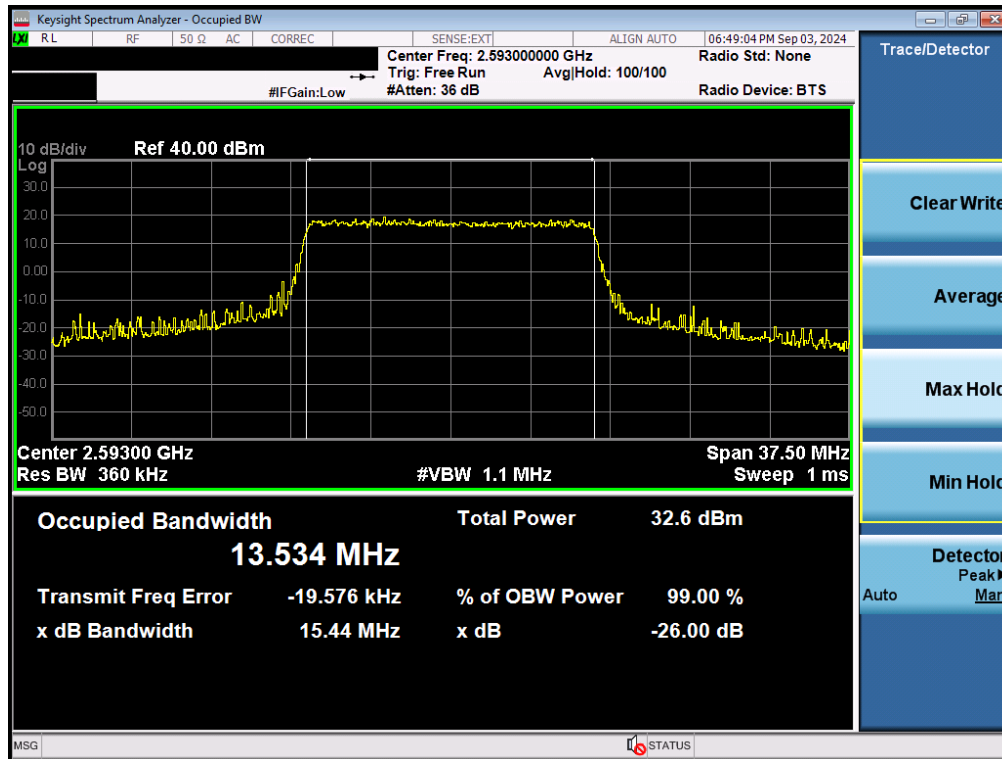


Plot 7-99. Occupied Bandwidth Plot (LTE Band 41(PC3)- 20MHz QPSK - Full RB - Ant B)

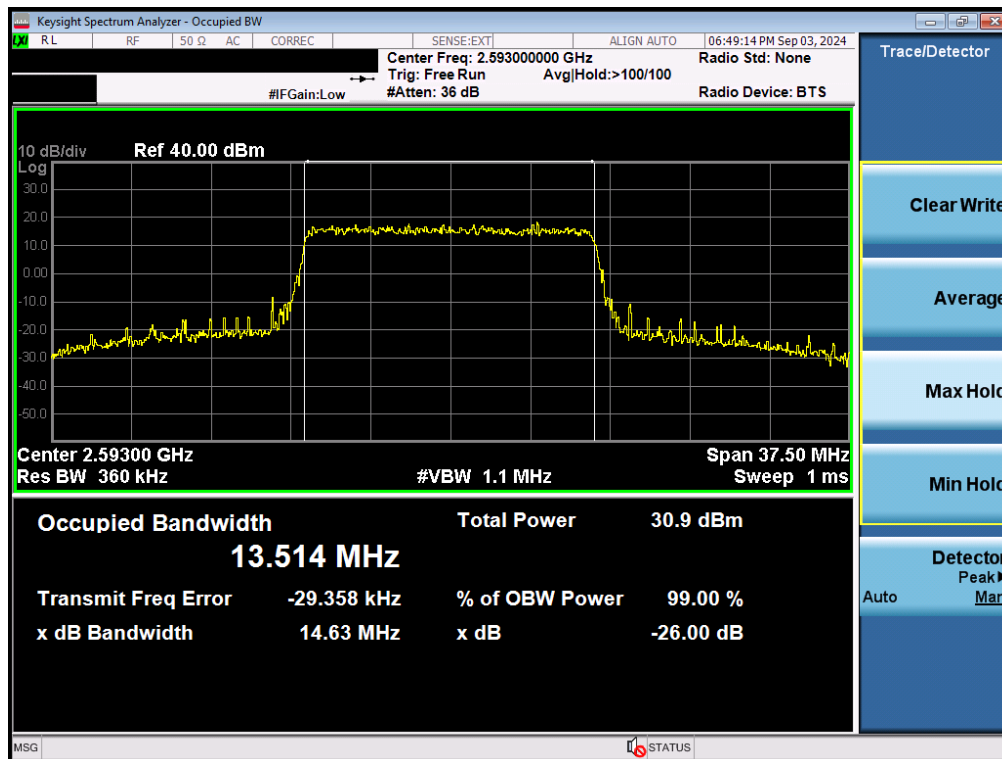


Plot 7-100. Occupied Bandwidth Plot (LTE Band 41(PC3)- 20MHz 16-QAM - Full RB - Ant B)

FCC ID: A3LSMS938JPN	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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Plot 7-101. Occupied Bandwidth Plot (LTE Band 41(PC3)- 15MHz QPSK - Full RB - Ant B)

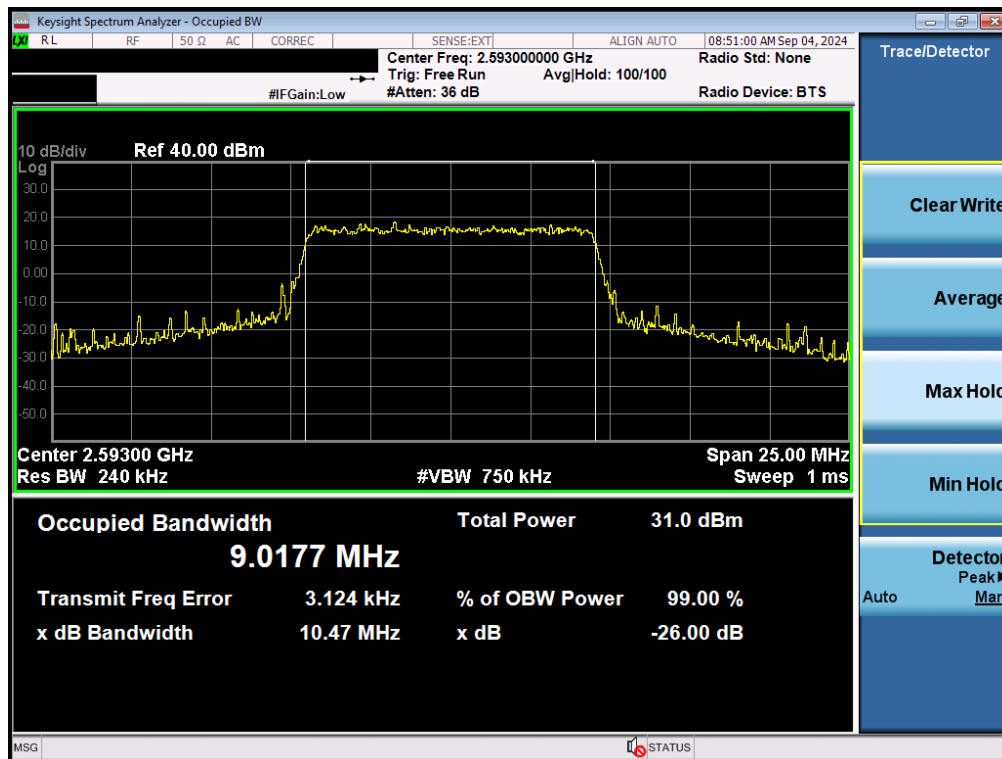


Plot 7-102. Occupied Bandwidth Plot (LTE Band 41(PC3)- 15MHz 16-QAM - Full RB - Ant B)

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Plot 7-103. Occupied Bandwidth Plot (LTE Band 41(PC3)- 10MHz QPSK - Full RB - Ant B)



Plot 7-104. Occupied Bandwidth Plot (LTE Band 41(PC3)- 10MHz 16-QAM - Full RB - Ant B)

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Plot 7-105. Occupied Bandwidth Plot (LTE Band 41(PC3)- 5MHz QPSK - Full RB - Ant B)



Plot 7-106. Occupied Bandwidth Plot (LTE Band 41(PC3)- 5MHz 16-QAM - Full RB - Ant B)

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7.4 Spurious and Harmonic Emissions at Antenna Terminal

Test Overview

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

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

For Band 41, the minimum permissible attenuation level of any spurious emission is $55 + 10 \log_{10}(P_{\text{Watts}})$.

Test Procedure Used

ANSI C63.26-2015 – Section 5.7.4

Test Settings

1. Start frequency was set to 30MHz and stop frequency was set to 10GHz (separated into at least two plots per channel)
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.

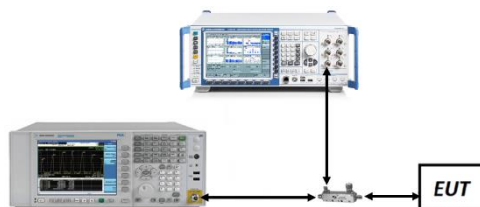


Figure 7-3. Test Instrument & Measurement Setup

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Test Notes

1. Per Part 27, RSS-195 and RSS-199, compliance with the applicable limits is based on the use of measurement instrumentation employing a resolution bandwidth of 1 MHz.
2. For NR operation, all subcarrier spacings (SCS) and transmission schemes (e.g. CP-OFDM and DFT-s-OFDM) were investigated to determine the worst-case configuration. All modes of operation were investigated and the worst-case configuration results are reported in this section.
3. Per ANSI C63.26-2015, MIMO compliance was addressed by adding $10\log(2) = 3\text{dB}$ to the output of each antenna. A visual inspection of the plots for each antenna shows that the emissions are still compliant even after adding 3dB.

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Mode	Bandwidth	Channel	Range [MHz]	Level [dBm]	Limit [dBm]	Margin [dB]
LTE-B41PC3	20MHz	Low	30.0 - 2288.0	-42.13	-25.0	-17.13
		Low	2365.0 - 15000.0	-43.214	-25.0	-18.21
		Low	15000.0 - 27000.0	-46.054	-25	-21.05405
		Mid	30.0 - 2288.0	-42.953	-25	-17.95342
		Mid	2570.0 - 15000.0	-43.827	-25	-18.82706
		Mid	15000.0 - 27000.0	-46.564	-25	-21.56411
		High	30.0 - 2288.0	-43.062	-25	-18.06248
		High	2570.0 - 15000.0	-44.173	-25	-19.17279
		High	15000.0 - 27000.0	-46.427	-25	-21.42674
LTE-B41PC3	20+20MHz	Low	30.0 - 2475.0	-37.321	-25.0	-12.32
		Low	2496.0 - 2690.0	17.004	-	-
		Low	2690.0 - 15000.0	-39.63	-25.0	-14.63
		Low	15000.0 - 27000.0	-39.314	-25.0	-14.31
		Mid	30.0 - 2496.0	-37.078	-25.0	-12.08
		Mid	2496.0 - 2690.0	15.252	-	-
		Mid	2690.0 - 15000.0	-39.655	-25.0	-14.66
		Mid	15000.0 - 27000.0	-40.254	-25.0	-15.25
		High	30.0 - 2496.0	-38.004	-25.0	-13.00
		High	2496.0 - 2690.0	16.56	-	-
		High	2690.0 - 15000.0	-39.959	-25.0	-14.96
		High	15000.0 - 27000.0	-40.826	-25.0	-15.83

Table 7-10. Conducted Emission Test Results – LTE – Ant B

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