

PART 27 MEASUREMENT REPORT

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

Date of Testing:
3/26/2021 - 6/11/2021
Test Site/Location:
PCTEST Lab. Columbia, MD, USA
Test Report Serial No.:
1M2104020031-26.A3L

FCC ID:	A3LSMF926U
Applicant Name:	Samsung Electronics Co., Ltd.

Application Type:	Certification
Model:	SM-F926U
Additional Model(s):	SM-F926U1
EUT Type:	Portable Handset
FCC Classification:	PCS Licensed Transmitter Held to Ear (PCE)
FCC Rule Part:	27
Test Procedure(s):	ANSI C63.26-2015, ANSI/TIA-603-E-2016, KDB 971168 D01 v03r01, 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.



Randy Ortanez
President

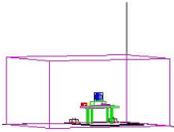


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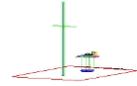
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Mode	Bandwidth	Modulation	Tx Frequency Range [MHz]	EIRP		Emission Designator	
				Max. Power [W]	Max. Power [dBm]		
NR Band n77 (3450 - 3550MHz)	100 MHz	$\pi/2$ BPSK	3500.0	0.075	18.73	96M8G7D	
		QPSK	3500.0	0.073	18.64	98M2G7D	
		16QAM	3500.0	0.055	17.38	98M3W7D	
	90 MHz	$\pi/2$ BPSK	3495.0 - 3505.0	0.072	18.59	87M2G7D	
		QPSK	3495.0 - 3505.0	0.071	18.50	88M2G7D	
		16QAM	3495.0 - 3505.0	0.053	17.20	88M1W7D	
	80 MHz	$\pi/2$ BPSK	3490.0 - 3510.0	0.073	18.61	77M4G7D	
		QPSK	3490.0 - 3510.0	0.072	18.55	78M2G7D	
		16QAM	3490.0 - 3510.0	0.053	17.20	78M2W7D	
	70 MHz	$\pi/2$ BPSK	3485.0 - 3515.0	0.071	18.49	64M8G7D	
		QPSK	3485.0 - 3515.0	0.069	18.40	67M9G7D	
		16QAM	3485.0 - 3515.0	0.049	16.91	68M3W7D	
	60 MHz	$\pi/2$ BPSK	3480.0 - 3520.0	0.072	18.59	58M3G7D	
		QPSK	3480.0 - 3520.0	0.075	18.73	58M5G7D	
		16QAM	3480.0 - 3520.0	0.054	17.31	58M4W7D	
	50 MHz	$\pi/2$ BPSK	3475.0 - 3525.0	0.069	18.41	46M0G7D	
		QPSK	3475.0 - 3525.0	0.072	18.58	46M1G7D	
		16QAM	3475.0 - 3525.0	0.052	17.19	46M1W7D	
	40 MHz	$\pi/2$ BPSK	3470.0 - 3530.0	0.074	18.67	36M0G7D	
		QPSK	3470.0 - 3530.0	0.075	18.74	38M2G7D	
		16QAM	3470.0 - 3530.0	0.055	17.38	38M2W7D	
	30 MHz	$\pi/2$ BPSK	3465.0 - 3535.0	0.073	18.61	27M1G7D	
		QPSK	3465.0 - 3535.0	0.074	18.67	28M3G7D	
		16QAM	3465.0 - 3535.0	0.053	17.28	28M3W7D	
	20 MHz	$\pi/2$ BPSK	3460.0 - 3540.0	0.071	18.52	18M1G7D	
		QPSK	3460.0 - 3540.0	0.073	18.66	18M8G7D	
		16QAM	3460.0 - 3540.0	0.054	17.35	18M8W7D	
	NR Band n77 (3700 - 3980MHz)	100 MHz	$\pi/2$ BPSK	3750.0 - 3930.0	0.135	21.29	97M0G7D
			QPSK	3750.0 - 3930.0	0.133	21.25	98M4G7D
			16QAM	3750.0 - 3930.0	0.104	20.18	98M2W7D
		90 MHz	$\pi/2$ BPSK	3745.0 - 3935.0	0.155	21.90	87M3G7D
			QPSK	3745.0 - 3935.0	0.133	21.23	88M1G7D
			16QAM	3745.0 - 3935.0	0.094	19.74	88M2W7D
		80 MHz	$\pi/2$ BPSK	3740.0 - 3940.0	0.138	21.40	77M8G7D
			QPSK	3740.0 - 3940.0	0.139	21.43	78M0G7D
			16QAM	3740.0 - 3940.0	0.122	20.86	78M2W7D
70 MHz		$\pi/2$ BPSK	3735.0 - 3945.0	0.092	19.66	64M5G7D	
		QPSK	3735.0 - 3945.0	0.148	21.71	67M9G7D	
		16QAM	3735.0 - 3945.0	0.133	21.25	68M1W7D	
60 MHz		$\pi/2$ BPSK	3730.0 - 3950.0	0.133	21.25	58M4G7D	
		QPSK	3730.0 - 3950.0	0.134	21.27	58M4G7D	
		16QAM	3730.0 - 3950.0	0.106	20.27	58M5W7D	
50 MHz		$\pi/2$ BPSK	3725.0 - 3955.0	0.146	21.64	46M1G7D	
		QPSK	3725.0 - 3955.0	0.136	21.34	48M1G7D	
		16QAM	3725.0 - 3955.0	0.085	19.28	48M3W7D	
40 MHz		$\pi/2$ BPSK	3720.0 - 3960.0	0.168	22.25	36M2G7D	
		QPSK	3720.0 - 3960.0	0.145	21.62	38M3G7D	
		16QAM	3720.0 - 3960.0	0.108	20.32	28M3W7D	
30 MHz		$\pi/2$ BPSK	3715.0 - 3965.0	0.164	22.15	27M2G7D	
		QPSK	3715.0 - 3965.0	0.157	21.97	28M4G7D	
		16QAM	3715.0 - 3965.0	0.100	20.01	28M4W7D	
20 MHz		$\pi/2$ BPSK	3710.0 - 3970.0	0.177	22.47	18M1G7D	
		QPSK	3710.0 - 3970.0	0.185	22.68	18M7G7D	
			16QAM	3710.0 - 3970.0	0.132	21.22	18M6W7D

Overview Table

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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 PCTEST Test Location

These measurement tests were conducted at the PCTEST facility 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 PCTEST Engineering Lab located in Columbia, MD 21046, U.S.A.

- PCTEST 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.
- PCTEST 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).
- PCTEST facility is a registered (2451B) test laboratory with the site description on file with ISED.

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2.0 PRODUCT INFORMATION

2.1 Equipment Description

The Equipment Under Test (EUT) is the **Samsung Portable Handset FCC ID:A3LSMF926U**. This device has n77 operation over four total antennas in both the C-Band (3.7 – 3.98GHz) and the DoD Band (3.45 – 3.55GHz). The test data contained in this report pertains to both supported n77 bands and all four antennas.

Test Device Serial No.: 0224M, 0943M, 1008M, 0224M, 0131M, 0209M, 0105M, 0314M

2.2 Device Capabilities

This device contains the following capabilities:

800/850/1900 CDMA/EvDO Rev0/A, 1x Advanced (BC0, BC1, BC10), 850/1900 GSM/GPRS/EDGE, 850/1700/1900 WCDMA/HSPA, Multi-band LTE, Multi-band 5G NR, 802.11b/g/n/ax WLAN, 802.11a/n/ac/ax UNII (5GHz and 6GHz), Bluetooth (1x, EDR, LE), NFC, Wireless Power Transfer, UWB.

This device can transmit in the 5G NR Band n77 over four separate antennas labelled SRS-1, SRS-2, SRS-3, and SRS-4. The test data contained in this report covers transmission in the n77 band via these four antennas. The test data is marked to indicate the specific antenna transmitting in the n77 band.

Each of the transmission antennas investigated in this report may have an alternate labelling in other exhibits and filings. The correlation between these labelling schemes is displayed in the following table.

Antenna SRS-label	Alternate Label
SRS-1	Ant E
SRS-2	Ant G
SRS-3	Ant F
SRS-4	Ant B

Table 2-1. Antenna Labelling Scheme Correlation

2.3 Test Configuration

The EUT was tested per the guidance of ANSI/TIA-603-E-2016 and KDB 971168 D01 v03r01. See Section 3.0 of this test report for a description of the radiated and antenna port conducted emissions tests.

This device supports two configurations: one is with screen open and one is with screen closed. Both configurations are tested, and the worst case radiated emissions data is shown in this report.

This device supports wireless charging capability and, thus, is subject to the test requirements of KDB 648474 D03 v01r04. Additional radiated 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 EMI Suppression Device(s)/Modifications

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

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2.5 Software and Firmware

The test was conducted with firmware version F926USQU0AUC9B installed on the EUT.

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3.0 DESCRIPTION OF TESTS

3.1 Evaluation Procedure

The measurement procedures described in the “Land Mobile FM or PM – Communications Equipment – Measurements and Performance Standards” (ANSI/TIA-603-E-2016) and “Measurement Guidance for Certification of Licensed Digital Transmitters” (KDB 971168 D01 v03r01) 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/TIA-603-E-2016. 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 and calculations, conversion method is used per the formulas in KDB 971168 Section 5.8.4. 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.

Radiated power and radiated spurious emission levels are investigated with the receive antenna horizontally and vertically polarized per ANSI/TIA-603-E-2016.

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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	1.13
Radiated Disturbance (<1GHz)	4.98
Radiated Disturbance (>1GHz)	5.07
Radiated Disturbance (>18GHz)	5.09

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5.0 TEST EQUIPMENT CALIBRATION DATA

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

Manufacturer	Model	Description	Cal Date	Cal Interval	Cal Due	Serial Number
-	AP2	EMC Cable and Switch System	3/4/2021	Annual	3/4/2022	AP2
-	AP1	EMC Cable and Switch System	3/9/2021	Annual	3/9/2022	AP1
-	ETS	EMC Cable and Switch System	3/4/2021	Annual	3/4/2022	ETS
-	LTx1	Licensed Transmitter Cable Set	3/12/2021	Annual	3/12/2022	LTx1
-	LTx2	Licensed Transmitter Cable Set	3/12/2021	Annual	3/12/2022	LTx2
-	LTx3	Licensed Transmitter Cable Set	2/26/2021	Annual	2/26/2022	LTx3
Emco	3115	Horn Antenna (1-18GHz)	6/18/2020	Biennial	6/18/2022	9704-5182
Emco	3116	Horn Antenna (18 - 40GHz)	8/7/2018	Triennial	8/7/2021	9203-2178
Espec	ESX-2CA	Environmental Chamber	8/27/2020	Annual	8/27/2022	17620
ETS Lindgren	3164-08	Quad Ridge Horn Antenna	3/12/2020	Biennial	3/12/2022	128337
ETS Lindgren	3816/2NM	LISN	7/9/2020	Biennial	7/9/2022	00114451
Keysight Technologies	N9020A	MXA Signal Analyzer	9/22/2020	Annual	9/22/2021	MY54500644
Keysight Technologies	N9030A	PXA Signal Analyzer (44GHz)	7/17/2020	Annual	7/17/2021	MY49430494
Keysight Technologies	N9030B	PXA Signal Analyzer, Multi-touch	9/17/2020	Annual	9/17/2021	MY57141001
Mini-Circuits	SSG-4000HP	Synthesized Signal Generator	N/A			11403100002
Rohde & Schwarz	ESU26	EMI Test Receiver (26.5GHz)	7/15/2020	Annual	7/15/2021	100342
Rohde & Schwarz	ESU40	EMI Test Receiver (40GHz)	9/9/2020	Annual	9/9/2021	100348
Rohde & Schwarz	ESW44	EMI Test Receiver 2Hz to 44 GHz	1/21/2021	Annual	1/21/2022	101716
Rohde & Schwarz	FSW26	2Hz-26.5GHz Signal and Spectrum Analyzer	2/10/2021	Annual	2/10/2022	103187
Rohde & Schwarz	FSW67	Signal / Spectrum Analyzer	8/10/2020	Annual	8/10/2021	103200
Sunol	JB6	JB6 Antenna	11/13/2020	Biennial	11/13/2022	A082816

Table 5-1. Test Equipment

Notes:

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: A3LSMF926U
 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
CONDUCTED	Transmitter Conducted Output Power	2.1046	N/A	PASS	Section 7.2
	Occupied Bandwidth	2.1049	N/A	PASS	Section 7.3
	Conducted Band Edge / Spurious Emissions (NR Band n77)	2.1051, 27.53(l), 27.53(n)	Undesirable emissions must meet the limits detailed in 27.53(l) and 27.53(n)	PASS	Sections 7.4, 7.5
	Peak-to-Average Ratio	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)	27.50(j)(3), 27.50(k)(3)	< 1 Watts max. EIRP	PASS	Section 7.7
	Radiated Spurious Emissions (NR Band n77)	2.1053, 27.53(l), 27.53(n)	Undesirable emissions must meet the limits detailed in 27.53(l) in 27.53(n)	PASS	Section 7.8

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 PCTEST EMC Software Tool Beta 8.
- 5) This device operates in the n77 band on four different transmission antennas. The main antenna (label: SRS-1) operates at the highest transmit power. The three additional antennas each operate at a lower power compared to the main antenna. Therefore, to demonstrate compliance for each antenna, a complete set of test data is shown for antenna SRS-1 and only a subset of test data is included for the additional three antennas.

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7.2 Conducted Power Output Data

Test Overview

The EUT is set up to transmit at maximum power for NR channels. All power levels 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 modes of operation were investigated and the worst case configuration results are reported in this section.

Test Procedure Used

KDB 971168 D01 v03r01 – Section 5.2

Test Settings

1. The signal analyzer's channel power measurement capability was used to perform power output measurement at the RF terminal.
2. Integration BW was set greater or equal to the expected channel bandwidth of the emission
3. RBW = 1-5% of the Integration BW
4. VBW $\geq 3 \times$ RBW
5. Trigger Mode = Free Run for continuous emissions, RF Burst for pulsed emissions
6. Gating = Off for continuous emissions, On only during transmission for pulsed emissions
7. Detector = RMS
8. Trace mode = trace averaging
9. Sweep time = auto couple
10. The trace was allowed to stabilize

Test Setup

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



Figure 7-1. Test Instrument & Measurement Setup

Test Notes

None.

FCC ID: A3LSMF926U	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2104020031-26.A3L	Test Dates: 3/26/2021 - 6/11/2021	EUT Type: Portable Handset	Page 12 of 152	

Bandwidth	Modulation	Channel	Frequency [MHz]	RB Size/Offset	Conducted Power [dBm]
100 MHz	π/2 BPSK	650000	3750.00	1 / 68	26.25
		656000	3840.00	1 / 136	25.87
		662000	3930.00	1 / 68	25.62
	QPSK	650000	3750.00	1 / 68	26.25
		656000	3840.00	1 / 136	25.59
		662000	3930.00	1 / 68	25.54
16-QAM	662000	3930.00	1 / 68	24.72	
90 MHz	π/2 BPSK	649668	3745.02	1 / 61	26.90
		656000	3840.00	1 / 61	26.00
		662332	3934.98	1 / 122	26.23
	QPSK	649668	3745.02	1 / 61	26.64
		656000	3840.00	1 / 61	25.71
		662332	3934.98	1 / 122	25.51
16-QAM	662332	3934.98	1 / 122	24.28	
80 MHz	π/2 BPSK	649334	3740.01	1 / 54	25.77
		656000	3840.00	1 / 162	26.39
		662666	3939.99	1 / 162	25.73
	QPSK	649334	3740.01	1 / 54	25.66
		656000	3840.00	1 / 162	25.94
		662666	3939.99	1 / 162	25.72
16-QAM	662666	3939.99	1 / 162	25.40	
70 MHz	π/2 BPSK	649000	3735.00	1 / 141	26.42
		656000	3840.00	1 / 141	26.31
		663000	3945.00	1 / 141	25.87
	QPSK	649000	3735.00	1 / 141	26.72
		656000	3840.00	1 / 141	26.13
		663000	3945.00	1 / 141	26.00
16-QAM	663000	3945.00	1 / 141	24.71	
60 MHz	π/2 BPSK	648668	3730.02	1 / 81	26.13
		656000	3840.00	1 / 40	25.57
		663332	3949.98	1 / 121	25.58
	QPSK	648668	3730.02	1 / 81	26.25
		656000	3840.00	1 / 40	25.72
		663332	3949.98	1 / 121	25.56
16-QAM	663332	3949.98	1 / 121	24.81	
50 MHz	π/2 BPSK	648334	3725.01	1 / 33	26.71
		656000	3840.00	1 / 33	25.79
		663666	3954.99	1 / 33	25.97
	QPSK	648334	3725.01	1 / 33	26.77
		656000	3840.00	1 / 33	25.47
		663666	3954.99	1 / 33	25.62
16-QAM	663666	3954.99	1 / 33	23.82	
40 MHz	π/2 BPSK	648000	3720.00	1 / 79	26.83
		656000	3840.00	1 / 79	26.34
		664000	3960.00	1 / 79	26.58
	QPSK	648000	3720.00	1 / 79	26.67
		656000	3840.00	1 / 79	25.73
		664000	3960.00	1 / 79	25.90
16-QAM	664000	3960.00	1 / 79	24.86	
30 MHz	π/2 BPSK	647668	3715.02	1 / 39	26.67
		656000	3840.00	1 / 19	25.89
		664332	3964.98	1 / 58	26.47
	QPSK	647668	3715.02	1 / 39	26.55
		656000	3840.00	1 / 19	25.74
		664332	3964.98	1 / 58	26.25
16-QAM	664332	3964.98	1 / 58	24.55	
20 MHz	π/2 BPSK	647334	3710.01	1 / 25	26.71
		656000	3840.00	1 / 13	26.45
		664666	3969.99	1 / 13	26.79
	QPSK	647334	3710.01	1 / 25	26.79
		656000	3840.00	1 / 13	26.25
		664666	3969.99	1 / 13	26.96
16-QAM	664666	3969.99	1 / 13	25.76	

Table 7-2. Conducted Power Data (NR Band n77 PC2 – C-Band – SRS-1)

FCC ID: A3LSMF926U	 PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2104020031-26.A3L	Test Dates: 3/26/2021 - 6/11/2021	EUT Type: Portable Handset	Page 13 of 152

Bandwidth	Modulation	Channel	Frequency [MHz]	RB Size/Offset	Conducted Power [dBm]
100 MHz	QPSK	650000	3750.00	1 / 136	25.43
		656000	3840.00	1 / 136	25.48
		662000	3930.00	1 / 68	25.11

Table 7-3. Conducted Power Data (NR Band n77 PC2 – C-Band – SRS-2)

Bandwidth	Modulation	Channel	Frequency [MHz]	RB Size/Offset	Conducted Power [dBm]
100 MHz	QPSK	650000	3750.00	1 / 68	24.19
		656000	3840.00	1 / 204	23.25
		662000	3930.00	1 / 204	22.77

Table 7-4. Conducted Power Data (NR Band n77 PC2 – C-Band – SRS-3)

Bandwidth	Modulation	Channel	Frequency [MHz]	RB Size/Offset	Conducted Power [dBm]
100 MHz	QPSK	650000	3750.00	1 / 136	23.14
		656000	3840.00	1 / 68	22.88
		662000	3930.00	1 / 68	22.28

Table 7-5. Conducted Power Data (NR Band n77 PC2 – C-Band – SRS-4)

FCC ID: A3LSMF926U	 PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2104020031-26.A3L	Test Dates: 3/26/2021 - 6/11/2021	EUT Type: Portable Handset		Page 14 of 152

Bandwidth	Modulation	Channel	Frequency [MHz]	RB Size/Offset	Conducted Power [dBm]
100 MHz	$\pi/2$ BPSK	633334	3500.01	1 / 136	26.87
	QPSK	633334	3500.01	1 / 136	26.62
	16-QAM	633334	3500.01	1 / 136	26.14
90 MHz	$\pi/2$ BPSK	633000	3495.00	1 / 122	26.74
		633334	3500.01	1 / 122	26.60
		633666	3504.99	1 / 122	26.51
	QPSK	633000	3495.00	1 / 122	26.49
		633334	3500.01	1 / 122	26.42
		633666	3504.99	1 / 122	26.29
16-QAM	633000	3495.00	1 / 122	25.96	
80 MHz	$\pi/2$ BPSK	632668	3490.02	1 / 108	26.75
		633334	3500.01	1 / 108	26.64
		634000	3510.00	1 / 108	26.58
	QPSK	632668	3490.02	1 / 108	26.54
		633334	3500.01	1 / 108	26.46
		634000	3510.00	1 / 108	26.23
16-QAM	632668	3490.02	1 / 108	25.96	
70 MHz	$\pi/2$ BPSK	632334	3485.01	1 / 94	26.45
		633334	3500.01	1 / 94	26.57
		634332	3514.98	1 / 94	26.63
	QPSK	632334	3485.01	1 / 94	26.26
		633334	3500.01	1 / 94	26.29
		634332	3514.98	1 / 94	26.38
16-QAM	634332	3514.98	1 / 94	25.67	
60 MHz	$\pi/2$ BPSK	632000	3480.00	1 / 81	26.73
		633334	3500.01	1 / 81	26.71
		634666	3519.99	1 / 81	26.51
	QPSK	632000	3480.00	1 / 81	26.71
		633334	3500.01	1 / 81	26.64
		634666	3519.99	1 / 81	26.48
16-QAM	633334	3500.01	1 / 81	26.07	
50 MHz	$\pi/2$ BPSK	631668	3475.02	1 / 66	26.55
		633334	3500.01	1 / 66	26.43
		635000	3525.00	1 / 66	26.45
	QPSK	631668	3475.02	1 / 66	26.56
		633334	3500.01	1 / 66	26.33
		635000	3525.00	1 / 66	26.37
16-QAM	631668	3475.02	1 / 66	25.94	
40 MHz	$\pi/2$ BPSK	631334	3470.01	1 / 53	26.81
		633334	3500.01	1 / 53	26.78
		635332	3529.98	1 / 53	26.68
	QPSK	631334	3470.01	1 / 53	26.60
		633334	3500.01	1 / 53	26.72
		635332	3529.98	1 / 53	26.59
16-QAM	633334	3500.01	1 / 53	26.14	
30 MHz	$\pi/2$ BPSK	631000	3465.00	1 / 39	26.69
		633334	3500.01	1 / 39	26.60
		635666	3534.99	1 / 39	26.76
	QPSK	631000	3465.00	1 / 39	26.59
		633334	3500.01	1 / 39	26.61
		635666	3534.99	1 / 39	26.65
16-QAM	633334	3500.01	1 / 39	26.04	
20 MHz	$\pi/2$ BPSK	630668	3460.02	1 / 25	26.63
		633334	3500.01	1 / 13	26.66
		636000	3540.00	1 / 13	26.50
	QPSK	630668	3460.02	1 / 25	26.64
		633334	3500.01	1 / 13	26.40
		636000	3540.00	1 / 25	26.45
16-QAM	633334	3500.01	1 / 13	25.46	

Table 7-6. Conducted Power Data (NR Band n77 PC2 – DoD-Band – SRS-1)

FCC ID: A3LSMF926U	 PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2104020031-26.A3L	Test Dates: 3/26/2021 - 6/11/2021	EUT Type: Portable Handset		Page 15 of 152

Bandwidth	Modulation	Channel	Frequency [MHz]	RB Size/Offset	Conducted Power [dBm]
100 MHz	QPSK	633334	3500.01	1 / 136	26.49

Table 7-7. Conducted Power Data (NR Band n77 PC2 – DoD-Band – SRS-2)

Bandwidth	Modulation	Channel	Frequency [MHz]	RB Size/Offset	Conducted Power [dBm]
100 MHz	QPSK	633334	3500.01	1 / 136	24.03

Table 7-8. Conducted Power Data (NR Band n77 PC2 – DoD-Band – SRS-3)

Bandwidth	Modulation	Channel	Frequency [MHz]	RB Size/Offset	Conducted Power [dBm]
100 MHz	QPSK	633334	3500.01	1 / 136	22.47

Table 7-9. Conducted Power Data (NR Band n77 PC2 – DoD-Band – SRS-4)

FCC ID: A3LSMF926U	 PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2104020031-26.A3L	Test Dates: 3/26/2021 - 6/11/2021	EUT Type: Portable Handset		Page 16 of 152

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

KDB 971168 D01 v03r01 – Section 4.2

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

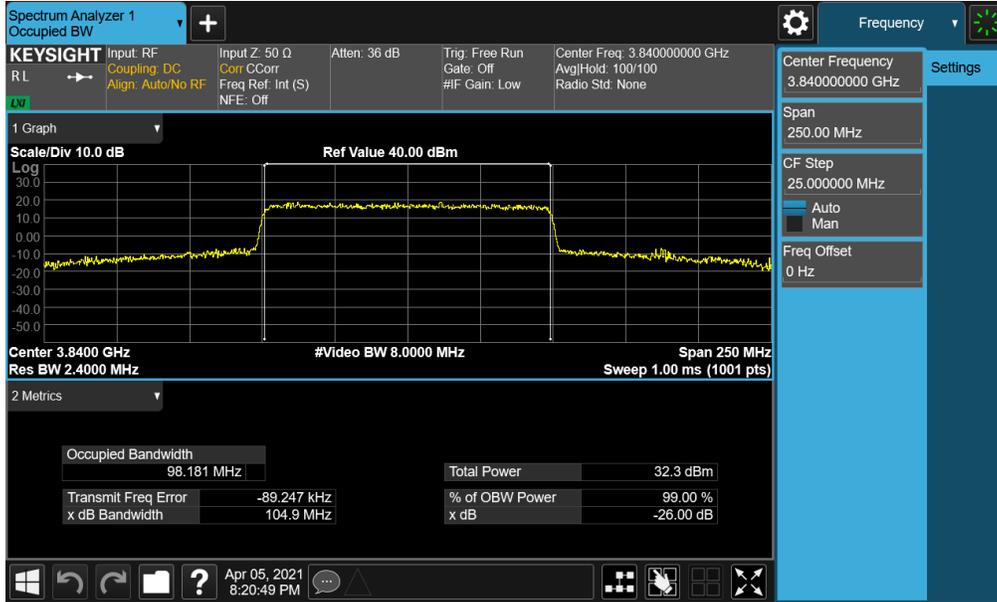
- 1) The Occupied Bandwidth was only measured on the antenna with the highest power for each band (SRS-1).

FCC ID: A3LSMF926U	 PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2104020031-26.A3L	Test Dates: 3/26/2021 - 6/11/2021	EUT Type: Portable Handset		Page 17 of 152

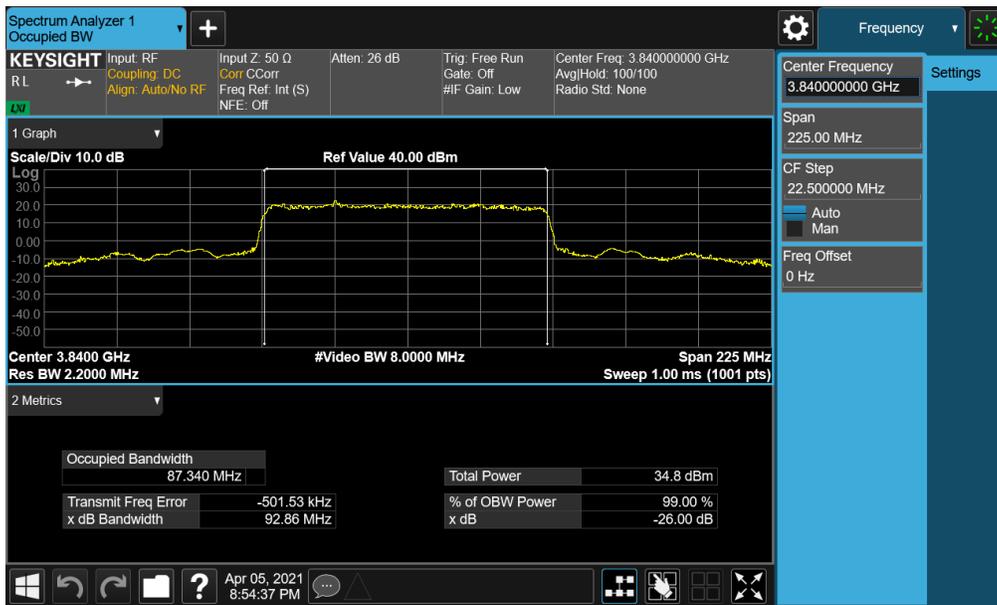
NR Band n77 – C-Band – SRS-1



FCC ID: A3LSMF926U	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2104020031-26.A3L	Test Dates: 3/26/2021 - 6/11/2021	EUT Type: Portable Handset		Page 18 of 152



Plot 7-3. Occupied Bandwidth Plot (NR Band n77 - 100MHz 16-QAM - Full RB - SRS-1)



Plot 7-4. Occupied Bandwidth Plot (NR Band n77 - 90MHz $\pi/2$ BPSK - Full RB - SRS-1)

FCC ID: A3LSMF926U	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2104020031-26.A3L	Test Dates: 3/26/2021 - 6/11/2021	EUT Type: Portable Handset		Page 19 of 152

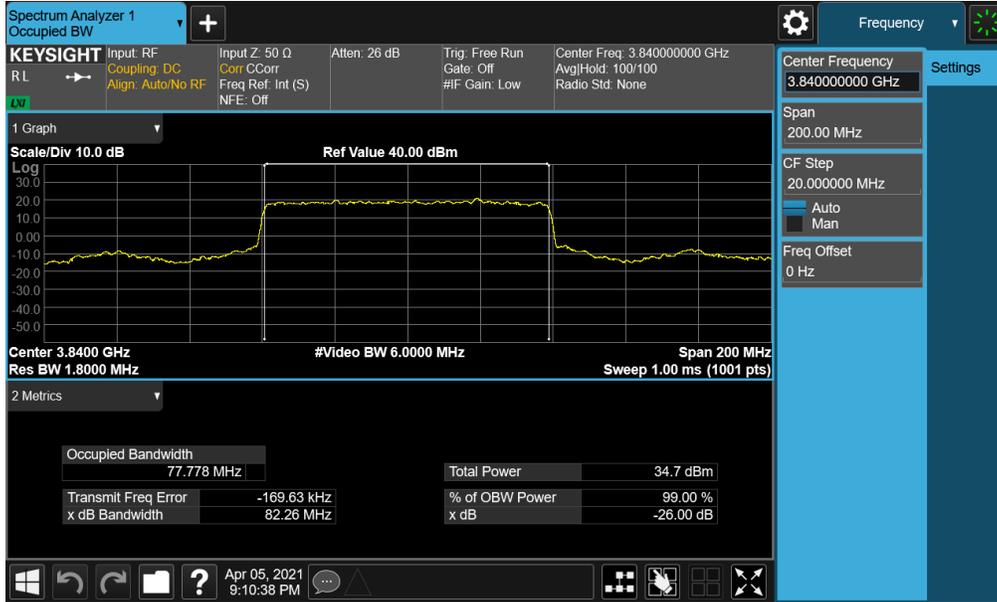


Plot 7-5. Occupied Bandwidth Plot (NR Band n77 - 90MHz QPSK - Full RB - SRS-1)



Plot 7-6. Occupied Bandwidth Plot (NR Band n77 - 90MHz 16-QAM - Full RB - SRS-1)

FCC ID: A3LSMF926U	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2104020031-26.A3L	Test Dates: 3/26/2021 - 6/11/2021	EUT Type: Portable Handset		Page 20 of 152

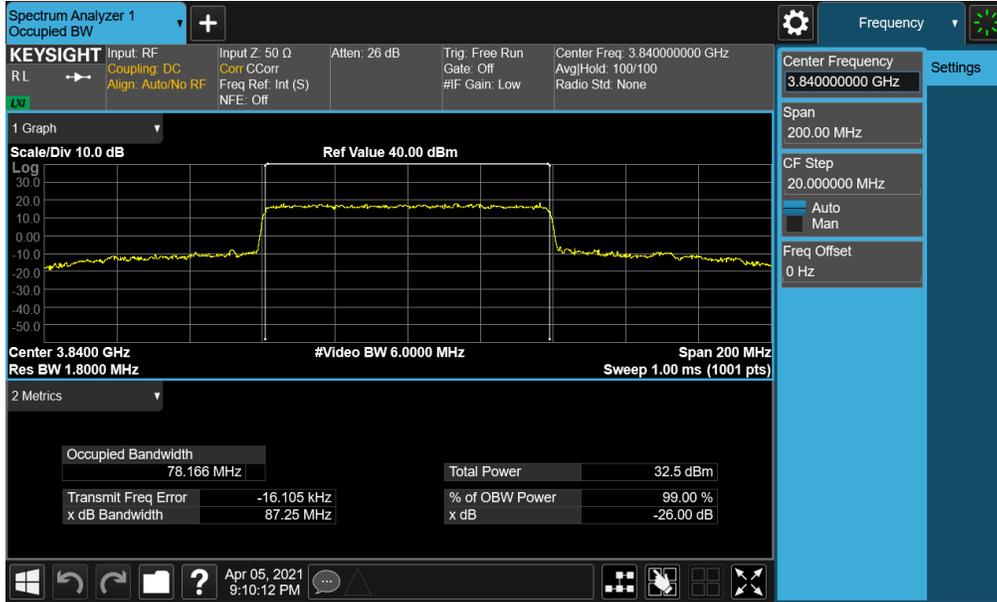


Plot 7-7. Occupied Bandwidth Plot (NR Band n77 - 80MHz $\pi/2$ BPSK - Full RB - SRS-1)



Plot 7-8. Occupied Bandwidth Plot (NR Band n77 - 80MHz QPSK - Full RB - SRS-1)

FCC ID: A3LSMF926U	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2104020031-26.A3L	Test Dates: 3/26/2021 - 6/11/2021	EUT Type: Portable Handset		Page 21 of 152

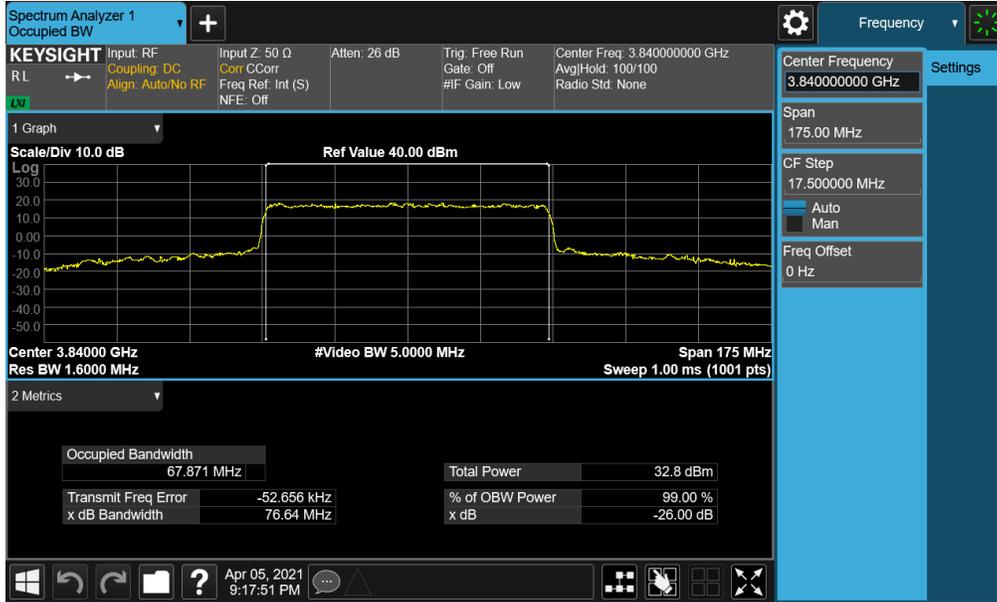


Plot 7-9. Occupied Bandwidth Plot (NR Band n77 - 80MHz 16-QAM - Full RB - SRS-1)



Plot 7-10. Occupied Bandwidth Plot (NR Band n77 - 70MHz $\pi/2$ BPSK - Full RB - SRS-1)

FCC ID: A3LSMF926U	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2104020031-26.A3L	Test Dates: 3/26/2021 - 6/11/2021	EUT Type: Portable Handset		Page 22 of 152



Plot 7-11. Occupied Bandwidth Plot (NR Band n77 - 70MHz QPSK - Full RB - SRS-1)

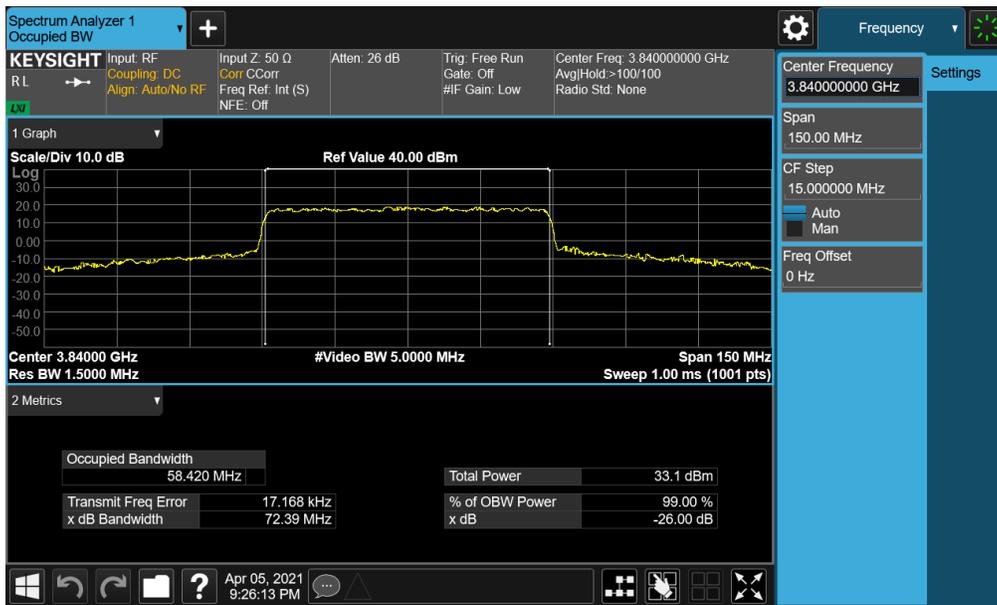


Plot 7-12. Occupied Bandwidth Plot (NR Band n77 - 70MHz 16-QAM - Full RB - SRS-1)

FCC ID: A3LSMF926U	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2104020031-26.A3L	Test Dates: 3/26/2021 - 6/11/2021	EUT Type: Portable Handset		Page 23 of 152

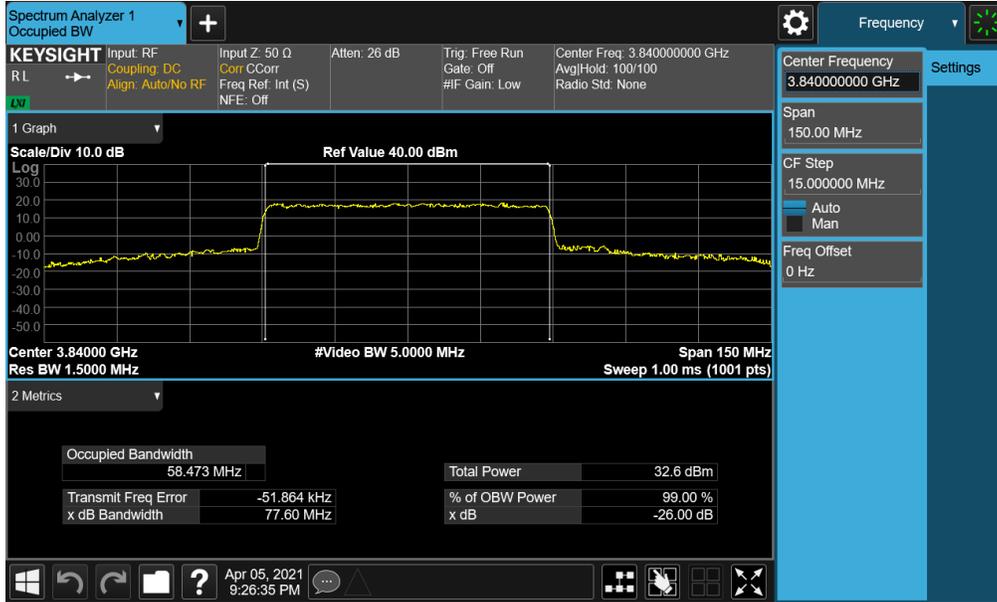


Plot 7-13. Occupied Bandwidth Plot (NR Band n77 - 60MHz $\pi/2$ BPSK - Full RB - SRS-1)

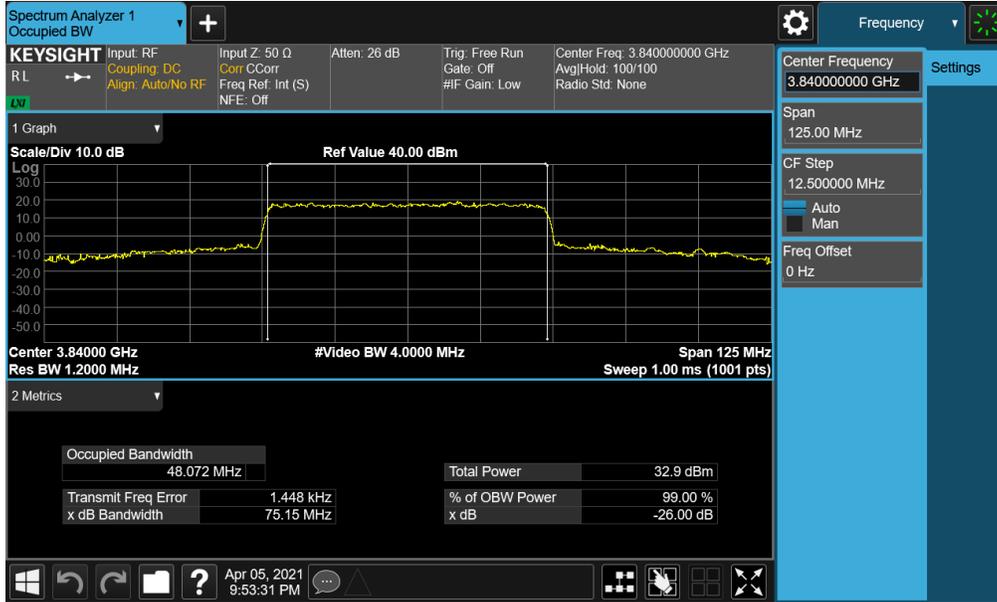


Plot 7-14. Occupied Bandwidth Plot (NR Band n77 - 60MHz QPSK - Full RB - SRS-1)

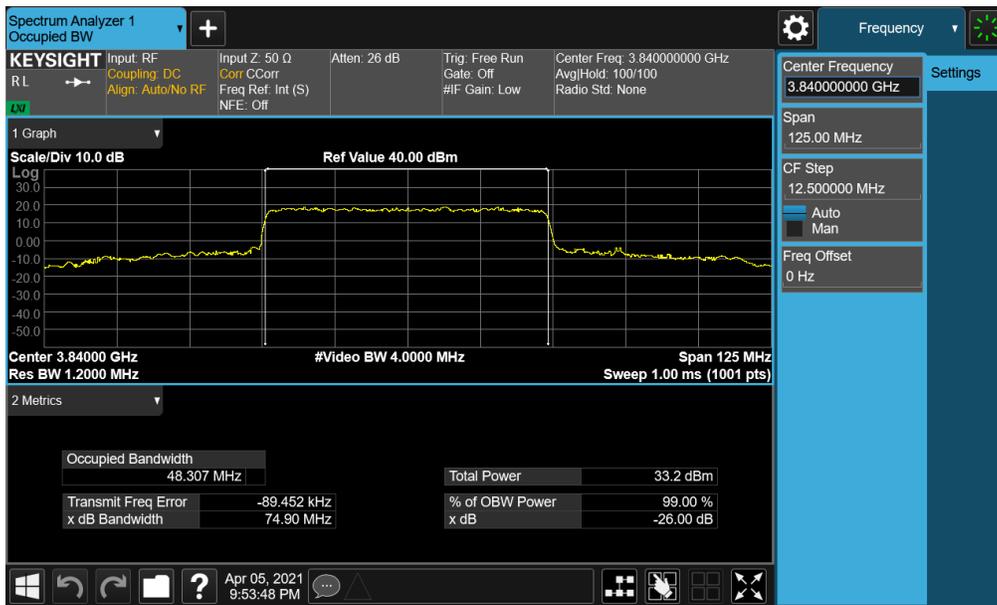
FCC ID: A3LSMF926U	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2104020031-26.A3L	Test Dates: 3/26/2021 - 6/11/2021	EUT Type: Portable Handset		Page 24 of 152



FCC ID: A3LSMF926U	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2104020031-26.A3L	Test Dates: 3/26/2021 - 6/11/2021	EUT Type: Portable Handset		Page 25 of 152



Plot 7-17. Occupied Bandwidth Plot (NR Band n77 - 50MHz QPSK - Full RB - SRS-1)

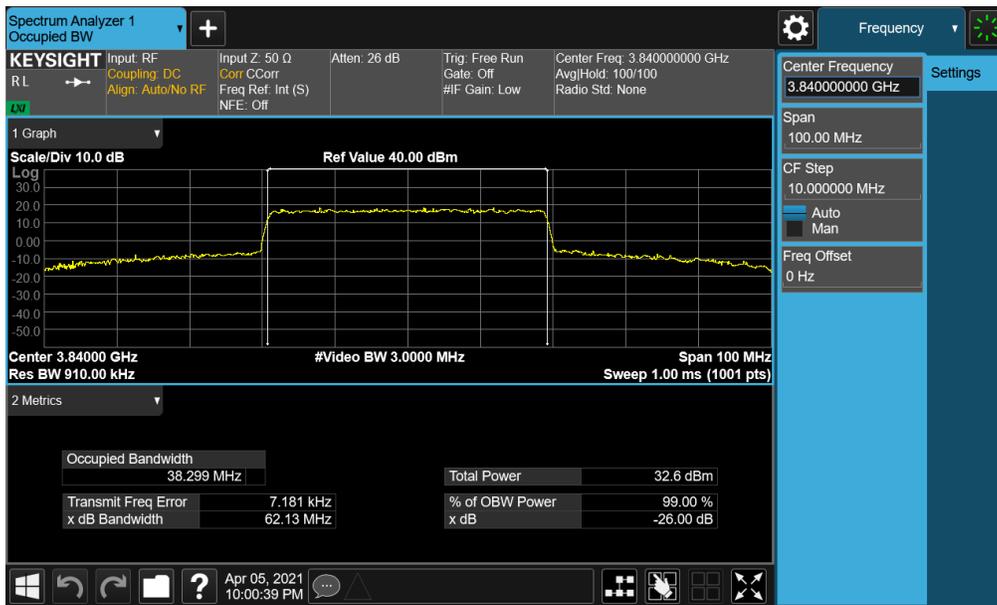


Plot 7-18. Occupied Bandwidth Plot (NR Band n77 - 50MHz 16-QAM - Full RB - SRS-1)

FCC ID: A3LSMF926U	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2104020031-26.A3L	Test Dates: 3/26/2021 - 6/11/2021	EUT Type: Portable Handset		Page 26 of 152

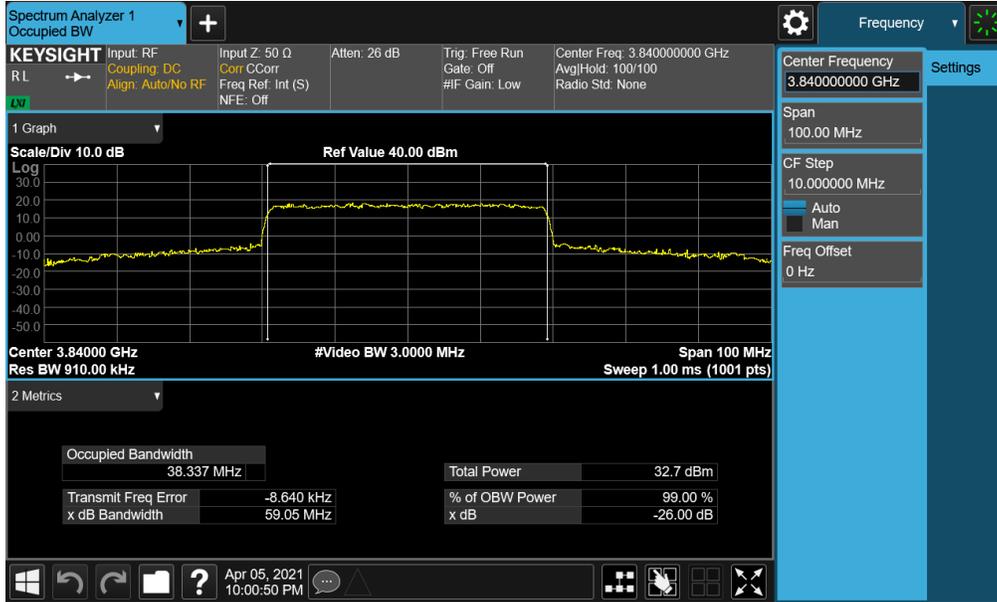


Plot 7-19. Occupied Bandwidth Plot (NR Band n77 - 40MHz $\pi/2$ BPSK - Full RB - SRS-1)



Plot 7-20. Occupied Bandwidth Plot (NR Band n77 - 40MHz QPSK - Full RB - SRS-1)

FCC ID: A3LSMF926U	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2104020031-26.A3L	Test Dates: 3/26/2021 - 6/11/2021	EUT Type: Portable Handset		Page 27 of 152



Plot 7-21. Occupied Bandwidth Plot (NR Band n77 - 40MHz 16-QAM - Full RB - SRS-1)



Plot 7-22. Occupied Bandwidth Plot (NR Band n77 - 30MHz $\pi/2$ BPSK - Full RB - SRS-1)

FCC ID: A3LSMF926U	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2104020031-26.A3L	Test Dates: 3/26/2021 - 6/11/2021	EUT Type: Portable Handset		Page 28 of 152



Plot 7-23. Occupied Bandwidth Plot (NR Band n77 - 30MHz QPSK - Full RB - SRS-1)



Plot 7-24. Occupied Bandwidth Plot (NR Band n77 - 30MHz 16-QAM - Full RB - SRS-1)

FCC ID: A3LSMF926U	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2104020031-26.A3L	Test Dates: 3/26/2021 - 6/11/2021	EUT Type: Portable Handset		Page 29 of 152



Plot 7-25. Occupied Bandwidth Plot (NR Band n77 - 20MHz $\pi/2$ BPSK - Full RB - SRS-1)



Plot 7-26. Occupied Bandwidth Plot (NR Band n77 - 20MHz QPSK - Full RB - SRS-1)

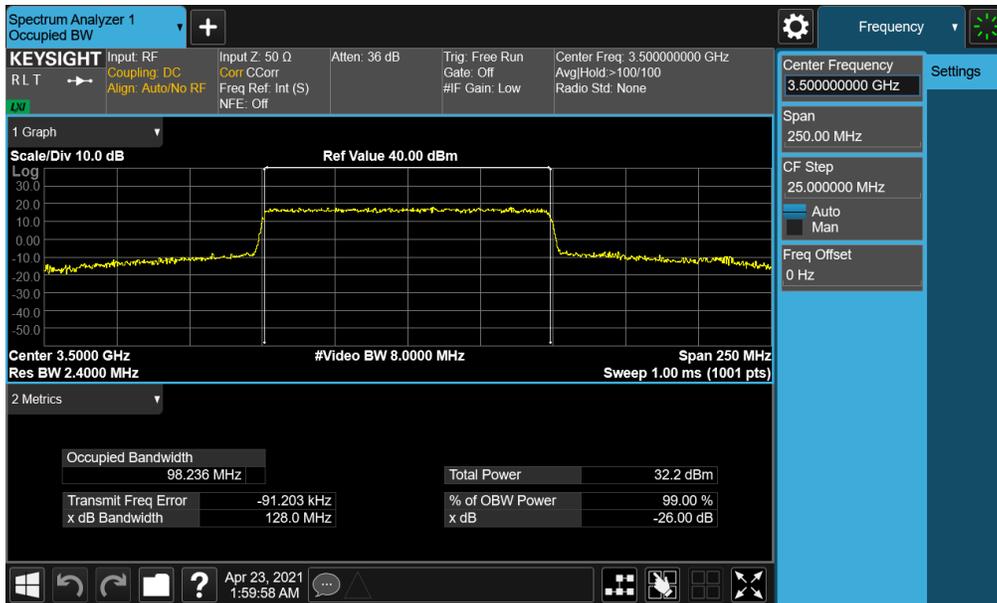
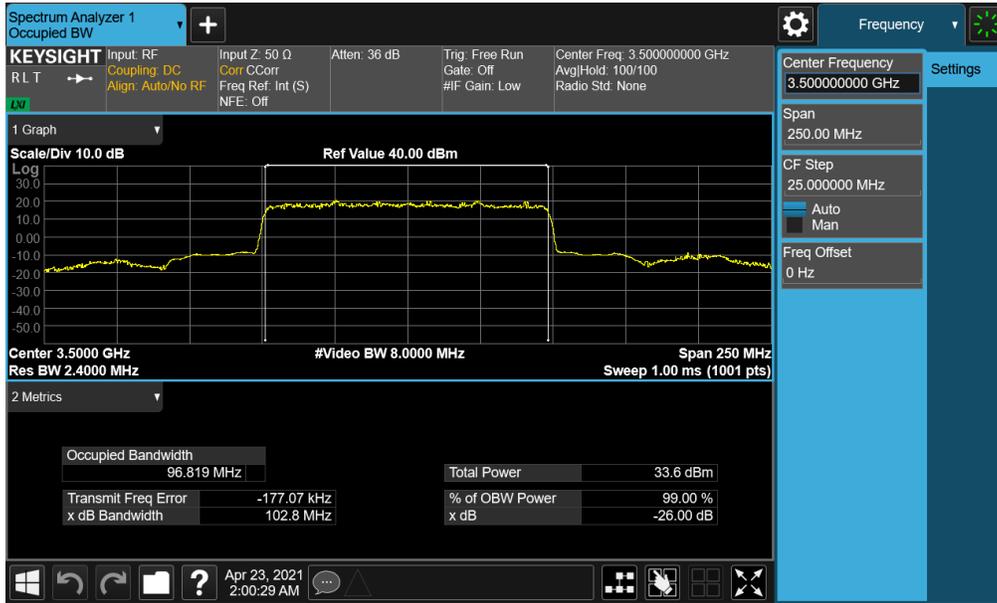
FCC ID: A3LSMF926U	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2104020031-26.A3L	Test Dates: 3/26/2021 - 6/11/2021	EUT Type: Portable Handset		Page 30 of 152



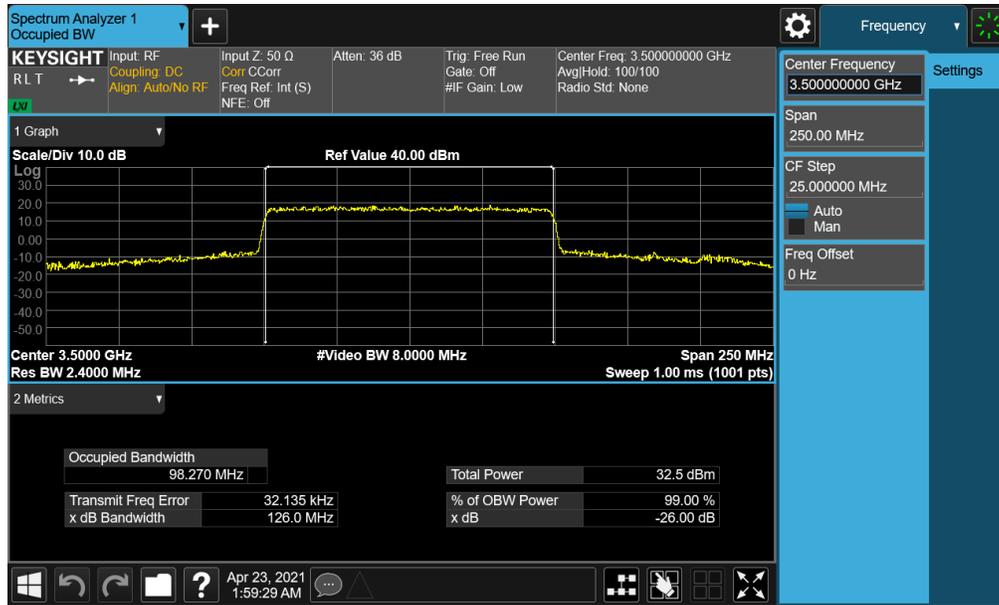
Plot 7-27. Occupied Bandwidth Plot (NR Band n77 - 20MHz 16-QAM - Full RB - SRS-1)

FCC ID: A3LSMF926U	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2104020031-26.A3L	Test Dates: 3/26/2021 - 6/11/2021	EUT Type: Portable Handset		Page 31 of 152

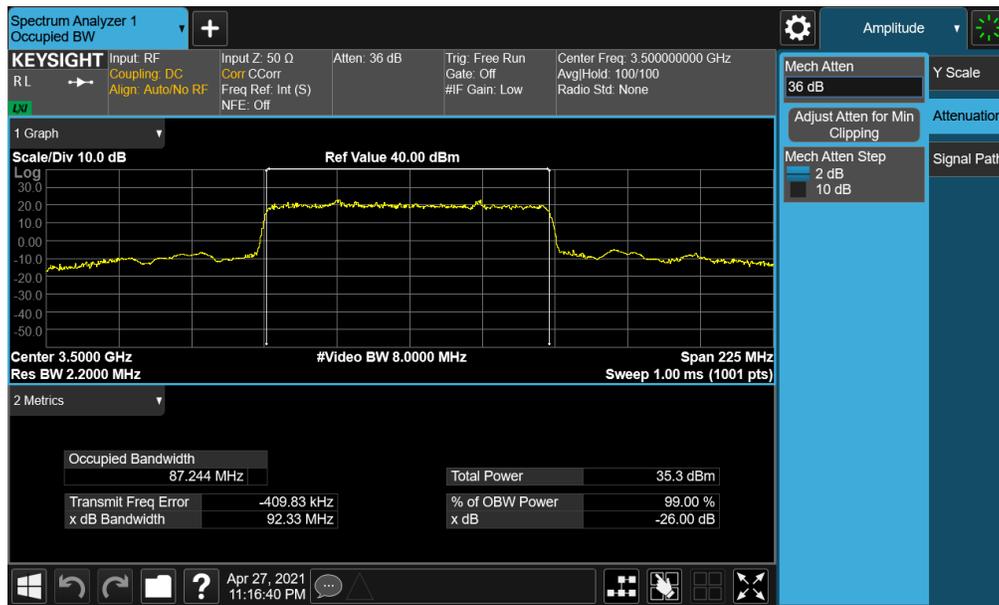
NR Band n77 – DoD Band – SRS-1



FCC ID: A3LSMF926U	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2104020031-26.A3L	Test Dates: 3/26/2021 - 6/11/2021	EUT Type: Portable Handset		Page 32 of 152

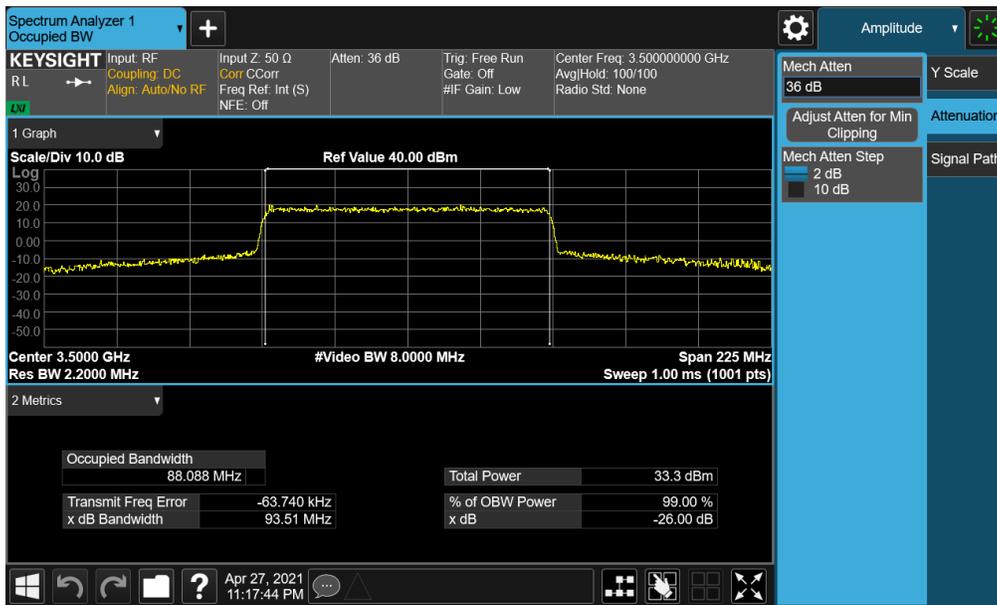
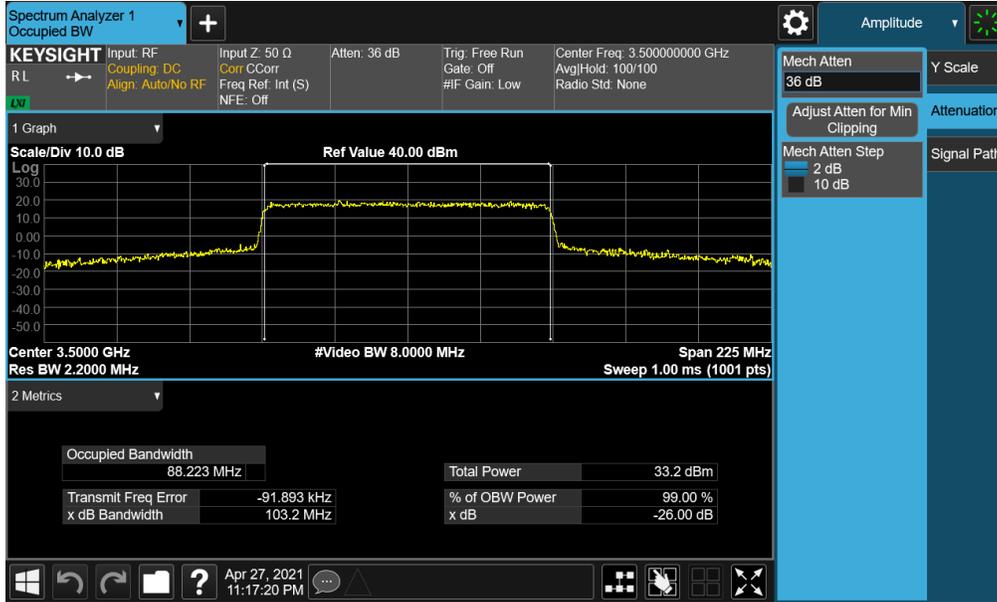


Plot 7-30. Occupied Bandwidth Plot (NR Band n77 - 100MHz 16-QAM - Full RB - SRS-1)



Plot 7-31. Occupied Bandwidth Plot (NR Band n77 - 90MHz π/2 BPSK - Full RB - SRS-1)

FCC ID: A3LSMF926U	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
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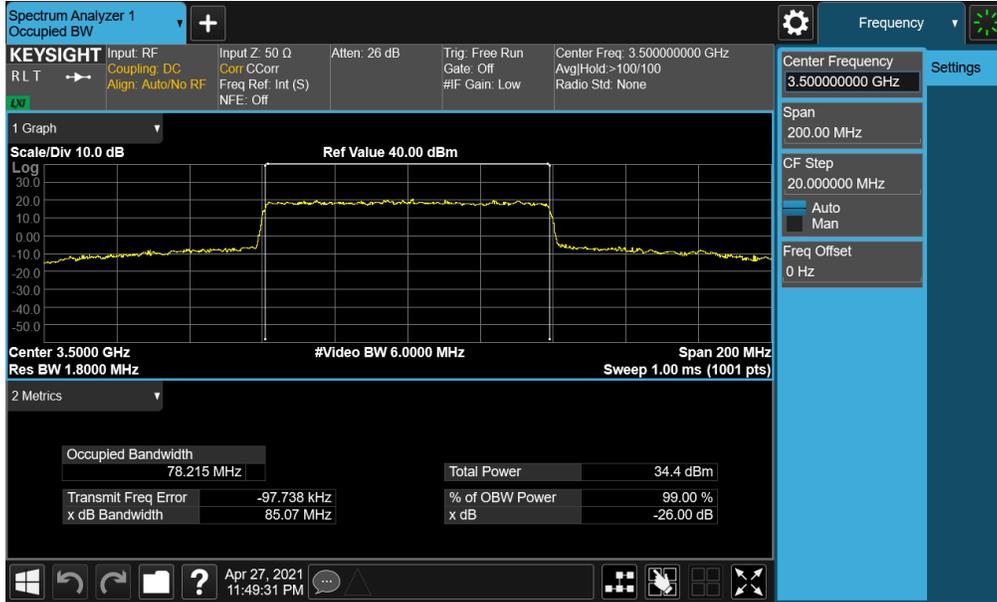


Plot 7-34. Occupied Bandwidth Plot (NR Band n77 - 80MHz $\pi/2$ BPSK - Full RB - SRS-1)



Plot 7-35. Occupied Bandwidth Plot (NR Band n77 - 80MHz QPSK - Full RB - SRS-1)

FCC ID: A3LSMF926U	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
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Plot 7-36. Occupied Bandwidth Plot (NR Band n77 - 80MHz 16-QAM - Full RB - SRS-1)



Plot 7-37. Occupied Bandwidth Plot (NR Band n77 - 70MHz $\pi/2$ BPSK - Full RB - SRS-1)

FCC ID: A3LSMF926U	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2104020031-26.A3L	Test Dates: 3/26/2021 - 6/11/2021	EUT Type: Portable Handset		Page 36 of 152

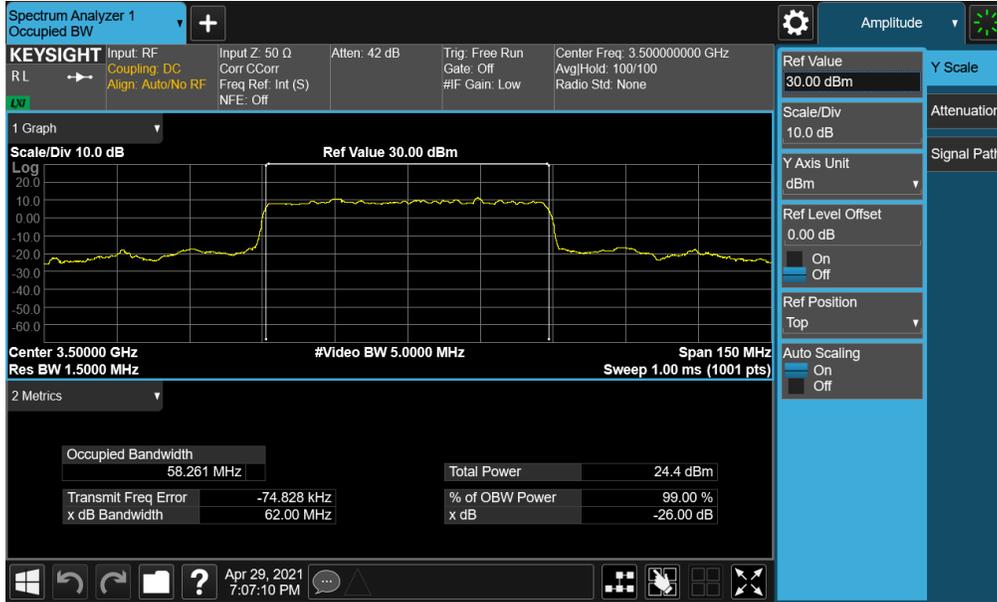


Plot 7-38. Occupied Bandwidth Plot (NR Band n77 - 70MHz QPSK - Full RB - SRS-1)

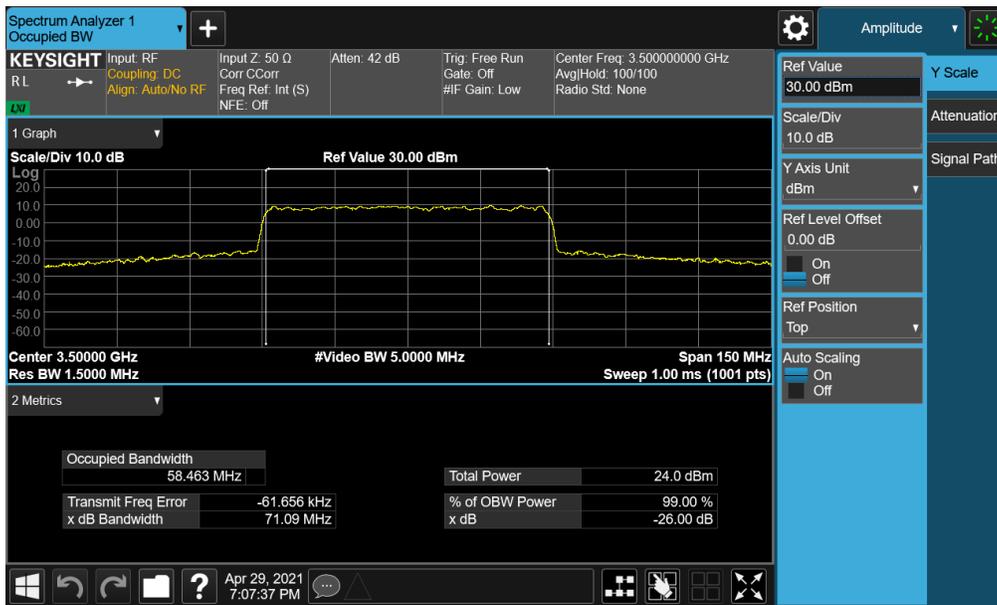


Plot 7-39. Occupied Bandwidth Plot (NR Band n77 - 70MHz 16-QAM - Full RB - SRS-1)

FCC ID: A3LSMF926U	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
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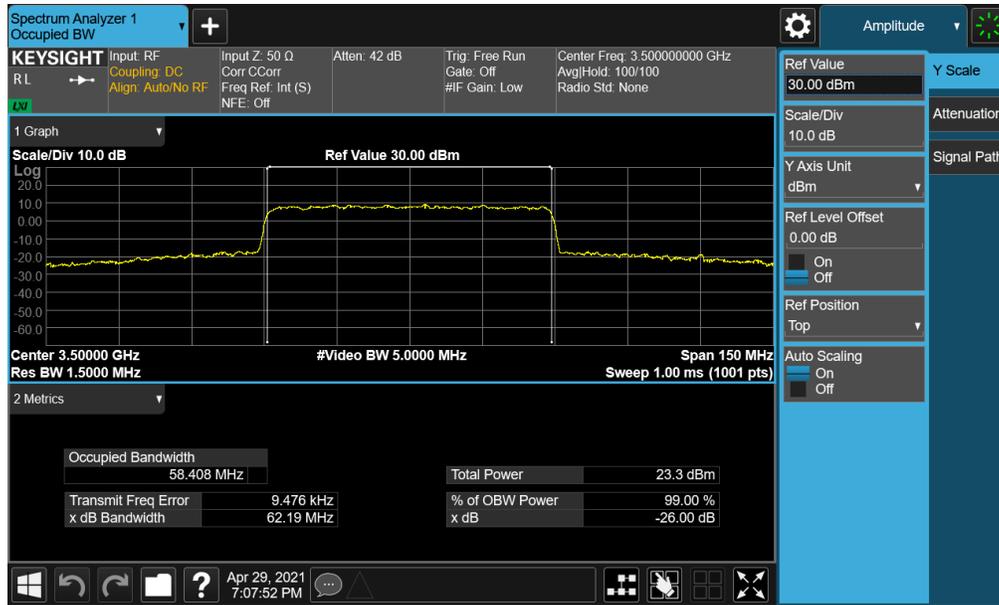


Plot 7-40. Occupied Bandwidth Plot (NR Band n77 - 60MHz $\pi/2$ BPSK - Full RB - SRS-1)

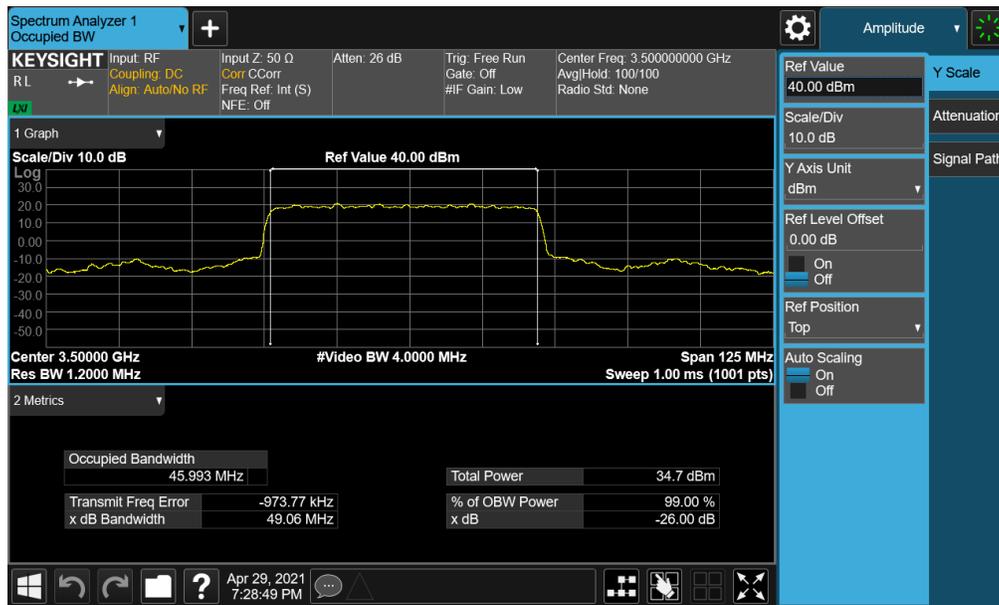


Plot 7-41. Occupied Bandwidth Plot (NR Band n77 - 60MHz QPSK - Full RB - SRS-1)

FCC ID: A3LSMF926U	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
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Plot 7-42. Occupied Bandwidth Plot (NR Band n77 - 60MHz 16-QAM - Full RB - SRS-1)



Plot 7-43. Occupied Bandwidth Plot (NR Band n77 - 50MHz $\pi/2$ BPSK - Full RB - SRS-1)

FCC ID: A3LSMF926U	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2104020031-26.A3L	Test Dates: 3/26/2021 - 6/11/2021	EUT Type: Portable Handset		Page 39 of 152

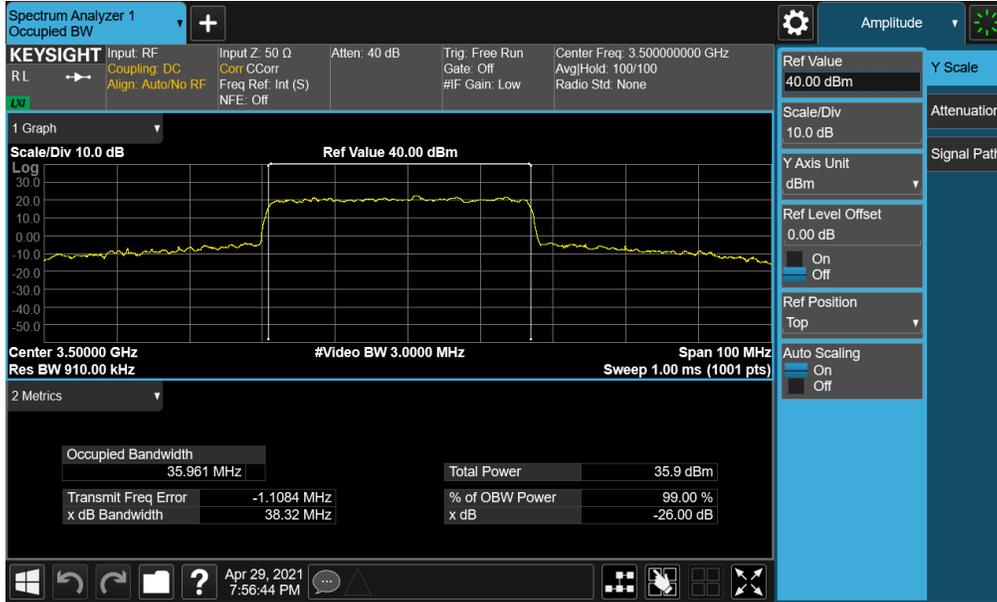


Plot 7-44. Occupied Bandwidth Plot (NR Band n77 - 50MHz QPSK - Full RB - SRS-1)

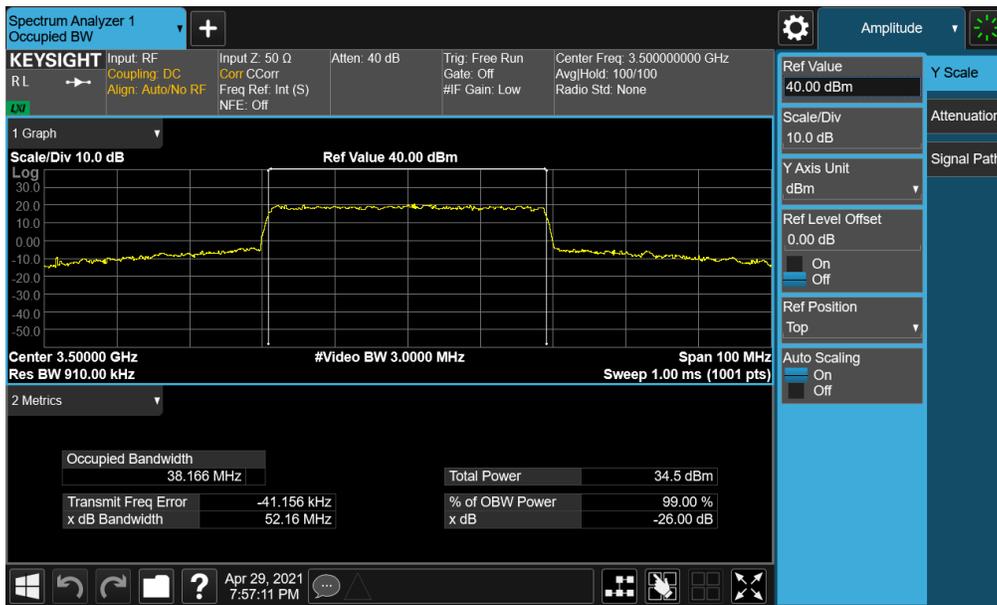


Plot 7-45. Occupied Bandwidth Plot (NR Band n77 - 50MHz 16-QAM - Full RB - SRS-1)

FCC ID: A3LSMF926U	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
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Plot 7-46. Occupied Bandwidth Plot (NR Band n77 - 40MHz $\pi/2$ BPSK - Full RB - SRS-1)



Plot 7-47. Occupied Bandwidth Plot (NR Band n77 - 40MHz QPSK - Full RB - SRS-1)

FCC ID: A3LSMF926U	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2104020031-26.A3L	Test Dates: 3/26/2021 - 6/11/2021	EUT Type: Portable Handset		Page 41 of 152

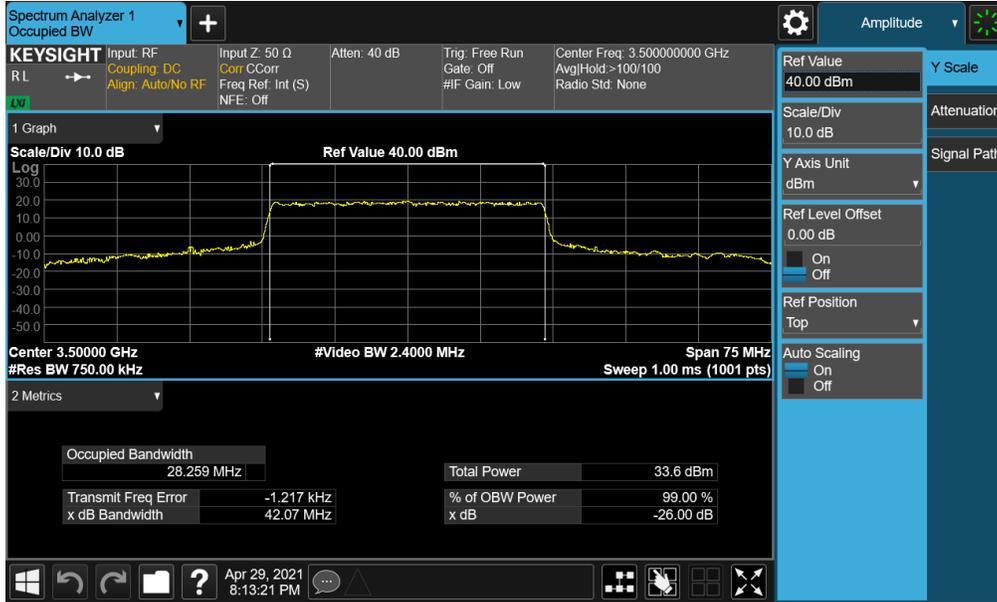


Plot 7-48. Occupied Bandwidth Plot (NR Band n77 - 40MHz 16-QAM - Full RB - SRS-1)



Plot 7-49. Occupied Bandwidth Plot (NR Band n77 - 30MHz $\pi/2$ BPSK - Full RB - SRS-1)

FCC ID: A3LSMF926U	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2104020031-26.A3L	Test Dates: 3/26/2021 - 6/11/2021	EUT Type: Portable Handset		Page 42 of 152

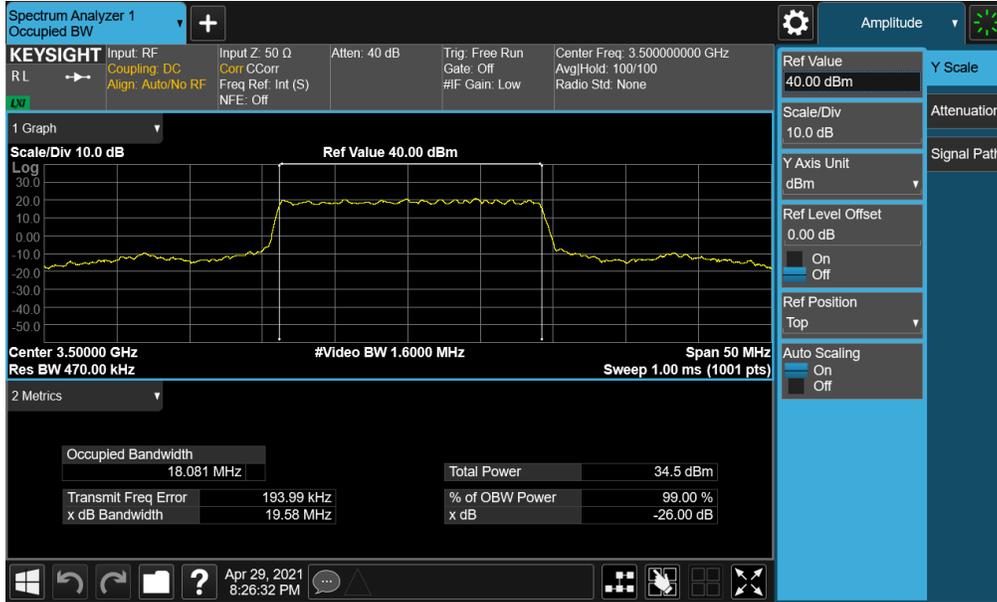


Plot 7-50. Occupied Bandwidth Plot (NR Band n77 - 30MHz QPSK - Full RB - SRS-1)



Plot 7-51. Occupied Bandwidth Plot (NR Band n77 - 30MHz 16-QAM - Full RB - SRS-1)

FCC ID: A3LSMF926U	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2104020031-26.A3L	Test Dates: 3/26/2021 - 6/11/2021	EUT Type: Portable Handset		Page 43 of 152



Plot 7-52. Occupied Bandwidth Plot (NR Band n77 - 20MHz $\pi/2$ BPSK - Full RB - SRS-1)



Plot 7-53. Occupied Bandwidth Plot (NR Band n77 - 20MHz QPSK - Full RB - SRS-1)

FCC ID: A3LSMF926U	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2104020031-26.A3L	Test Dates: 3/26/2021 - 6/11/2021	EUT Type: Portable Handset		Page 44 of 152



Plot 7-54. Occupied Bandwidth Plot (NR Band n77 - 20MHz 16-QAM - Full RB - SRS-1)

FCC ID: A3LSMF926U	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2104020031-26.A3L	Test Dates: 3/26/2021 - 6/11/2021	EUT Type: Portable Handset		Page 45 of 152

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 $43 + 10 \log_{10}(P_{[Watts]})$, where P is the transmitter power in Watts.

Test Procedure Used

KDB 971168 D01 v03r01 – Section 6.0

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

FCC ID: A3LSMF926U	 PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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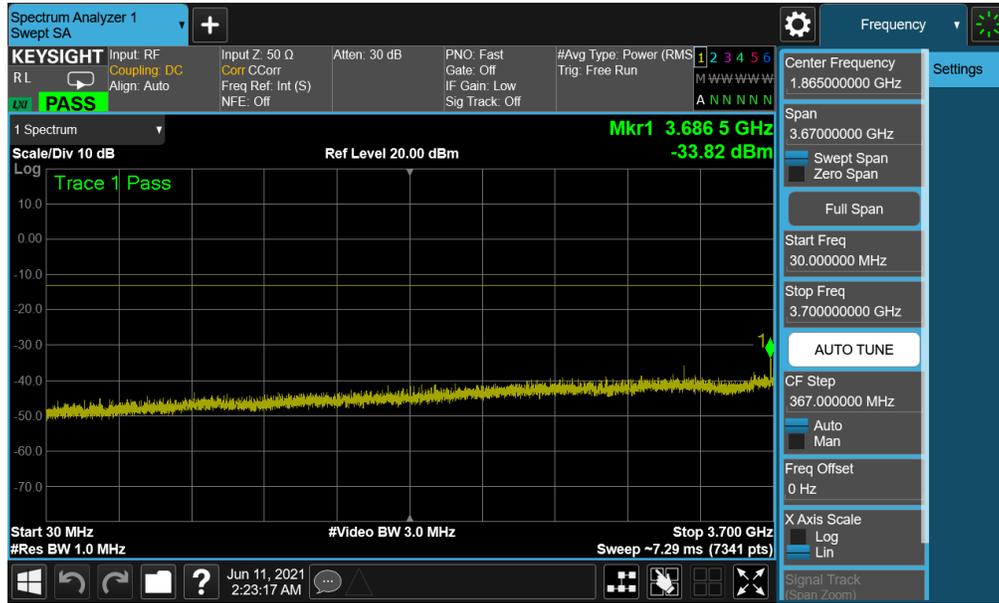
Test Notes

1. Per Part 27, compliance with the applicable limits is based on the use of measurement instrumentation employing a resolution bandwidth 100 kHz or greater for measurements below 1GHz. However, in the 1 MHz bands immediately outside and adjacent to the licensee's frequency block, the minimum resolution bandwidth for the measurement shall be either one percent of the emission bandwidth of the fundamental emission of the transmitter or 350 kHz. In the bands between 1 and 5 MHz removed from the licensee's frequency block, the minimum resolution bandwidth for the measurement shall be 500 kHz. The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emission are attenuated at least 26 dB below the transmitter power.

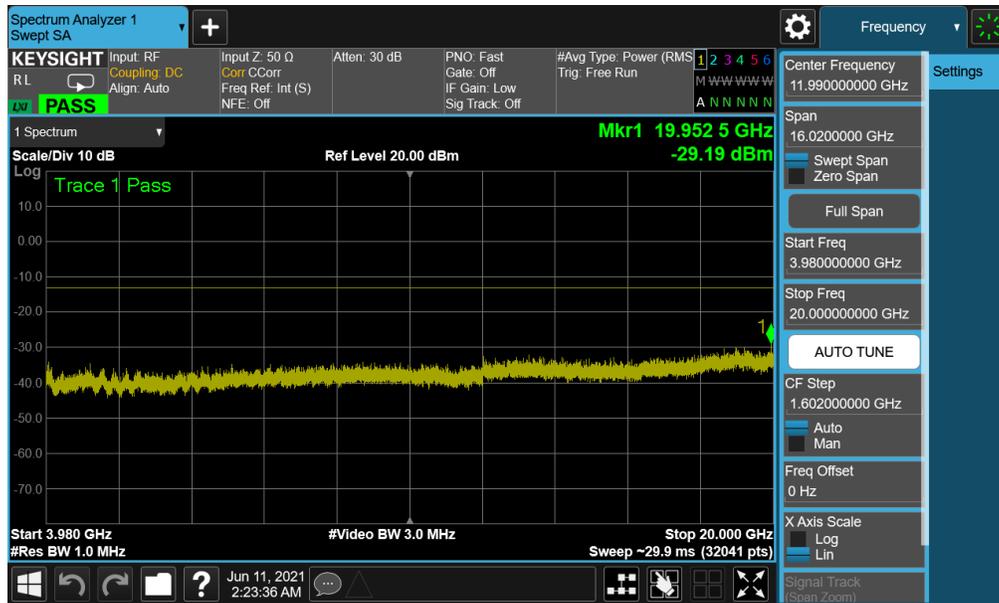
2. For NR operation, all subcarrier spacings (SCS) and transmission schemes (e.g. CP-OFDM and DFT-s-OFDM) were investigated to determine the worst case configuration. All modes of operation were investigated and the worst case configuration results are reported in this section.

FCC ID: A3LSMF926U	 PART 27 MEASUREMENT REPORT 		Approved by: Technical Manager
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NR Band n77 – C-Band – SRS-1

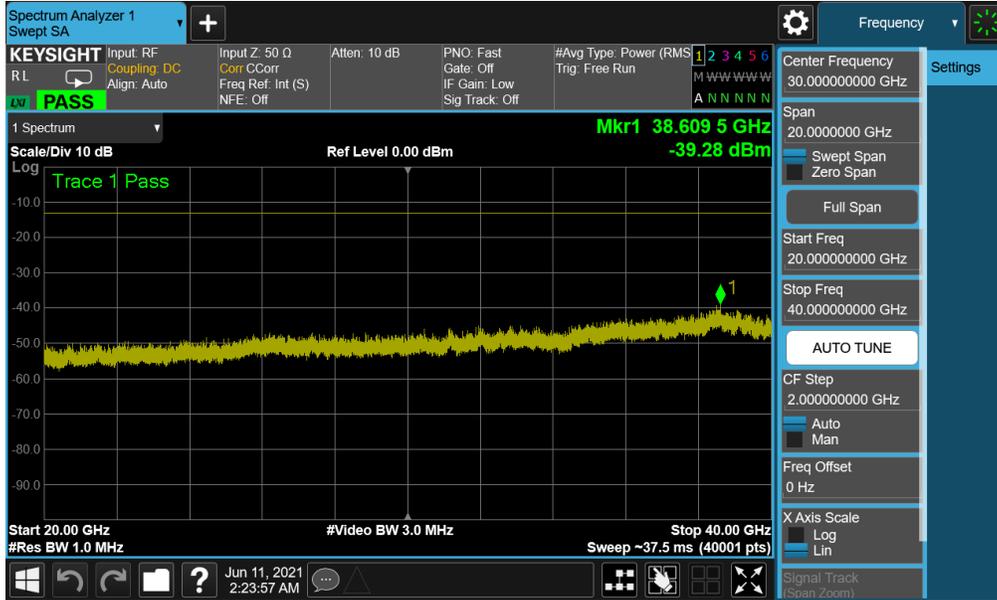


Plot 7-55. Conducted Spurious Plot (NR Band n77 - 100MHz QPSK - RB Size 1, RB Offset 0 - Low Channel - SRS-1)

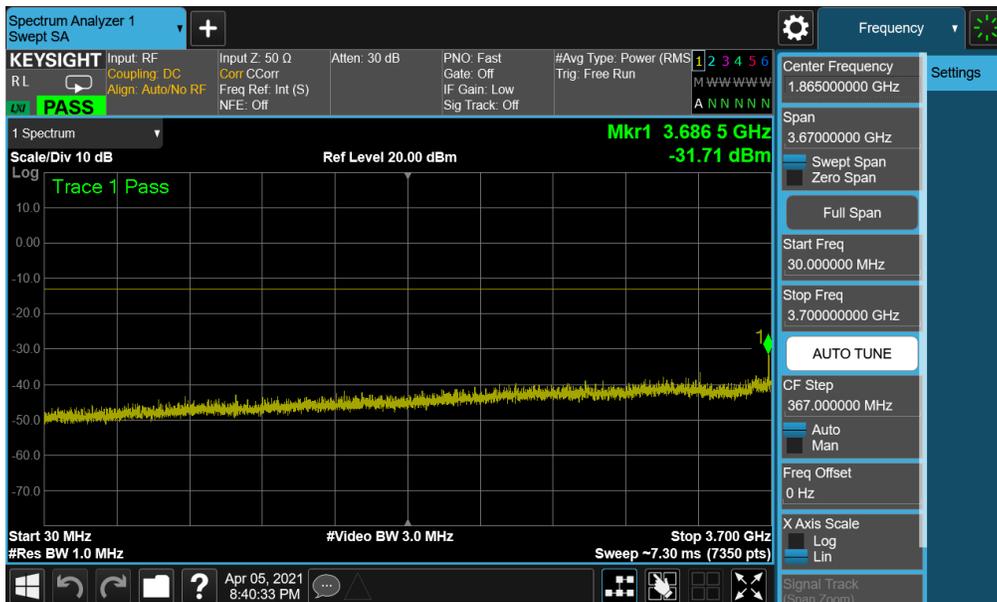


Plot 7-56. Conducted Spurious Plot (NR Band n77 - 100MHz QPSK - RB Size 1, RB Offset 0 - Low Channel - SRS-1)

FCC ID: A3LSMF926U	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2104020031-26.A3L	Test Dates: 3/26/2021 - 6/11/2021	EUT Type: Portable Handset		Page 48 of 152

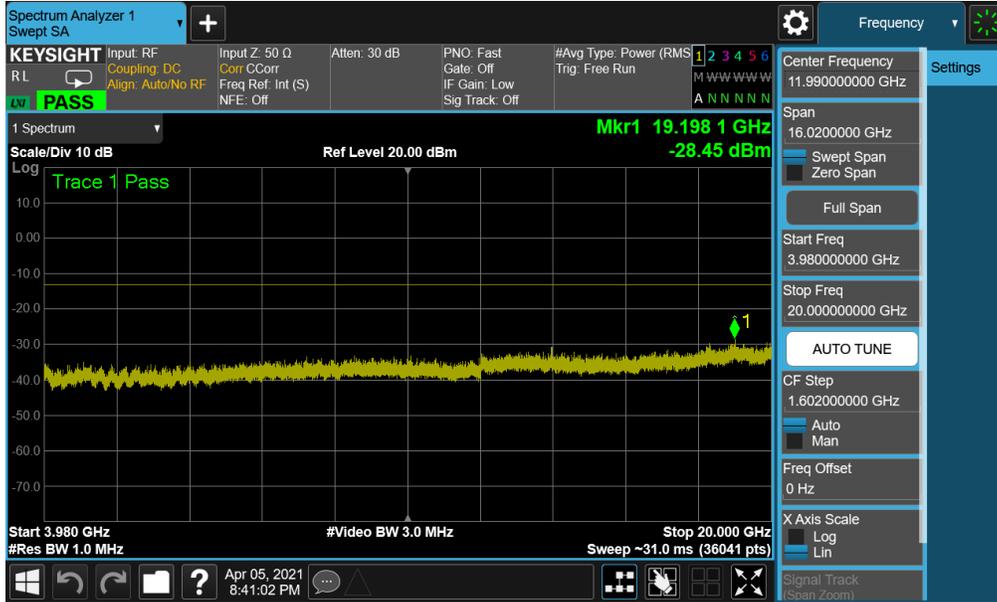


Plot 7-57. Conducted Spurious Plot (NR Band n77 - 100MHz QPSK - RB Size 1, RB Offset 0 - Low Channel - SRS-1)



Plot 7-58. Conducted Spurious Plot (NR Band n77 - 100MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel - SRS-1)

FCC ID: A3LSMF926U	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2104020031-26.A3L	Test Dates: 3/26/2021 - 6/11/2021	EUT Type: Portable Handset		Page 49 of 152

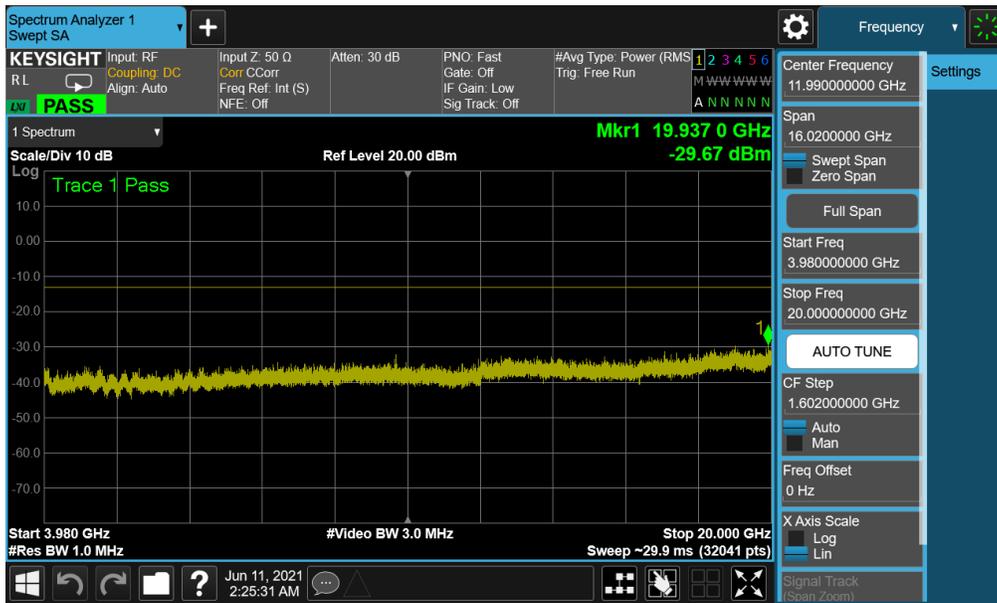
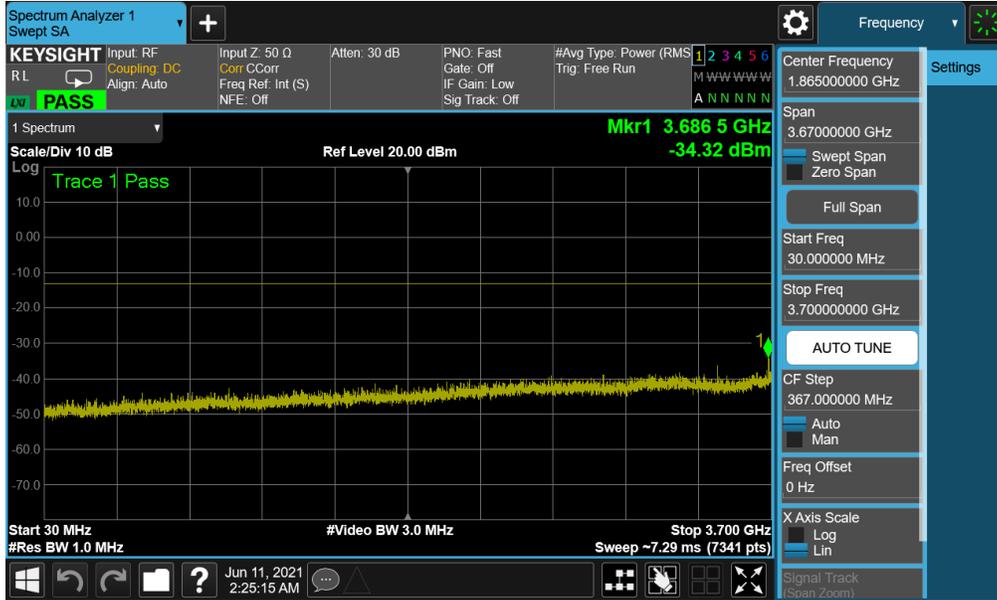


Plot 7-59. Conducted Spurious Plot (NR Band n77 - 100MHz QPSK - RB Size 1, RB Offset 0 – Mid Channel - SRS-1)

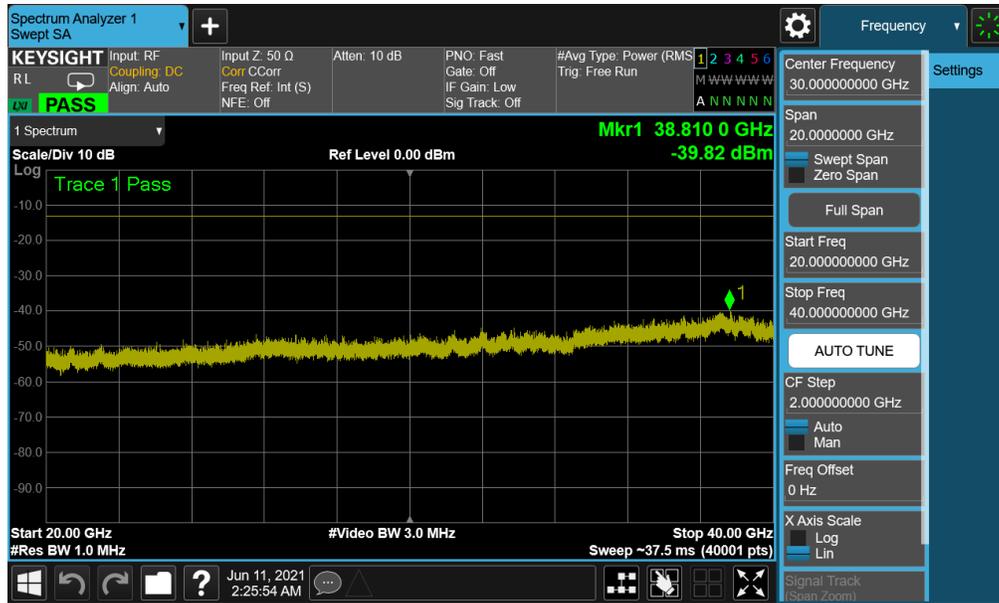


Plot 7-60. Conducted Spurious Plot (NR Band n77 - 100MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel - SRS-1)

FCC ID: A3LSMF926U	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
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Plot 7-63. Conducted Spurious Plot (NR Band n77 - 100MHz QPSK - RB Size 1, RB Offset 0 - High Channel - SRS-1)

FCC ID: A3LSMF926U	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2104020031-26.A3L	Test Dates: 3/26/2021 - 6/11/2021	EUT Type: Portable Handset		Page 52 of 152