



ELEMENT WASHINGTON DC LLC

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PART 27 MEASUREMENT REPORT

Applicant Name:

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

Date of Testing:

2/24/2025 – 05/05/2025

Test Report Issue Date:

6/11/2025

Test Site/Location:

Element Lab., Columbia, MD, USA

Test Report Serial No.:

1M2504070040-03.A3L

FCC ID:

A3LSMF966JPN

APPLICANT:

Samsung Electronics Co., Ltd.

Application Type:

Certification

Model:

SC-56F

Additional Model(s):

SCG34

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,
KDB 484596 D01 v03

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

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

RJ Ortanez
Executive Vice President



FCC ID: A3LSMF966JPN	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2504070040-03.A3L	Test Dates: 2/24/2025 – 05/05/2025	EUT Type: Portable Handset	Page 1 of 137

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MEASUREMENT REPORT

FCC Part 27

Antenna-1								
Mode	Bandwidth	Modulation	Tx Frequency Range [MHz]	ERP		EIRP		Emission Designator
				Max. Power [W]	Max. Power [dBm]	Max. Power [W]	Max. Power [dBm]	
LTE Band 12	10 MHz	QPSK	704.0 - 711.0	0.081	19.08	0.133	21.23	9M04G7D
		16QAM	704.0 - 711.0	0.070	18.45	0.115	20.60	9M04W7D
	5 MHz	QPSK	701.5 - 713.5	0.086	19.33	0.141	21.48	4M53G7D
		16QAM	701.5 - 713.5	0.067	18.27	0.110	20.42	4M53W7D
	3 MHz	QPSK	700.5 - 714.5	0.085	19.31	0.140	21.46	2M72G7D
		16QAM	700.5 - 714.5	0.068	18.32	0.111	20.47	2M71W7D
	1.4 MHz	QPSK	699.7 - 715.3	0.083	19.20	0.136	21.35	1M11G7D
		16QAM	699.7 - 715.3	0.067	18.25	0.110	20.40	1M11W7D
LTE Band 13	10 MHz	QPSK	782.0	0.061	17.86	0.100	20.01	9M02G7D
		16QAM	782.0	0.042	16.28	0.070	18.43	9M02W7D
	5 MHz	QPSK	779.5 - 784.5	0.062	17.91	0.101	20.06	4M55G7D
		16QAM	779.5 - 784.5	0.043	16.31	0.070	18.46	4M55W7D

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Antenna-1						
Mode	Bandwidth	Modulation	Tx Frequency Range [MHz]	EIRP		Emission Designator
				Max. Power [W]	Max. Power [dBm]	
LTE Band 66/4	20 MHz	QPSK	1720.0 - 1770.0	0.292	24.65	18M0G7D
		16QAM	1720.0 - 1770.0	0.217	23.37	18M1W7D
	15 MHz	QPSK	1717.5 - 1772.5	0.287	24.58	13M5G7D
		16QAM	1717.5 - 1772.5	0.223	23.49	13M5W7D
	10 MHz	QPSK	1715.0 - 1775.0	0.280	24.47	9M05G7D
		16QAM	1715.0 - 1775.0	0.214	23.29	9M04W7D
	5 MHz	QPSK	1712.5 - 1777.5	0.292	24.65	4M54G7D
		16QAM	1712.5 - 1777.5	0.228	23.57	4M54W7D
	3 MHz	QPSK	1711.5 - 1778.5	0.292	24.65	2M72G7D
		16QAM	1711.5 - 1778.5	0.228	23.57	2M72W7D
	1.4 MHz	QPSK	1710.7 - 1779.3	0.282	24.50	1M11G7D
		16QAM	1710.7 - 1779.3	0.228	23.59	1M12W7D
	40 MHz	$\pi/2$ BPSK	1730.0 - 1760.0	0.139	21.43	38M7G7D
		QPSK	1730.0 - 1760.0	0.136	21.33	38M8G7D
		16QAM	1730.0 - 1760.0	0.106	20.24	38M8W7D
	35 MHz	$\pi/2$ BPSK	1727.5 - 1762.5	0.131	21.19	32M3G7D
		QPSK	1727.5 - 1762.5	0.130	21.15	32M4G7D
		16QAM	1727.5 - 1762.5	0.092	19.63	32M3W7D
	30 MHz	$\pi/2$ BPSK	1725.0 - 1765.0	0.139	21.44	28M8G7D
		QPSK	1725.0 - 1765.0	0.135	21.32	28M7G7D
		16QAM	1725.0 - 1765.0	0.095	19.78	28M7W7D
	25 MHz	$\pi/2$ BPSK	1722.5 - 1767.5	0.142	21.52	23M0W7D
		QPSK	1722.5 - 1767.5	0.136	21.33	23M1W7D
		16QAM	1722.5 - 1767.5	0.099	19.94	23M0W7D
	20 MHz	$\pi/2$ BPSK	1720.0 - 1770.0	0.133	21.23	18M0G7D
		QPSK	1720.0 - 1770.0	0.128	21.08	18M0G7D
		16QAM	1720.0 - 1770.0	0.091	19.60	17M9W7D
	15 MHz	$\pi/2$ BPSK	1717.5 - 1772.5	0.133	21.24	13M5G7D
		QPSK	1717.5 - 1772.5	0.132	21.21	13M5G7D
		16QAM	1717.5 - 1772.5	0.099	19.96	13M6W7D
	10 MHz	$\pi/2$ BPSK	1715.0 - 1775.0	0.131	21.17	9M00G7D
		QPSK	1715.0 - 1775.0	0.128	21.08	9M01G7D
		16QAM	1715.0 - 1775.0	0.095	19.76	9M02W7D
NR Band n66	5 MHz	$\pi/2$ BPSK	1712.5 - 1777.5	0.131	21.18	4M53G7D
		QPSK	1712.5 - 1777.5	0.129	21.10	4M51G7D
		16QAM	1712.5 - 1777.5	0.094	19.73	4M54W7D

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Antenna-2						
Mode	Bandwidth	Modulation	Tx Frequency Range [MHz]	EIRP		Emission Designator
				Max. Power [W]	Max. Power [dBm]	
NR Band n66	40 MHz	$\pi/2$ BPSK	1730.0 - 1760.0	0.120	20.78	38M8G7D
		QPSK	1730.0 - 1760.0	0.112	20.48	39M0G7D
		16QAM	1730.0 - 1760.0	0.078	18.93	38M8W7D
	35 MHz	$\pi/2$ BPSK	1727.5 - 1762.5	0.136	21.34	32M4G7D
		QPSK	1727.5 - 1762.5	0.128	21.08	32M5G7D
		16QAM	1727.5 - 1762.5	0.088	19.47	32M3W7D
	30 MHz	$\pi/2$ BPSK	1725.0 - 1765.0	0.119	20.75	28M8G7D
		QPSK	1725.0 - 1765.0	0.114	20.58	28M8G7D
		16QAM	1725.0 - 1765.0	0.078	18.94	28M7W7D
	25 MHz	$\pi/2$ BPSK	1722.5 - 1767.5	0.120	20.79	23M1W7D
		QPSK	1722.5 - 1767.5	0.114	20.57	23M1W7D
		16QAM	1722.5 - 1767.5	0.078	18.93	23M1W7D
	20 MHz	$\pi/2$ BPSK	1720.0 - 1770.0	0.114	20.56	18M0G7D
		QPSK	1720.0 - 1770.0	0.109	20.36	18M0G7D
		16QAM	1720.0 - 1770.0	0.073	18.64	18M0W7D
	15 MHz	$\pi/2$ BPSK	1717.5 - 1772.5	0.116	20.63	13M5G7D
		QPSK	1717.5 - 1772.5	0.110	20.42	13M5G7D
		16QAM	1717.5 - 1772.5	0.076	18.78	13M6W7D
	10 MHz	$\pi/2$ BPSK	1715.0 - 1775.0	0.114	20.58	9M00G7D
		QPSK	1715.0 - 1775.0	0.110	20.41	9M02G7D
		16QAM	1715.0 - 1775.0	0.074	18.72	9M03W7D
	5 MHz	$\pi/2$ BPSK	1712.5 - 1777.5	0.114	20.56	4M52G7D
		QPSK	1712.5 - 1777.5	0.107	20.31	4M51G7D
		16QAM	1712.5 - 1777.5	0.076	18.80	4M53W7D

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Antenna-3					
Mode	Bandwidth	Modulation	Tx Frequency Range [MHz]	ERP	
				Max. Power [W]	Max. Power [dBm]
LTE Band 12	10 MHz	QPSK	704.0 - 711.0	0.031	14.87
		16QAM	704.0 - 711.0	0.023	13.67
	5 MHz	QPSK	701.5 - 713.5	0.033	15.12
		16QAM	701.5 - 713.5	0.023	13.67
	3 MHz	QPSK	700.5 - 714.5	0.032	15.10
		16QAM	700.5 - 714.5	0.023	13.66
	1.4 MHz	QPSK	699.7 - 715.3	0.032	14.99
		16QAM	699.7 - 715.3	0.023	13.66
LTE Band 13	10 MHz	QPSK	782.0	0.038	15.82
		16QAM	782.0	0.029	14.59
	5 MHz	QPSK	779.5 - 784.5	0.039	15.88
		16QAM	779.5 - 784.5	0.029	14.63

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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

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

1.3 Test Facility / Accreditations

Measurements were performed at Element lab located in Columbia, MD 21046, U.S.A.

- Element Washington DC LLC is an ISO 17025-2017 accredited test facility under the American Association for Laboratory Accreditation (A2LA) with Certificate number 2041.01 for Specific Absorption Rate (SAR), Hearing Aid Compatibility (HAC) testing, where applicable, and Electromagnetic Compatibility (EMC) testing for FCC and Innovation, Science, and Economic Development Canada rules.
- Element Washington DC LLC TCB is a Telecommunication Certification Body (TCB) accredited to ISO/IEC 17065-2012 by A2LA (Certificate number 2041.03) in all scopes of FCC Rules and ISED Standards (RSS).
- Element Washington DC LLC facility is a registered (2451B) test laboratory with the site description on file with ISED.
- Element Washington DC LLC is a Recognized U.S. Certification Assessment Body (CAB # US0110) for ISED Canada as designated by NIST under the U.S. and Canada Mutual Recognition Agreements (MRAs).

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2.0 PRODUCT INFORMATION

2.1 Equipment Description

The Equipment Under Test (EUT) is the **Samsung Portable Handset FCC ID: A3LSMF966JPN**. 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.

The authorization for these models (SC-56F and SCG34) utilize data referencing from FCC ID: A3LSMF966U (Model SM-F966U) as permitted per KDB 484596 v03.

Test Device Serial No.: 2203R, 2206R, 0170M, 0173M, 0156M

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

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.

This device uses an Adaptive Frame Switching (AFS) mechanism for 700 MHz and 800 MHz bands during certain conditions. With AFS, the Tx pathway can use Ant A only or Ant A + Ant C to improve performance. The results in this report will be formatted according to the following table. For cases that support both Ant A + Ant C and Ant A, only one set of conducted data is provided as AFS does not affect the conducted results regardless of configuration.

This device supports Antenna Switching Diversity (ASDiv) for multiple bands and can operate on two distinct antennas. Either antenna is used according to the DL/UL signal strength in the field to improve signal strength for receiving and transmitting. Testing was done on both antennas and is included in this report.

Band	Ant1	Ant2	Ant3
LTE Band 66/4	Ant B	-	-
LTE Band B12, B13	Ant A+C	-	Ant A
NR Band n66	Ant B	Ant G	-

Table 2-1. Antenna Naming Convention

This device supports three folder configurations: one is with folder fully open, one is where the folder is half open (90 degrees), and one is with folder closed. All configurations are tested, and the worst case radiated emissions data is shown in this report.

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2.4 Software and Firmware

Testing was performed on device(s) using software/firmware version FAV0_F966UFAU0AYB3 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	1.13
Radiated Disturbance (<1GHz)	4.98
Radiated Disturbance (>1GHz)	5.07
Radiated Disturbance (>18GHz)	5.09

Table 4-1. Measurement Uncertainty Budget

FCC ID: A3LSMF966JPN	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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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	2/25/2025	Annual	2/25/2026	AP2
-	AP1	EMC Cable and Switch System	2/25/2025	Annual	2/25/2026	AP1
-	ETS	EMC Cable and Switch System	12/11/2024	Annual	12/11/2026	ETS
-	LTx4	Licensed Transmitter Cable Set	2/25/2025	Annual	2/25/2026	LTx4
-	LTx5	Licensed Transmitter Cable Set	2/25/2025	Annual	2/25/2026	LTx5
Espec	ESX-2CA	Environmental Chamber	11/20/2024	Biennial	11/20/2026	17620
ETS Lindgren	3117	1-18 GHz DRG Horn (Medium)	5/3/2023	Biennial	5/3/2025	00125518
Keysight Technologies	N9020A	MXA Signal Analyzer	4/11/2024	Annual	4/11/2025	MY54500644
Keysight Technologies	N9030A	PXA Signal Analyzer (44GHz)	4/9/2024	Annual	4/9/2025	MY52350166
Keysight Technologies	N9038A	MXE EMI Receiver	9/16/2024	Annual	9/16/2025	MY51210133
Rohde & Schwarz	CMW500	Radio Communication Tester	N/A			100976
Rohde & Schwarz	CMW500	Radio Communication Tester	N/A			112347
Rohde & Schwarz	ESU26	EMI Test Receiver (26.5GHz)	10/16/2024	Annual	10/16/2025	100342
Rohde & Schwarz	ESU40	EMI Test Receiver (40GHz)	10/16/2024	Annual	10/16/2025	100348
Sunol	JB5	Bi-Log Antenna (30M - 5GHz)	9/11/2024	Biennial	9/11/2026	A051107

Table 5-1. Test Equipment Calibration Table

Notes:

1. For equipment listed above that has a calibration date or calibration due date that falls within the test date range, care was taken to ensure that this equipment was used after the calibration date and before the calibration due date.
2. Equipment with a calibration date of "N/A" shown in this list was not used to make direct calibrated measurements.

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6.0 SAMPLE EMISSION DESIGNATORS

Emission Designator

QPSK Modulation

Emission Designator = 8M62G7D

LTE BW = 8.62 MHz

G = Phase Modulation

7 = Quantized/Digital Info

D = Data transmission, telemetry, telecommand

QAM Modulation

Emission Designator = 8M45W7D

LTE BW = 8.45 MHz

W = Amplitude/Angle Modulated

7 = Quantized/Digital Info

D = Data transmission, telemetry, telecommand

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7.0 TEST RESULTS

7.1 Summary

Company Name: Samsung Electronics Co., Ltd.
 FCC ID: A3LSMF966JPN
 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	Test Lab Location	Data Referencing?
CONDUCTED	Transmitter Conducted Output Power*	2.1046(a), 2.1046(c)	N/A	PASS	Section 7.2	MD	Yes
	Occupied Bandwidth	2.1049(h)	N/A	PASS	Section 7.3	MD	Yes
	Conducted Band Edge / Spurious Emissions (LTE Band 13)	2.1051, 27.53(c), 27.53(f)	Undesirable emissions must meet the limits detailed in sections 27.53(c) and 27.53(f)	PASS	Sections 7.4, 7.5	MD	Yes
	Conducted Band Edge / Spurious Emissions (LTE Band 12)	2.1051, 27.53(g)	$\geq 43 + 10 \log (P[\text{Watts}])$ dB of attenuation below transmitter power	PASS	Sections 7.4, 7.5	MD	Yes
	Conducted Band Edge / Spurious Emissions (LTE Band 4, 66; NR Band n66)	2.1051, 27.53(h)	$\geq 43 + 10 \log (P[\text{Watts}])$ dB of attenuation below transmitter power	PASS	Sections 7.4, 7.5	MD	Yes
	Peak-to-Average Ratio (LTE Band 4, 66; NR Band n66)	27.50(d)(5)	≤ 13 dB	PASS	Section 7.6	MD	Yes
	Frequency Stability	2.1055, 27.54	Fundamental emissions stay within authorized frequency block	PASS	Section 7.9	MD	Yes
RADIATED	Effective Radiated Power (LTE Band 13)	27.50(b)(10)	≤ 3 Watts max. ERP	PASS	Section 7.7	MD	Yes
	Effective Radiated Power (LTE Band 12)	27.50(c)(10)	≤ 3 Watts max. ERP	PASS	Section 7.7	MD	Yes
	Equivalent Isotropic Radiated Power (LTE Band 4, 66; NR Band n66)	27.50(d)(4)	≤ 1 Watt max. EIRP	PASS	Section 7.7	MD	Yes
	Radiated Spurious Emissions (LTE Band 13)	2.1053, 27.53(c), 27.53(f)	Undesirable emissions must meet the limits detailed in sections 27.53(c) and 27.53(f)	PASS	Section 7.8	MD	Yes
	Radiated Spurious Emissions (LTE Band 12)	2.1053, 27.53(g)	$\geq 43 + 10 \log (P[\text{Watts}])$ dB of attenuation below transmitter power	PASS	Section 7.8	MD	Yes
	Radiated Spurious Emissions (LTE Band 4, 66; NR Band n66)	2.1053, 27.53(h)(1)	$\geq 43 + 10 \log (P[\text{Watts}])$ dB of attenuation below transmitter power	PASS	Section 7.8	MD	Yes

Table 7-1. Summary of Test Results – FCC

Notes:

- 1) All modes of operation and data rates were investigated. The test results shown in the following sections represent the worst case emissions.
- 2) The analyzer plots shown in Section 7.0 were taken with a correction table loaded into the analyzer. The correction table was used to account for the losses of the cables, directional couplers, and attenuators used as part of the system to maintain a link between the call box and the EUT at all frequencies of interest.
- 3) All antenna port conducted emissions testing was performed on a test bench with the antenna port of the EUT connected to the spectrum analyzer through calibrated cables, attenuators, and couplers.
- 4) For conducted spurious emissions, automated test software was used to measure emissions and capture the corresponding plots necessary to show compliance. The measurement software utilized is EMC Software Tool v2.3.0.
- 5) The authorization for these models (SC-56F and SCG34) utilize data referencing from FCC ID: A3LSMF966U (Model: SM-F966U) as permitted per KDB 484596 v03. Data referencing data test results are included in Section 9.0 - Appendix A of this report.

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7.2 Conducted Output Power Data

Test Overview

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

Test Procedure Used

ANSI C63.26-2015 – Section 5.2

Test Settings

1. Detector = RMS
2. Trace mode = trace average for continuous emissions, max hold for pulse emissions
3. Sweep time = auto couple
4. The trace was allowed to stabilize
5. 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]
10 MHz	QPSK	23230	782.0	1 / 0	25.13
	16-QAM	23230	782.0	1 / 0	24.11
5 MHz	QPSK	23205	779.5	1 / 12	25.19
		23230	782.0	1 / 12	25.02
		23255	784.5	1 / 12	24.81
	16-QAM	23205	779.5	1 / 12	24.15

Table 7-2. Max Conducted Power Test Results – LTE 13 – Ant1

Bandwidth	Modulation	Channel	Frequency [MHz]	RB Size/Offset	Conducted Power [dBm]
10 MHz	QPSK	23060	704.0	1 / 0	24.40
		23095	707.5	1 / 0	24.33
		23130	711.0	1 / 49	24.33
	16-QAM	23060	704.0	1 / 0	23.58
5 MHz	QPSK	23035	701.5	1 / 12	24.58
		23095	707.5	1 / 0	24.29
		23155	713.5	1 / 12	24.51
	16-QAM	23035	701.5	1 / 12	23.81
3 MHz	QPSK	23025	700.5	1 / 0	24.51
		23095	707.5	1 / 7	24.23
		23165	714.5	1 / 7	24.39
	16-QAM	23165	714.5	1 / 7	23.72
1.4 MHz	QPSK	23017	699.7	1 / 0	24.69
		23095	707.5	1 / 5	24.23
		23173	715.3	1 / 5	24.52
	16-QAM	23017	699.7	1 / 0	23.70

Table 7-3. Max Conducted Power Test Results – LTE 12 – Ant2

FCC ID: A3LSMF966JPN	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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Bandwidth	Modulation	Channel	Frequency [MHz]	RB Size/Offset	Conducted Power [dBm]
40 MHz	$\pi/2$ BPSK	346000	1730.0	1 / 1	23.50
		349000	1745.0	1 / 214	23.61
		352000	1760.0	1 / 214	23.48
	QPSK	346000	1730.0	1 / 1	23.54
		349000	1745.0	1 / 214	23.56
		352000	1760.0	1 / 214	23.61
	16-QAM	349000	1745.0	1 / 1	22.34
35 MHz	$\pi/2$ BPSK	346000	1727.5	1 / 1	24.20
		349000	1745.0	1 / 1	23.48
		352000	1762.5	1 / 94	23.54
	QPSK	346000	1727.5	1 / 1	24.16
		349000	1745.0	1 / 1	23.47
		352000	1762.5	1 / 94	23.62
	16-QAM	346000	1727.5	1 / 1	23.02
30 MHz	$\pi/2$ BPSK	345000	1725.0	1 / 1	23.48
		349000	1745.0	1 / 158	23.58
		353000	1765.0	1 / 80	23.66
	QPSK	345000	1725.0	1 / 158	23.67
		349000	1745.0	1 / 158	23.66
		353000	1765.0	1 / 158	23.66
	16-QAM	349000	1745.0	1 / 1	22.35
25 MHz	$\pi/2$ BPSK	344500	1722.5	1 / 1	23.63
		349000	1745.0	1 / 1	23.62
		353500	1767.5	1 / 131	23.61
	QPSK	344500	1722.5	1 / 1	23.66
		349000	1745.0	1 / 131	23.63
		353500	1767.5	1 / 1	23.69
	16-QAM	349000	1745.0	1 / 1	22.34
20 MHz	$\pi/2$ BPSK	344000	1720.0	1 / 53	23.32
		349000	1745.0	1 / 104	23.39
		354000	1770.0	1 / 53	23.51
	QPSK	344000	1720.0	1 / 53	23.38
		349000	1745.0	1 / 104	23.39
		354000	1770.0	1 / 53	23.52
	16-QAM	349000	1745.0	1 / 1	22.05
15 MHz	$\pi/2$ BPSK	343500	1717.5	1 / 1	23.40
		349000	1745.0	1 / 39	23.46
		354500	1772.5	1 / 77	23.53
	QPSK	343500	1717.5	1 / 1	23.51
		349000	1745.0	1 / 77	23.46
		354500	1772.5	1 / 1	23.50
	16-QAM	343500	1717.5	1 / 1	22.33
10 MHz	$\pi/2$ BPSK	343000	1715.0	1 / 26	23.44
		349000	1745.0	1 / 26	23.34
		355000	1775.0	1 / 50	23.47
	QPSK	343000	1715.0	1 / 1	23.49
		349000	1745.0	1 / 50	23.36
		355000	1775.0	1 / 26	23.57
	16-QAM	349000	1745.0	1 / 1	22.13
5 MHz	$\pi/2$ BPSK	342500	1712.5	1 / 12	23.40
		349000	1745.0	1 / 12	23.39
		355500	1777.5	1 / 12	23.43
	QPSK	342500	1712.5	1 / 12	23.36
		349000	1745.0	1 / 12	23.38
		355500	1777.5	1 / 12	23.47
	16-QAM	349000	1745.0	1 / 1	22.21

Table 7-4. Max Conducted Power Test Results - NR n66 - Ant2

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7.3 Occupied Bandwidth

Test Overview

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

Test Procedure Used

ANSI C63.26-2015 – Section 5.4.4

Test Settings

1. The signal analyzer's automatic bandwidth measurement capability was used to perform the 99% occupied bandwidth and the 26dB bandwidth. The bandwidth measurement was not influenced by any intermediate power nulls in the fundamental emission.
2. RBW = 1 – 5% of the expected OBW
3. VBW $\geq 3 \times$ 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: A3LSMF966JPN	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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Mode	Bandwidth	Modulation	OBW [MHz]
LTE-B12	10MHz	QPSK	9.04
		16QAM	9.04
	5MHz	QPSK	4.53
		16QAM	4.53
	3MHz	QPSK	2.72
		16QAM	2.71
	1.4MHz	QPSK	1.11
		16QAM	1.11
LTE-B13	10MHz	QPSK	9.02
		16QAM	9.02
	5MHz	QPSK	4.55
		16QAM	4.55
LTE-B66-4	20MHz	QPSK	18.01
		16QAM	18.06
	15MHz	QPSK	13.53
		16QAM	13.54
	10MHz	QPSK	9.05
		16QAM	9.04
	5MHz	QPSK	4.54
		16QAM	4.54
	3MHz	QPSK	2.72
		16QAM	2.72
	1.4MHz	QPSK	1.11
		16QAM	1.12

Table 7-5. Occupied Bandwidth Results – Ant1

FCC ID: A3LSMF966JPN	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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LTE Band 12 – ANT1

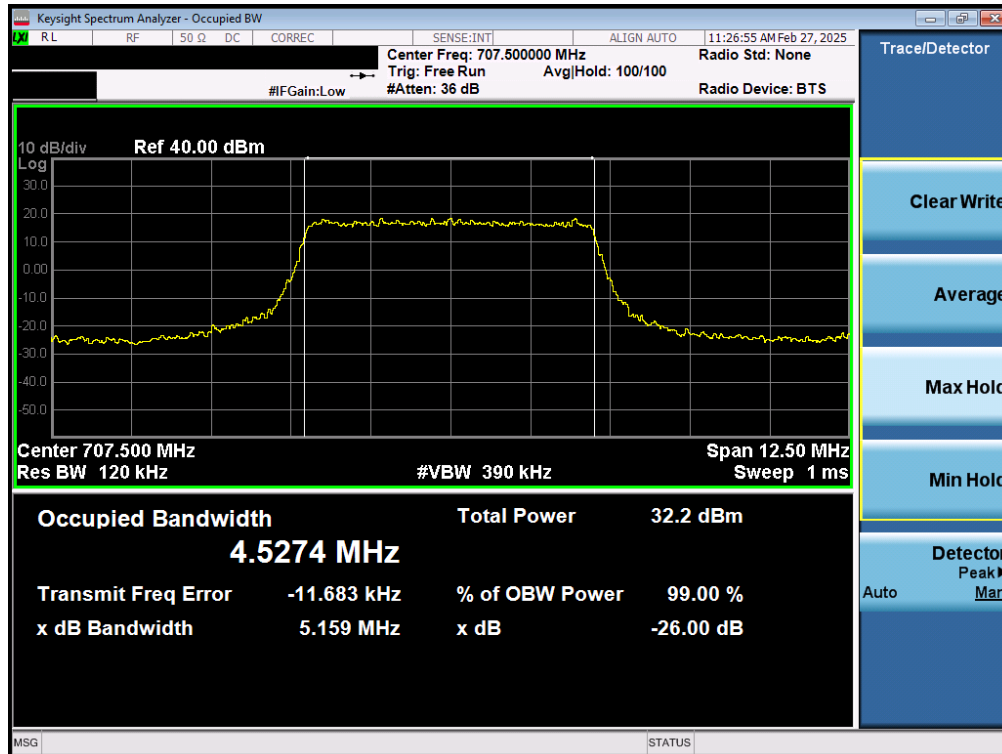


Plot 7-1. Occupied Bandwidth Plot (LTE Band 12 - 10MHz QPSK - Full RB – ANT1)



Plot 7-2. Occupied Bandwidth Plot (LTE Band 12 - 10MHz 16-QAM - Full RB – ANT1)

FCC ID: A3LSMF966JPN	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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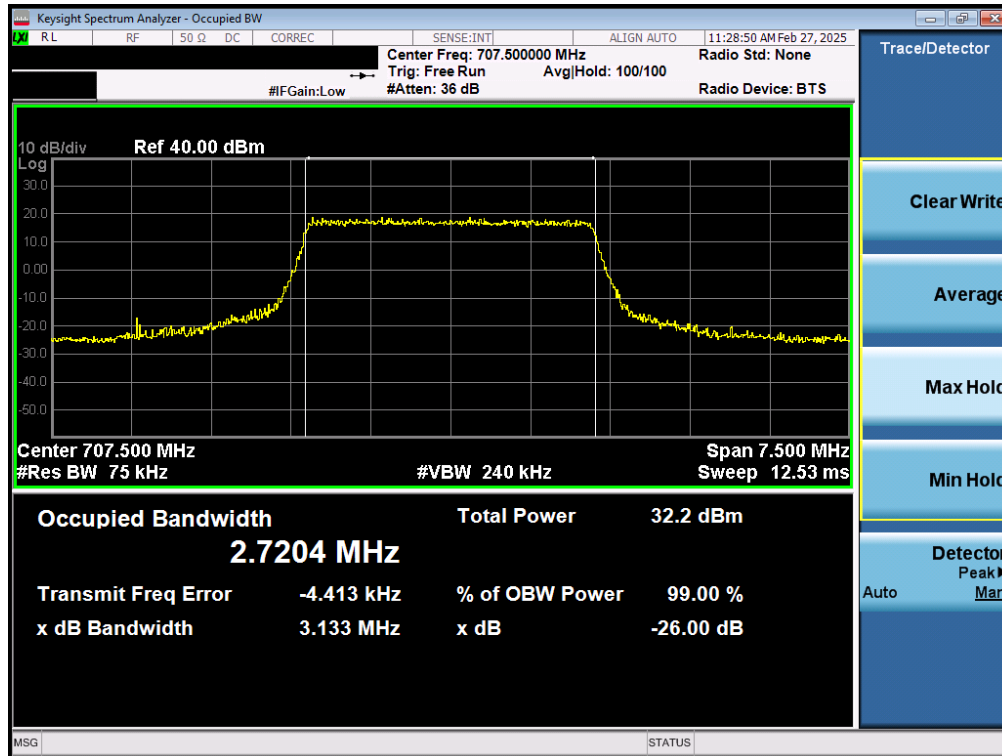


Plot 7-3. Occupied Bandwidth Plot (LTE Band 12 - 5MHz QPSK - Full RB – ANT1)

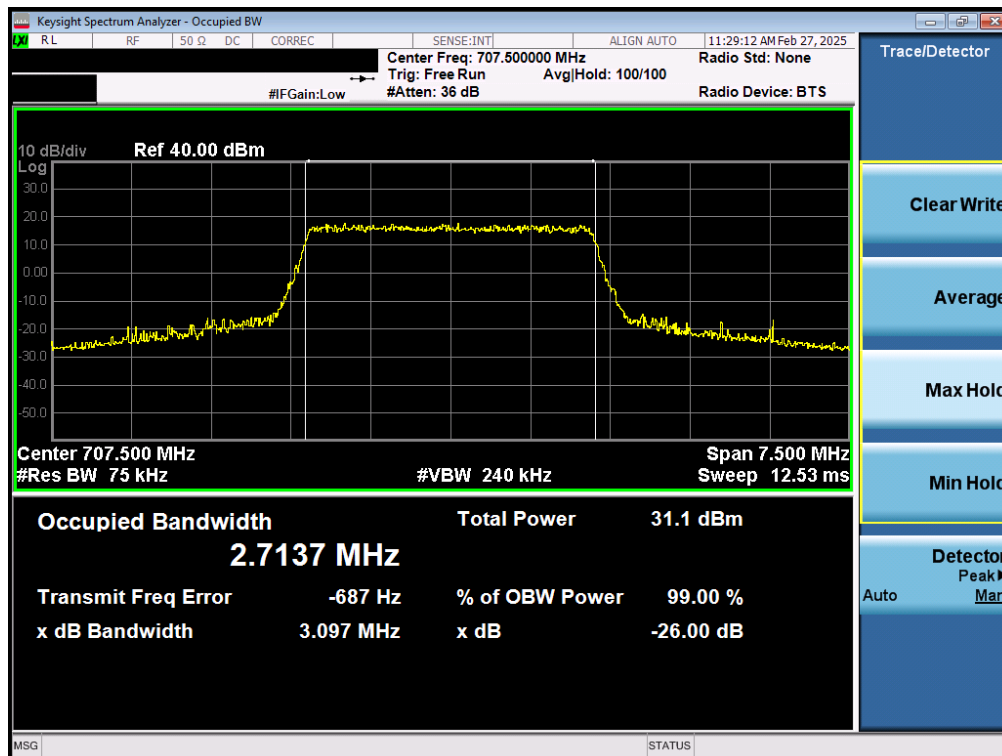


Plot 7-4. Occupied Bandwidth Plot (LTE Band 12 - 5MHz 16-QAM - Full RB – ANT1)

FCC ID: A3LSMF966JPN	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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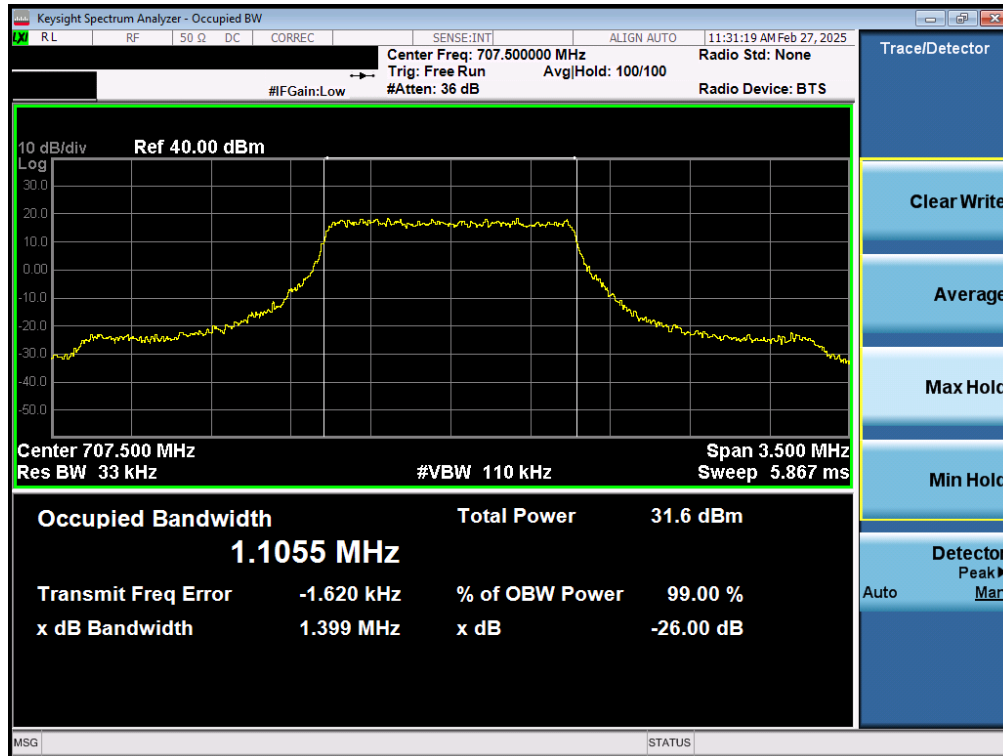


Plot 7-5. Occupied Bandwidth Plot (LTE Band 12 - 3MHz QPSK - Full RB – ANT1)

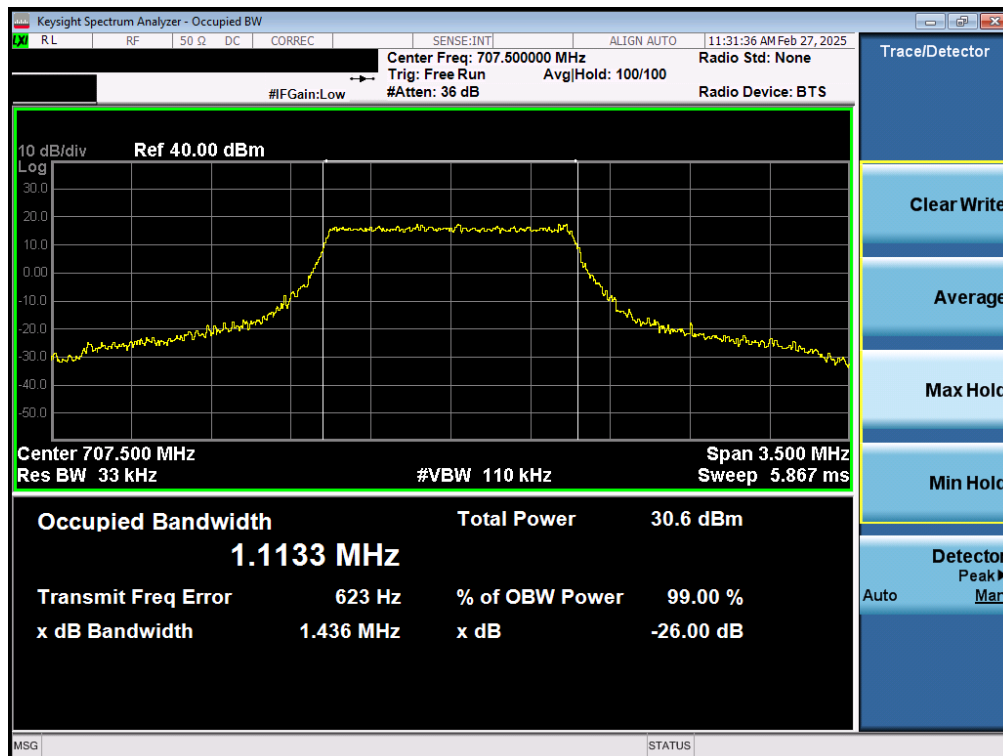


Plot 7-6. Occupied Bandwidth Plot (LTE Band 12 - 3MHz 16-QAM - Full RB – ANT1)

FCC ID: A3LSMF966JPN	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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Plot 7-7. Occupied Bandwidth Plot (LTE Band 12 – 1.4MHz QPSK - Full RB – ANT1)



Plot 7-8. Occupied Bandwidth Plot (LTE Band 12 – 1.4MHz 16-QAM - Full RB – ANT1)

FCC ID: A3LSMF966JPN	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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LTE Band 13 – ANT1

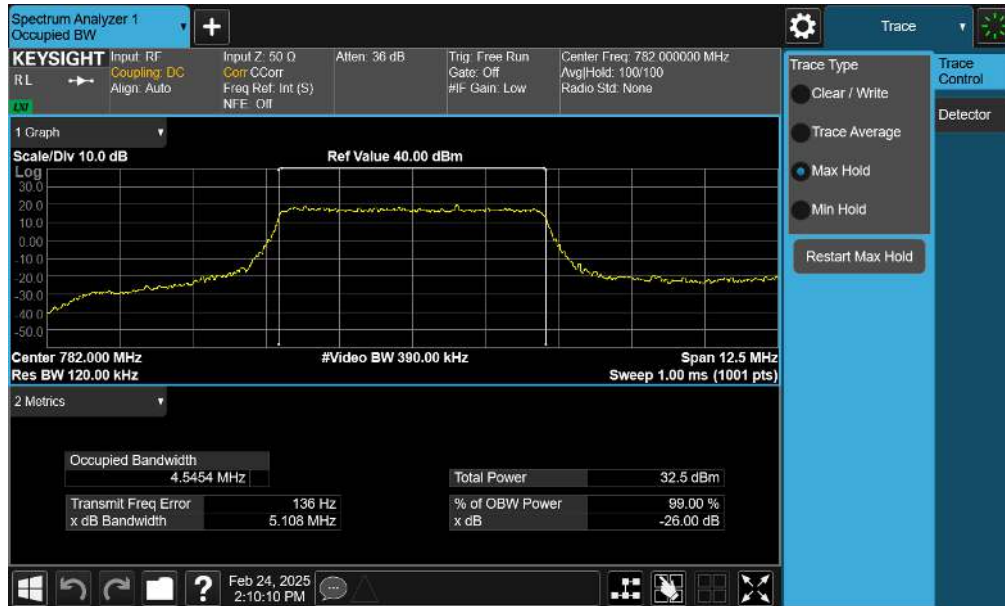


Plot 7-9. Occupied Bandwidth Plot (LTE Band 13 - 10MHz QPSK - Full RB – ANT1)



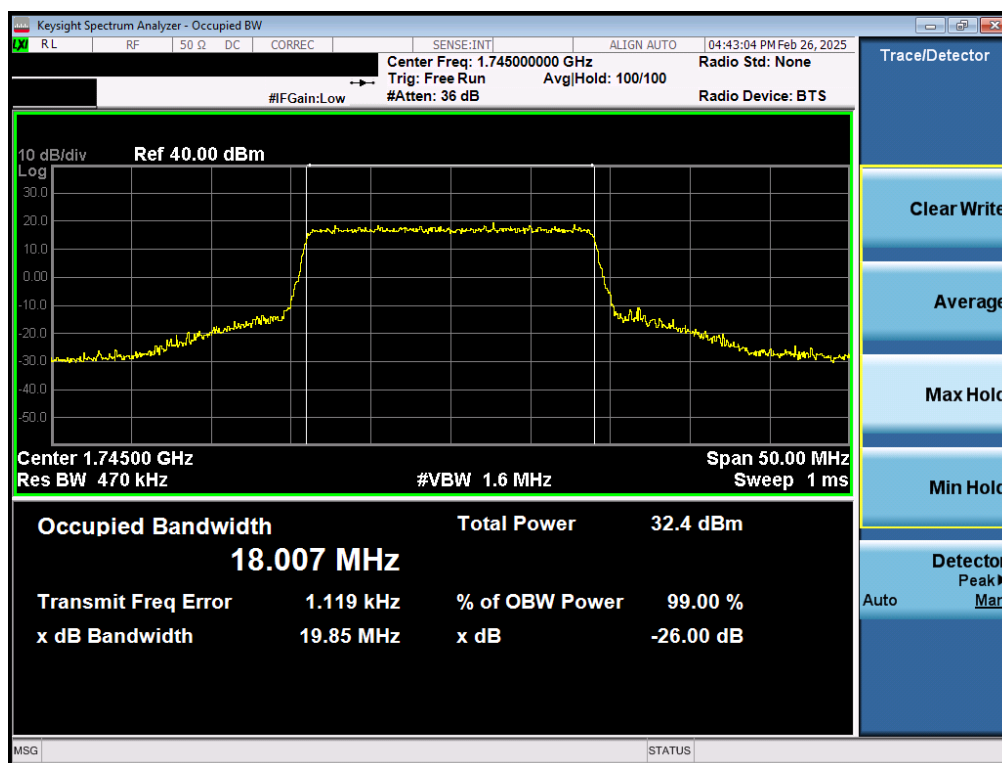
Plot 7-10. Occupied Bandwidth Plot (LTE Band 13 - 10MHz 16-QAM - Full RB – ANT1)

FCC ID: A3LSMF966JPN	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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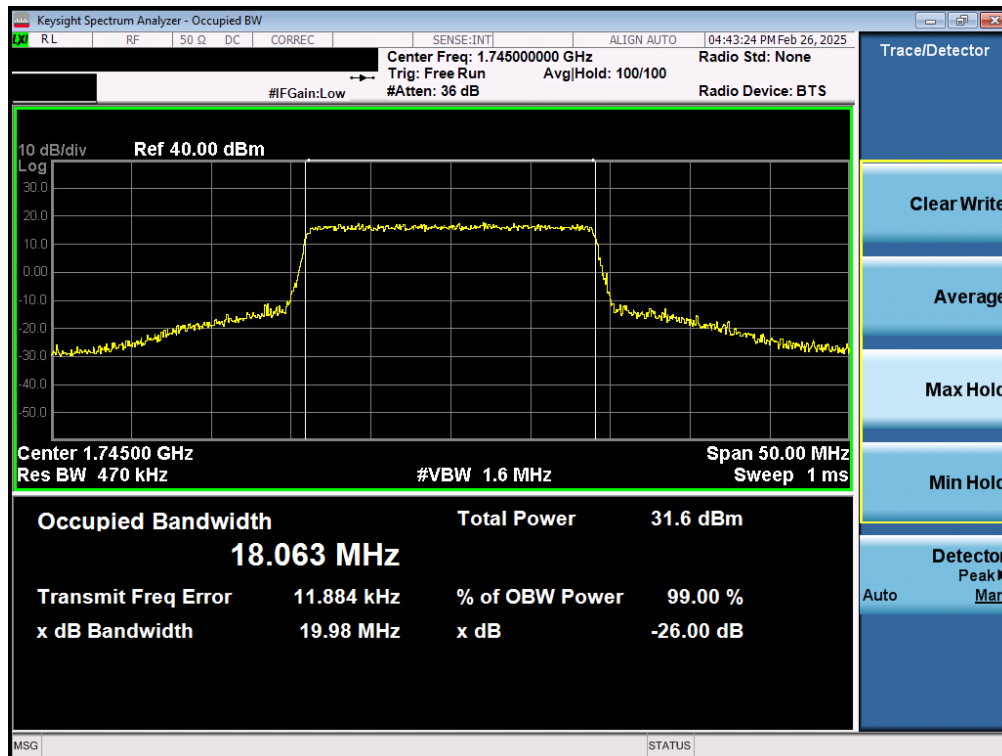


FCC ID: A3LSMF966JPN	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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LTE Band 66/4 - ANT1

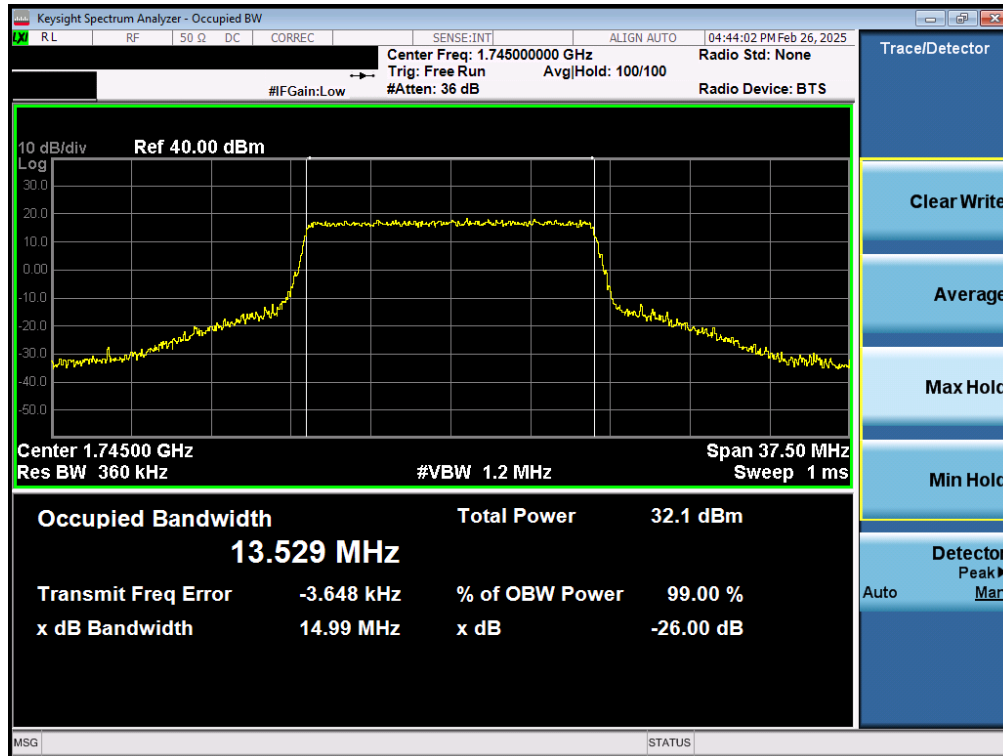


Plot 7-13. Occupied Bandwidth Plot (LTE Band 66/4 - 20MHz QPSK - Full RB - ANT1)

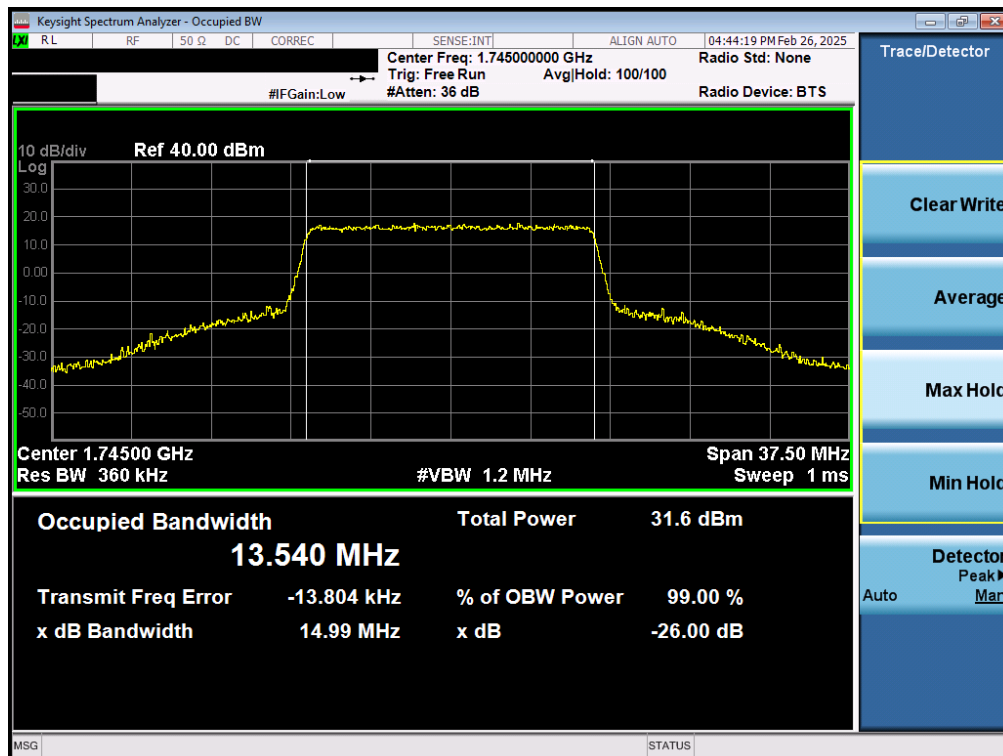


Plot 7-14. Occupied Bandwidth Plot (LTE Band 66/4 - 20MHz 16-QAM - Full RB - ANT1)

FCC ID: A3LSMF966JPN	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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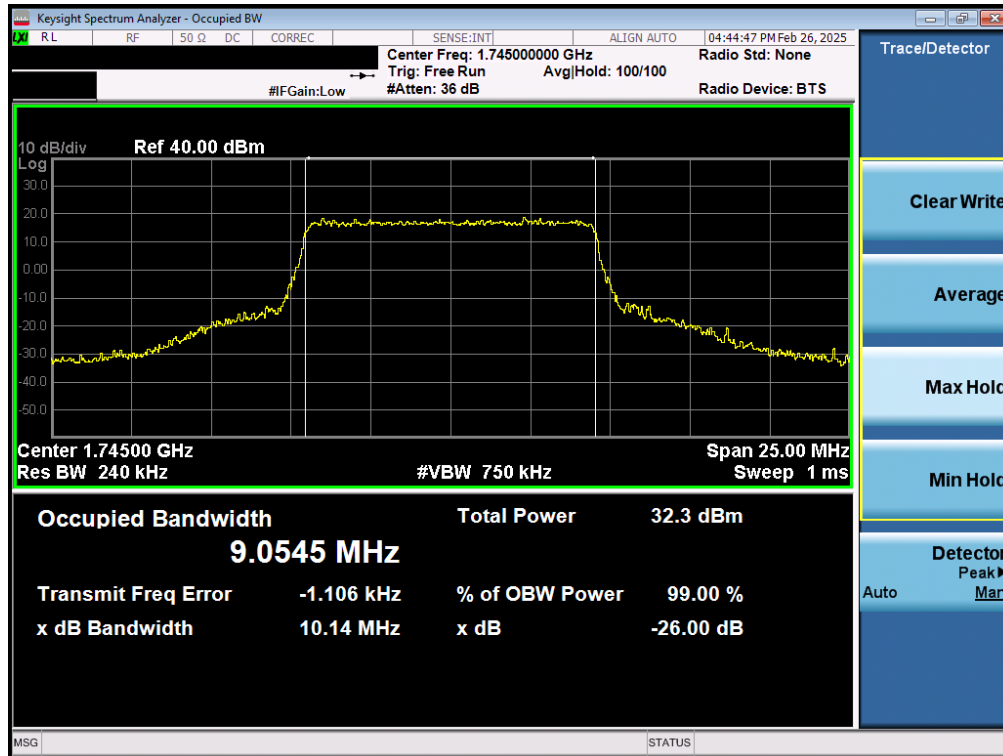


Plot 7-15. Occupied Bandwidth Plot (LTE Band 66/4 - 15MHz QPSK - Full RB - ANT1)



Plot 7-16. Occupied Bandwidth Plot (LTE Band 66/4 - 15MHz 16-QAM - Full RB - ANT1)

FCC ID: A3LSMF966JPN	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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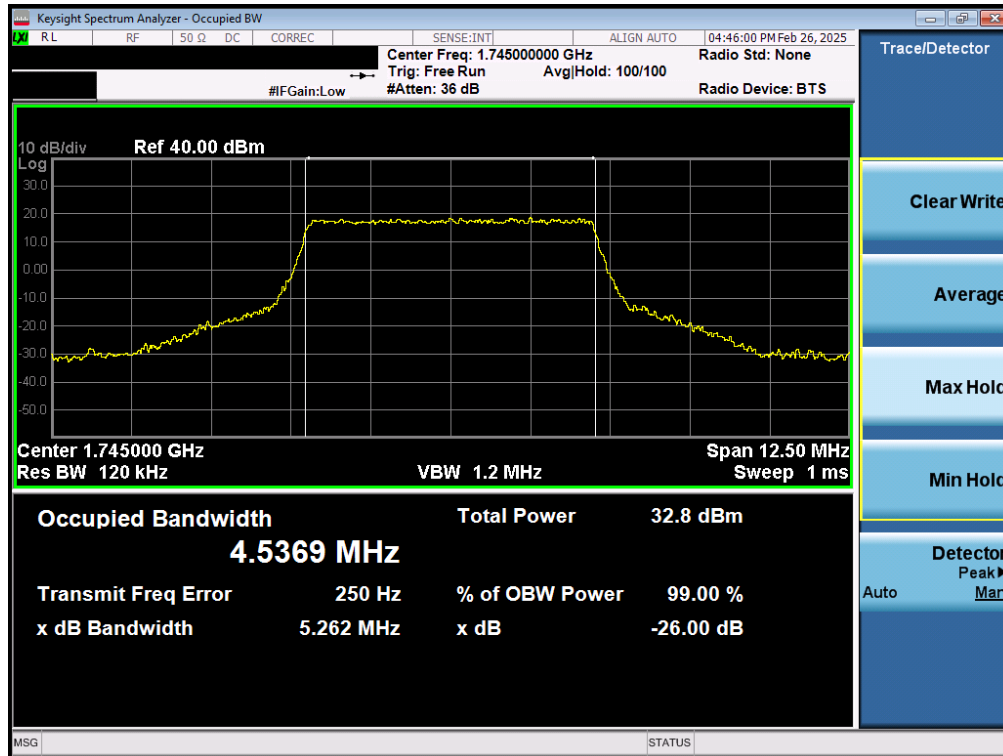


Plot 7-17. Occupied Bandwidth Plot (LTE Band 66/4 - 10MHz QPSK - Full RB - ANT1)



Plot 7-18. Occupied Bandwidth Plot (LTE Band 66/4 - 10MHz 16-QAM - Full RB - ANT1)

FCC ID: A3LSMF966JPN	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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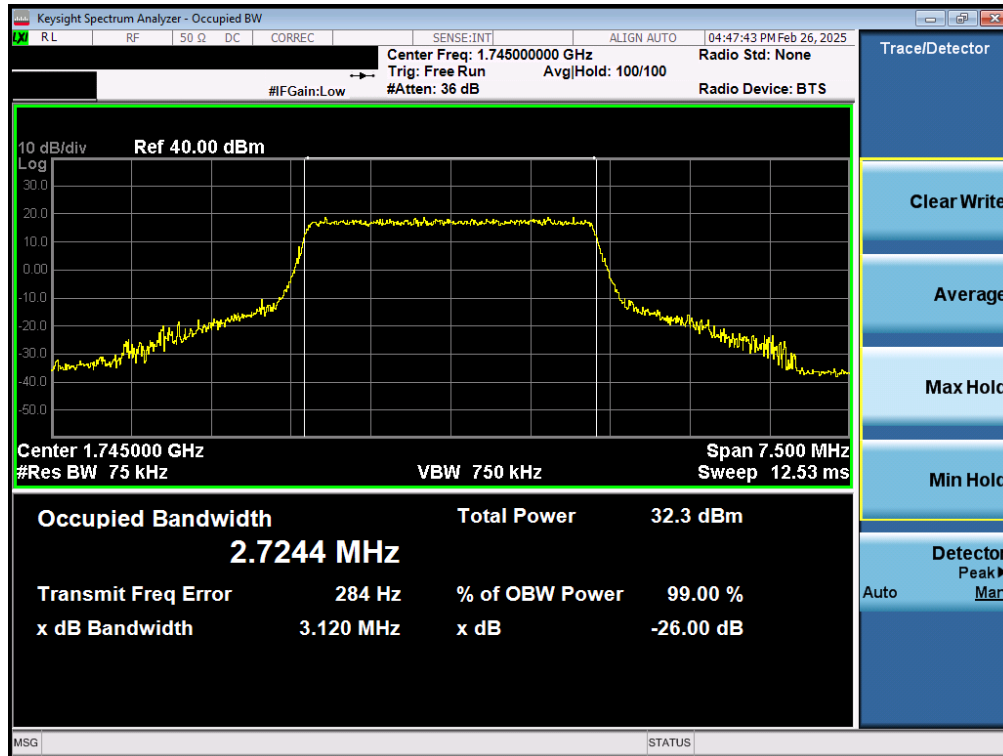


Plot 7-19. Occupied Bandwidth Plot (LTE Band 66/4 - 5MHz QPSK - Full RB - ANT1)

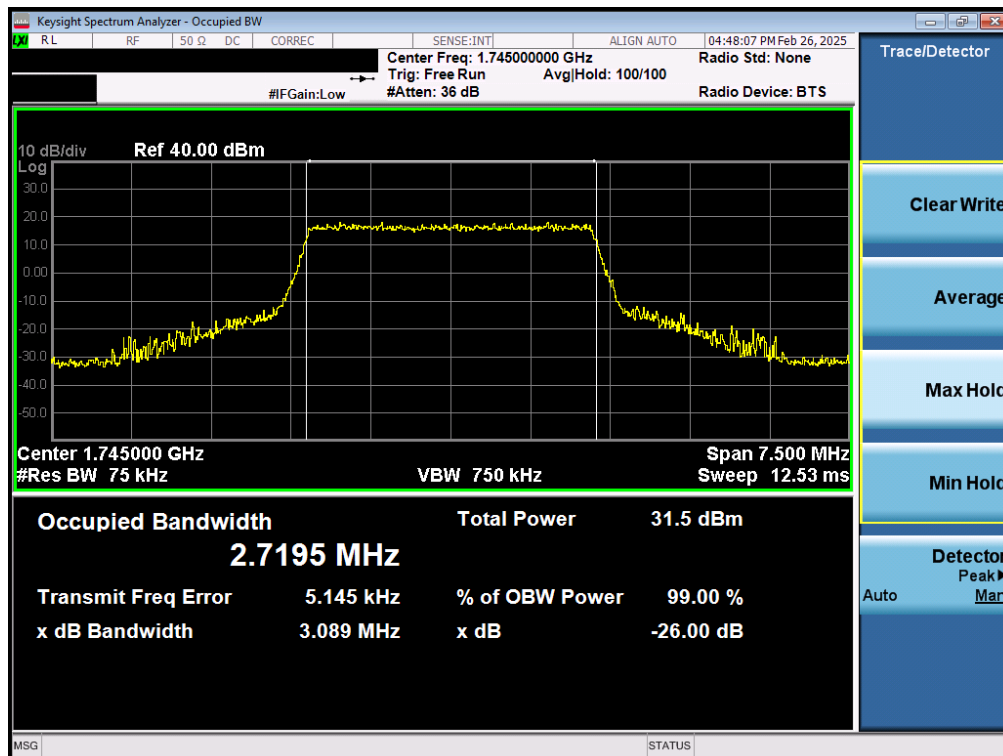


Plot 7-20. Occupied Bandwidth Plot (LTE Band 66/4 - 5MHz 16-QAM - Full RB - ANT1)

FCC ID: A3LSMF966JPN	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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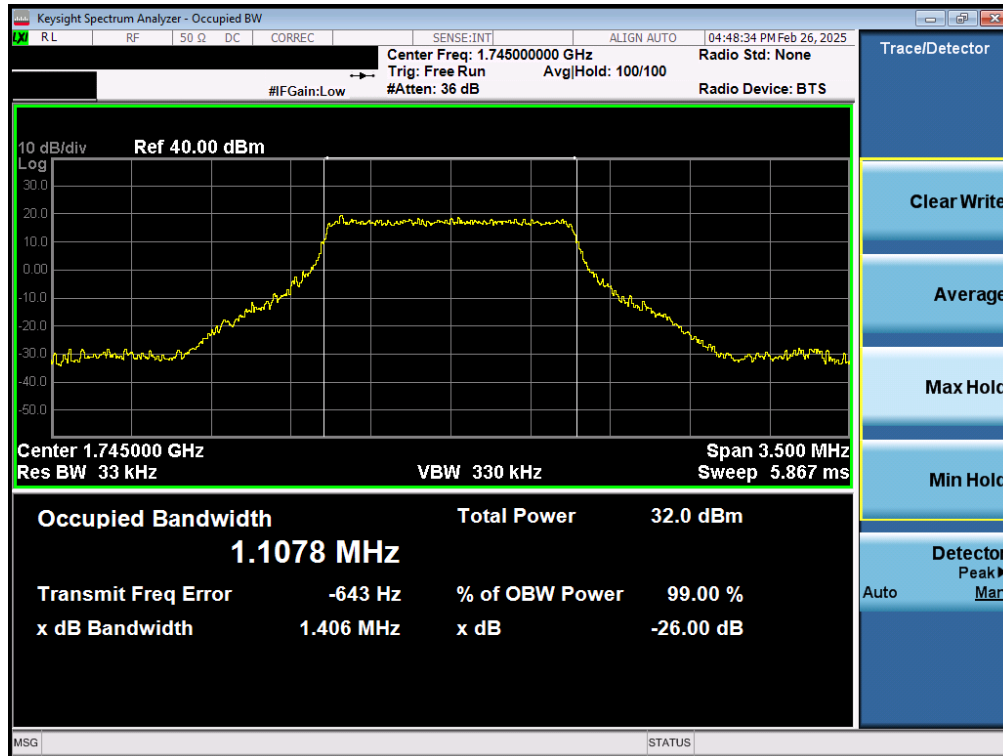


Plot 7-21. Occupied Bandwidth Plot (LTE Band 66/4 - 3MHz QPSK - Full RB - ANT1)

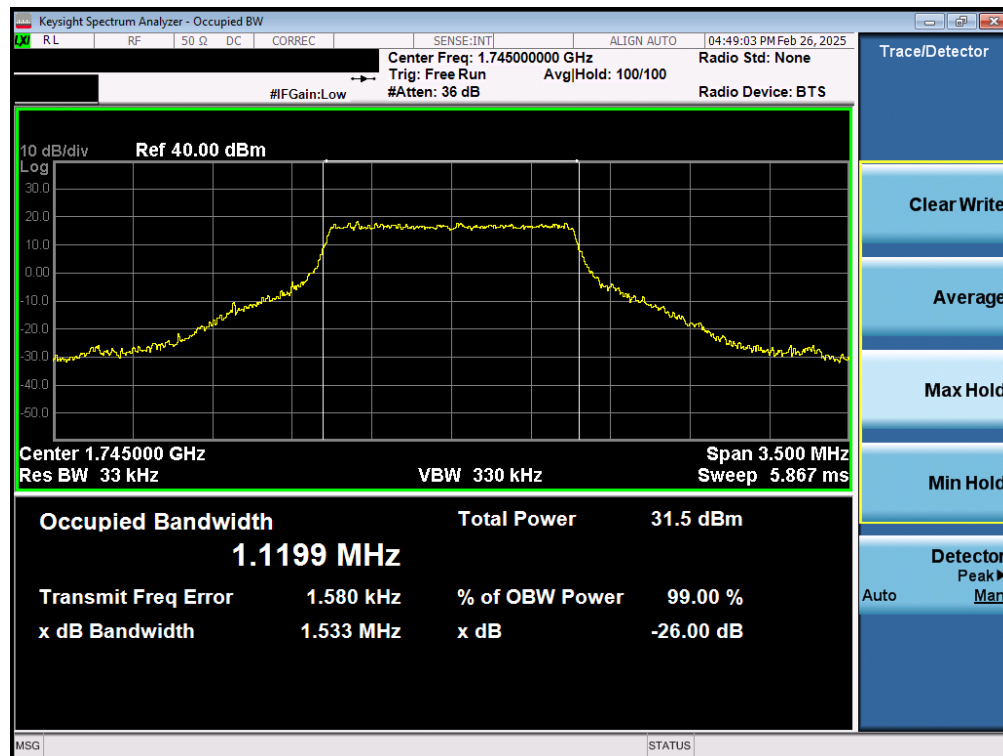


Plot 7-22. Occupied Bandwidth Plot (LTE Band 66/4 - 3MHz 16-QAM - Full RB - ANT1)

FCC ID: A3LSMF966JPN	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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Plot 7-23. Occupied Bandwidth Plot (LTE Band 66/4 - 1.4MHz QPSK - Full RB - ANT1)



Plot 7-24. Occupied Bandwidth Plot (LTE Band 66/4 - 1.4MHz 16-QAM - Full RB - ANT1)

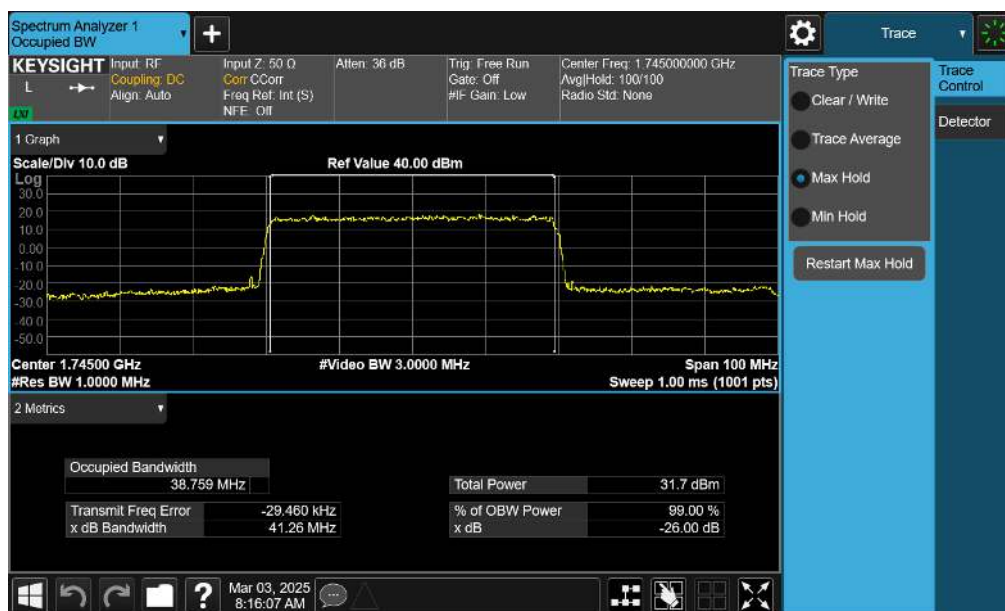
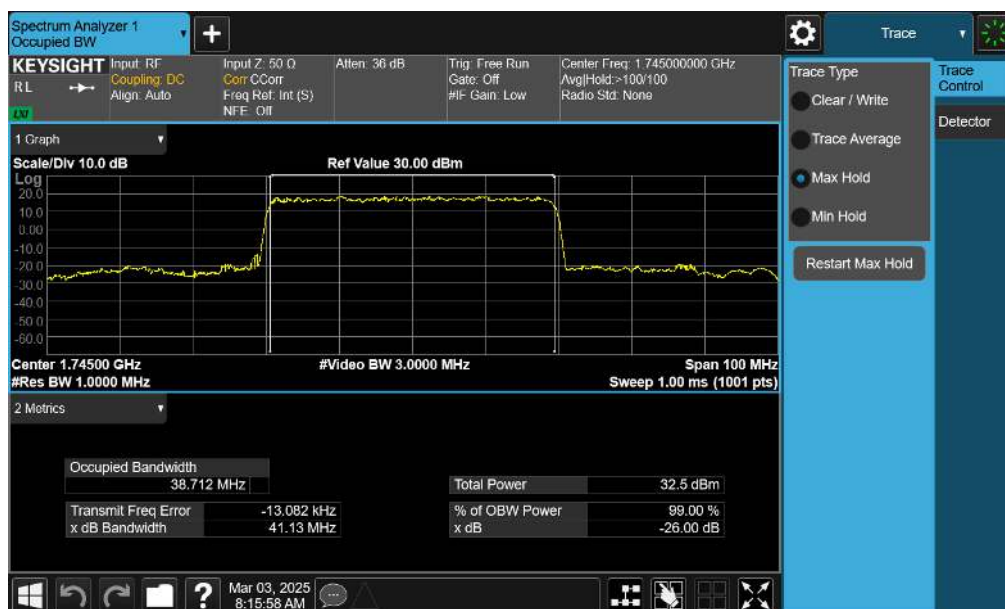
FCC ID: A3LSMF966JPN	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2504070040-03.A3L	Test Dates: 2/24/2025 - 05/05/2025	EUT Type: Portable Handset	Page 31 of 137

Mode	Bandwidth	Modulation	OBW [MHz]
NR-n66	40MHz	$\pi/2$ BPSK	38.71
		QPSK	38.76
		16QAM	38.77
	35MHz	$\pi/2$ BPSK	32.33
		QPSK	32.41
		16QAM	32.32
	30MHz	$\pi/2$ BPSK	28.75
		QPSK	28.73
		16QAM	28.72
	25MHz	$\pi/2$ BPSK	22.98
		QPSK	23.08
		16QAM	23.03
	20MHz	$\pi/2$ BPSK	17.99
		QPSK	17.97
		16QAM	17.93
	15MHz	$\pi/2$ BPSK	13.49
		QPSK	13.52
		16QAM	13.57
	10MHz	$\pi/2$ BPSK	9.00
		QPSK	9.01
		16QAM	9.02
	5MHz	$\pi/2$ BPSK	4.53
		QPSK	4.51
		16QAM	4.54

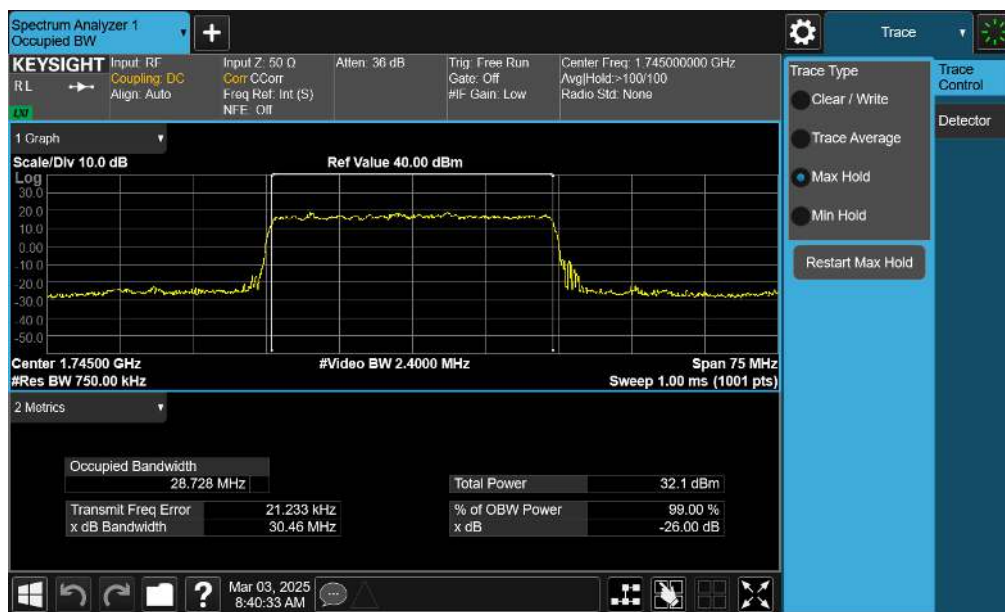
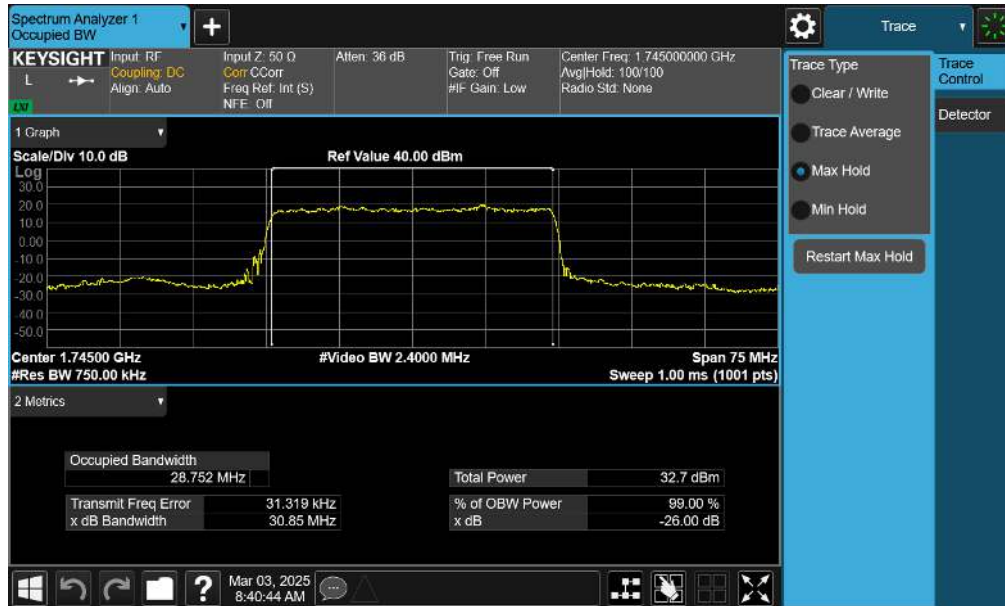
Table 7-6. Occupied Bandwidth Results – Ant1

FCC ID: A3LSMF966JPN	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2504070040-03.A3L	Test Dates: 2/24/2025 – 05/05/2025	EUT Type: Portable Handset	Page 32 of 137

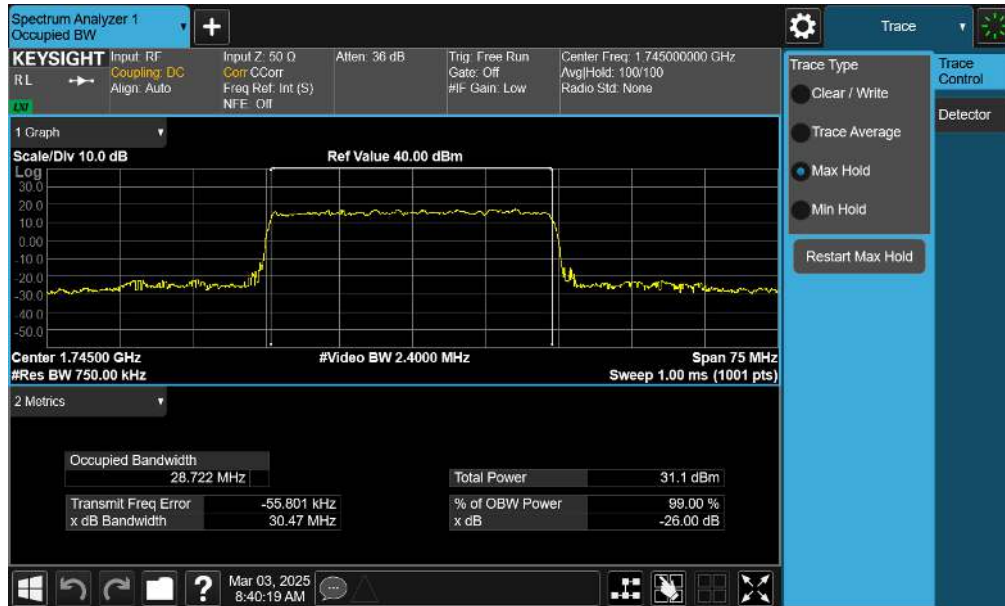
NR Band n66 – ANT1



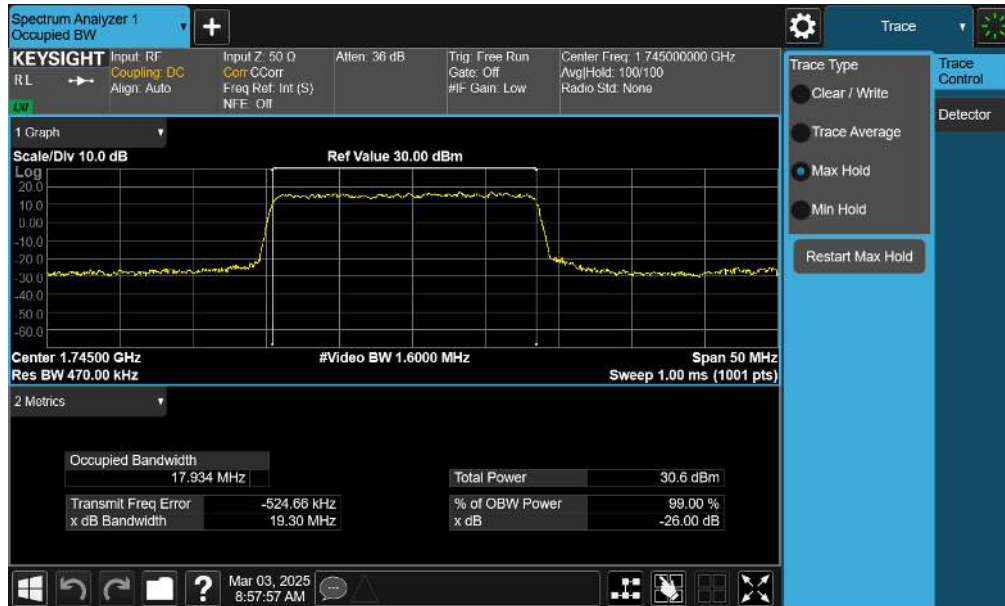
FCC ID: A3LSMF966JPN	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2504070040-03.A3L	Test Dates: 2/24/2025 – 05/05/2025	EUT Type: Portable Handset	Page 33 of 137



FCC ID: A3LSMF966JPN	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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FCC ID: A3LSMF966JPN	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2504070040-03.A3L	Test Dates: 2/24/2025 – 05/05/2025	EUT Type: Portable Handset	Page 37 of 137



Plot 7-39. Occupied Bandwidth Plot (NR Band n66 - 20.0MHz CP-OFDM 16QAM - Full RB – ANT1)



Plot 7-40. Occupied Bandwidth Plot (NR Band n66 - 15.0MHz DFT-s-OFDM BPSK - Full RB – ANT1)

FCC ID: A3LSMF966JPN	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2504070040-03.A3L	Test Dates: 2/24/2025 – 05/05/2025	EUT Type: Portable Handset	Page 40 of 137

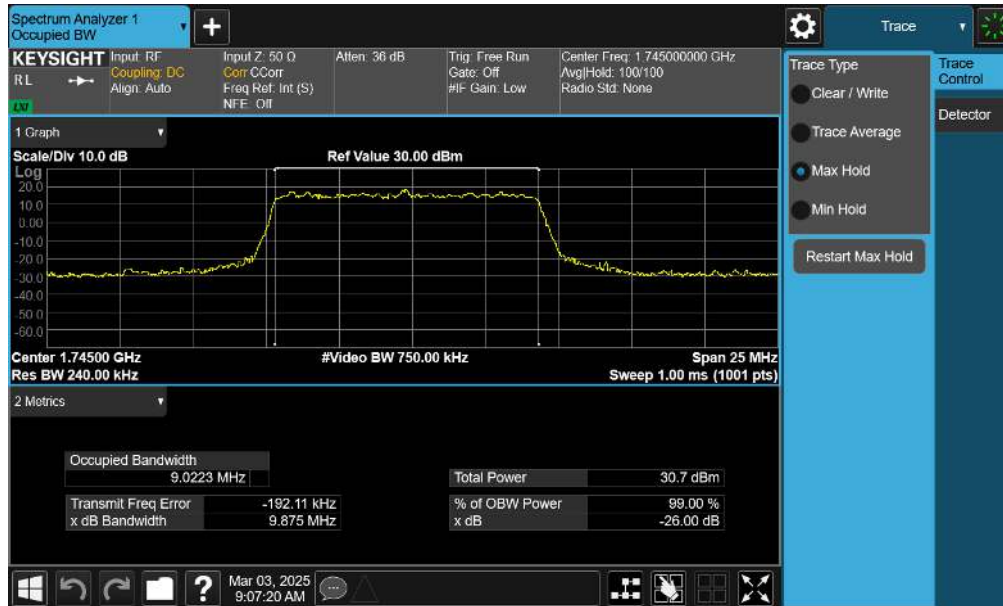


Plot 7-43. Occupied Bandwidth Plot (NR Band n66 - 10.0MHz DFT-s-OFDM BPSK - Full RB – ANT1)

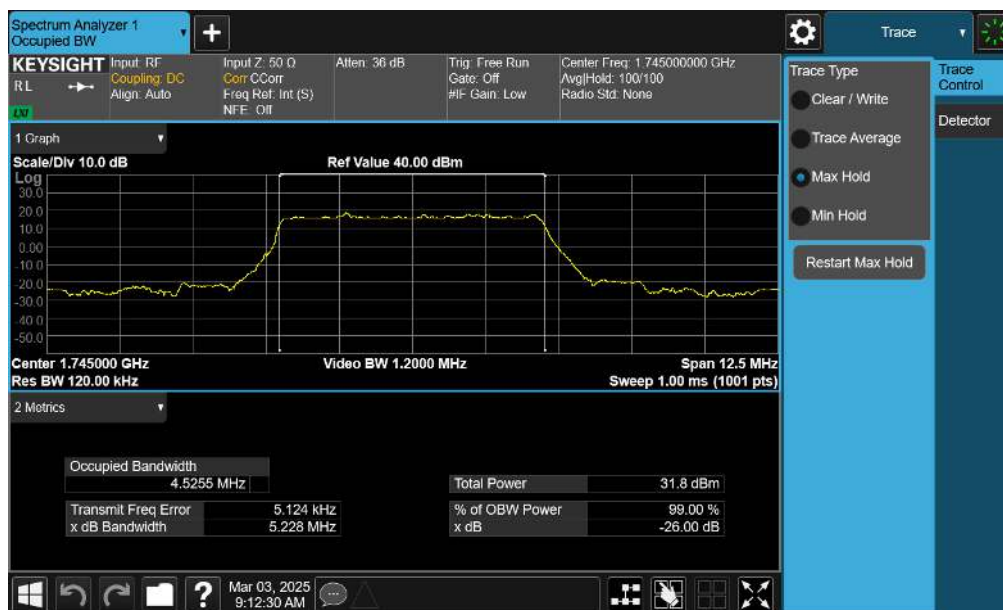


Plot 7-44. Occupied Bandwidth Plot (NR Band n66 - 10.0MHz CP-OFDM QPSK - Full RB – ANT1)

FCC ID: A3LSMF966JPN	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2504070040-03.A3L	Test Dates: 2/24/2025 – 05/05/2025	EUT Type: Portable Handset	Page 42 of 137



Plot 7-45. Occupied Bandwidth Plot (NR Band n66 - 10.0MHz CP-OFDM 16QAM - Full RB – ANT1)



Plot 7-46. Occupied Bandwidth Plot (NR Band n66 - 5.0MHz DFT-s-OFDM BPSK - Full RB – ANT1)

FCC ID: A3LSMF966JPN	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2504070040-03.A3L	Test Dates: 2/24/2025 – 05/05/2025	EUT Type: Portable Handset	Page 43 of 137



Plot 7-47. Occupied Bandwidth Plot (NR Band n66 - 5.0MHz CP-OFDM QPSK - Full RB – ANT1)



Plot 7-48. Occupied Bandwidth Plot (NR Band n66 - 5.0MHz CP-OFDM 16QAM - Full RB – ANT1)

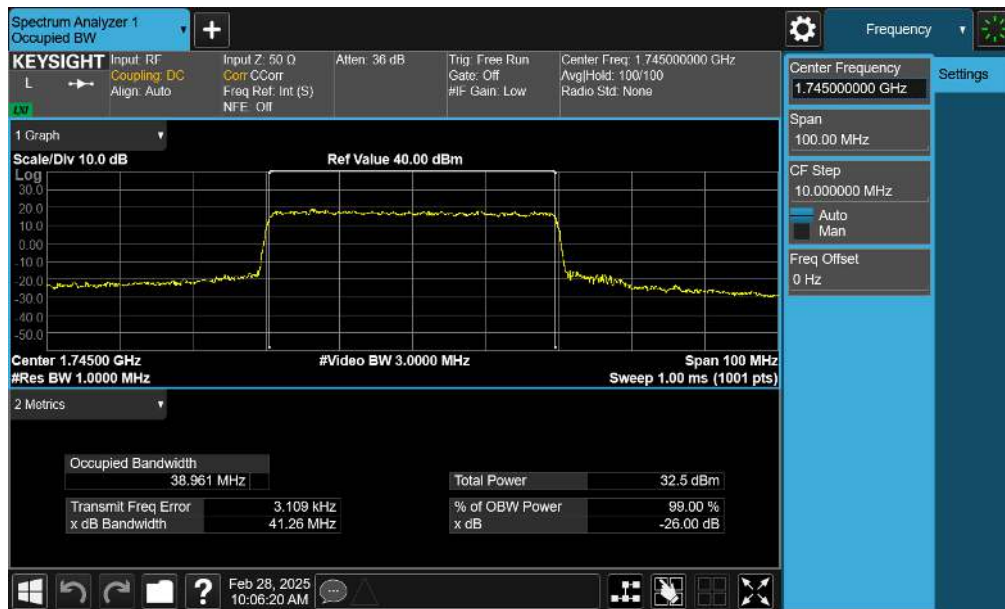
FCC ID: A3LSMF966JPN	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2504070040-03.A3L	Test Dates: 2/24/2025 – 05/05/2025	EUT Type: Portable Handset	Page 44 of 137

Mode	Bandwidth	Modulation	OBW [MHz]
NR-n66	40MHz	$\pi/2$ BPSK	38.75
		QPSK	38.96
		16QAM	38.80
	35MHz	$\pi/2$ BPSK	32.41
		QPSK	32.47
		16QAM	32.34
	30MHz	$\pi/2$ BPSK	28.77
		QPSK	28.78
		16QAM	28.75
	25MHz	$\pi/2$ BPSK	23.11
		QPSK	23.10
		16QAM	23.05
	20MHz	$\pi/2$ BPSK	18.01
		QPSK	17.97
		16QAM	17.96
	15MHz	$\pi/2$ BPSK	13.52
		QPSK	13.53
		16QAM	13.58
	10MHz	$\pi/2$ BPSK	9.00
		QPSK	9.02
		16QAM	9.03
	5MHz	$\pi/2$ BPSK	4.52
		QPSK	4.51
		16QAM	4.53

Table 7-7. Occupied Bandwidth Results – Ant2

FCC ID: A3LSMF966JPN	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2504070040-03.A3L	Test Dates: 2/24/2025 – 05/05/2025	EUT Type: Portable Handset	Page 45 of 137

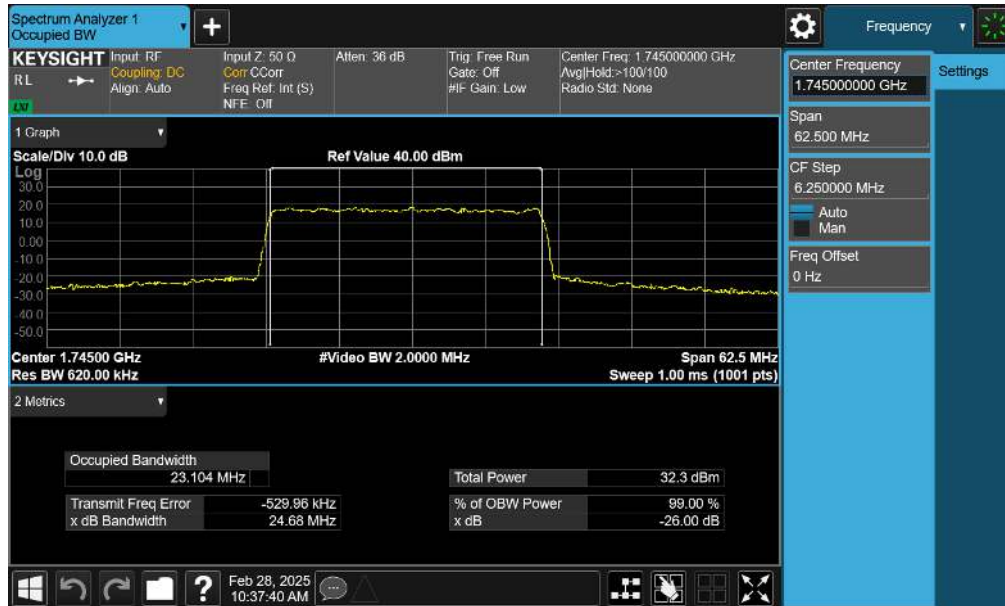
NR Band n66 – ANT2



FCC ID: A3LSMF966JPN	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2504070040-03.A3L	Test Dates: 2/24/2025 – 05/05/2025	EUT Type: Portable Handset	Page 46 of 137



FCC ID: A3LSMF966JPN	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2504070040-03.A3L	Test Dates: 2/24/2025 – 05/05/2025	EUT Type: Portable Handset	Page 48 of 137

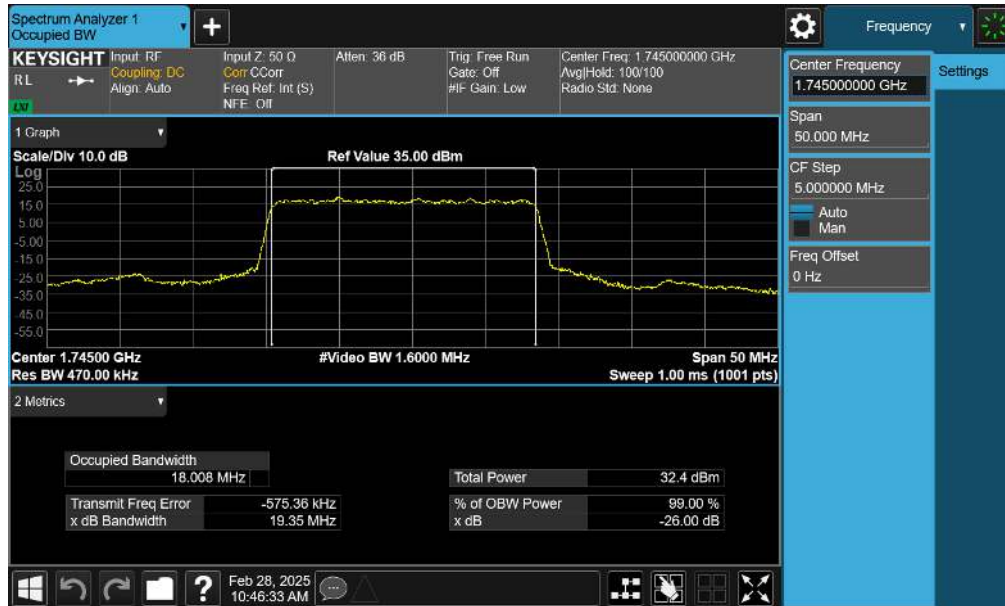


Plot 7-59. Occupied Bandwidth Plot (NR Band n66 - 25.0MHz CP-OFDM QPSK - Full RB – ANT2)



Plot 7-60. Occupied Bandwidth Plot (NR Band n66 - 25.0MHz CP-OFDM 16QAM - Full RB – ANT2)

FCC ID: A3LSMF966JPN	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2504070040-03.A3L	Test Dates: 2/24/2025 – 05/05/2025	EUT Type: Portable Handset	Page 51 of 137



FCC ID: A3LSMF966JPN	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2504070040-03.A3L	Test Dates: 2/24/2025 – 05/05/2025	EUT Type: Portable Handset	Page 52 of 137



FCC ID: A3LSMF966JPN	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2504070040-03.A3L	Test Dates: 2/24/2025 – 05/05/2025	EUT Type: Portable Handset	Page 53 of 137



FCC ID: A3LSMF966JPN	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2504070040-03.A3L	Test Dates: 2/24/2025 – 05/05/2025	EUT Type: Portable Handset	Page 54 of 137



FCC ID: A3LSMF966JPN	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2504070040-03.A3L	Test Dates: 2/24/2025 – 05/05/2025	EUT Type: Portable Handset	Page 55 of 137



FCC ID: A3LSMF966JPN	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2504070040-03.A3L	Test Dates: 2/24/2025 – 05/05/2025	EUT Type: Portable Handset	Page 57 of 137

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

ANSI C63.26-2015 – Section 5.7.4

Test Settings

1. Start frequency was set to 30MHz and stop frequency was set to 18GHz (separated into at least two plots per channel)
2. RBW $\geq$ 100kHz
3. VBW $\geq$ 3 x RBW
4. Detector = RMS
5. Trace mode = max hold
6. Sweep time = auto couple
7. The trace was allowed to stabilize

Test Setup

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



Figure 7-3. Test Instrument & Measurement Setup

Test Notes

1. Per Part 27 and RSS-139, compliance with the applicable limits is based on the use of measurement instrumentation employing a resolution bandwidth 100 kHz or greater for measurements below 1GHz.
2. For NR operation, all subcarrier spacings (SCS) and transmission schemes (e.g. CP-OFDM and DFT-s-OFDM) were investigated to determine the worst case configuration. All modes of operation were investigated and the worst case configuration results are reported in this section.

FCC ID: A3LSMF966JPN	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2504070040-03.A3L	Test Dates: 2/24/2025 – 05/05/2025	EUT Type: Portable Handset	Page 58 of 137

Mode	Bandwidth	Channel	Range [MHz]	Level [dBm]	Limit [dBm]	Margin [dB]
LTE Band 12	10 MHz	Low	30.0 - 697.9	-63.55	-13	-50.55
		Low	716.0 - 1000.0	-65.50	-13	-52.50
		Low	1000.0 - 10000.0	-37.49	-13	-24.49
		Mid	30.0 - 698.0	-65.12	-13	-52.12
		Mid	716.0 - 1000.0	-65.29	-13	-52.29
		Mid	1000.0 - 10000.0	-37.46	-13	-24.46
		High	30.0 - 697.9	-65.35	-13	-52.35
		High	716.1 - 1000.0	-61.78	-13	-48.78
		High	1000.0 - 10000.0	-37.62	-13	-24.62
LTE Band 13	10 MHz	Mid	30.0 - 777.0	-59.60	-35	-24.60
		Mid	787.0 - 1000.0	-60.29	-13	-47.29
		Mid	1000.0 - 20000.0	-45.94	-13	-32.94

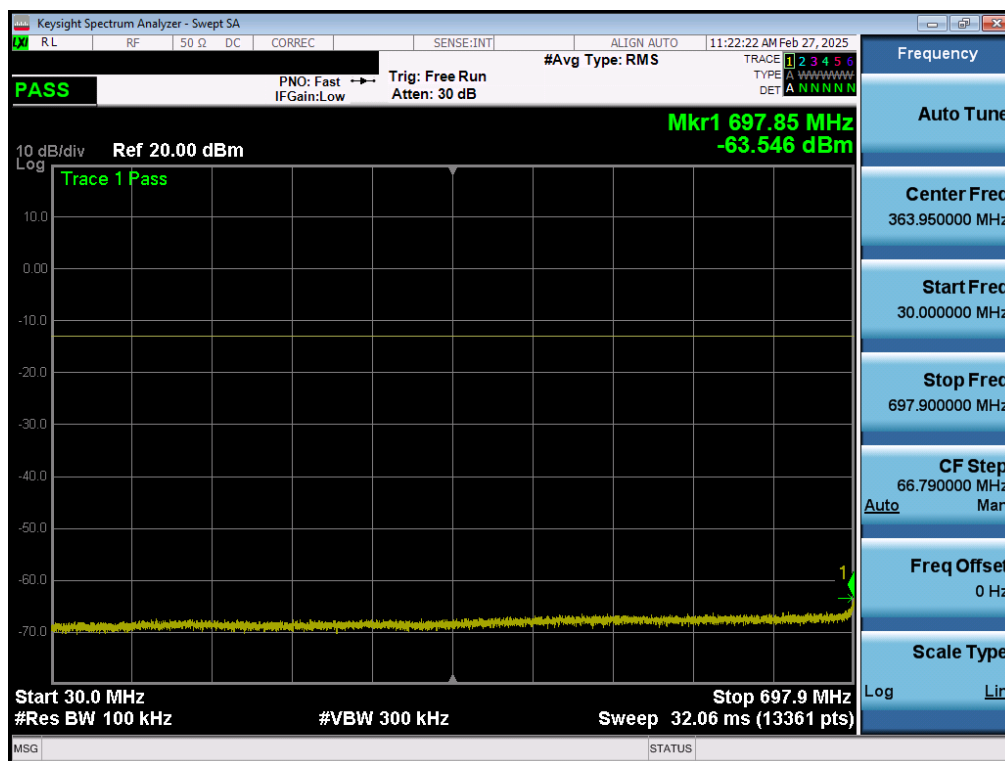
Table 7-8. Conducted Spurious Emissions Results – Ant1

Mode	Bandwidth	Channel	Range [MHz]	Level [dBm]	Limit [dBm]	Margin [dB]
LTE-B66-4	20 MHz	Low	30.0 - 663.0	-52.51	-13	-39.51
		Low	698.0 - 1000.0	-47.35	-13	-34.35
		Low	1000.0 - 10000.0	-63.56	-13	-50.56
		Mid	30.0 - 663.0	-53.73	-13	-40.73
		Mid	698.0 - 1000.0	-47.62	-13	-34.62
		Mid	1000.0 - 10000.0	-63.59	-13	-50.59
		High	30.0 - 663.0	-54.01	-13	-41.01
		High	698.0 - 1000.0	-47.49	-13	-34.49
		High	1000.0 - 10000.0	-63.47	-13	-50.47
NR Band n66	40 MHz	Low	30.0 - 1710.0	-50.83	-13	-37.83
		Low	1780.0 - 10000.0	-48.20	-13	-35.20
		Low	10000.0 - 20000.0	-42.62	-13	-29.62
		Mid	30.0 - 1710.0	-52.07	-13	-39.07
		Mid	1780.0 - 10000.0	-47.96	-13	-34.96
		Mid	10000.0 - 20000.0	-46.01	-13	-33.01
		High	30.0 - 1710.0	-52.24	-13	-39.24
		High	1780.0 - 10000.0	-47.77	-13	-34.77
		High	10000.0 - 20000.0	-43.71	-13	-30.71

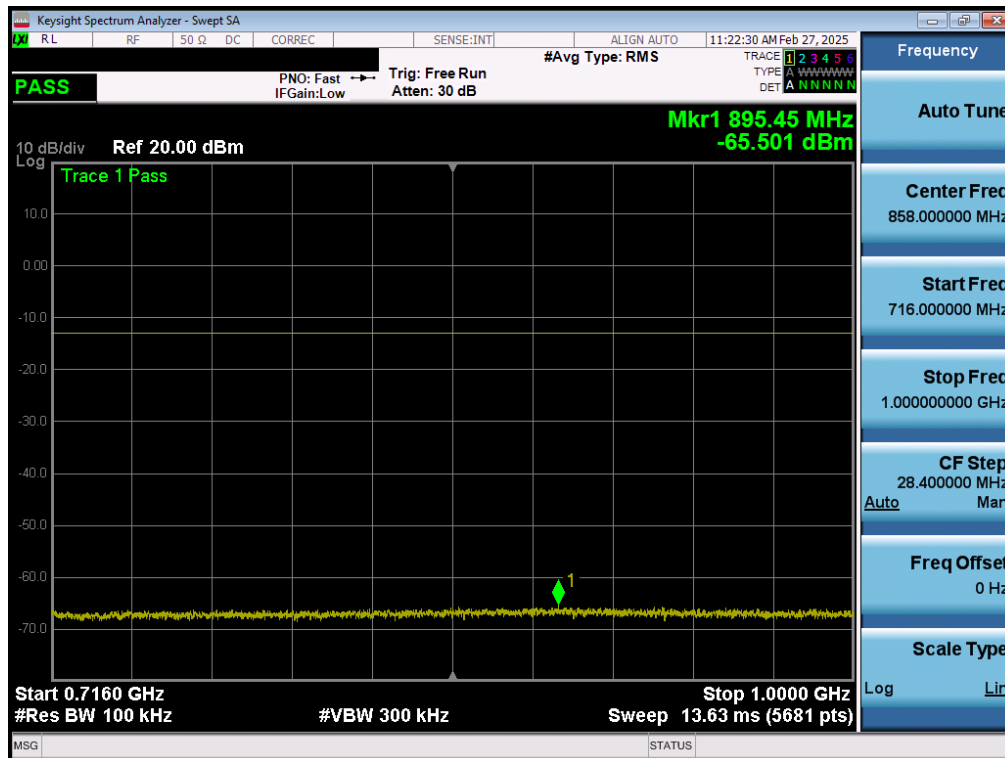
Table 7-9. Conducted Spurious Emissions Results – Ant1

FCC ID: A3LSMF966JPN	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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LTE Band 12 – ANT1

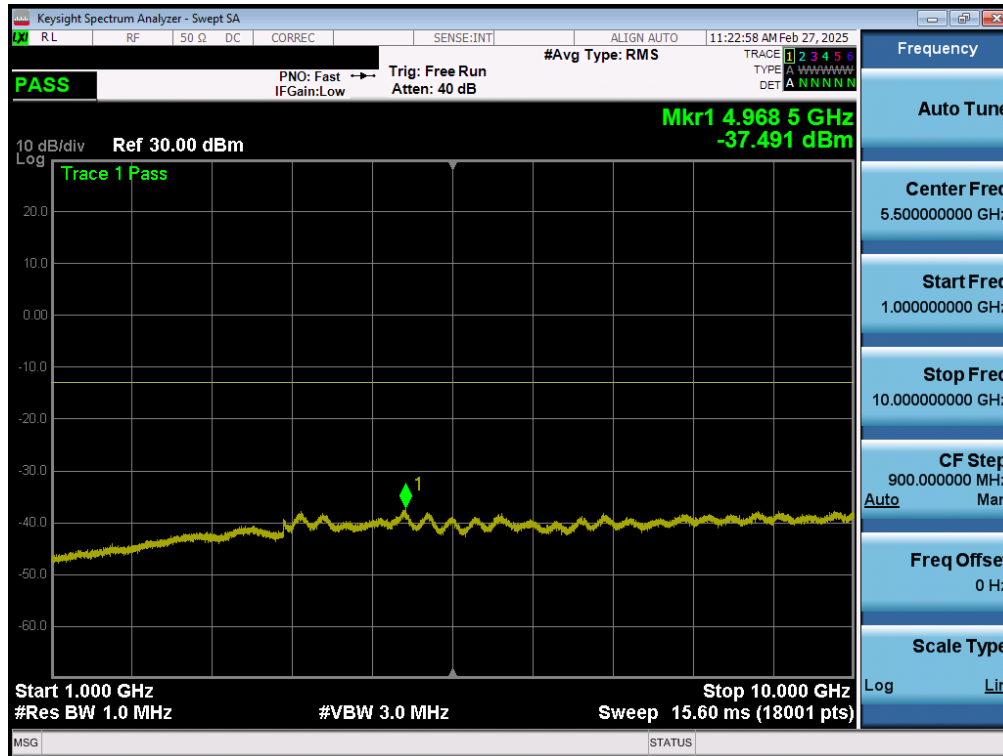


Plot 7-73. Conducted Spurious Plot (LTE Band 12 - 10MHz QPSK - 1 RB - Low Channel - ANT1)



Plot 7-74. Conducted Spurious Plot (LTE Band 12 - 10MHz QPSK - 1 RB - Low Channel - ANT1)

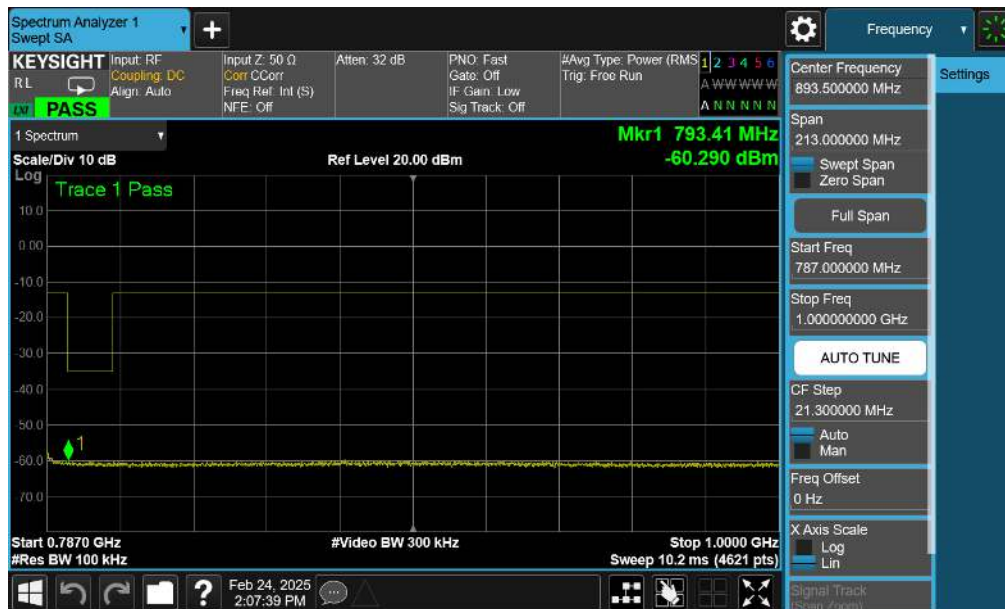
FCC ID: A3LSMF966JPN	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2504070040-03.A3L	Test Dates: 2/24/2025 – 05/05/2025	EUT Type: Portable Handset	Page 60 of 137



Plot 7-75. Conducted Spurious Plot (LTE Band 12 - 10MHz QPSK - 1 RB - Low Channel - ANT1)

FCC ID: A3LSMF966JPN	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2504070040-03.A3L	Test Dates: 2/24/2025 – 05/05/2025	EUT Type: Portable Handset	Page 61 of 137

LTE Band 13 – ANT1



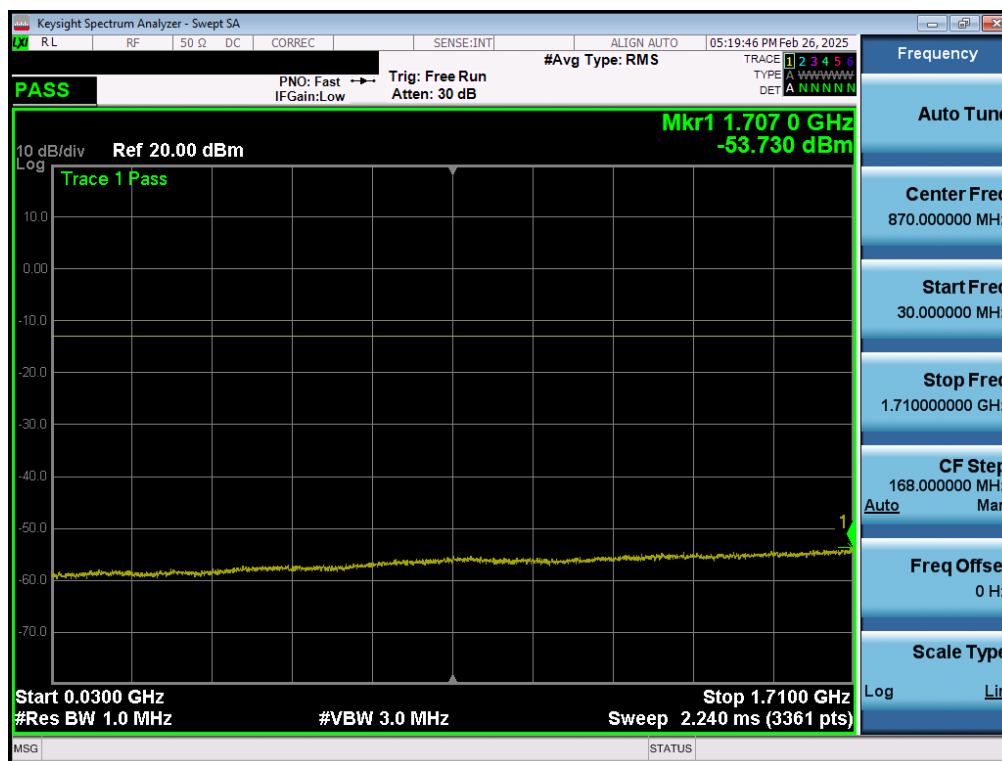
FCC ID: A3LSMF966JPN	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2504070040-03.A3L	Test Dates: 2/24/2025 – 05/05/2025	EUT Type: Portable Handset	Page 62 of 137



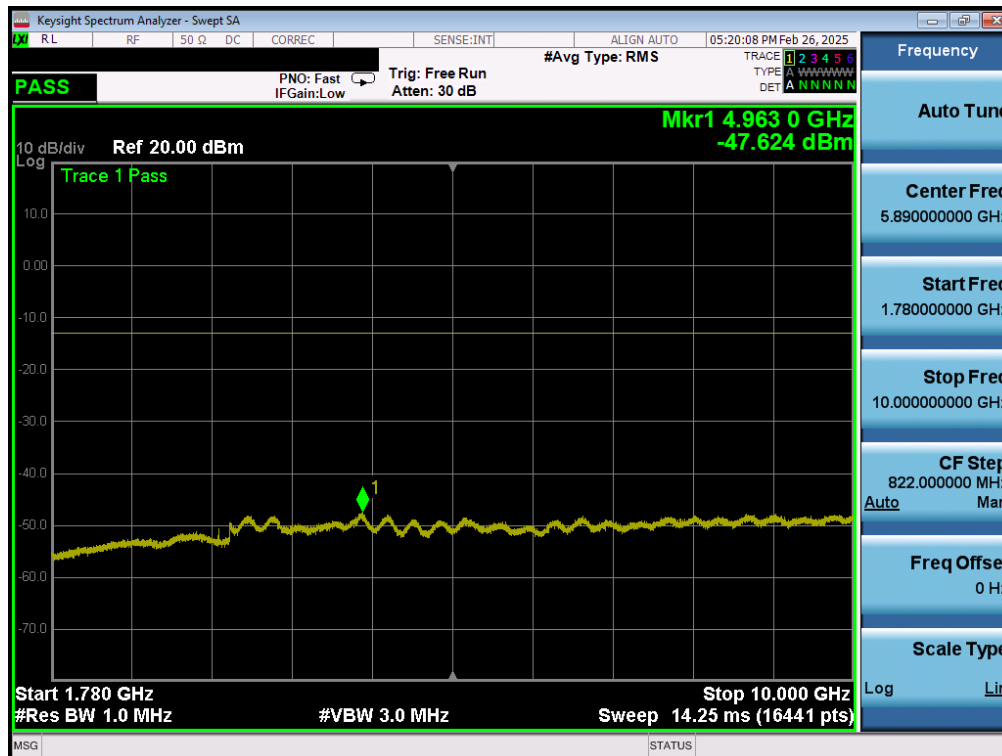
Plot 7-78. Conducted Spurious Plot (LTE Band 13 - 10MHz QPSK - 1 RB)

FCC ID: A3LSMF966JPN	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2504070040-03.A3L	Test Dates: 2/24/2025 – 05/05/2025	EUT Type: Portable Handset	Page 63 of 137

LTE Band 66/4 – ANT1

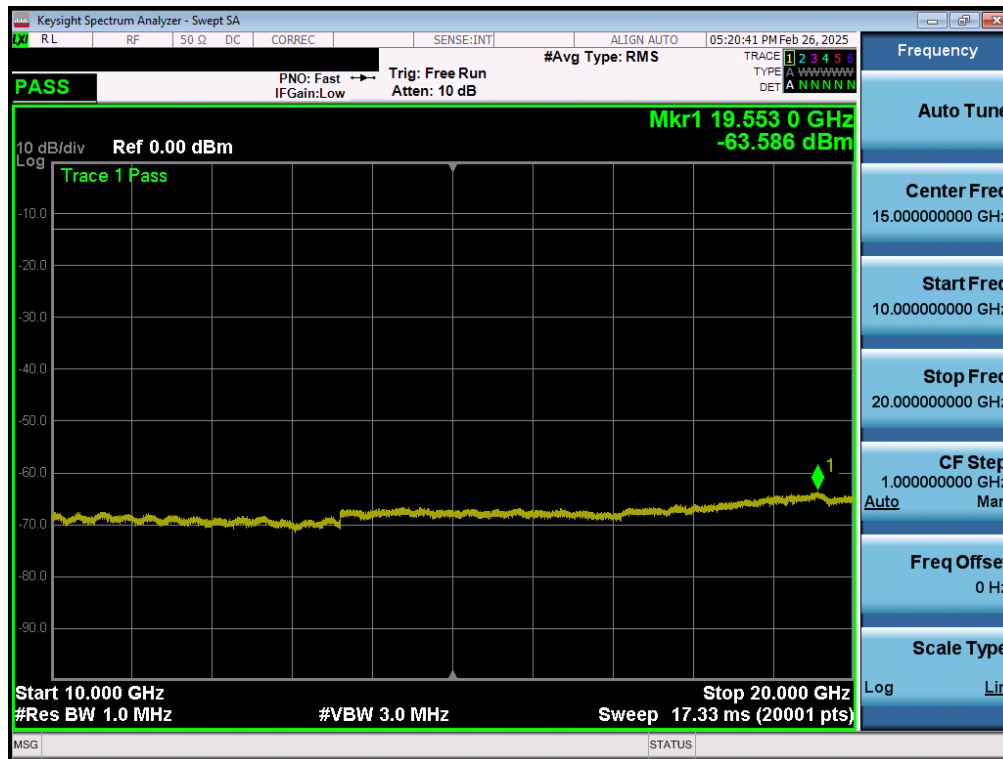


Plot 7-79. Conducted Spurious Plot (LTE Band 66/4 - 20MHz QPSK - 1 RB – Mid Channel)



Plot 7-80. Conducted Spurious Plot (LTE Band 66/4 - 20MHz QPSK - 1 RB – Mid Channel)

FCC ID: A3LSMF966JPN	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2504070040-03.A3L	Test Dates: 2/24/2025 – 05/05/2025	EUT Type: Portable Handset	Page 64 of 137



Plot 7-81. Conducted Spurious Plot (LTE Band 66/4 - 20MHz QPSK - 1 RB – Mid Channel)

FCC ID: A3LSMF966JPN	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2504070040-03.A3L	Test Dates: 2/24/2025 – 05/05/2025	EUT Type: Portable Handset	Page 65 of 137

NR Band n66 – ANT1



FCC ID: A3LSMF966JPN	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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Plot 7-84. Conducted Spurious Plot (NR Band n66 - 40.0MHz - 1 RB - Low Channel - ANT1)

FCC ID: A3LSMF966JPN		PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2504070040-03.A3L	Test Dates: 2/24/2025 – 05/05/2025	EUT Type: Portable Handset		Page 67 of 137

Mode	Bandwidth	Channel	Range [MHz]	Level [dBm]	Limit [dBm]	Margin [dB]
NR Band n66	40 MHz	Low	30.0 - 1710.0	-51.17	-13	-38.17
		Low	1780.0 - 10000.0	-48.72	-13	-35.72
		Low	10000.0 - 20000.0	-50.52	-13	-37.52
		Mid	30.0 - 1710.0	-51.96	-13	-38.96
		Mid	1780.0 - 10000.0	-48.58	-13	-35.58
		Mid	10000.0 - 20000.0	-50.59	-13	-37.59
		High	30.0 - 1710.0	-52.32	-13	-39.32
		High	1780.0 - 10000.0	-48.45	-13	-35.45
		High	10000.0 - 20000.0	-50.55	-13	-37.55

Table 7-10. Conducted Spurious Emissions Results – Ant2

FCC ID: A3LSMF966JPN	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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NR Band n66 – ANT2



FCC ID: A3LSMF966JPN	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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Plot 7-87. Conducted Spurious Plot (NR Band n66 - 40.0MHz - 1 RB - Mid Channel - ANT2)

FCC ID: A3LSMF966JPN	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2504070040-03.A3L	Test Dates: 2/24/2025 – 05/05/2025	EUT Type: Portable Handset	Page 70 of 137

7.5 Band Edge Emissions at Antenna Terminal

Test Overview

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 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.

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.

Test Procedure Used

ANSI C63.26-2015 – Section 5.7.3

Test Settings

1. Start and stop frequency were set such that the band edge would be placed in the center of the plot
2. Span was set large enough so as to capture all out of band emissions near the band edge
3. RBW $\geq 1\%$ of the emission bandwidth
4. VBW $\geq 3 \times$ RBW
5. Detector = RMS
6. Number of sweep points $\geq 2 \times$ Span/RBW
7. Trace mode = trace average for continuous emissions, max hold for pulse emissions
8. Sweep time = auto couple
9. The trace was allowed to stabilize

Test Setup

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



Figure 7-4. Test Instrument & Measurement Setup

FCC ID: A3LSMF966JPN	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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Test Notes

1. Per 27.53(h) and RSS-139(5.6) for AWS band operation, in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed to demonstrate compliance with the out-of-band emissions limit. 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. Per 27.53(g) and RSS-130(4.7.1) for operations in the 663 - 698 MHz and 698 – 746MHz bands, in the 100 kHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least 30 kHz may be employed to demonstrate compliance with the out-of-band emissions limit.
3. Per 27.53(c)(5) and RSS-130(4.7.2) for operations in the 776-788 MHz band, in the 100 kHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least 30 kHz may be employed to demonstrate compliance with the out-of-band emissions limit.
4. For all plots showing emissions in the 763 – 775MHz and 793 – 805MHz band, the FCC and ISSED limit per 27.53(c)(4) and RSS-130(4.7.2) is $65 + 10 \log_{10}(P) = -35\text{dBm}$ in a 6.25kHz bandwidth.

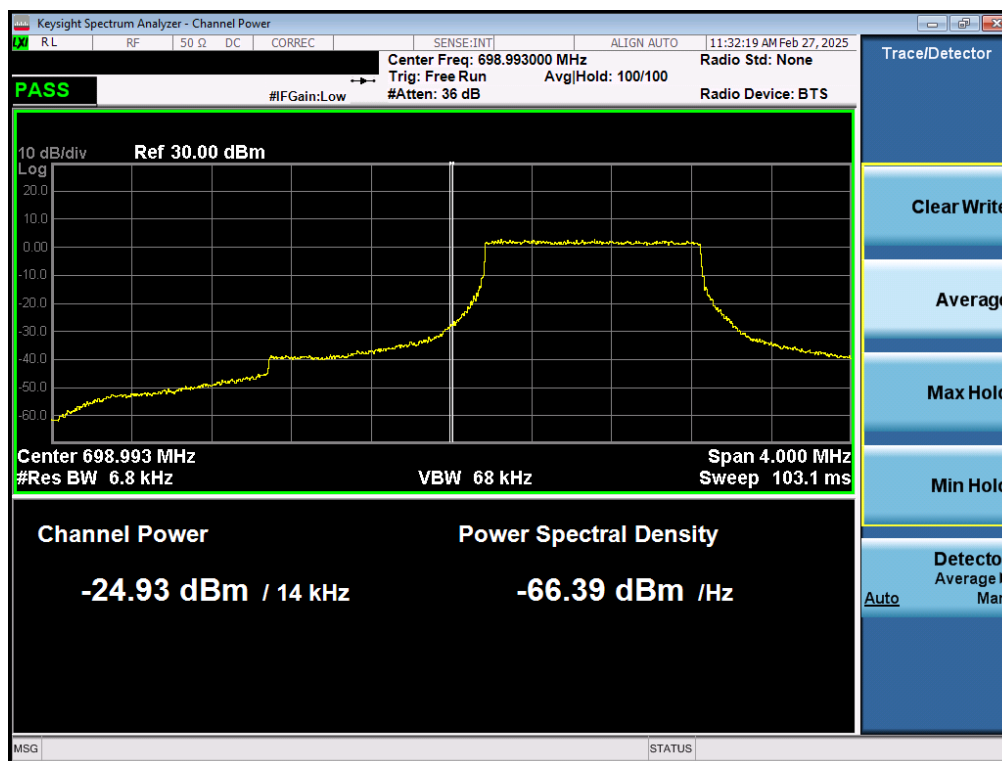
FCC ID: A3LSMF966JPN	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2504070040-03.A3L	Test Dates: 2/24/2025 – 05/05/2025	EUT Type: Portable Handset	Page 72 of 137

Mode	Bandwidth	Channel	Test Case	Level [dBm]	Limit [dBm]	Margin [dB]
LTE Band 12	10 MHz	Low	Band Edge	-28.61	-13	-15.61
		High	Band Edge	-30.13	-13	-17.13
	5 MHz	Low	Band Edge	-21.97	-13	-8.97
		High	Band Edge	-21.85	-13	-8.85
	3 MHz	Low	Band Edge	-18.02	-13	-5.02
		High	Band Edge	-17.57	-13	-4.57
	1.4 MHz	Low	Band Edge	-24.93	-13	-11.93
		High	Band Edge	-25.63	-13	-12.63
LTE Band 13	10 MHz	Low	Band Edge	-28.95	-13	-15.95
		Low	Emission Mask	-61.80	-13	-48.80
		High	Band Edge	-26.97	-13	-13.97
		High	Emission Mask	-42.87	-13	-29.87
	5 MHz	Low	Band Edge	-22.29	-13	-9.29
		Low	Emission Mask	-54.13	-13	-41.13
		High	Band Edge	-21.78	-13	-8.78
		High	Emission Mask	-53.16	-13	-40.16

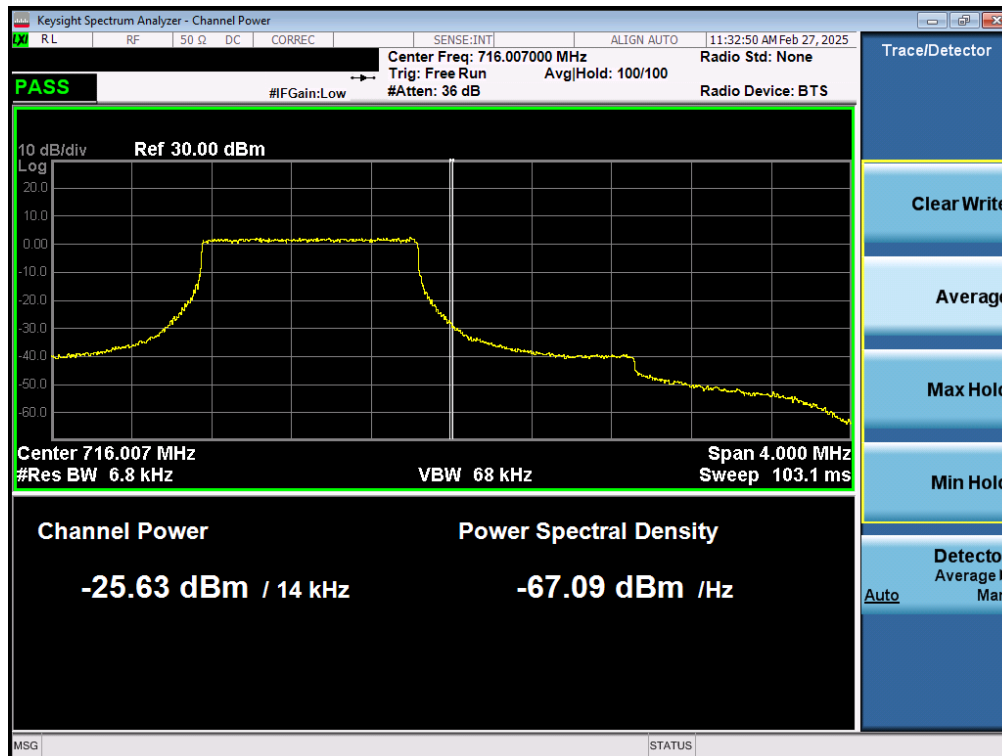
Table 7-11. Conducted Band Edge Results – Ant1

FCC ID: A3LSMF966JPN	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2504070040-03.A3L	Test Dates: 2/24/2025 – 05/05/2025	EUT Type: Portable Handset	Page 73 of 137

LTE Band 12 – ANT1



Plot 7-88. Lower Band Edge Plot (LTE Band 12 – 1.4MHz QPSK – Full RB - ANT1)



Plot 7-89. Upper Band Edge Plot (LTE Band 12 – 1.4MHz QPSK – Full RB - ANT1)

FCC ID: A3LSMF966JPN	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2504070040-03.A3L	Test Dates: 2/24/2025 – 05/05/2025	EUT Type: Portable Handset	Page 74 of 137

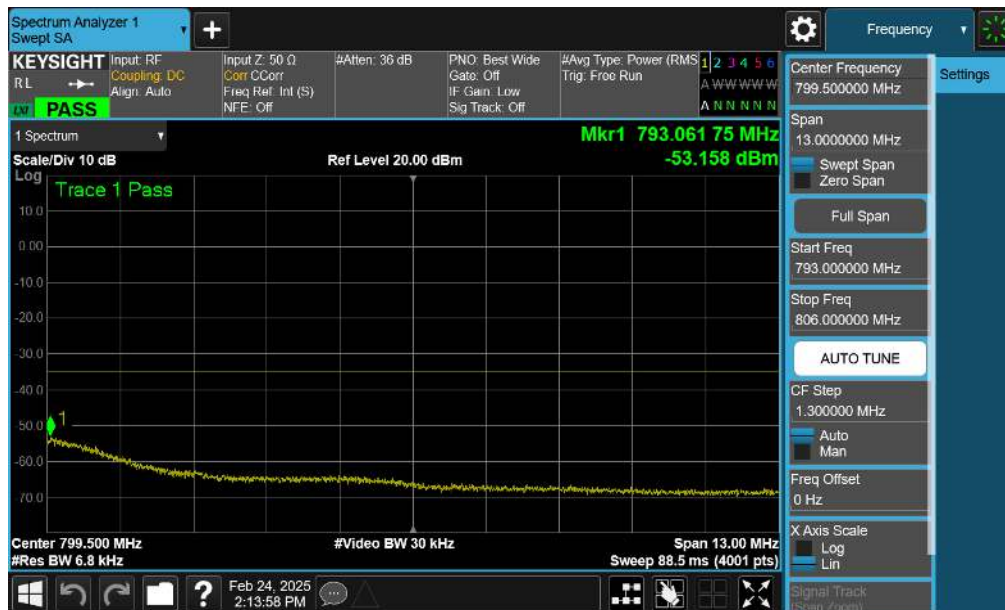
LTE Band 13 – ANT1



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Plot 7-92. Upper Band Edge Plot (LTE Band 13 - 5MHz QPSK – Full RB - ANT1)



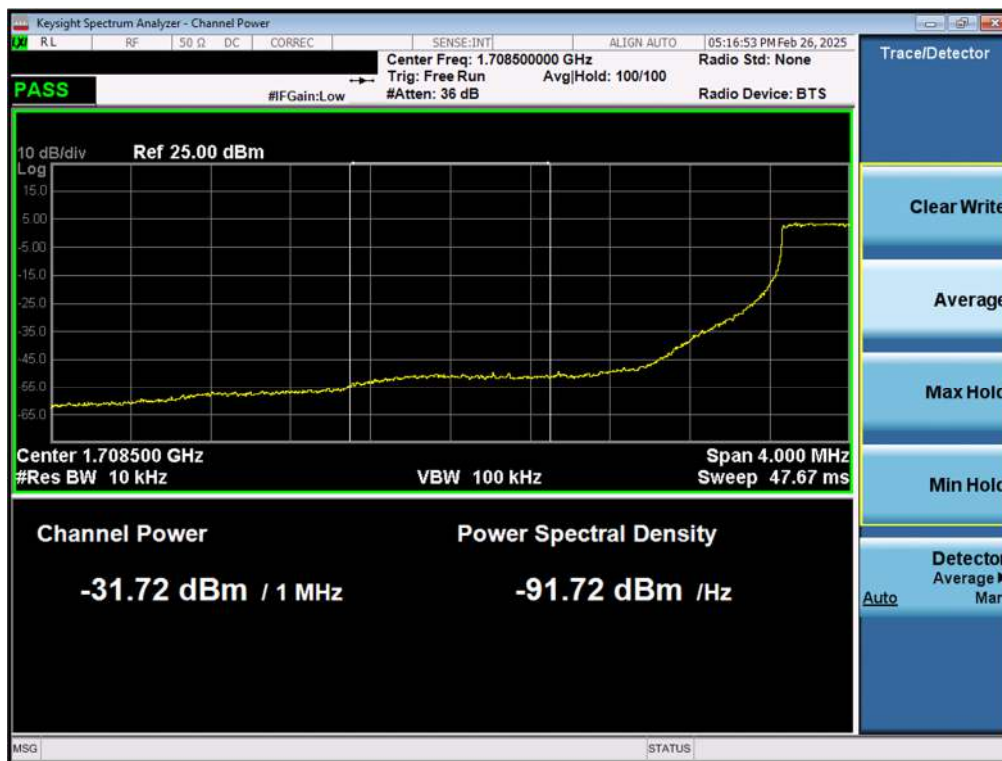
Plot 7-93. Upper Emission Mask Plot (LTE Band 13 - 5MHz QPSK – Full RB - ANT1)

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LTE Band 66/4 – ANT1



Plot 7-94. Lower Band Edge Plot (LTE Band 66/4 – 1.4MHz QPSK – Full RB - ANT1)

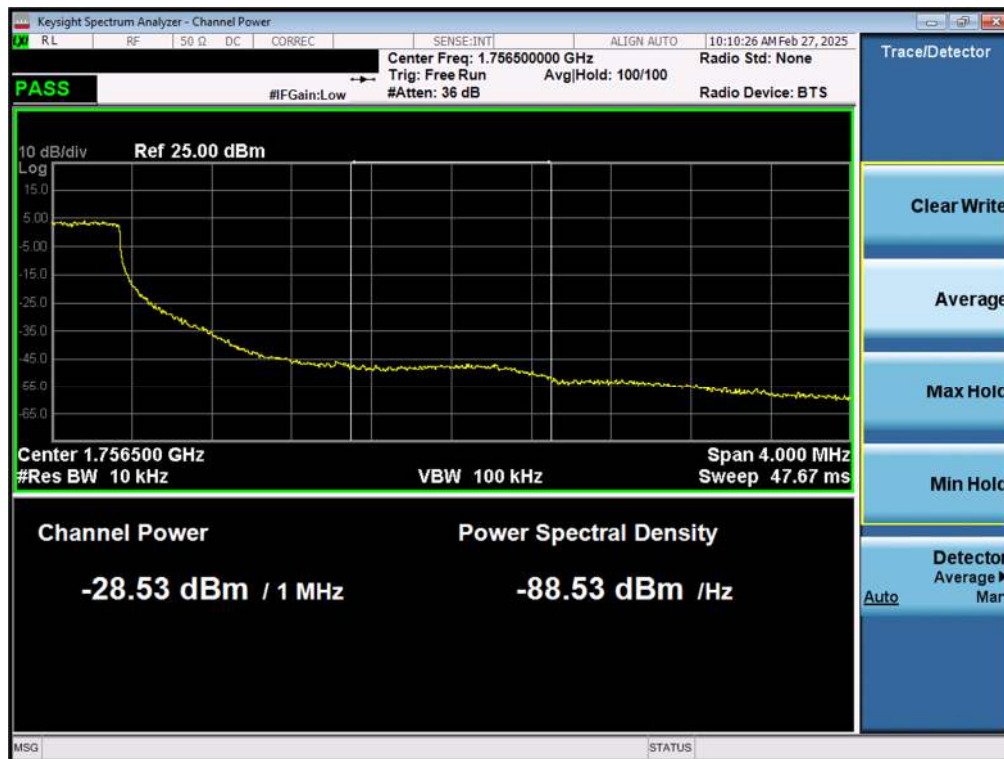


Plot 7-95. Lower Extended Band Edge Plot (LTE Band 66/4 – 1.4MHz QPSK – Full RB - ANT1)

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Plot 7-96. Upper Band Edge Plot (LTE Band 4 – 1.4MHz QPSK – Full RB - ANT1)



Plot 7-97. Upper Extended Band Edge Plot (LTE Band 4 – 1.4MHz QPSK – Full RB - ANT1)

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