



# ELEMENT SUWON

13, Heungdeok 1-ro, Giheung-gu, Yongin-si,  
Gyeonggi-do, 16954 South Korea  
Tel. 031.660.7319 / Fax 031.660.7318  
<http://www.element.com>

## PART 24 MEASUREMENT REPORT

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

**Date of Testing:**  
6/15/2023 - 7/13/2023  
**Test Report Issue Date:**  
7/17/2023  
**Test Site/Location:**  
Element lab. Yongin-Si, Gyeonggi-do, South Korea  
**Test Report Serial No.:**  
1M2304260059-04.A3L

<b>FCC ID:</b>	<b>A3LSMF731JPN</b>
<b>Applicant Name:</b>	<b>Samsung Electronics Co., Ltd.</b>

<b>Application Type:</b>	Certification
<b>Model:</b>	SC-54D
<b>Additional Model(s):</b>	SCG23
<b>EUT Type:</b>	Portable Handset
<b>FCC Classification:</b>	PCS Licensed Transmitter Held to Ear (PCE)
<b>FCC Rule Part:</b>	24
<b>Test Procedure(s):</b>	ANSI C63.26-2015, KDB 648474 D03 v01r04

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

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

Prepared by

Reviewed by

<b>FCC ID:</b> A3LSMF731JPN	<b>PART 24 MEASUREMENT REPORT</b>		<b>Approved by:</b> Technical Manager
<b>Test Report S/N:</b> 1M2304260059-04.A3L	<b>Test Dates:</b> 6/15/2023 - 7/13/2023	<b>EUT Type:</b> Portable Handset	Page 1 of 71

# TABLE OF CONTENTS

1.0	INTRODUCTION .....	4
1.1	Scope .....	4
1.2	Element Test Location.....	4
1.2	Test Facility / Accreditations.....	4
2.0	PRODUCT INFORMATION.....	5
2.1	Equipment Description .....	5
2.2	Device Capabilities.....	5
2.3	Test Configuration .....	5
2.4	Software and Firmware .....	5
2.5	EMI Suppression Device(s)/Modifications .....	5
3.0	DESCRIPTION OF TESTS .....	6
3.1	Evaluation Procedure .....	6
3.2	Radiated Power and Radiated Spurious Emissions .....	6
4.0	MEASUREMENT UNCERTAINTY .....	7
5.0	TEST EQUIPMENT CALIBRATION DATA .....	8
6.0	SAMPLE CALCULATIONS .....	9
7.0	TEST RESULTS .....	10
7.1	Summary.....	10
7.2	Conducted Output Power Data .....	11
7.3	Occupied Bandwidth .....	13
7.4	Spurious and Harmonic Emissions at Antenna Terminal .....	29
7.5	Band Edge Emissions at Antenna Terminal .....	38
7.6	Peak-Average Ratio .....	46
7.7	Radiated Power (EIRP).....	52
7.8	Radiated Spurious Emissions Measurements.....	56
7.9	Frequency Stability / Temperature Variation .....	68
8.0	CONCLUSION.....	71

<b>FCC ID:</b> A3LSMF731JPN	<b>PART 24 MEASUREMENT REPORT</b>		<b>Approved by:</b> Technical Manager
<b>Test Report S/N:</b> 1M2304260059-04.A3L	<b>Test Dates:</b> 6/15/2023 - 7/13/2023	<b>EUT Type:</b> Portable Handset	Page 2 of 71

## PART 24 MEASUREMENT REPORT

<b>Antenna-A</b>						
Mode	Bandwidth	Modulation	Tx Frequency Range [MHz]	EIRP		Emission Designator
				Max. Power [W]	Max. Power [dBm]	
GSM/GPRS	N/A	GMSK	1850.2 - 1909.8	0.412	26.15	248KGXW
EDGE	N/A	8-PSK	1850.2 - 1909.8	0.150	21.76	246KG7W
LTE Band 2	20 MHz	QPSK	1860 - 1905	0.106	20.27	18M0G7D
		16QAM	1860 - 1905	0.089	19.51	18M0W7D
	15 MHz	QPSK	1857.5 - 1907.5	0.107	20.28	13M5G7D
		16QAM	1857.5 - 1907.5	0.087	19.39	13M5W7D
	10 MHz	QPSK	1855 - 1910	0.107	20.30	9M02G7D
		16QAM	1855 - 1910	0.085	19.31	9M04W7D
	5 MHz	QPSK	1852.5 - 1912.5	0.108	20.34	4M52G7D
		16QAM	1852.5 - 1912.5	0.087	19.39	4M53W7D
	3 MHz	QPSK	1851.5 - 1913.5	0.110	20.41	2M72G7D
		16QAM	1851.5 - 1913.5	0.086	19.36	2M72W7D
	1.4 MHz	QPSK	1850.7 - 1914.3	0.109	20.38	1M10G7D
		16QAM	1850.7 - 1914.3	0.086	19.35	1M11W7D

<b>Antenna-I</b>						
Mode	Bandwidth	Modulation	Tx Frequency Range [MHz]	EIRP		Emission Designator
				Max. Power [W]	Max. Power [dBm]	
LTE Band 2	20 MHz	QPSK	1860 - 1905	0.154	21.89	18M0G7D
		16QAM	1860 - 1905	0.135	21.30	18M0W7D
	15 MHz	QPSK	1857.5 - 1907.5	0.156	21.94	13M5G7D
		16QAM	1857.5 - 1907.5	0.134	21.26	13M5W7D
	10 MHz	QPSK	1855 - 1910	0.163	22.14	9M03G7D
		16QAM	1855 - 1910	0.131	21.18	9M01W7D
	5 MHz	QPSK	1852.5 - 1912.5	0.161	22.06	4M54G7D
		16QAM	1852.5 - 1912.5	0.137	21.36	4M55W7D
	3 MHz	QPSK	1851.5 - 1913.5	0.164	22.15	2M72G7D
		16QAM	1851.5 - 1913.5	0.136	21.33	2M72W7D
	1.4 MHz	QPSK	1850.7 - 1914.3	0.161	22.07	1M10G7D
		16QAM	1850.7 - 1914.3	0.140	21.47	1M12W7D

### EUT Overview

FCC ID: A3LSMF731JPN	PART 24 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2304260059-04.A3L	Test Dates: 6/15/2023 - 7/13/2023	EUT Type: Portable Handset	Page 3 of 71

## 1.0 INTRODUCTION

### 1.1 Scope

Measurement and determination of electromagnetic emissions (EMC) of radio frequency devices including intentional and/or unintentional radiators for compliance with the technical rules and regulations of the Federal Communications Commission and the Innovation, Science and Economic Development Canada.

### 1.2 Element Test Location

These measurement tests were conducted at the Element Suwon Laboratory located at 13, Heungdeok 1-ro, Giheung-gu, Yongin-si, Gyeonggi-do, 16954, South Korea. The measurement facility is compliant with the test site requirements specified in ANSI C63.4-2014.

### 1.2 Test Facility / Accreditations

**Measurements were performed at Element Materials Technology Suwon, Ltd. located in Yongin-si, Gyeonggi-do, 16954, South Korea.**

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

FCC ID: A3LSMF731JPN	PART 24 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2304260059-04.A3L	Test Dates: 6/15/2023 - 7/13/2023	EUT Type: Portable Handset	Page 4 of 71

## 2.0 PRODUCT INFORMATION

### 2.1 Equipment Description

The Equipment Under Test (EUT) is the **Samsung Portable Handset FCC ID: A3LSMF731JPN**. 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 24.

**Test Device Serial No.:** 0134M, 0165M,0180M, 0214M, 0264M

### 2.2 Device Capabilities

This device contains the following capabilities:

850/1900 GSM/GPRS/EDGE, 850/1700/1900 WCDMA/HSPA, Multi-band LTE, Multi-band 5G NR (FR1), 802.11b/g/n/ax WLAN, 802.11a/n/ac/ax UNII (5GHz and 6GHz), Bluetooth (1x, EDR, LE), NFC, Wireless Power Transfer

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

### 2.3 Test Configuration

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

This device supports wireless charging capability and, thus, is subject to the test requirements of KDB 648474 D03 v01r04. Additional radiated spurious emission measurements were performed with the EUT lying flat on an authorized wireless charging pad (WCP) Model: EN-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 supports three configurations: one is with screen open, one is where the screen is half open (90 degrees), and one is with screen closed. All configurations are tested, and the worst case radiated emissions data is shown in this report.

### 2.4 Software and Firmware

Testing was performed on device(s) using software/firmware version SC54DOMU0AWEQ installed on the EUT.

### 2.5 EMI Suppression Device(s)/Modifications

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

FCC ID: A3LSMF731JPN	PART 24 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2304260059-04.A3L	Test Dates: 6/15/2023 - 7/13/2023	EUT Type: Portable Handset	Page 5 of 71

## 3.0 DESCRIPTION OF TESTS

### 3.1 Evaluation Procedure

The measurement procedures described in the “American National Standard for Compliance Testing of Transmitters Used in Licensed Radio Services” (ANSI C63.26-2015) were used in the measurement of the EUT.

**Deviation from Measurement Procedure.....None**

### 3.2 Radiated Power and Radiated Spurious Emissions

The radiated test facilities consisted of an indoor 3 meter semi-anechoic chamber used for final measurements and exploratory measurements, when necessary. The measurement area is contained within the semi-anechoic chamber which is shielded from any ambient interference. The test site inside the chamber is a 6m x 5.2m elliptical, obstruction-free area in accordance with Figure 5.7 of Clause 5 in ANSI C63.4-2014. Absorbers are arranged on the floor between the turn table and the antenna mast in such a way so as to maximize the reduction of reflections for measurements above 1GHz. For measurements below 1GHz, the absorbers are removed. A raised turntable is used for radiated measurement. The turn table is a continuously rotatable, remote-controlled, metallic turntable and 2 meters (6.56 ft.) in diameter. The turn table is flush with the raised floor of the chamber in order to maintain its function as a ground plane. An 80cm tall test table made of Styrodur is placed on top of the turn table. A Styrodur pedestal is placed on top of the test table to bring the total table height to 1.5m.

The equipment under test was transmitting while connected to its integral antenna and is placed on a turntable 3 meters from the receive antenna. The receive antenna height is adjusted between 1 and 4 meter height, the turntable is rotated through 360 degrees, and the EUT is manipulated through all orthogonal planes representative of its typical use to achieve the highest reading on the receive spectrum analyzer.

For radiated power measurements, substitution method is used per the guidance of ANSI C63.26-2015. For emissions below 1GHz, a half-wave dipole is substituted in place of the EUT. For emissions above 1GHz, a horn antenna is substituted in place of the EUT. The substitute antenna is driven by a signal generator with the level of the signal generator being adjusted to obtain the same receive spectrum analyzer level previously recorded from the spurious emission from the EUT. The power of the emission is calculated using the following formula:

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

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  $P_g [dBm] - \text{cable loss} [dB]$ .

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:

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

And

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

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.

<b>FCC ID:</b> A3LSMF731JPN	<b>PART 24 MEASUREMENT REPORT</b>		<b>Approved by:</b> Technical Manager
<b>Test Report S/N:</b> 1M2304260059-04.A3L	<b>Test Dates:</b> 6/15/2023 - 7/13/2023	<b>EUT Type:</b> Portable Handset	Page 6 of 71

## 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  $U_{\text{CISPR}}$  measurement uncertainty values specified in CISPR 16-4-2 and, thus, can be compared directly to specified limits to determine compliance.

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

FCC ID: A3LSMF731JPN	PART 24 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2304260059-04.A3L	Test Dates: 6/15/2023 - 7/13/2023	EUT Type: Portable Handset	Page 7 of 71

## 5.0 TEST EQUIPMENT CALIBRATION DATA

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

Manufacturer	Model	Description	Cal Date	Cal Interval	Cal Due	Serial Number
Agilent	N9030A	PXA Signal Analyzer	2023-07-04	Annual	2024-07-03	MY49432391
Anritsu	S820E	Cable and Antenna Analyzer	2023-07-05	Annual	2024-07-04	1839097
Anritsu	MA24106A	USB Power Sensor	2023-07-05	Annual	2024-07-04	1244512
Com-Power	AL-130	9kHz - 30MHz Loop Antenna	2022-10-21	Biennial	2024-10-20	10160045
Com-Power	PAM-118A	Preamplifier	2023-07-05	Annual	2024-07-04	551042
Espec	SH-242	Environmental Chamber	2022-08-26	Annual	2023-08-25	93011064
Fairview Microwave	FM2CP1122-10	2.92mm Directional Coupler	2023-07-04	Annual	2024-07-03	1946
Keysight Technologies	N9030B	MXA Signal Analyzer	2023-07-04	Annual	2024-07-03	MY57143276
Mini-Circuits	BW-N10W5+	Attenuator	2023-07-04	Annual	2024-07-03	1607
Mini-Circuits	BW-N10W5+	Attenuator	2023-07-04	Annual	2024-07-03	1607
Rohde & Schwarz	TS-PR18	Preamplifier	2023-07-05	Annual	2024-07-04	102141
Rohde & Schwarz	SMB100A03	Signal Generator	2023-01-17	Annual	2024-01-16	182487
Rohde & Schwarz	CMW500	Wideband Radio Communication Tester	2023-02-17	Annual	2024-02-16	131453
Rohde & Schwarz	FSW43	Signal and Spectrum Analyzer	2023-01-13	Annual	2024-01-12	101955
Rohde & Schwarz	SFUNIT-Rx	Shielded Filter Unit	2023-02-17	Annual	2024-02-16	102131
Rohde & Schwarz	TC-TA18	VIVALDI-ANT	2021-10-22	Biennial	2023-10-21	101097
Rohde & Schwarz	TC-TA18	VIVALDI-ANT	2021-10-22	Biennial	2023-10-21	101098
Schwarzbeck	VULB9162	Broadband TRILOG Antenna	2023-06-01	Biennial	2025-05-31	9162-217
Schwarzbeck	UHA9105	Dipole Antenna	2022-07-19	Biennial	2024-07-18	91052522
Sunol	DRH-118	Horn Antenna	2023-01-26	Biennial	2025-01-25	A060215

**Table 5-1. Test Equipment**

**Notes:**

For equipment listed above that has a calibration date or calibration due date that falls within the test date range, care was taken to ensure that this equipment was used after the calibration date and before the calibration due date.

FCC ID: A3LSMF731JPN	PART 24 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2304260059-04.A3L	Test Dates: 6/15/2023 - 7/13/2023	EUT Type: Portable Handset	Page 8 of 71



## 6.0 SAMPLE CALCULATIONS

### GSM Emission Designator

#### **Emission Designator = 250KGXW**

GSM BW = 250 kHz

G = Phase Modulation

X = Cases not otherwise covered

W = Combination (Audio/Data)

### EDGE Emission Designator

#### **Emission Designator = 250KG7W**

EDGE BW = 250 kHz

G = Phase Modulation

7 = Quantized/Digital Info

W = Combination (Audio/Data)

### 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.

FCC ID: A3LSMF731JPN	PART 24 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2304260059-04.A3L	Test Dates: 6/15/2023 - 7/13/2023	EUT Type: Portable Handset	Page 9 of 71

## 7.0 TEST RESULTS

### 7.1 Summary

Company Name: Samsung Electronics Co., Ltd.  
 FCC ID: A3LSMF731JPN  
 FCC Classification: PCS Licensed Transmitter Held to Ear (PCE)  
 Mode(s): GSM/GPRS/EDGE/LTE

Test Condition	Test Description	FCC Part Section(s)	Test Limit	Test Result	Reference
CONDUCTED	Transmitter Conducted Output Power*	2.1046(a), 2.1046(c)	N/A	PASS	Section 7.2
	Occupied Bandwidth	2.1049(h)	N/A	PASS	Section 7.3
	Conducted Band Edge / Spurious Emissions	2.1051, 24.238(a)	> 43 + 10log <sub>10</sub> (P[Watts]) at Band Edge and for all out-of-band emissions	PASS	Sections 7.4, 7.5
	Peak-to-Average Ratio	24.232(d)	≤ 13 dB	PASS	Section 7.6
	Frequency Stability	2.1055, 24.235	Fundamental emissions stay within authorized frequency block	PASS	Section 7.9
RADIATED	Equivalent Isotropic Radiated Power	24.232(c)	< 2 Watts max. EIRP	PASS	Section 7.7
	Radiated Spurious Emissions	2.1053, 24.238(a)	≥ 43 + 10 log (P[Watts]) dB of attenuation below transmitter power	PASS	Section 7.8

\* The only transmitter output conducted powers included in this report are those where the Pmax value, per the tune-up document, is higher than any of the DSI power levels. For the remaining conducted power measurements, see the **RF Exposure Report**.

**Table 7-1. Summary of Test Results**

#### Notes:

- 1) All modes of operation and data rates were investigated. The test results shown in the following sections represent the worst case emissions.
- 2) The analyzer plots were all taken with a correction table loaded into the analyzer. The correction table was used to account for the losses of the cables, directional couplers, and attenuators used as part of the system to maintain a link between the call box and the EUT at all frequencies of interest.
- 3) All antenna port conducted emissions testing was performed on a test bench with the antenna port of the EUT connected to the spectrum analyzer through calibrated cables, attenuators, and couplers.
- 4) All conducted emissions measurements are performed with automated test software to capture the corresponding plots necessary to show compliance. The measurement software utilized is EMC Software Tool v1.1.

FCC ID: A3LSMF731JPN	PART 24 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2304260059-04.A3L	Test Dates: 6/15/2023 - 7/13/2023	EUT Type: Portable Handset	Page 10 of 71

## 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

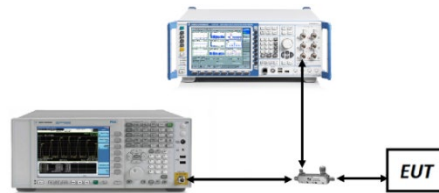
ANSI C63.26-2015 – Section 5.2

### 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.

FCC ID: A3LSMF731JPN	PART 24 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2304260059-04.A3L	Test Dates: 6/15/2023 - 7/13/2023	EUT Type: Portable Handset	Page 11 of 71

Bandwidth	Modulation	Channel	Frequency [MHz]	RB Size/Offset	Conducted Power [dBm]
20 MHz	QPSK	18700	1860.0	1 / 99	24.53
		18900	1880.0	1 / 50	24.61
		19100	1900.0	1 / 50	24.72
	16-QAM	19100	1900.0	1 / 50	24.13
15 MHz	QPSK	18675	1857.5	1 / 74	24.58
		18900	1880.0	1 / 74	24.80
		19125	1902.5	1 / 37	24.69
	16-QAM	19125	1902.5	1 / 74	24.11
10 MHz	QPSK	18650	1855.0	1 / 49	24.77
		18900	1880.0	1 / 25	24.87
		19150	1905.0	1 / 25	24.99
	16-QAM	19150	1905.0	1 / 25	24.10
5 MHz	QPSK	18625	1852.5	1 / 24	24.70
		18900	1880.0	1 / 0	24.81
		19175	1907.5	1 / 24	25.01
	16-QAM	18625	1852.5	1 / 12	23.97
3 MHz	QPSK	18615	1851.5	1 / 7	24.79
		18900	1880.0	1 / 7	24.78
		19185	1908.5	1 / 14	24.94
	16-QAM	19185	1908.5	1 / 14	24.18
1.4 MHz	QPSK	18607	1850.7	1 / 3	24.71
		18900	1880.0	1 / 3	24.73
		19193	1909.3	1 / 5	25.06
	16-QAM	19193	1909.3	1 / 5	24.22

**Table 7-2. Conducted Powers (LTE Band 2 – Ant 1 – Max Power)**

FCC ID: A3LSMF731JPN	PART 24 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2304260059-04.A3L	Test Dates: 6/15/2023 - 7/13/2023	EUT Type: Portable Handset	Page 12 of 71

## 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

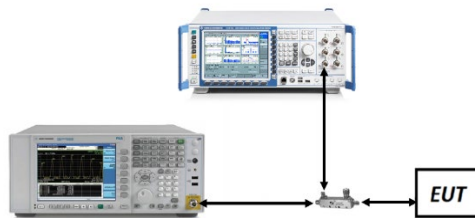
ANSI C63.26-2015 – Section 5.4.4

### 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.

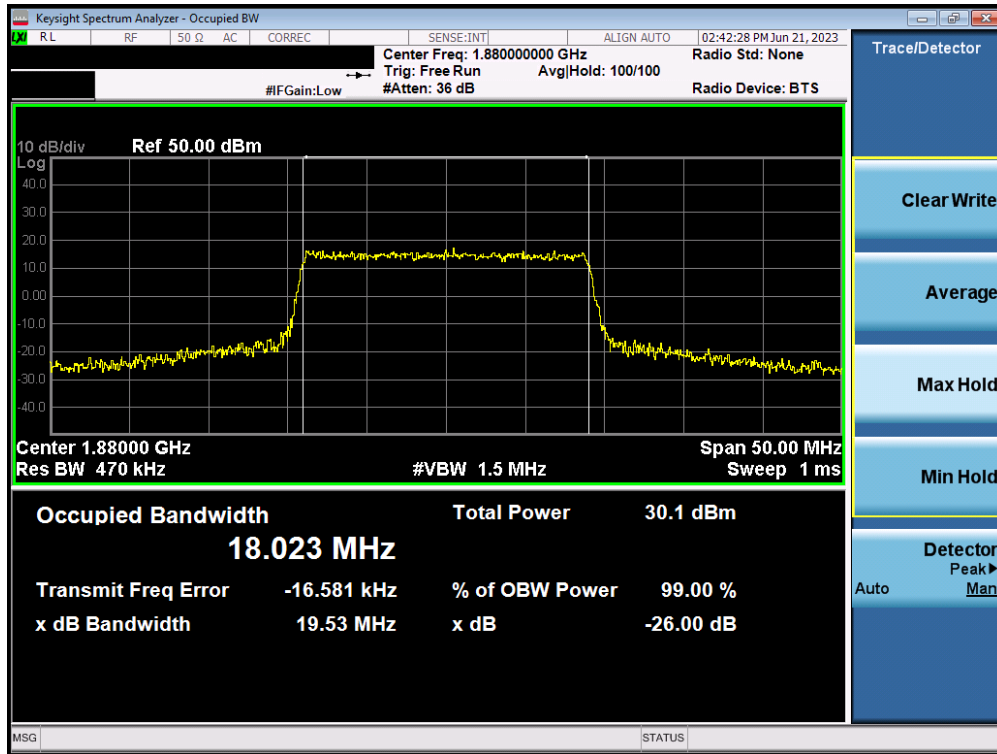
FCC ID: A3LSMF731JPN	PART 24 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2304260059-04.A3L	Test Dates: 6/15/2023 - 7/13/2023	EUT Type: Portable Handset	Page 13 of 71

Mode	Bandwidth	Modulation	OBW [MHz]
GSM-PCS	N/A	N/A	0.248
EDGE-PCS			0.246
LTE-B2	20 MHz	QPSK	18.023
		16QAM	17.971
	15 MHz	QPSK	13.539
		16QAM	13.540
	10 MHz	QPSK	9.023
		16QAM	9.043
	5 MHz	QPSK	4.517
		16QAM	4.530
	3 MHz	QPSK	2.717
		16QAM	2.724
	1.4 MHz	QPSK	1.104
		16QAM	1.110

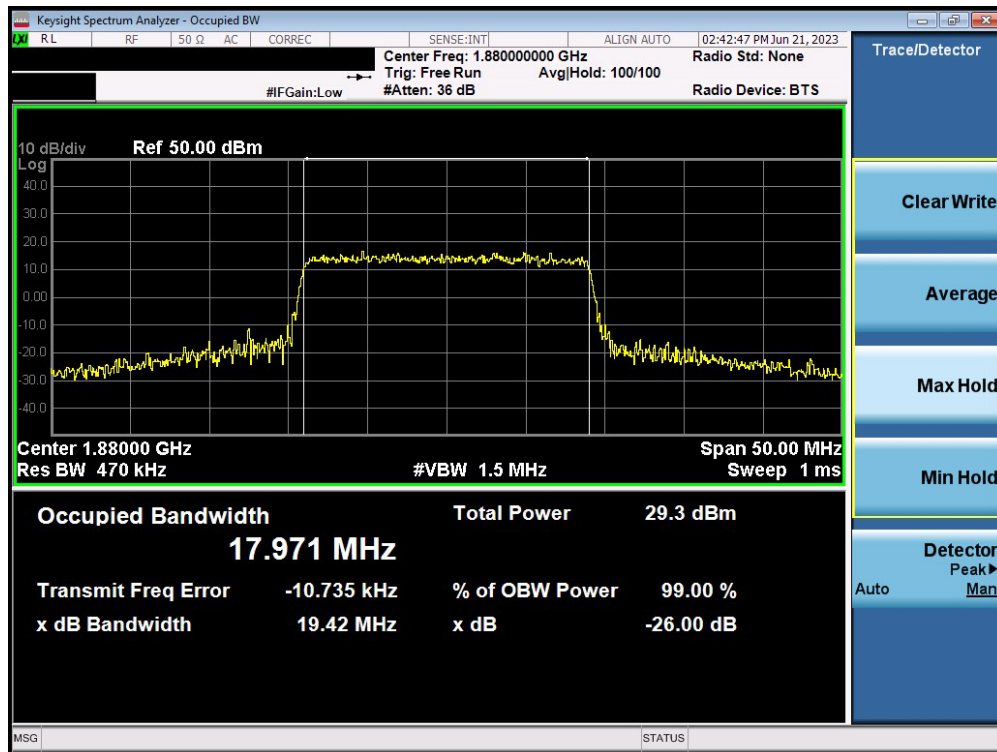
**Table 7-3. Occupied Bandwidth Test Results – Ant A**

<b>FCC ID:</b> A3LSMF731JPN	<b>PART 24 MEASUREMENT REPORT</b>		<b>Approved by:</b> Technical Manager
<b>Test Report S/N:</b> 1M2304260059-04.A3L	<b>Test Dates:</b> 6/15/2023 - 7/13/2023	<b>EUT Type:</b> Portable Handset	Page 14 of 71

## LTE Band 2 – Ant A

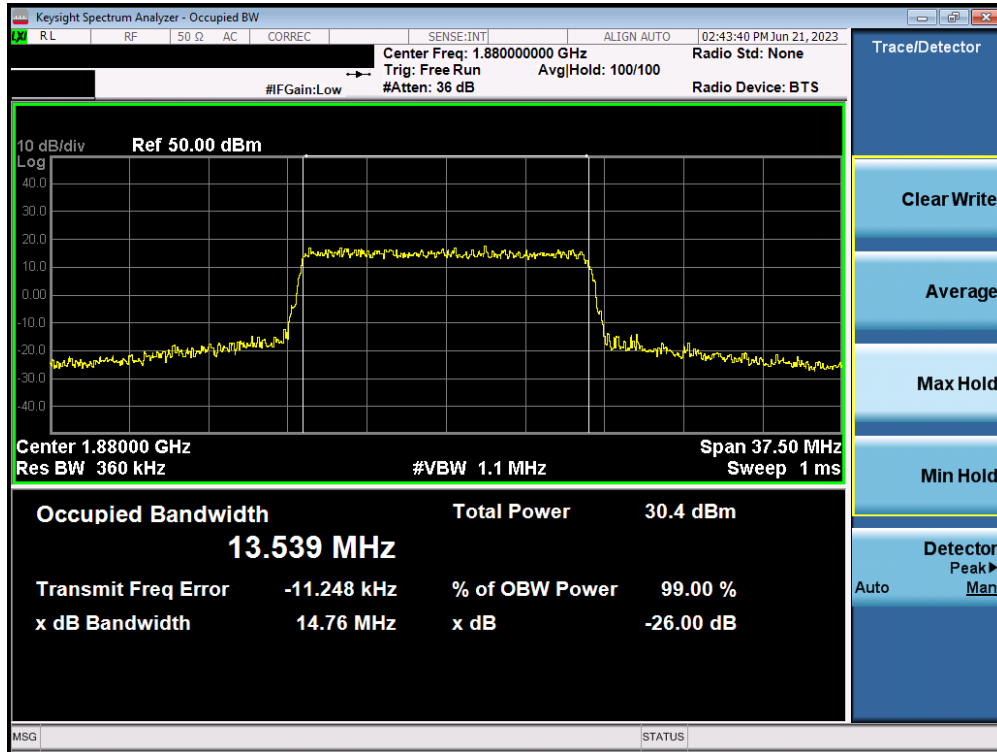


Plot 7-1. Occupied Bandwidth Plot (LTE Band 2 - 20MHz QPSK - Full RB – Ant A)

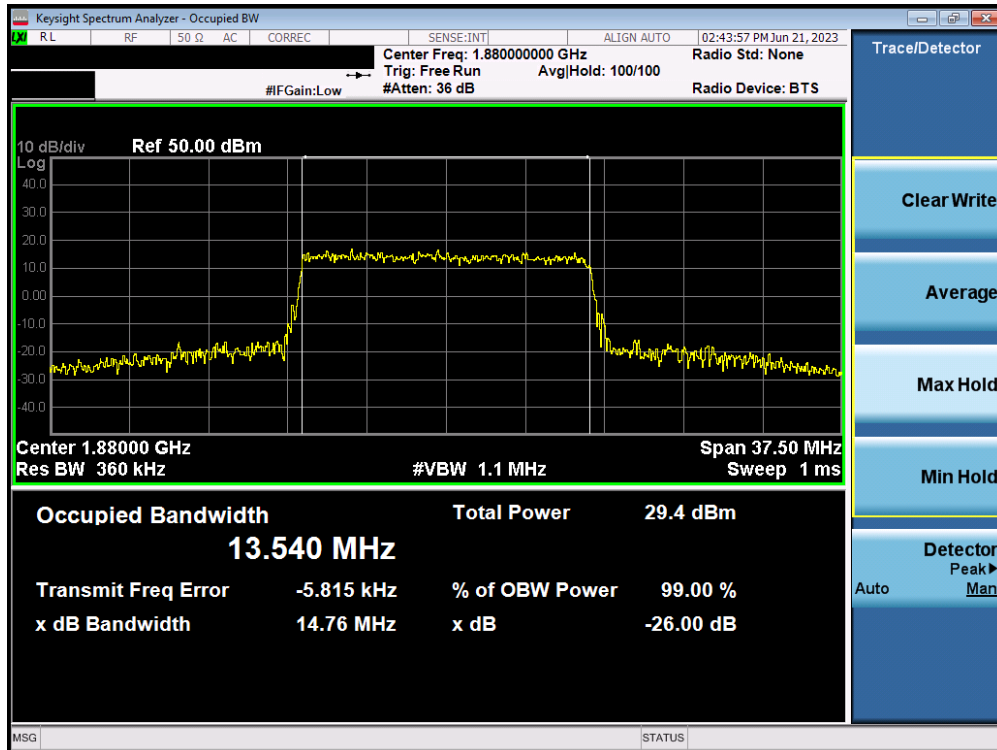


Plot 7-2. Occupied Bandwidth Plot (LTE Band 2 - 20MHz 16-QAM - Full RB – Ant A)

FCC ID: A3LSMF731JPN	PART 24 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2304260059-04.A3L	Test Dates: 6/15/2023 - 7/13/2023	EUT Type: Portable Handset	Page 15 of 71



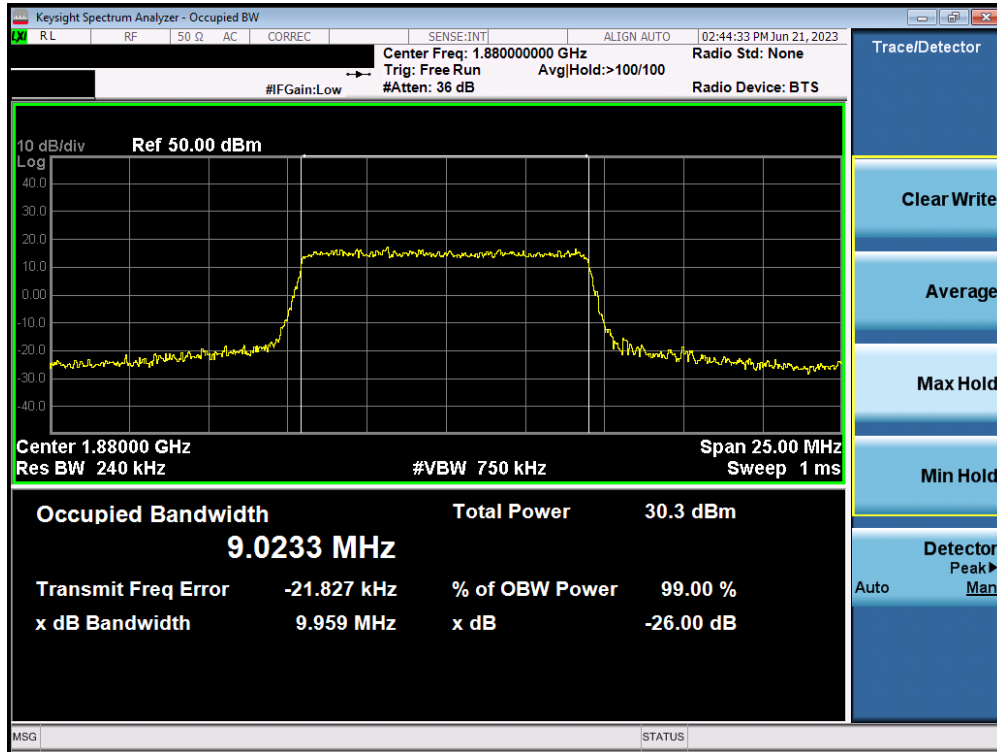
Plot 7-3. Occupied Bandwidth Plot (LTE Band 2 - 15MHz QPSK - Full RB – Ant A)



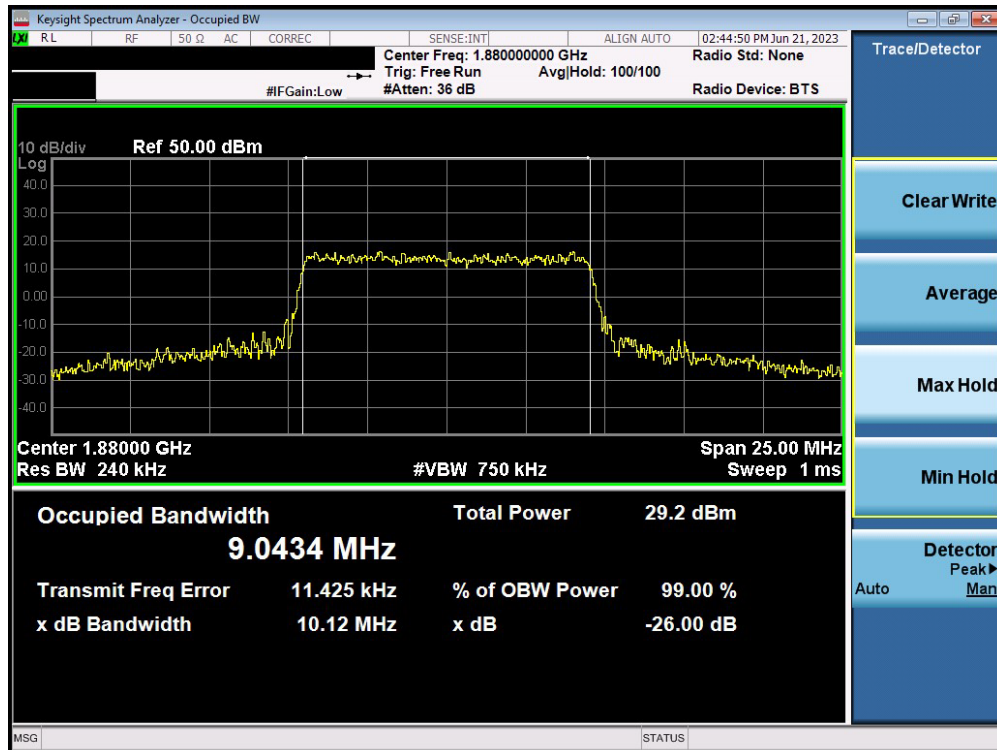
Plot 7-4. Occupied Bandwidth Plot (LTE Band 2 - 15MHz 16-QAM - Full RB – Ant A)

FCC ID: A3LSMF731JPN	PART 24 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2304260059-04.A3L	Test Dates: 6/15/2023 - 7/13/2023	EUT Type: Portable Handset	Page 16 of 71



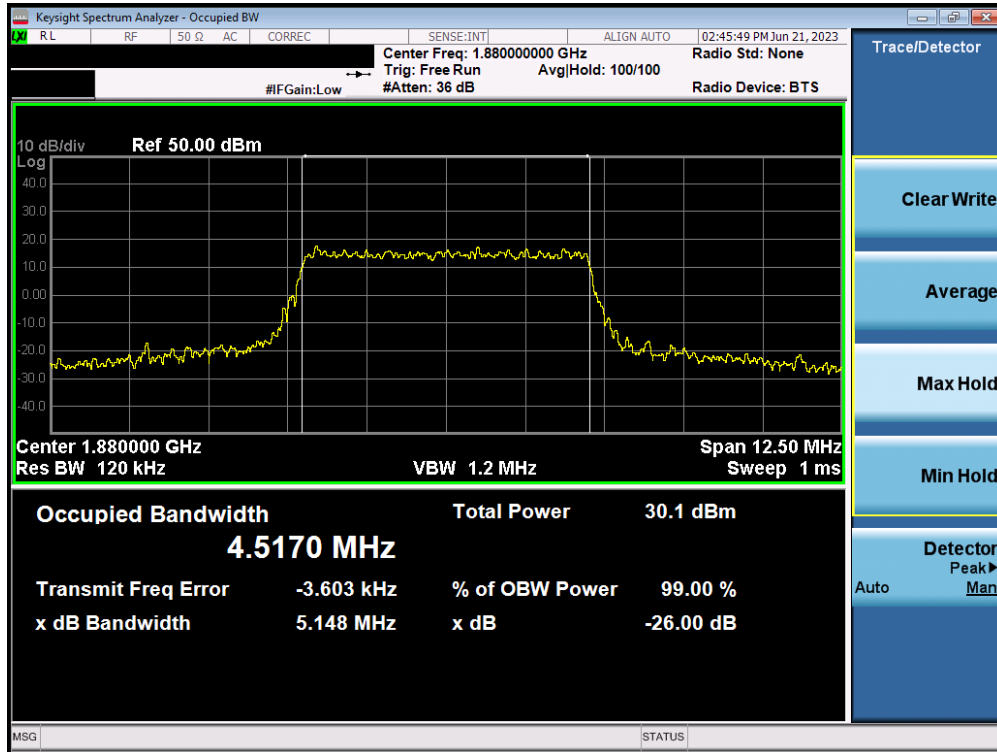


Plot 7-5. Occupied Bandwidth Plot (LTE Band 2 - 10MHz QPSK - Full RB – Ant A)

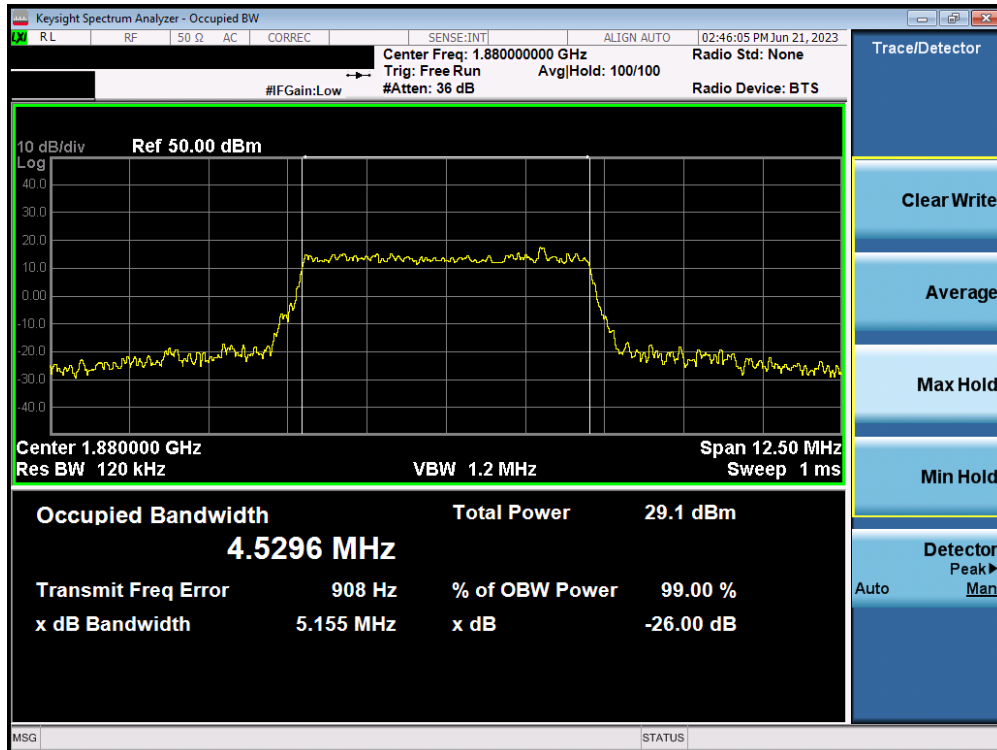


Plot 7-6. Occupied Bandwidth Plot (LTE Band 2 - 10MHz 16-QAM - Full RB – Ant A)

FCC ID: A3LSMF731JPN	PART 24 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2304260059-04.A3L	Test Dates: 6/15/2023 - 7/13/2023	EUT Type: Portable Handset	Page 17 of 71

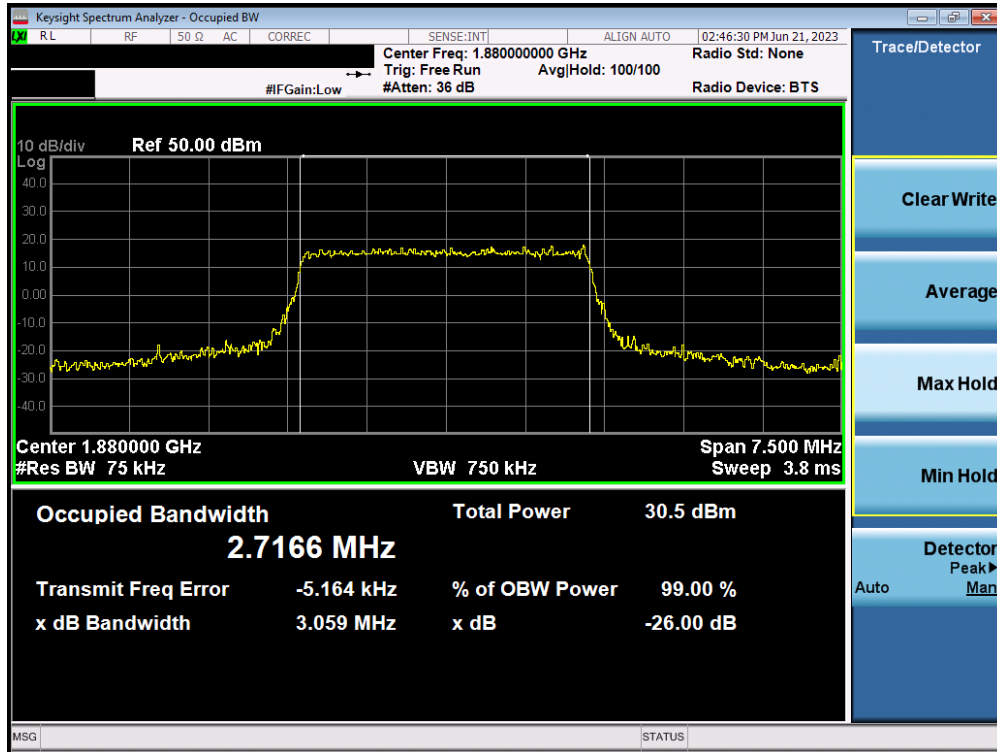


Plot 7-7. Occupied Bandwidth Plot (LTE Band 2 - 5MHz QPSK - Full RB – Ant A)

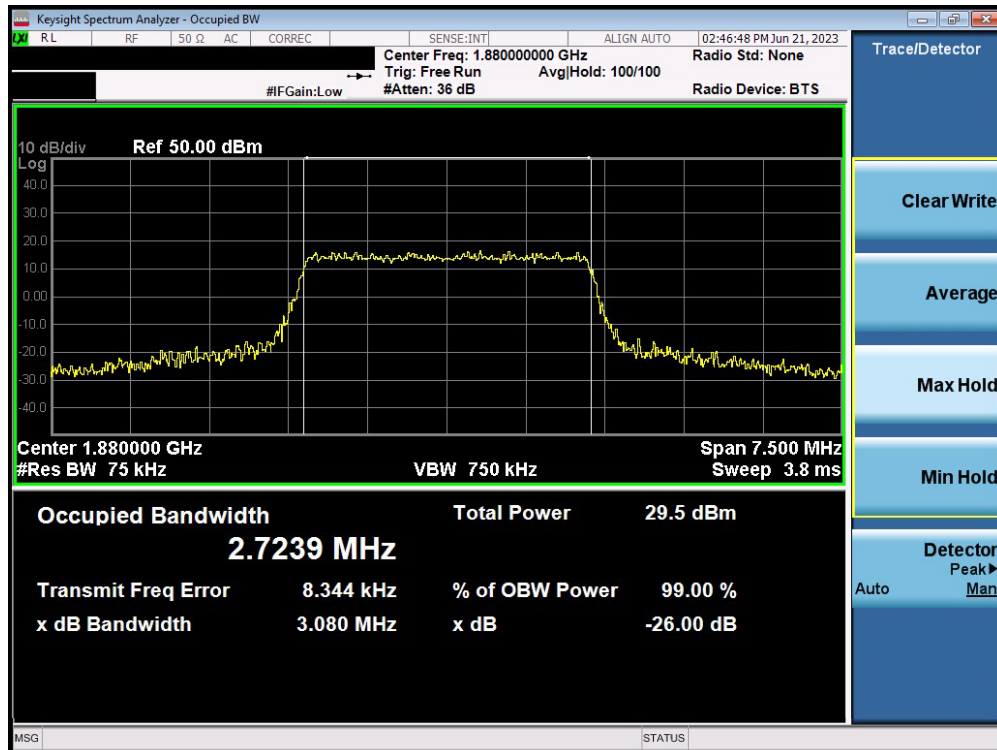


Plot 7-8. Occupied Bandwidth Plot (LTE Band 2 - 5MHz 16-QAM - Full RB – Ant A)

FCC ID: A3LSMF731JPN	PART 24 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2304260059-04.A3L	Test Dates: 6/15/2023 - 7/13/2023	EUT Type: Portable Handset	Page 18 of 71

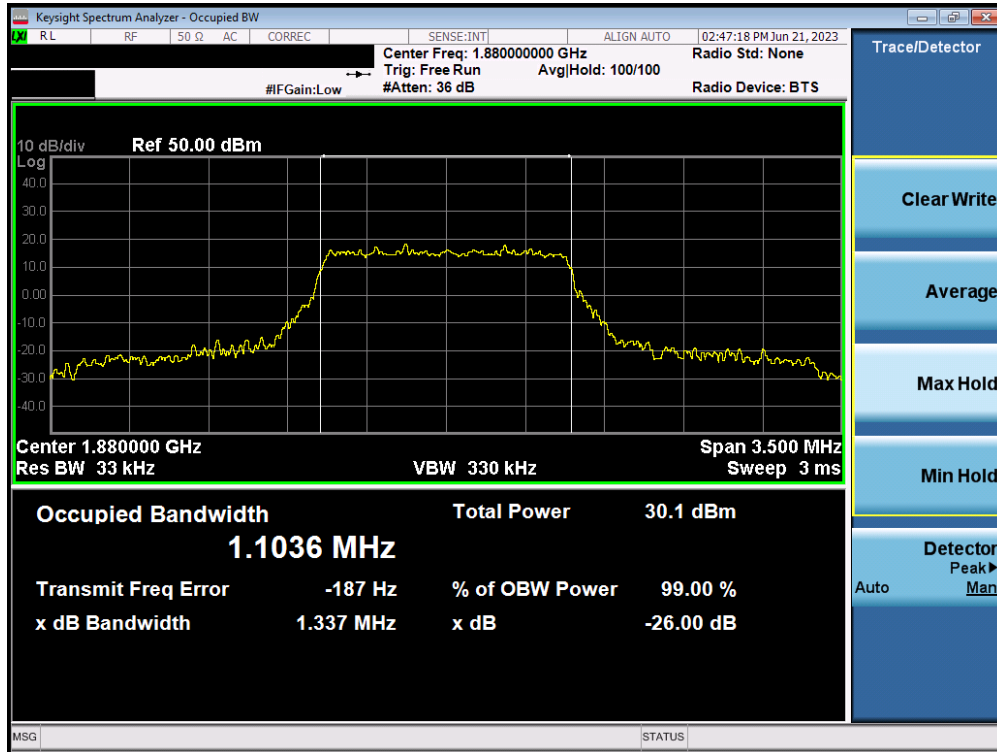


Plot 7-9. Occupied Bandwidth Plot (LTE Band 2 - 3MHz QPSK - Full RB - Ant A)

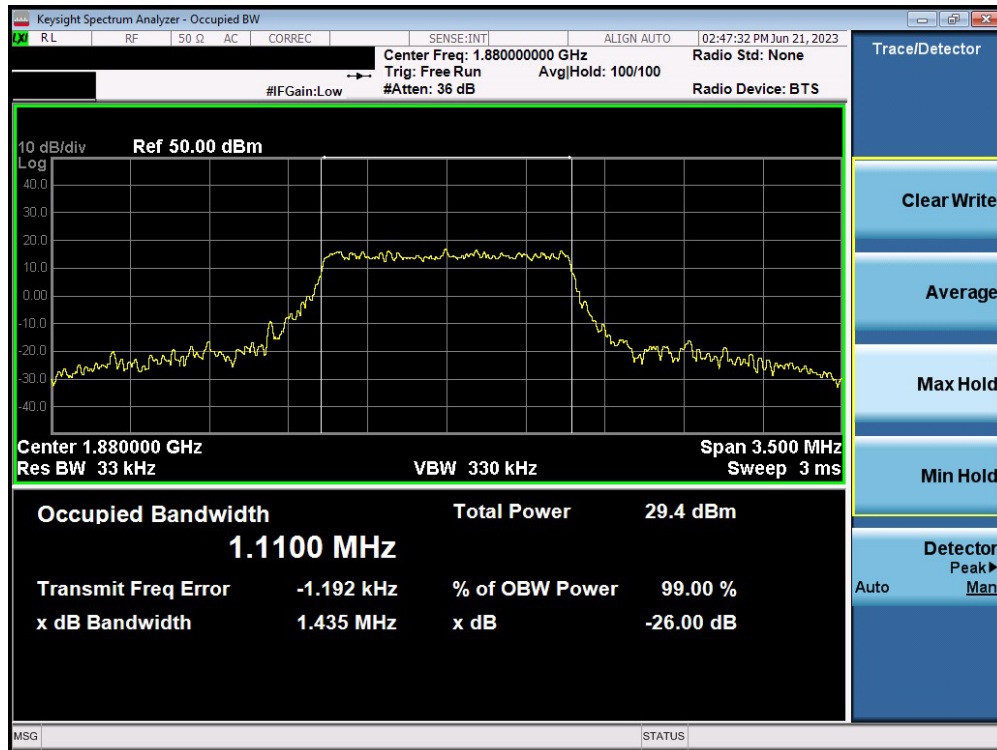


Plot 7-10. Occupied Bandwidth Plot (LTE Band 2 - 3MHz 16-QAM - Full RB - Ant A)

FCC ID: A3LSMF731JPN	PART 24 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2304260059-04.A3L	Test Dates: 6/15/2023 - 7/13/2023	EUT Type: Portable Handset	Page 19 of 71



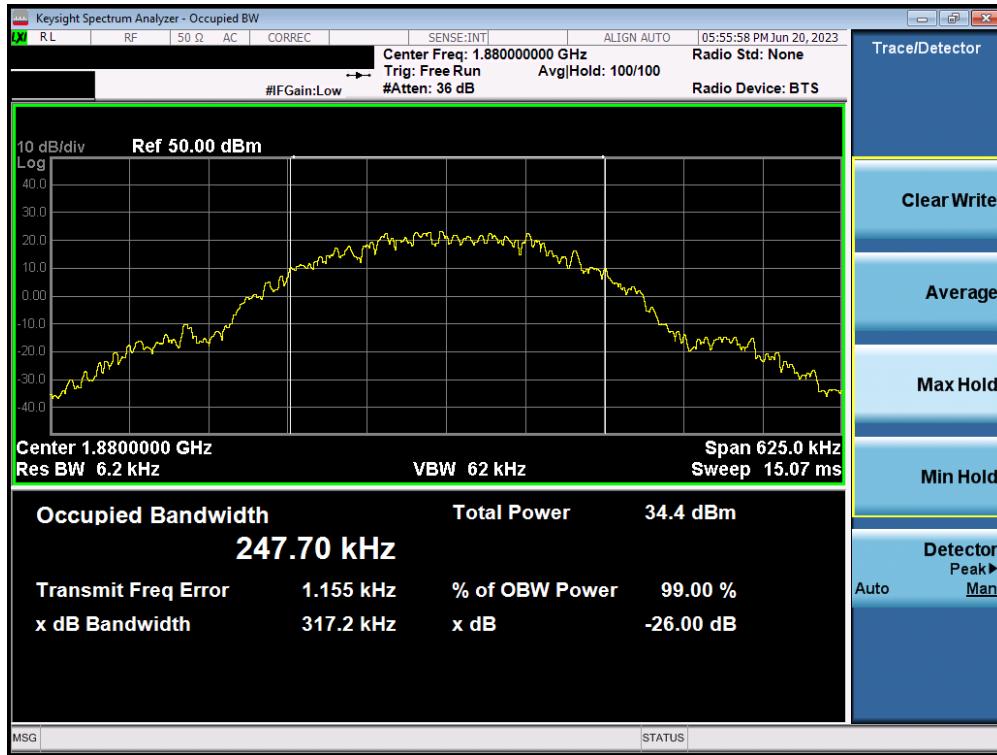
Plot 7-11. Occupied Bandwidth Plot (LTE Band 2 - 1.4MHz QPSK - Full RB - Ant A)



Plot 7-12. Occupied Bandwidth Plot (LTE Band 2 - 1.4MHz 16-QAM - Full RB - Ant A)

FCC ID: A3LSMF731JPN	PART 24 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2304260059-04.A3L	Test Dates: 6/15/2023 - 7/13/2023	EUT Type: Portable Handset	Page 20 of 71

# GSM/GPRS PCS – Ant A



Plot 7-13. Occupied Bandwidth Plot (GPRS, Ch. 661 – Ant A)



Plot 7-14. Occupied Bandwidth Plot (EDGE, Ch. 661 – Ant A)

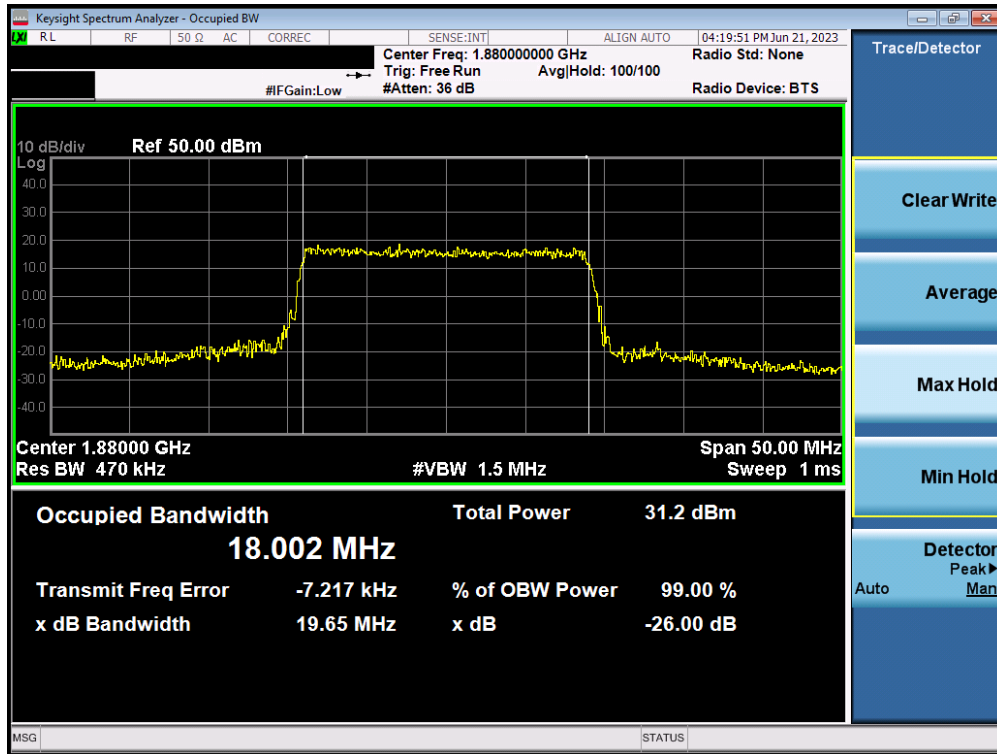
FCC ID: A3LSMF731JPN	PART 24 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2304260059-04.A3L	Test Dates: 6/15/2023 - 7/13/2023	EUT Type: Portable Handset	Page 21 of 71

Mode	Bandwidth	Modulation	OBW [MHz]
LTE-B2	20 MHz	QPSK	18.00
		16QAM	18.01
	15 MHz	QPSK	13.51
		16QAM	13.52
	10 MHz	QPSK	9.03
		16QAM	9.01
	5 MHz	QPSK	4.54
		16QAM	4.55
	3 MHz	QPSK	2.72
		16QAM	2.72
	1.4 MHz	QPSK	1.10
		16QAM	1.12

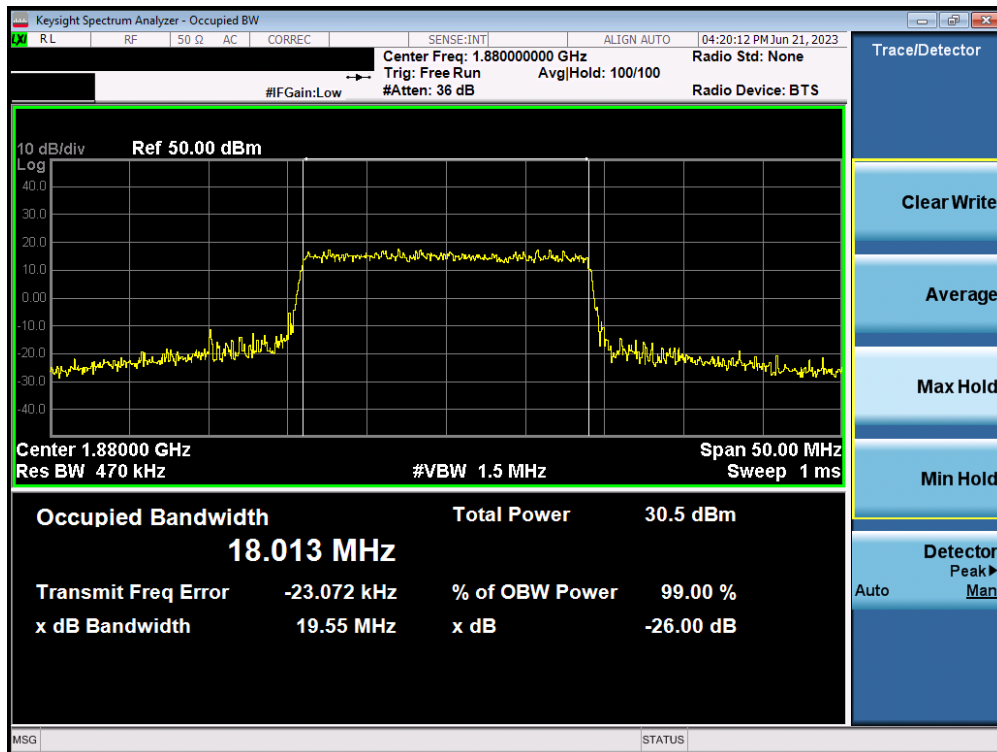
Table 7-4. Occupied Bandwidth Test Results – Ant I

FCC ID: A3LSMF731JPN	PART 24 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2304260059-04.A3L	Test Dates: 6/15/2023 - 7/13/2023	EUT Type: Portable Handset	Page 22 of 71

# LTE Band 2 – Ant I



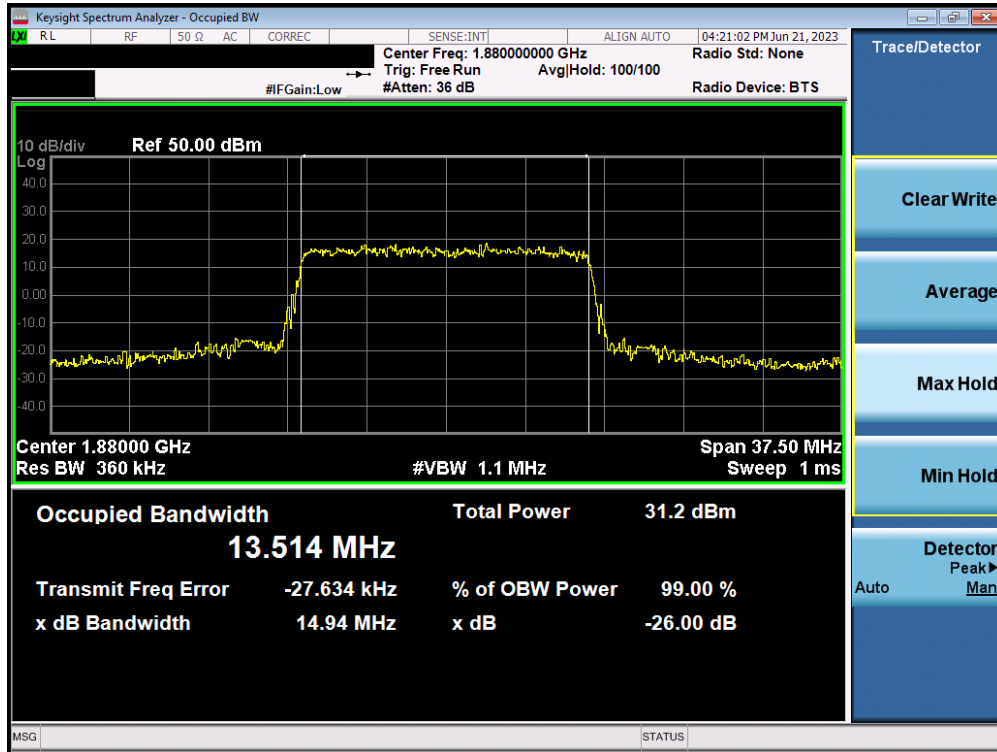
Plot 7-15. Occupied Bandwidth Plot (LTE Band 2 - 20MHz QPSK - Full RB – Ant I)



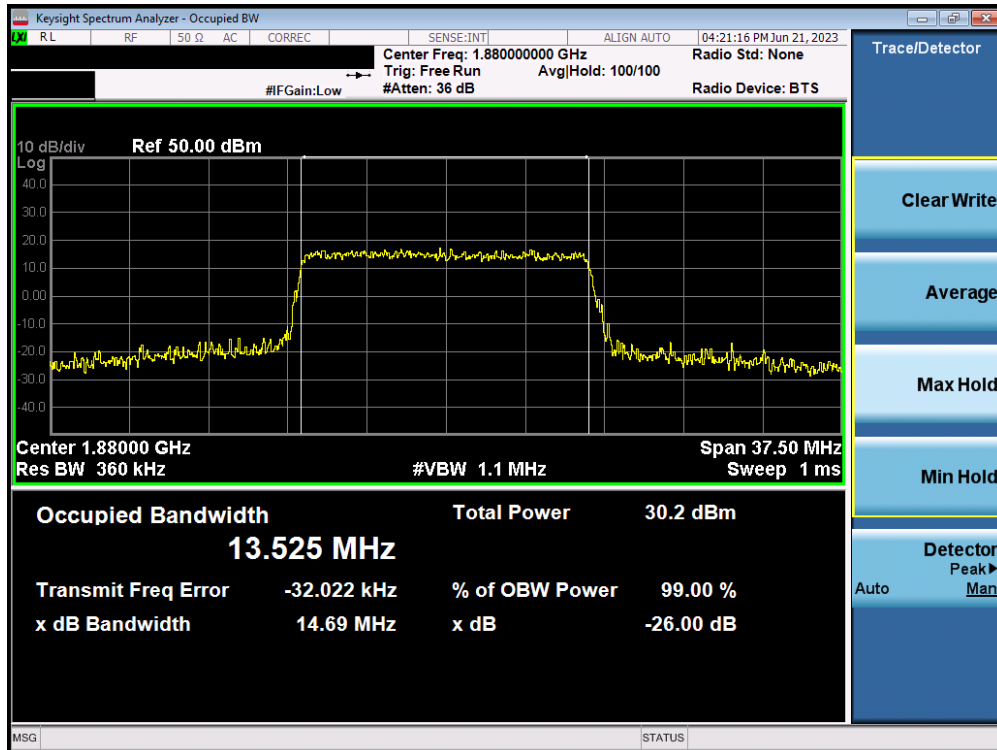
Plot 7-16. Occupied Bandwidth Plot (LTE Band 2 - 20MHz 16-QAM - Full RB – Ant I)

FCC ID: A3LSMF731JPN	PART 24 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2304260059-04.A3L	Test Dates: 6/15/2023 - 7/13/2023	EUT Type: Portable Handset	Page 23 of 71





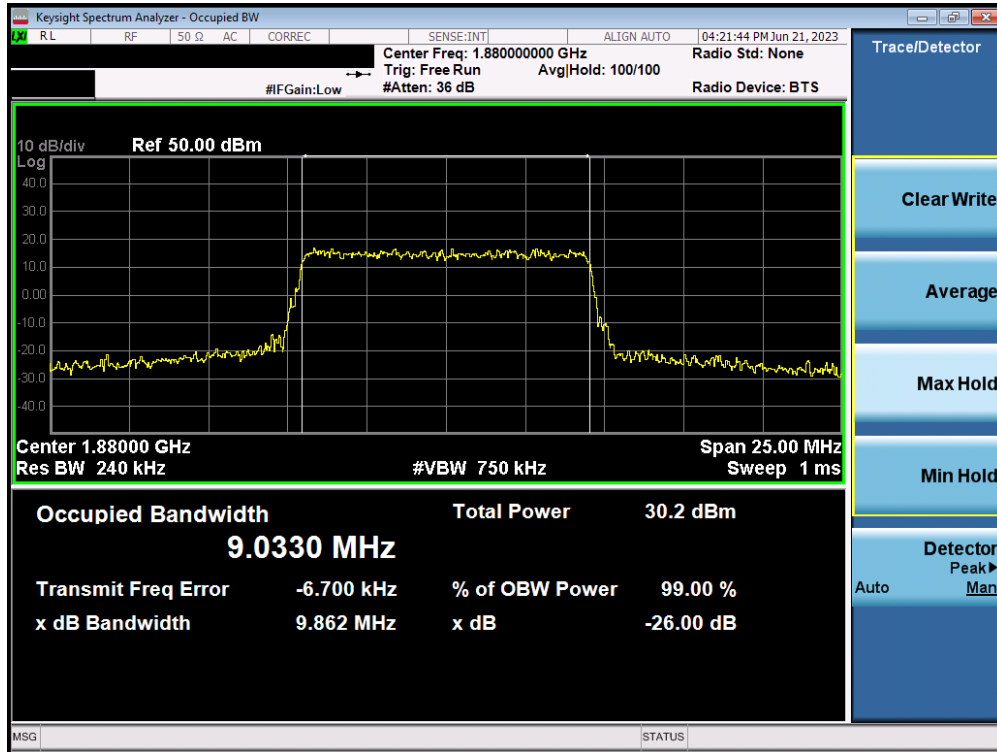
Plot 7-17. Occupied Bandwidth Plot (LTE Band 2 - 15MHz QPSK - Full RB – Ant I)



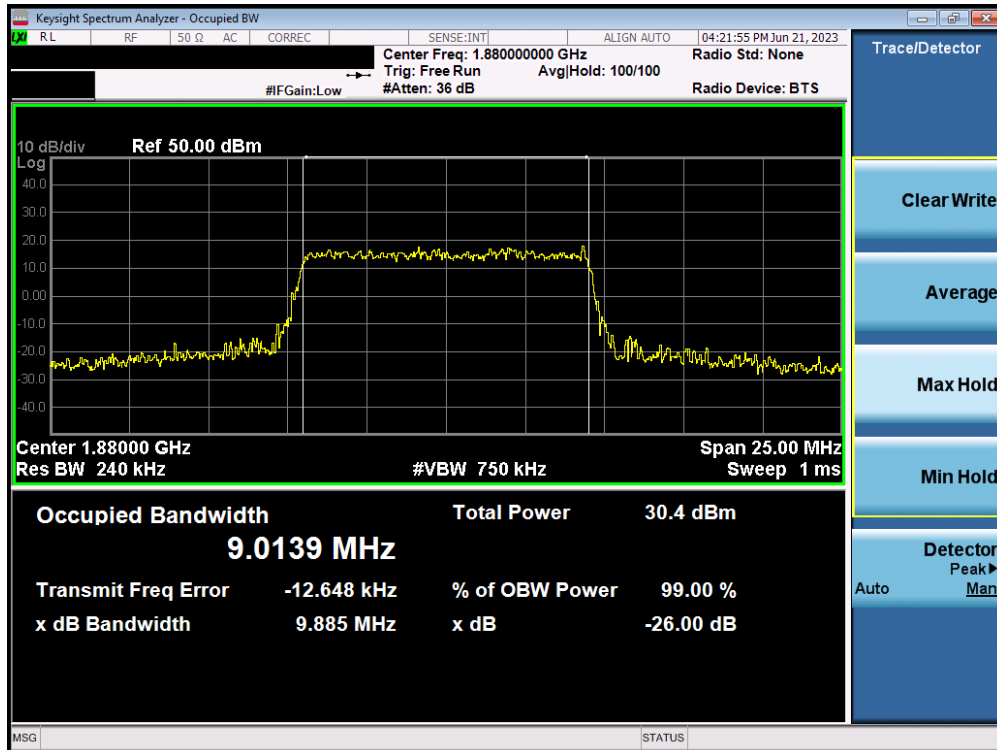
Plot 7-18. Occupied Bandwidth Plot (LTE Band 2 - 15MHz 16-QAM - Full RB – Ant I)

FCC ID: A3LSMF731JPN	PART 24 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2304260059-04.A3L	Test Dates: 6/15/2023 - 7/13/2023	EUT Type: Portable Handset	Page 24 of 71



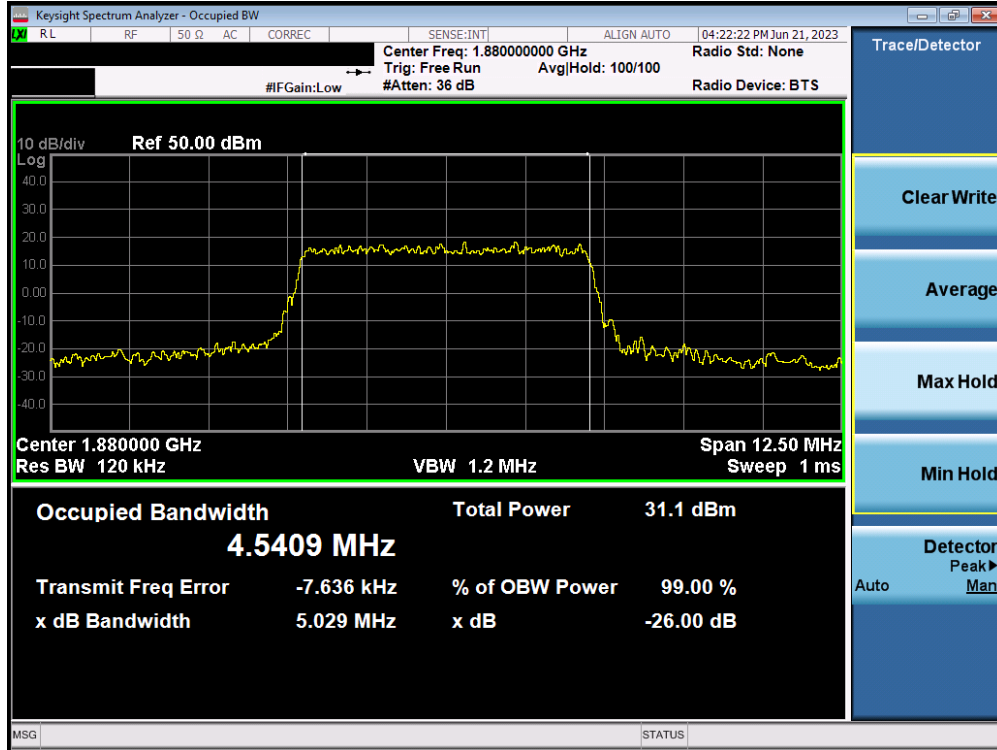


Plot 7-19. Occupied Bandwidth Plot (LTE Band 2 - 10MHz QPSK - Full RB – Ant I)

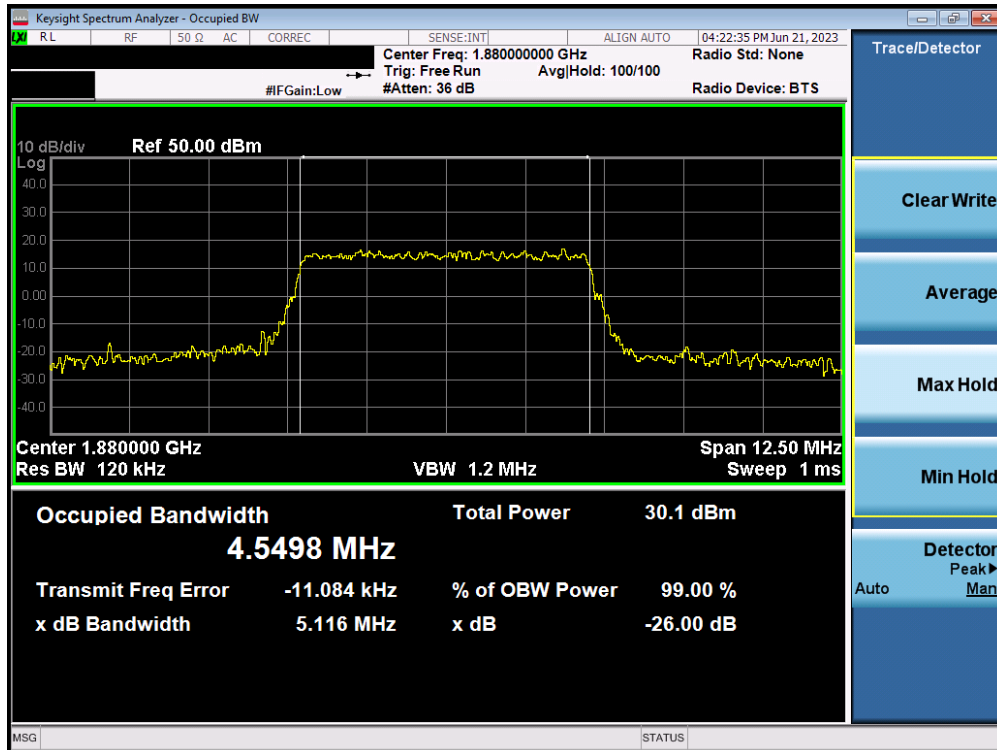


Plot 7-20. Occupied Bandwidth Plot (LTE Band 2 - 10MHz 16-QAM - Full RB – Ant I)

FCC ID: A3LSMF731JPN	PART 24 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2304260059-04.A3L	Test Dates: 6/15/2023 - 7/13/2023	EUT Type: Portable Handset	Page 25 of 71

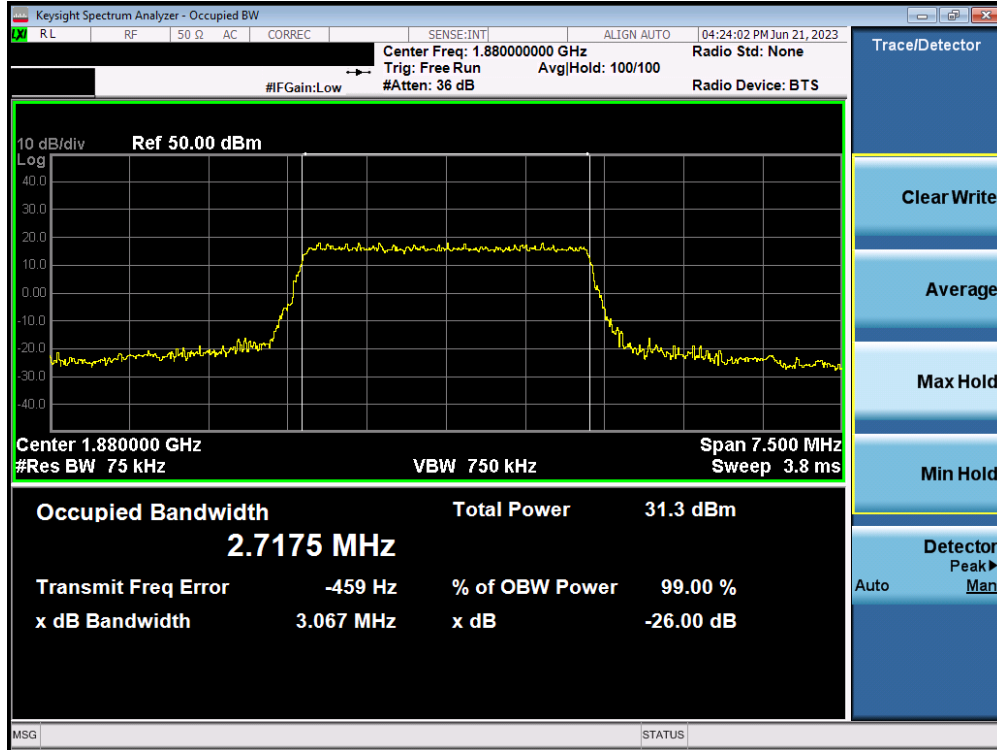


Plot 7-21. Occupied Bandwidth Plot (LTE Band 2 - 5MHz QPSK - Full RB – Ant I)

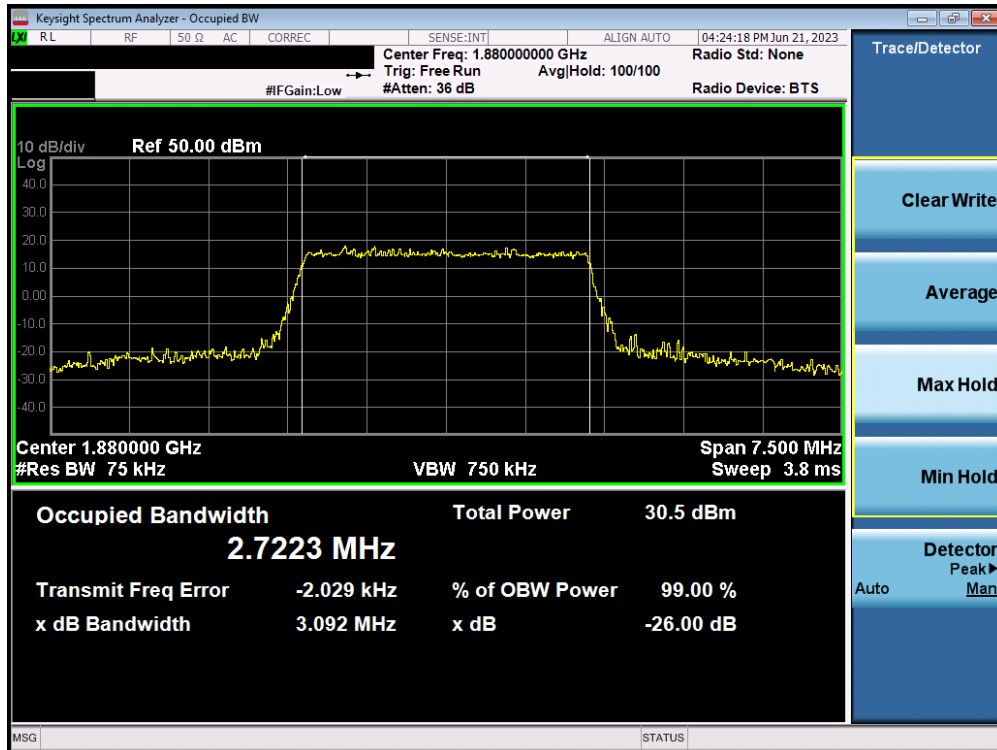


Plot 7-22. Occupied Bandwidth Plot (LTE Band 2 - 5MHz 16-QAM - Full RB – Ant I)

FCC ID: A3LSMF731JPN	PART 24 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2304260059-04.A3L	Test Dates: 6/15/2023 - 7/13/2023	EUT Type: Portable Handset	Page 26 of 71

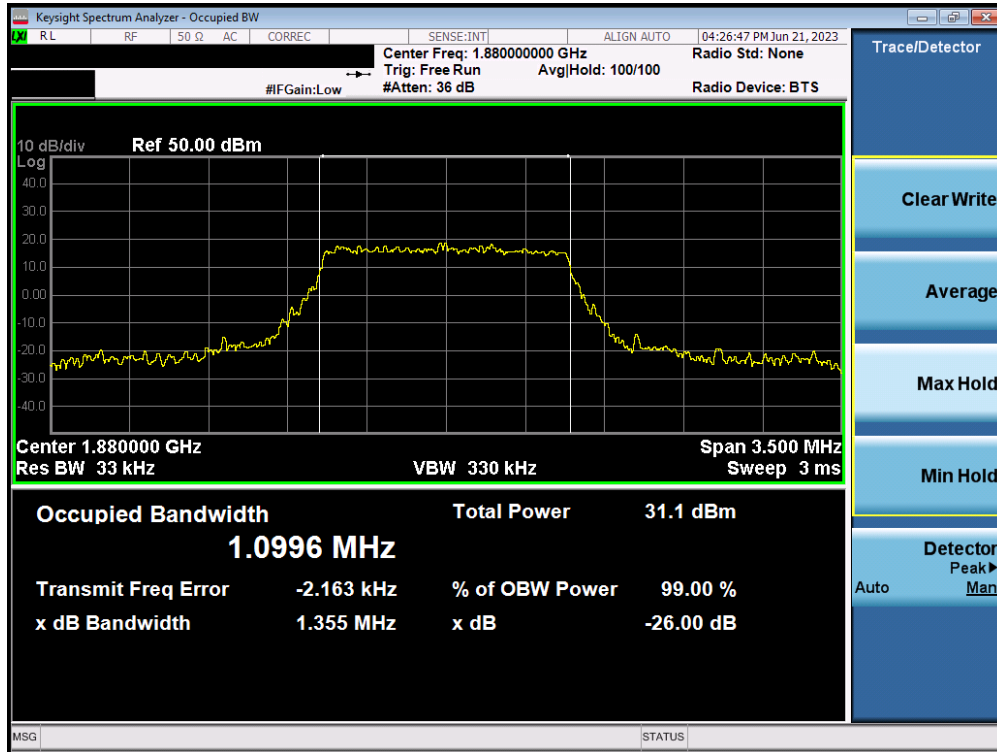


Plot 7-23. Occupied Bandwidth Plot (LTE Band 2 - 3MHz QPSK - Full RB – Ant I)

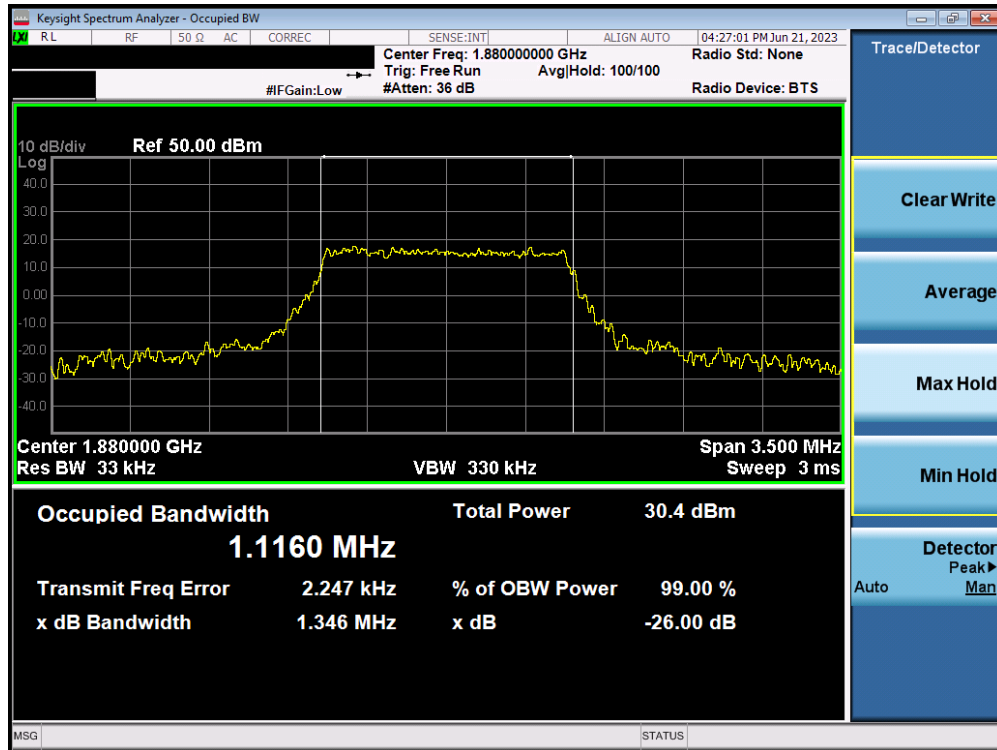


Plot 7-24. Occupied Bandwidth Plot (LTE Band 2 - 3MHz 16-QAM - Full RB – Ant I)

FCC ID: A3LSMF731JPN	PART 24 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2304260059-04.A3L	Test Dates: 6/15/2023 - 7/13/2023	EUT Type: Portable Handset	Page 27 of 71



Plot 7-25. Occupied Bandwidth Plot (LTE Band 2 - 1.4MHz QPSK - Full RB – Ant I)



Plot 7-26. Occupied Bandwidth Plot (LTE Band 2 - 1.4MHz 16-QAM - Full RB – Ant I)

FCC ID: A3LSMF731JPN	PART 24 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2304260059-04.A3L	Test Dates: 6/15/2023 - 7/13/2023	EUT Type: Portable Handset	Page 28 of 71

## 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 10<sup>th</sup> 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

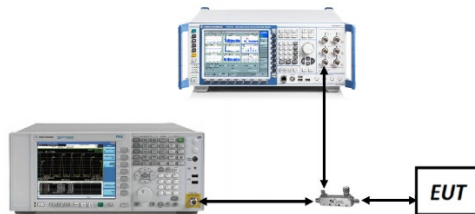
ANSI C63.26-2015 – Section 5.7.4

### Test Settings

1. Start frequency was set to 30MHz and stop frequency was set to 20GHz (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**

### Test Notes

Per Part 24 and RSS-133, compliance with the applicable limits is based on the use of measurement instrumentation employing a resolution bandwidth of 1 MHz.

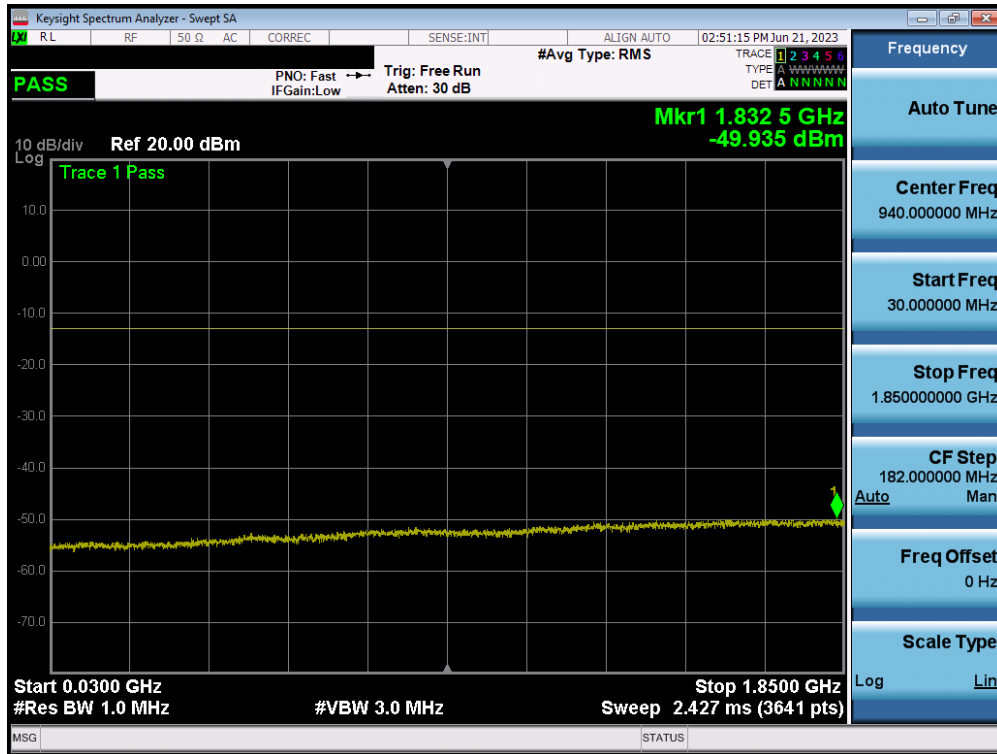
FCC ID: A3LSMF731JPN	PART 24 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2304260059-04.A3L	Test Dates: 6/15/2023 - 7/13/2023	EUT Type: Portable Handset	Page 29 of 71

Mode	Bandwidth	Channel	Range [MHz]	Level [dBm]	Limit [dBm]	Margin [dB]
GSM-PCS	250kHz	Low	30.0 - 1845.0	-35.05	-13.0	-22.05
		Low	1910.0 - 10000.0	-35.46	-13.0	-22.46
		Low	10000.0 - 20000.0	-48.77	-13.0	-35.77
		Mid	30.0 - 1850.0	-41.25	-13.0	-28.25
		Mid	1910.0 - 10000.0	-35.99	-13.0	-22.99
		Mid	10000.0 - 20000.0	-48.19	-13.0	-35.18
		High	30.0 - 1850.0	-41.93	-13.0	-28.93
		High	1915.0 - 10000.0	-35.92	-13.0	-22.92
		High	10000.0 - 20000.0	-48.89	-13.0	-35.89
LTE-B2	20MHz	Low	30.0 - 1849.0	-49.27	-13.0	-36.27
		Low	1910.0 - 10000.0	-43.54	-13.0	-30.54
		Low	10000.0 - 20000.0	-46.36	-13.0	-33.36
		Mid	30.0 - 1850.0	-49.78	-13.0	-36.78
		Mid	1910.0 - 10000.0	-43.56	-13.0	-30.56
		Mid	10000.0 - 20000.0	-46.26	-13.0	-33.26
		High	30.0 - 1850.0	-49.94	-13.0	-36.94
		High	1911.0 - 10000.0	-43.49	-13.0	-30.49
		High	10000.0 - 20000.0	-46.46	-13.0	-33.46

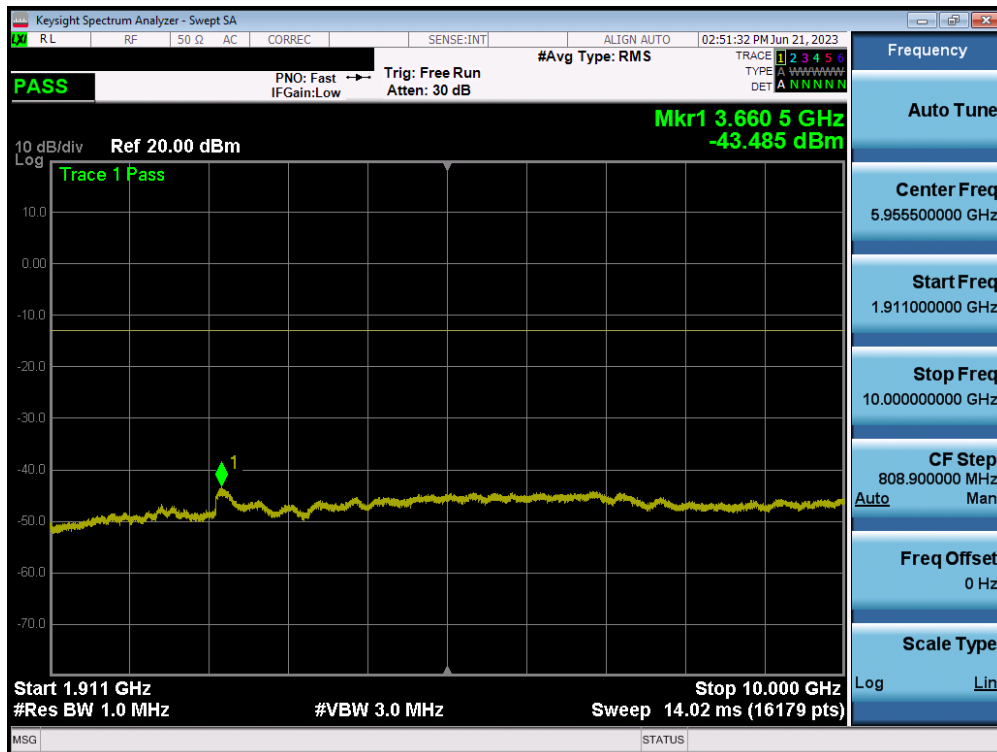
**Table 7-5. Conducted Spurious Emission Results – Ant A**

FCC ID: A3LSMF731JPN	PART 24 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2304260059-04.A3L	Test Dates: 6/15/2023 - 7/13/2023	EUT Type: Portable Handset	Page 30 of 71

## LTE Band 2 – Ant A

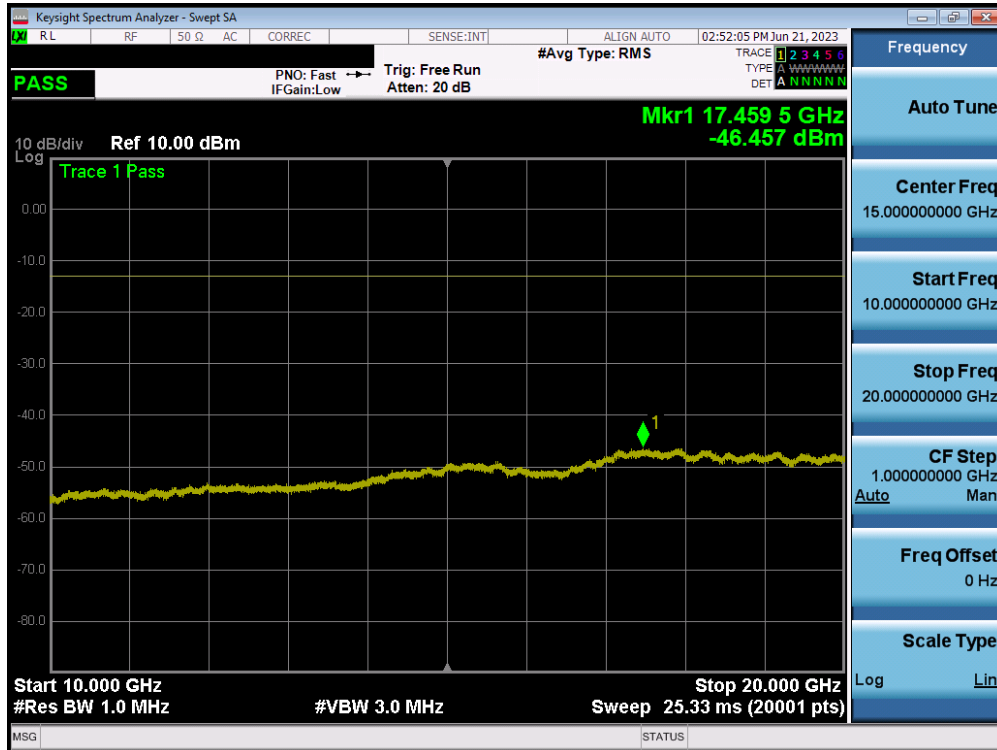


Plot 7-27. Conducted Spurious Plot (LTE Band 2 - 20MHz QPSK - 1RB - High Channel – Ant A)



Plot 7-28. Conducted Spurious Plot (LTE Band 2 - 20MHz QPSK - 1RB - High Channel – Ant A)

FCC ID: A3LSMF731JPN	PART 24 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2304260059-04.A3L	Test Dates: 6/15/2023 - 7/13/2023	EUT Type: Portable Handset	Page 31 of 71

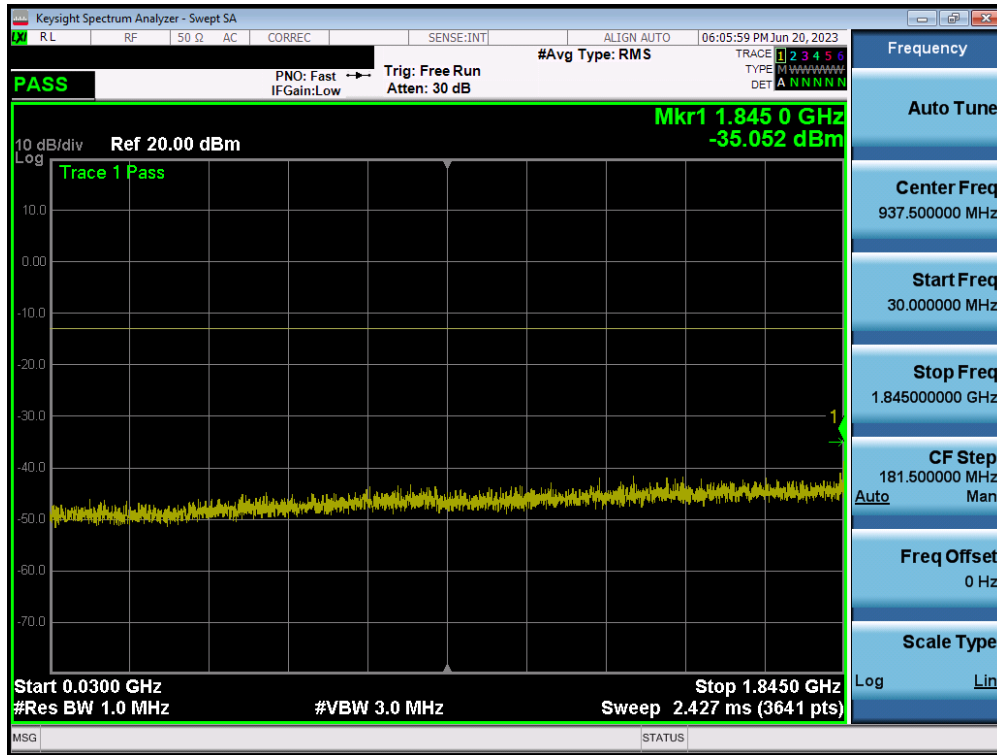


Plot 7-29. Conducted Spurious Plot (LTE Band 2 - 20MHz QPSK - 1RB - High Channel – Ant A)

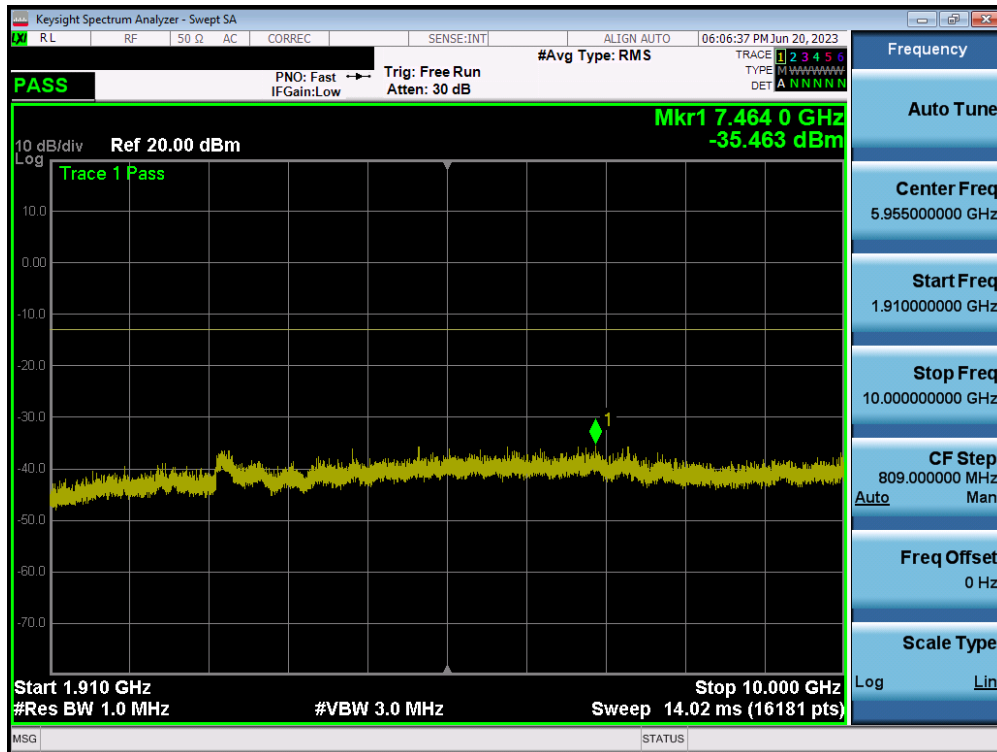
FCC ID: A3LSMF731JPN	PART 24 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2304260059-04.A3L	Test Dates: 6/15/2023 - 7/13/2023	EUT Type: Portable Handset	Page 32 of 71



# GSM/GPRS PCS – Ant A

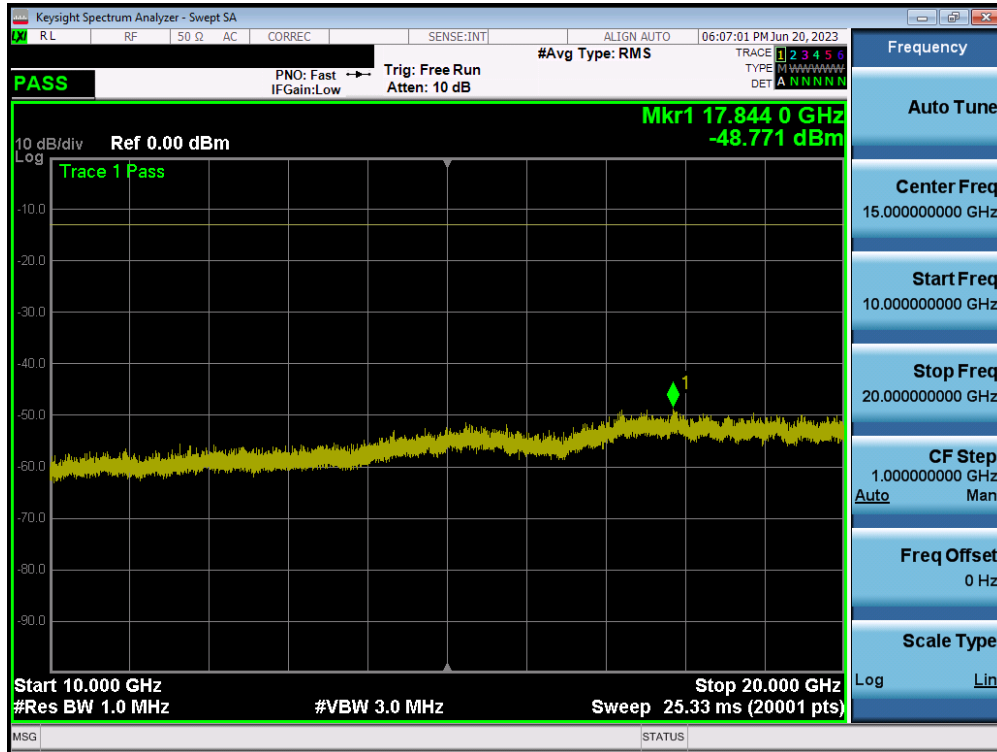


Plot 7-30. Conducted Spurious Plot (GPRS Ch. 512 – Ant A)



Plot 7-31. Conducted Spurious Plot (GPRS Ch. 512 – Ant A)

FCC ID: A3LSMF731JPN	PART 24 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2304260059-04.A3L	Test Dates: 6/15/2023 - 7/13/2023	EUT Type: Portable Handset	Page 33 of 71



Plot 7-32. Conducted Spurious Plot (GPRS Ch. 512 – Ant A)

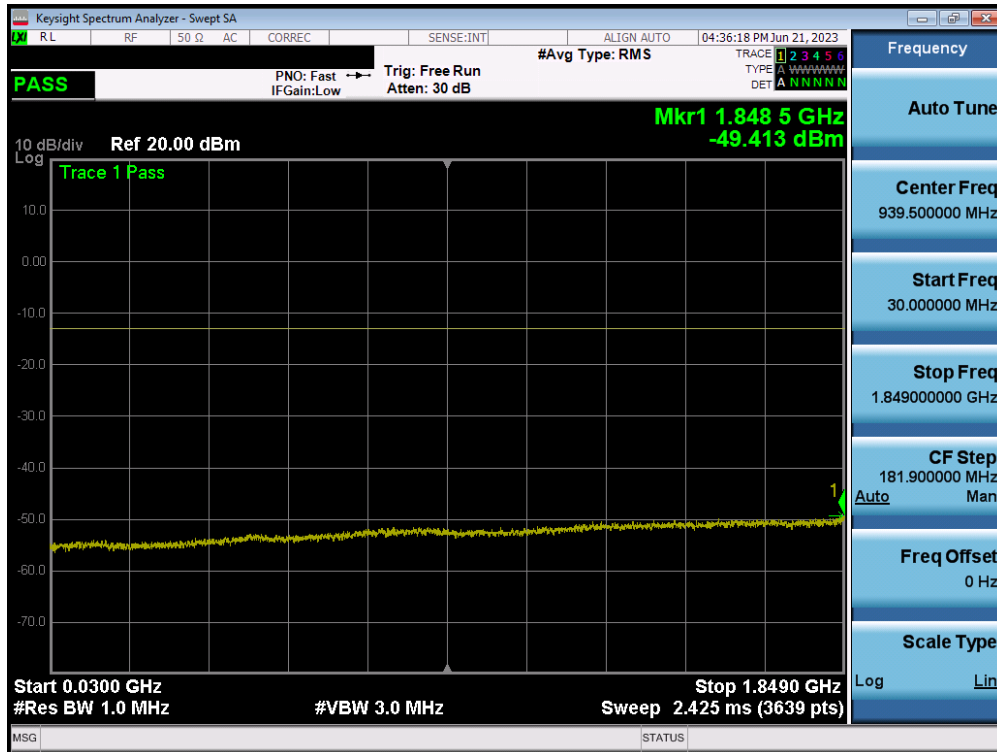
FCC ID: A3LSMF731JPN	PART 24 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2304260059-04.A3L	Test Dates: 6/15/2023 - 7/13/2023	EUT Type: Portable Handset	Page 34 of 71

Mode	Bandwidth	Channel	Range [MHz]	Level [dBm]	Limit [dBm]	Margin [dB]
LTE-B2	20MHz	Low	30.0 - 1849.0	-49.41	-13.0	-36.41
		Low	1910.0 - 10000.0	-43.54	-13.0	-30.54
		Low	10000.0 - 20000.0	-46.34	-13.0	-33.34
		Mid	30.0 - 1850.0	-49.54	-13.0	-36.54
		Mid	1910.0 - 10000.0	-43.78	-13.0	-30.78
		Mid	10000.0 - 20000.0	-46.39	-13.0	-33.39
		High	30.0 - 1850.0	-49.80	-13.0	-36.80
		High	1911.0 - 10000.0	-43.83	-13.0	-30.83
		High	10000.0 - 20000.0	-46.35	-13.0	-33.35

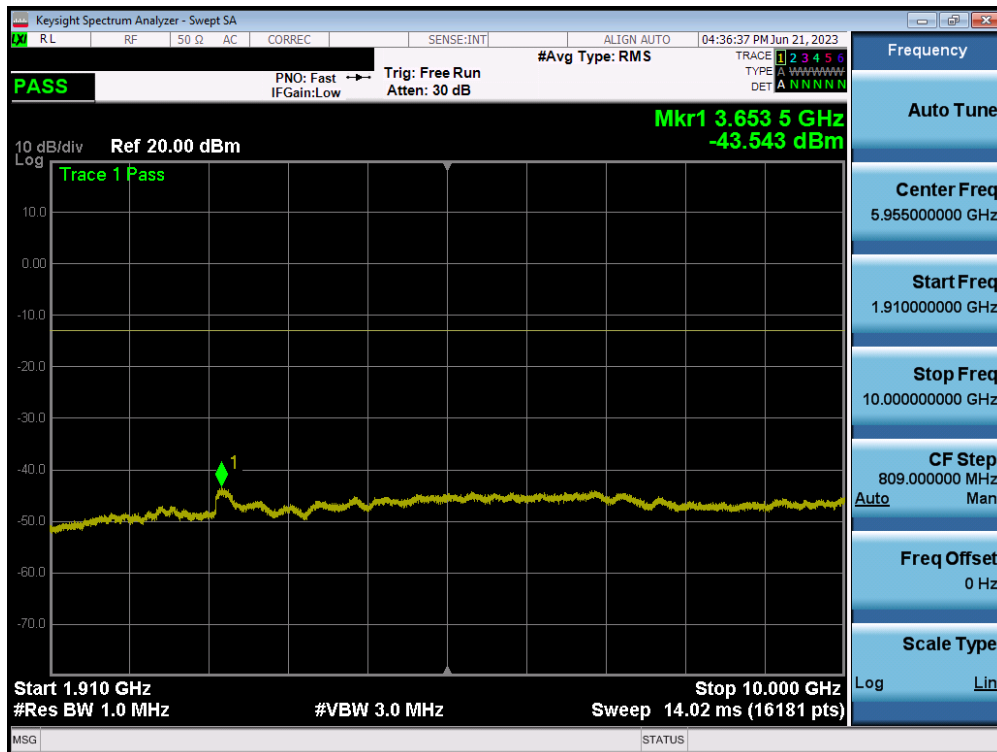
**Table 7-6. Conducted Spurious Emission Results – Ant I**

<b>FCC ID:</b> A3LSMF731JPN	<b>PART 24 MEASUREMENT REPORT</b>		<b>Approved by:</b> Technical Manager
<b>Test Report S/N:</b> 1M2304260059-04.A3L	<b>Test Dates:</b> 6/15/2023 - 7/13/2023	<b>EUT Type:</b> Portable Handset	Page 35 of 71

# LTE Band 2 – Ant I

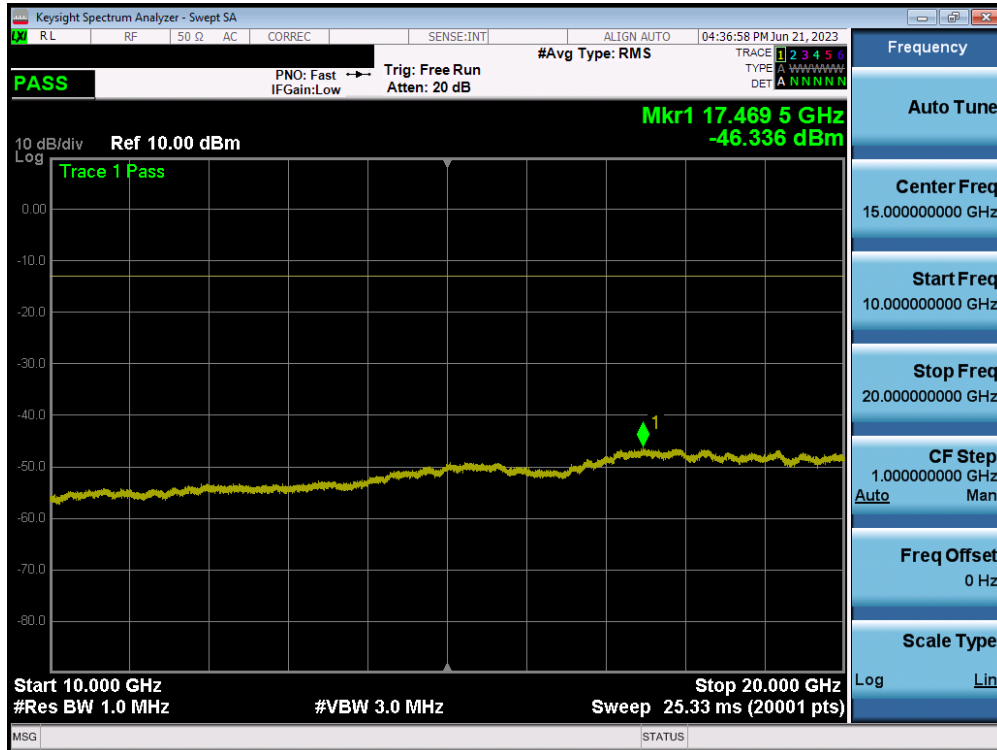


Plot 7-33. Conducted Spurious Plot (LTE Band 2 - 20MHz QPSK - 1RB - Low Channel – Ant I)



Plot 7-34. Conducted Spurious Plot (LTE Band 2 - 20MHz QPSK - 1RB - Low Channel – Ant I)

FCC ID: A3LSMF731JPN	PART 24 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2304260059-04.A3L	Test Dates: 6/15/2023 - 7/13/2023	EUT Type: Portable Handset	Page 36 of 71



Plot 7-35. Conducted Spurious Plot (LTE Band 2 - 20MHz QPSK - 1RB - Low Channel – Ant I)

FCC ID: A3LSMF731JPN	PART 24 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2304260059-04.A3L	Test Dates: 6/15/2023 - 7/13/2023	EUT Type: Portable Handset	Page 37 of 71

## 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 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

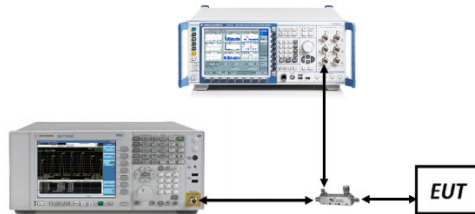
ANSI C63.26-2015 – Section 5.7.3

### 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 x RBW
5. Detector = RMS
6. Number of sweep points  $\geq$  2 x 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**

### Test Notes

Per 24.238(b) and RSS-133(6.5), 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.

FCC ID: A3LSMF731JPN	PART 24 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2304260059-04.A3L	Test Dates: 6/15/2023 - 7/13/2023	EUT Type: Portable Handset	Page 38 of 71

Mode	Channel	Test Case	Level [dBm]	Limit [dBm]	Margin [dB]
GSM1900	Low	Band Edge	-18.00	-13.0	-5.00
	High	Band Edge	-17.26	-13.0	-4.26

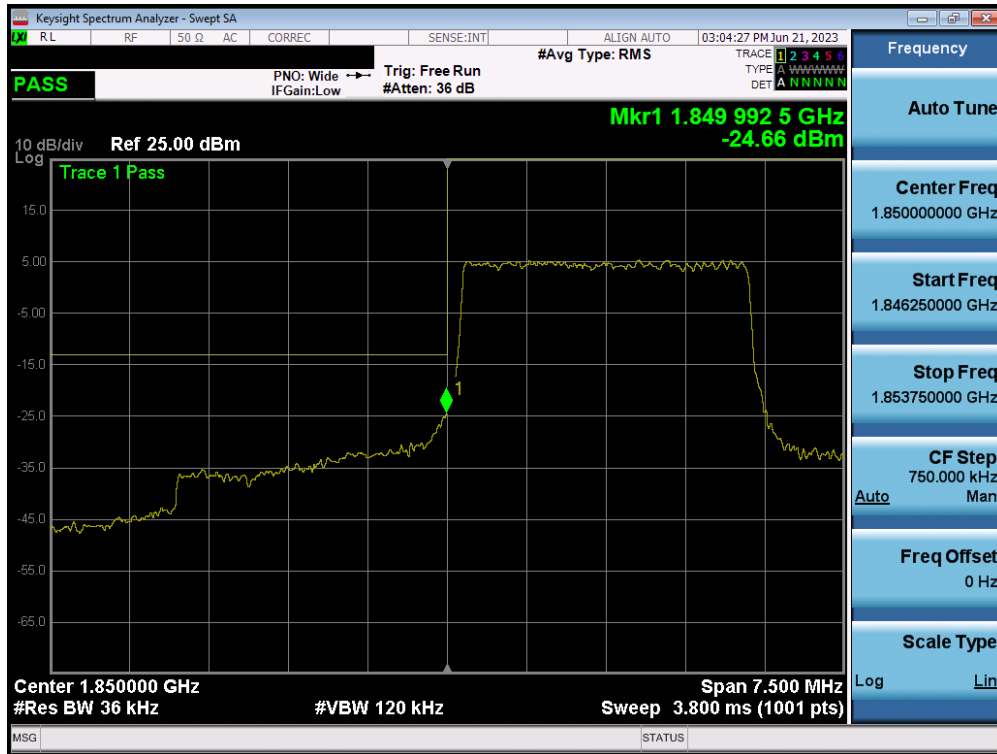
**Table 7-7. Band Edge Test Results – GSM/GPRS – Ant A**

Mode	Bandwidth	Channel	Test Case	Level [dBm]	Limit [dBm]	Margin [dB]
LTE-B2	20MHz	Low	Band Edge	-28.92	-13.0	-15.92
		Low	Extended	-25.61	-13.0	-12.61
		High	Band Edge	-31.74	-13.0	-18.74
		High	Extended	-26.35	-13.0	-13.35
	15MHz	Low	Band Edge	-28.56	-13.0	-15.56
		Low	Extended	-22.08	-13.0	-9.08
		High	Band Edge	-28.76	-13.0	-15.76
		High	Extended	-22.87	-13.0	-9.87
	10MHz	Low	Band Edge	-30.99	-13.0	-17.99
		Low	Extended	-24.12	-13.0	-11.12
		High	Band Edge	-33.32	-13.0	-20.32
		High	Extended	-24.40	-13.0	-11.40
	5MHz	Low	Band Edge	-24.50	-13.0	-11.50
		Low	Extended	-21.26	-13.0	-8.26
		High	Band Edge	-25.40	-13.0	-12.40
		High	Extended	-22.79	-13.0	-9.79
	3MHz	Low	Band Edge	-24.66	-13.0	-11.66
		Low	Extended	-20.88	-13.0	-7.88
		High	Band Edge	-24.06	-13.0	-11.06
		High	Extended	-22.34	-13.0	-9.34
	1.4MHz	Low	Band Edge	-25.30	-13.0	-12.29
		Low	Extended	-28.51	-13.0	-15.51
		High	Band Edge	-25.10	-13.0	-12.10
		High	Extended	-29.25	-13.0	-16.25

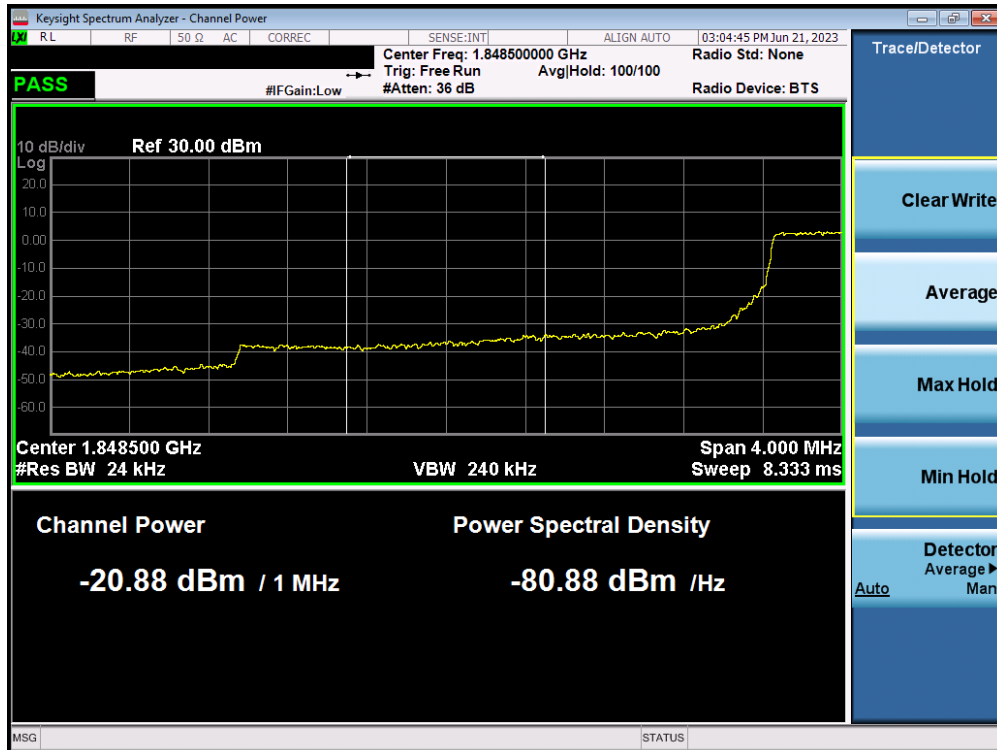
**Table 7-8. Band Edge Test Results – LTE B2 – Ant A**

FCC ID: A3LSMF731JPN	PART 24 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2304260059-04.A3L	Test Dates: 6/15/2023 - 7/13/2023	EUT Type: Portable Handset	Page 39 of 71

## LTE Band 2 – Ant A



Plot 7-36. Lower Band Edge Plot (LTE Band 2 - 3MHz QPSK – Full RB – Ant A)



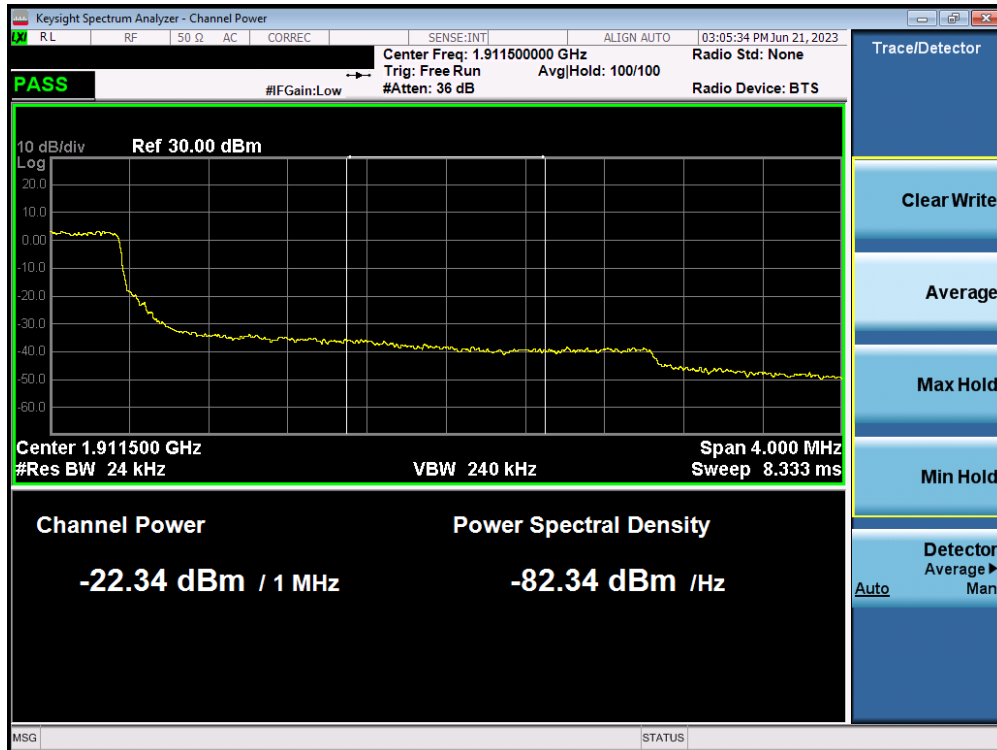
Plot 7-37. Extended Lower Band Edge Plot (LTE Band 2 - 3MHz QPSK – Full RB – Ant A)

FCC ID: A3LSMF731JPN	PART 24 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2304260059-04.A3L	Test Dates: 6/15/2023 - 7/13/2023	EUT Type: Portable Handset	Page 40 of 71





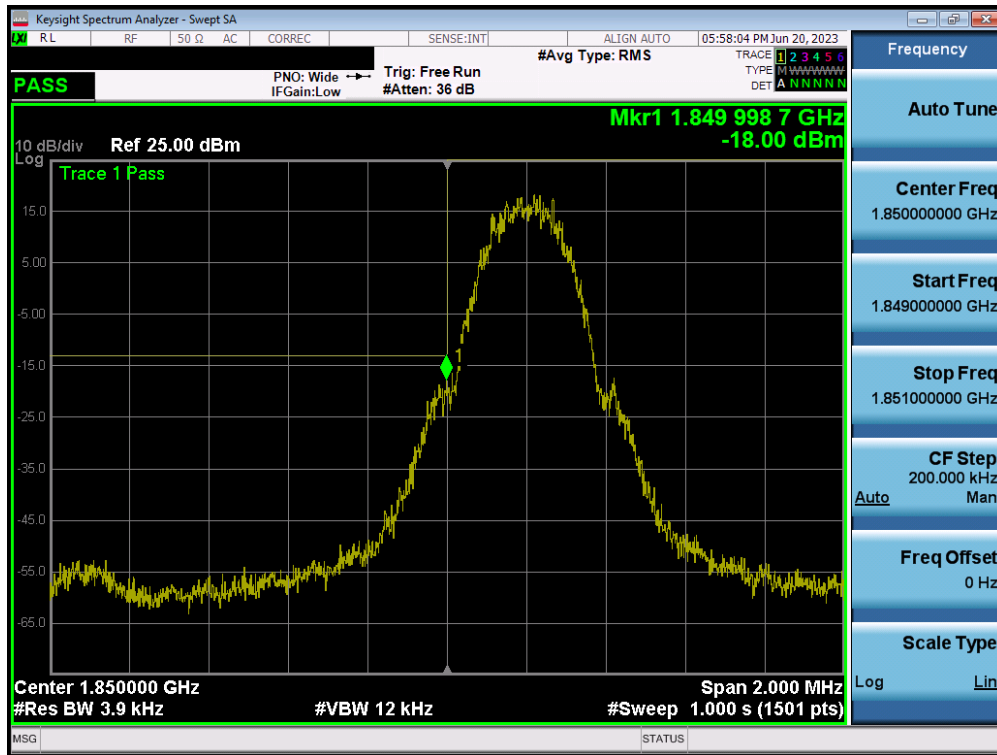
Plot 7-38. Upper Band Edge Plot (LTE Band 2 - 3MHz QPSK – Full RB – Ant A)



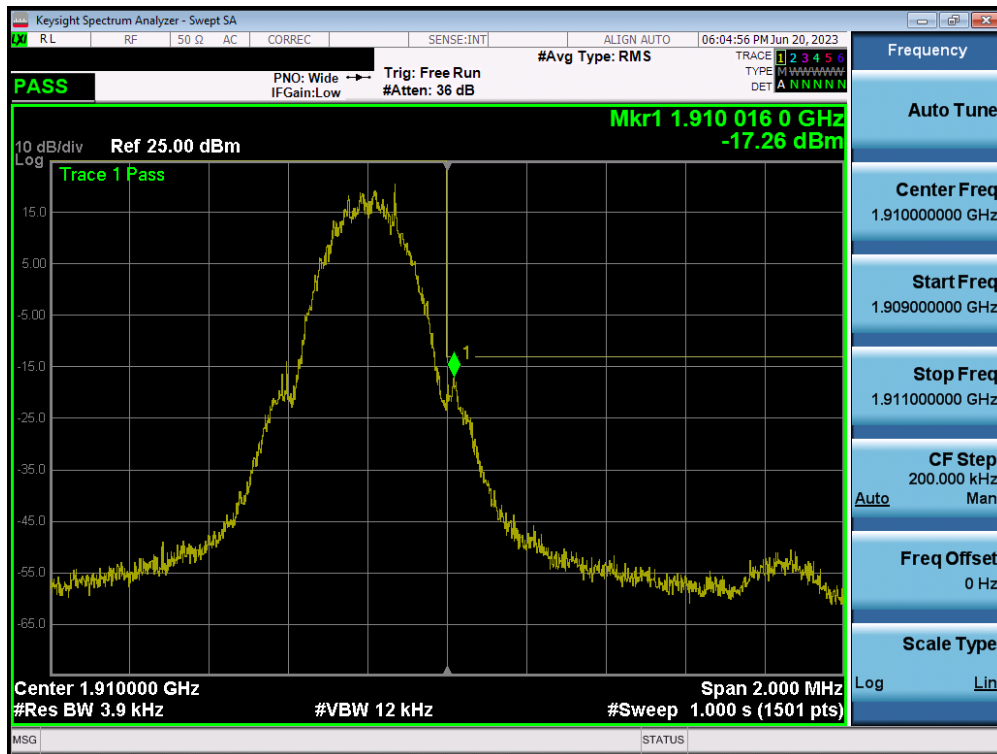
Plot 7-39. Extended Upper Band Edge Plot (LTE Band 2 - 3MHz QPSK – Full RB – Ant A)

FCC ID: A3LSMF731JPN	PART 24 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2304260059-04.A3L	Test Dates: 6/15/2023 - 7/13/2023	EUT Type: Portable Handset	Page 41 of 71

# GSM/GPRS PCS – Ant A



Plot 7-40. Lower Band Edge Plot (GPRS PCS – Ch. 512 – Ant A)



Plot 7-41. Upper Band Edge Plot (GPRS PCS – Ch. 810 – Ant A)

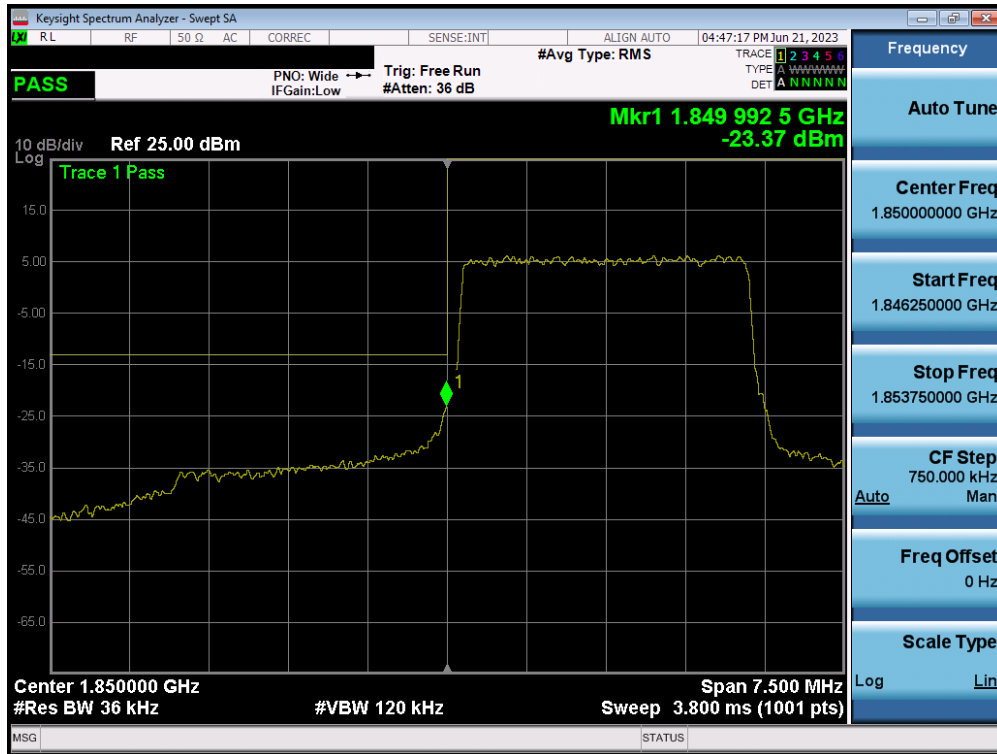
FCC ID: A3LSMF731JPN	PART 24 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2304260059-04.A3L	Test Dates: 6/15/2023 - 7/13/2023	EUT Type: Portable Handset	Page 42 of 71

Mode	Bandwidth	Channel	Test Case	Level [dBm]	Limit [dBm]	Margin [dB]
LTE-B2	20MHz	Low	Band Edge	-28.92	-13.0	-15.92
		Low	Extended	-25.08	-13.0	-12.08
		High	Band Edge	-32.08	-13.0	-19.08
		High	Extended	-26.53	-13.0	-13.53
	15MHz	Low	Band Edge	-29.72	-13.0	-16.72
		Low	Extended	-22.37	-13.0	-9.37
		High	Band Edge	-29.66	-13.0	-16.66
		High	Extended	-23.18	-13.0	-10.18
	10MHz	Low	Band Edge	-29.42	-13.0	-16.42
		Low	Extended	-21.15	-13.0	-8.15
		High	Band Edge	-29.60	-13.0	-16.60
		High	Extended	-22.66	-13.0	-9.66
	5MHz	Low	Band Edge	-24.32	-13.0	-11.32
		Low	Extended	-21.69	-13.0	-8.69
		High	Band Edge	-24.17	-13.0	-11.17
		High	Extended	-21.70	-13.0	-8.70
	3MHz	Low	Band Edge	-23.37	-13.0	-10.37
		Low	Extended	-21.32	-13.0	-8.32
		High	Band Edge	-22.35	-13.0	-9.35
		High	Extended	-20.03	-13.0	-7.03
1.4MHz	Low	Band Edge	-23.52	-13.0	-10.52	
	Low	Extended	-25.45	-13.0	-12.45	
	High	Band Edge	-24.08	-13.0	-11.08	
	High	Extended	-24.69	-13.0	-11.69	

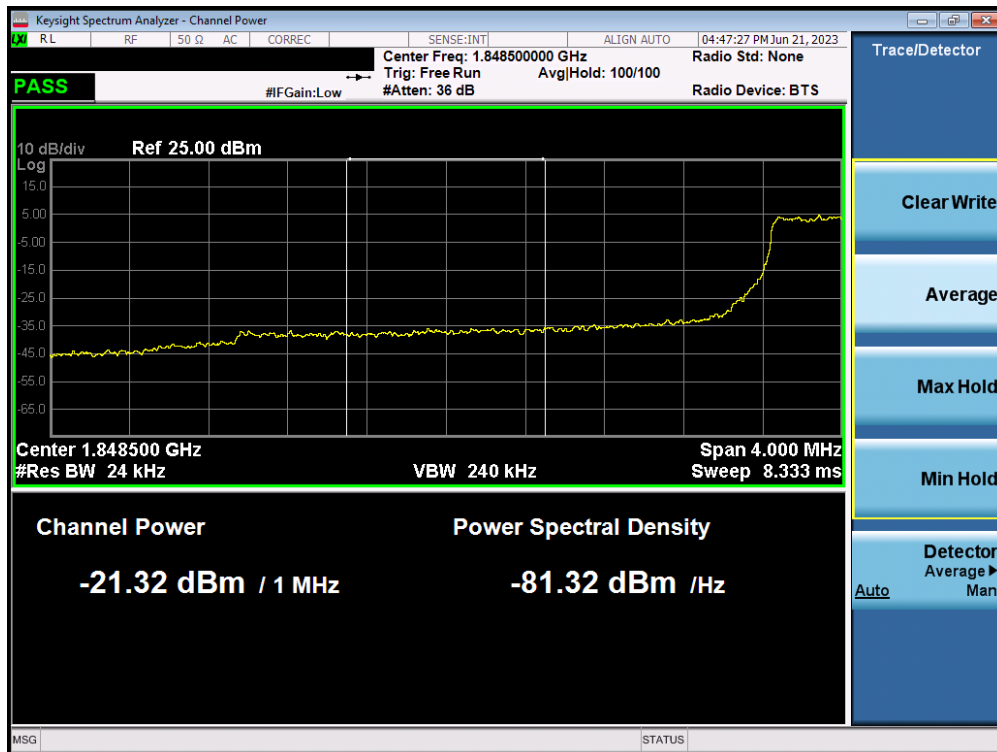
**Table 7-9. Band Edge Test Results – LTE B2 – Ant 1**

FCC ID: A3LSMF731JPN	PART 24 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2304260059-04.A3L	Test Dates: 6/15/2023 - 7/13/2023	EUT Type: Portable Handset	Page 43 of 71

# LTE Band 2 – Ant I



Plot 7-42. Lower Band Edge Plot (LTE Band 2 - 3MHz QPSK – Full RB – Ant I)



Plot 7-43. Extended Lower Band Edge Plot (LTE Band 2 - 3MHz QPSK – Full RB – Ant I)

FCC ID: A3LSMF731JPN	PART 24 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2304260059-04.A3L	Test Dates: 6/15/2023 - 7/13/2023	EUT Type: Portable Handset	Page 44 of 71