



ELEMENT WASHINGTON DC LLC

7185 Oakland Mills Road, Columbia, MD 21046 USA

Tel. 410.290.6652 / Fax 410.290.6654

<http://www.element.com>

PART 25 MEASUREMENT REPORT

Applicant Name:

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

Date of Testing:

9/4/2024 – 11/04/2024

Test Report Issue Date:

11/4/2024

Test Site/Location:

Element Lab., Columbia, MD, USA

Test Report Serial No.:

1M2408260064-32-R1.A3L

FCC ID:

A3LSMS936U

APPLICANT:

Samsung Electronics Co., Ltd.

Application Type:

Certification

Model:

SM-S936U

Additional Model(s):

SM-S936U1

EUT Type:

Portable Handset

FCC Classification:

Licensed Non-Broadcast Transmitter Held to Ear (TNE)

FCC Rule Part:

25

Test Procedure(s):

ANSI C63.26-2015

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.

This revised Test Report (S/N: 1M2408260064-32-R1.A3L) supersedes and replaces the previously issued test report (S/N: 1M2408260064-32.A3L) on the same subject device for the same type of testing as indicated. Please discard or destroy the previously issued test report(s) and dispose of it accordingly.

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

RJ Ortanez
Executive Vice President



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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 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. ("MD")

- 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: A3LSMS936U**. 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 25.

Test Device Serial No.: 2289M, 1307M, 1335M

2.2 Device Capabilities

This device contains the following capabilities:

850/1700/1900 WCDMA/HSPA, Multi-band LTE, Multi-band 5G NR (FR1 and FR2), 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

For NTN operation under B255 (1626.5 – 1660.5MHz), this device supports both 3.75kHz and 15kHz subcarrier spacings with QPSK and BPSK modulations.

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.

2.4 Software and Firmware

Testing was performed on device(s) using software/firmware version S936USQU0AXHJ 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:

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

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 – MD

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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	4/2/2024	Annual	4/2/2025	AP2
-	AP1	EMC Cable and Switch System	4/2/2024	Annual	4/2/2025	AP1
-	ETS	EMC Cable and Switch System	4/2/2024	Annual	4/2/2025	ETS
-	LTx1	Licensed Transmitter Cable Set	4/2/2024	Annual	4/2/2025	LTx1
-	LTx4	Licensed Transmitter Cable Set	4/2/2024	Annual	4/2/2025	LTx4
-	LTx5	Licensed Transmitter Cable Set	4/2/2024	Annual	4/2/2025	LTx5
Agilent	N9030A	50GHz PXA Signal Analyzer	4/23/2024	Annual	4/23/2025	US51350301
Anritsu	MT8821C	Radio Communication Analyzer	N/A			6201381794
Emco	3116	Horn Antenna (18 - 40GHz)	7/5/2023	Triennial	7/5/2025	9203-2178
Espec	ESX-2CA	Environmental Chamber	9/26/2024	Annual	9/26/2026	17620
ETS Lindgren	3164-08	Quad Ridge Horn Antenna	3/29/2023	Biennial	3/29/2025	128337
ETS Lindgren	3164-10	Quad Ridge Horn 400MHz - 10000MHz	7/13/2023	Biennial	7/13/2025	00166283
Keysight Technologies	N9020A	MXA Signal Analyzer	4/11/2024	Annual	4/11/2025	MY54500644
Keysight Technologies	N9030A	PXA Signal Analyzer	2/29/2024	Annual	3/1/2025	MY55410501
Mini-Circuits	SSG-4000HP	Synthesized Signal Generator	N/A			11208010032
Mini-Circuits	SSG-4000HP	Synthesized Signal Generator	N/A			11403100002
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	FSW26	2Hz-26.5GHz Signal and Spectrum Analyzer	3/8/2024	Annual	3/8/2025	103187
Sunol	JB6	LB6 Antenna	3/2/2023	Biennial	3/2/2025	A082816

Table 5-1. Test Equipment Calibration Table – MD

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.
- 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

PSK Modulation

Emission Designator = 200KG7D

BW = 200 kHz

G = Phase Modulation

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: A3LSMS936U
 FCC Classification: Licensed Non-Broadcast Transmitter Held to Ear (TNE)
 Mode(s): NTN

Test Condition	Test Description	FCC Part Section(s)	Test Limit	Test Result	Reference
CONDUCTED	Transmitter Conducted Output Power	2.1046, 25.204(a)	40dBW(max)	PASS	Section 7.2
	Occupied Bandwidth	2.1049	N/A	PASS	Section 7.3
	Conducted Emission Mask; Conducted Spurious Emissions	2.1051, 25.202(f)	25.202(f)	PASS	Sections 7.4, 7.5
	Frequency Stability	2.1055, 25.202	<0.001% of reference frequency	PASS	Section 7.10
RADIATED	Equivalent Isotropic Radiated Power	2.1046, 25.204(a)	40dBW(max)	PASS	Section 7.6
	Radiated Spurious Emissions	25.202(f)	> 43 + 10 log10 (P[Watts]) for all out-of-band emissions	PASS	Section 7.7
	Radiated Spurious Emissions (1559 - 1610MHz)	25.216(c)(h)	< -70dBW/MHz for emissions in the band 1559 - 1605MHz < -46dBW/MHz at 1610MHz	PASS	Section 7.8
	Carrier-Off State Emissions (1559 - 1610MHz)	25.216(i)	< -80dBW/MHz for emissions in the band 1559 - 1610MHz	PASS	Section 7.9

Table 7-1. Summary of Test Results

Notes:

- 1) All modes of operation and data rates were investigated. The test results shown in the following sections represent the worst-case emissions.
- 2) The analyzer plots were all taken with a correction table loaded into the analyzer. The correction table was used to account for the losses of the cables, directional couplers, and attenuators used as part of the system to maintain a link between the call box and the EUT at all frequencies of interest.
- 3) All antenna port conducted emissions testing was performed on a test bench with the antenna port of the EUT connected to the spectrum analyzer through calibrated cables, attenuators, and couplers.
- 4) All conducted emissions measurements are performed with automated test software to capture the corresponding plots necessary to show compliance. The measurement software utilized is EMC Software Tool v1.2.2.

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7.2 Conducted Output Power Data

Test Overview

All emissions are measured with a power meter 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 5.2.4.2

Test Settings

1. Detector = RMS
2. Trace mode = trace average for continuous emissions
3. The trace was allowed to stabilize

Test Setup

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



Figure 7-1. Test Instrument & Measurement Setup

Test Notes

1. The conducted powers were measured with FTM software used to allow 100% duty cycle transmission.
2. For NB operation in this band, the 3.75kHz and 15kHz subcarrier spacings support both QPSK and BPSK modulation as shown in the following tables.

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SCS	SC Size	Frequency [MHz]	Conducted Power [dBm]	
			QPSK	BPSK
3.75kHz	1SC0	1626.60	22.12	22.38
	1SC24	1626.60	22.95	22.77
	1SC47	1626.60	22.48	22.63
15kHz	1SC0	1626.60	22.48	22.44
	1SC6	1626.60	22.73	22.80
	1SC11	1626.60	22.12	22.42
	3SC0	1626.60	19.82	N/A
	3SC6	1626.60	19.89	N/A
	3SC9	1626.60	19.91	N/A
	6SC0	1626.60	19.17	N/A
	6SC6	1626.60	19.94	N/A
	12SC0	1626.60	19.83	N/A

Table 7-2. Conducted Power Result - Low Channel

SCS	SC Size	Frequency [MHz]	Conducted Power [dBm]	
			QPSK	BPSK
3.75kHz	1SC0	1643.50	22.21	22.04
	1SC24	1643.50	22.54	22.51
	1SC47	1643.50	22.09	22.03
15kHz	1SC0	1643.50	22.42	22.41
	1SC6	1643.50	22.90	22.76
	1SC11	1643.50	22.65	22.38
	3SC0	1643.50	20.17	N/A
	3SC6	1643.50	20.40	N/A
	3SC9	1643.50	20.24	N/A
	6SC0	1643.50	20.43	N/A
	6SC6	1643.50	20.39	N/A
	12SC0	1643.50	20.69	N/A

Table 7-3. Conducted Power Result - Mid Channel

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SCS	SC Size	Frequency [MHz]	Conducted Power [dBm]	
			QPSK	BPSK
3.75kHz	1SC0	1660.40	22.21	22.01
	1SC24	1660.40	22.69	22.59
	1SC47	1660.40	22.38	22.14
15kHz	1SC0	1660.40	22.33	22.42
	1SC6	1660.40	22.74	22.81
	1SC11	1660.40	22.16	22.35
	3SC0	1660.40	20.06	N/A
	3SC6	1660.40	19.93	N/A
	3SC9	1660.40	19.80	N/A
	6SC0	1660.40	20.39	N/A
	6SC6	1660.40	20.52	N/A
	12SC0	1660.40	20.77	N/A

Table 7-4. Conducted Power Result - High Channel

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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

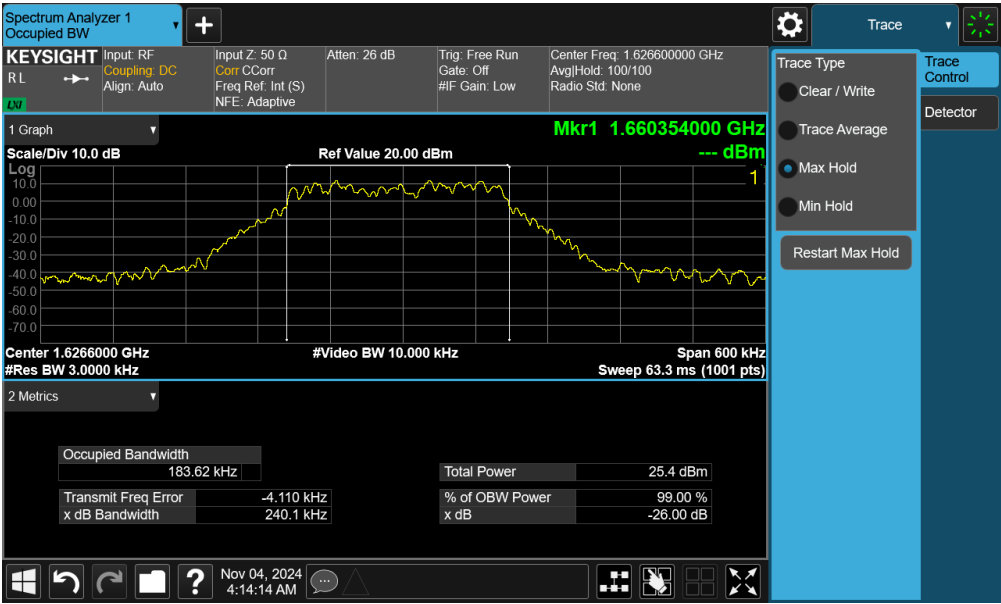
Test Notes

None.

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Mode	SCS	mod.	SC Size	Channel	99% OBW [kHz]
Band 255	15kHz	QPSK	12SC0	Low	183.62
				Mid	187.99
				High	184.49

Table 7-5. Occupied Bandwidth Results



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7.4 Conducted Emissions Mask

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.

Per FCC Part 25.202(f):

Emission limitations.

(1) In any 4 kHz band, the center frequency of which is removed from the assigned frequency by more than 50 percent up to and including 100 percent of the authorized bandwidth: 25 dB;

(2) In any 4 kHz band, the center frequency of which is removed from the assigned frequency by more than 100 percent up to and including 250 percent of the authorized bandwidth: 35 dB;

Test Procedure Used

ANSI C63.26-2015 – Section 5.7.4

Test Settings

1. EUT is connected to the spectrum analyzer.
2. Highest Power within the transmitting signal is measured.
3. Worst Case Emissions are identified and measured
4. See Notes regarding RBW

Test Setup

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

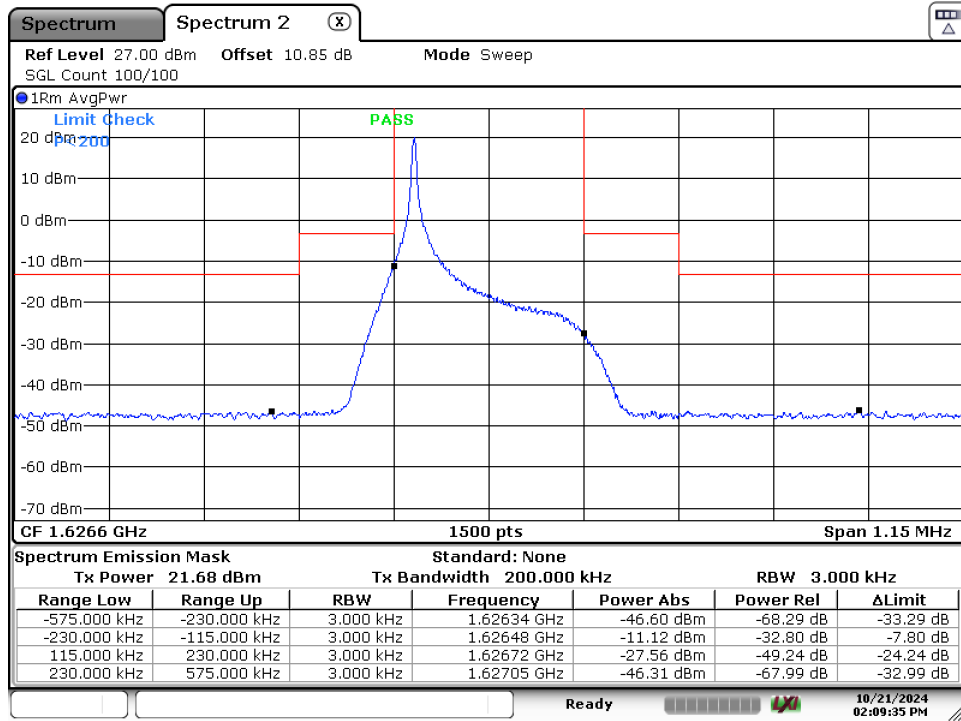


Figure 7-3. Test Instrument & Measurement Setup

Test Notes

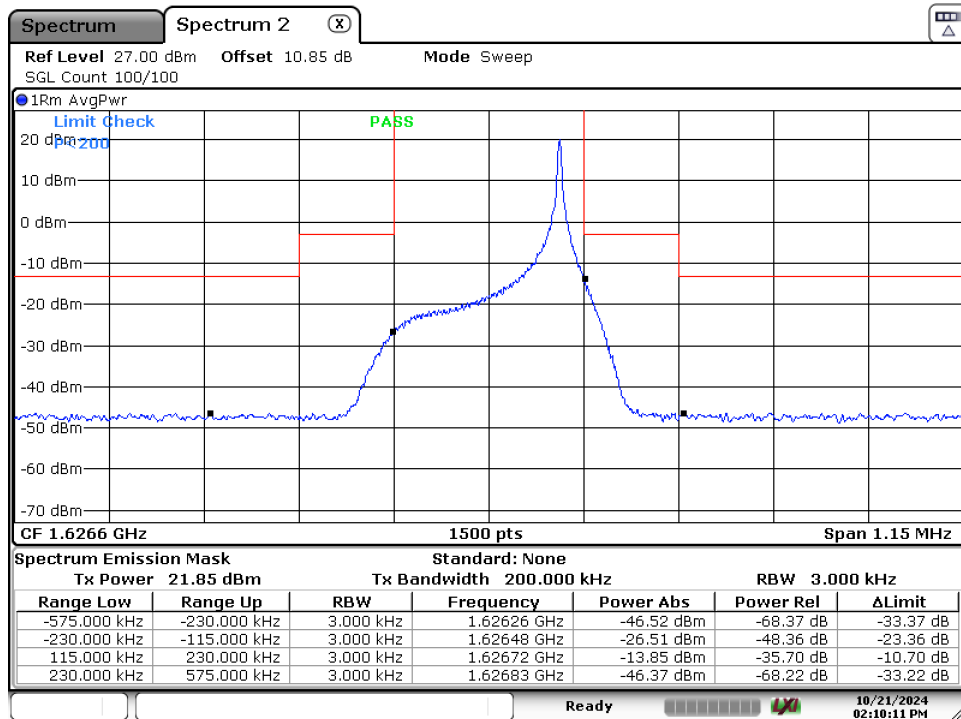
1. Due to measurement equipment limitations a RBW of 4KHz is not available. To ensure worst-case result a RBW = 5kHz and a VBW = 20kHz was utilized.
2. For purposes of the emission mask testing in this section, the manufacturer has declared an authorized bandwidth of 230kHz.

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Date: 21.OCT.2024 14:09:35

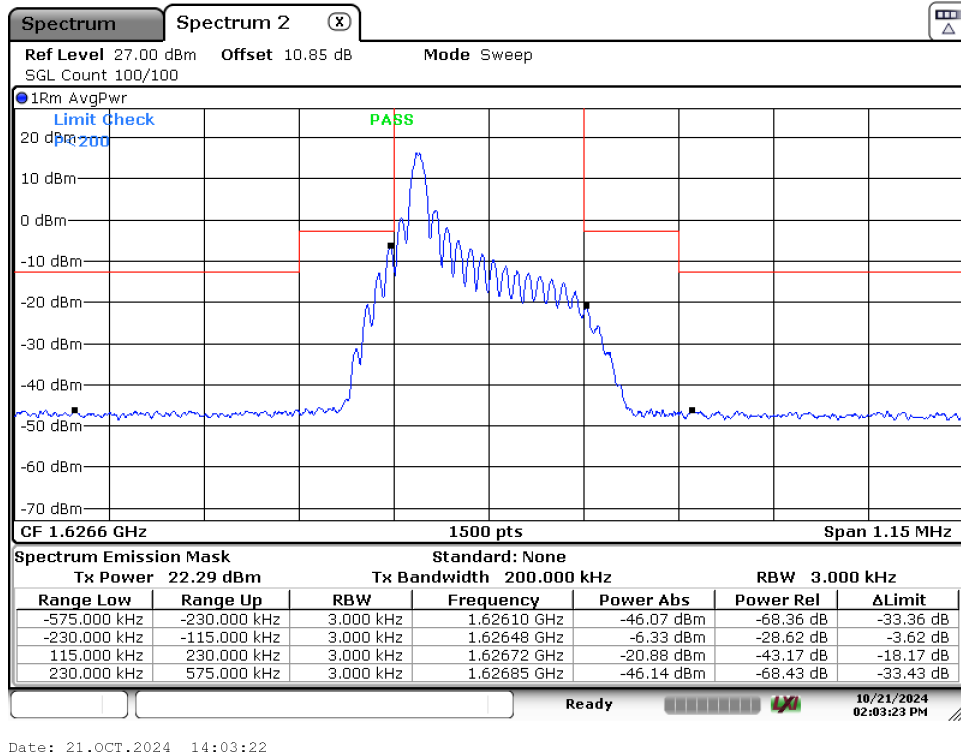
Plot 7-4. Low Channel Conducted Emission Mask – 3.75kHz SCS – 1SC0



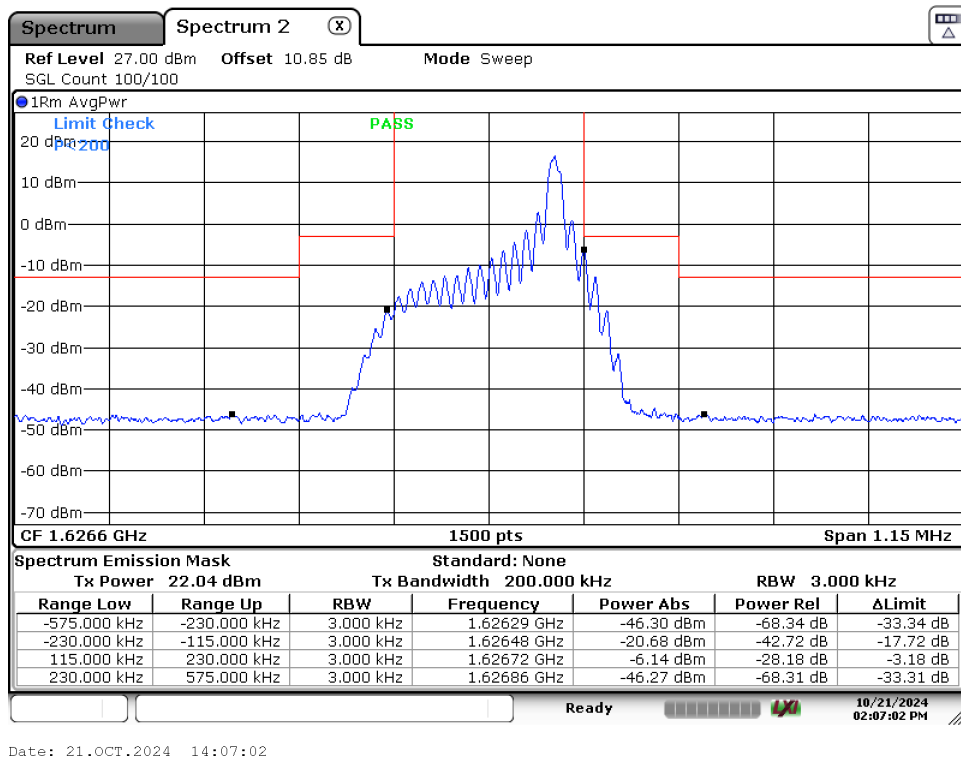
Date: 21.OCT.2024 14:10:11

Plot 7-5. Low Channel Conducted Emission Mask – 3.75kHz SCS – 1SC47

FCC ID: A3LSMS936U	PART 25 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2408260064-32-R1.A3L	Test Dates: 9/4/2024 – 11/04/2024	EUT Type: Portable Handset	Page 17 of 55

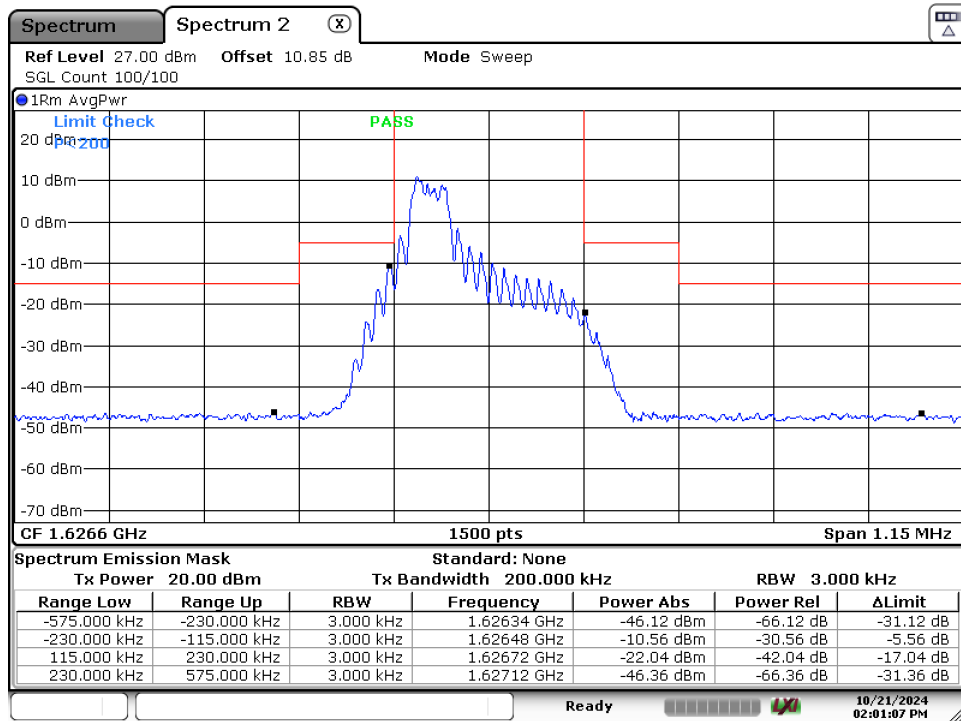


Plot 7-6. Low Channel Conducted Emission Mask – 15kHz SCS – 1SC0



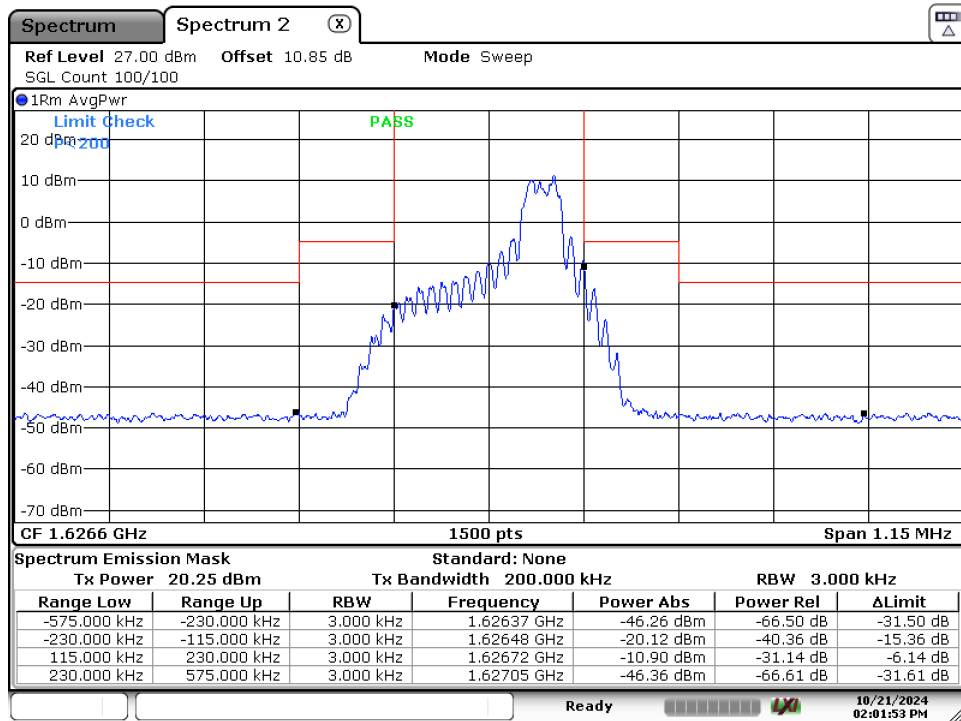
Plot 7-7. Low Channel Conducted Emission Mask – 15kHz SCS – 1SC11

FCC ID: A3LSMS936U	PART 25 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2408260064-32-R1.A3L	Test Dates: 9/4/2024 – 11/04/2024	EUT Type: Portable Handset	Page 18 of 55



Date: 21.OCT.2024 14:01:07

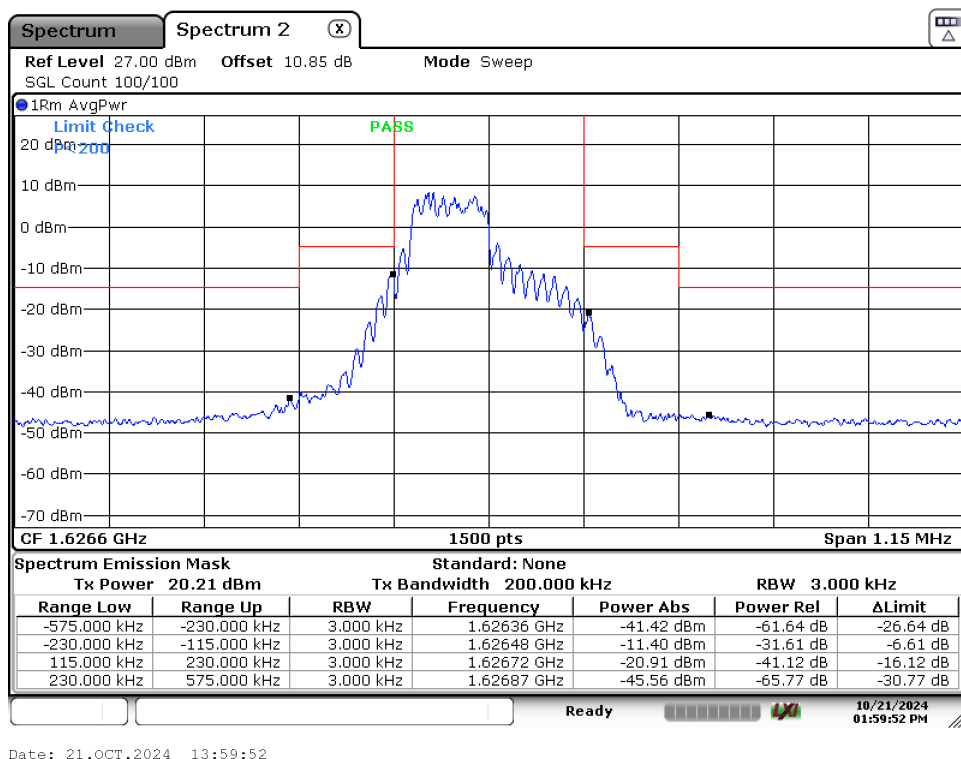
Plot 7-8. Low Channel Conducted Emission Mask – 15kHz SCS – 3SC0



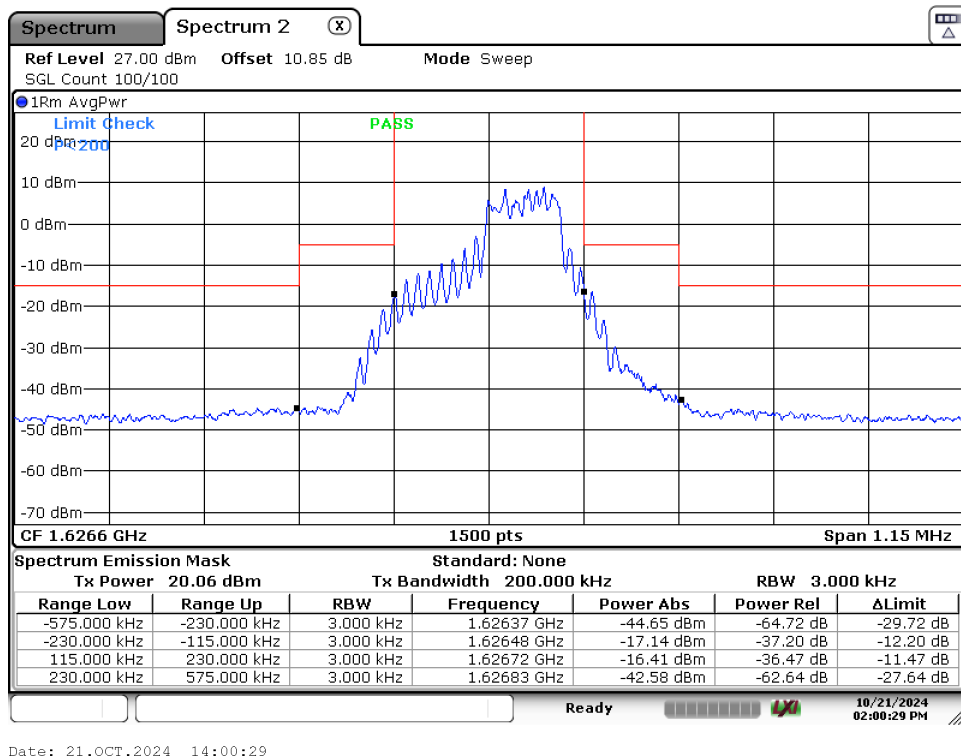
Date: 21.OCT.2024 14:01:52

Plot 7-9. Low Channel Conducted Emission Mask – 15kHz SCS – 3SC9

FCC ID: A3LSMS936U	PART 25 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2408260064-32-R1.A3L	Test Dates: 9/4/2024 – 11/04/2024	EUT Type: Portable Handset	Page 19 of 55

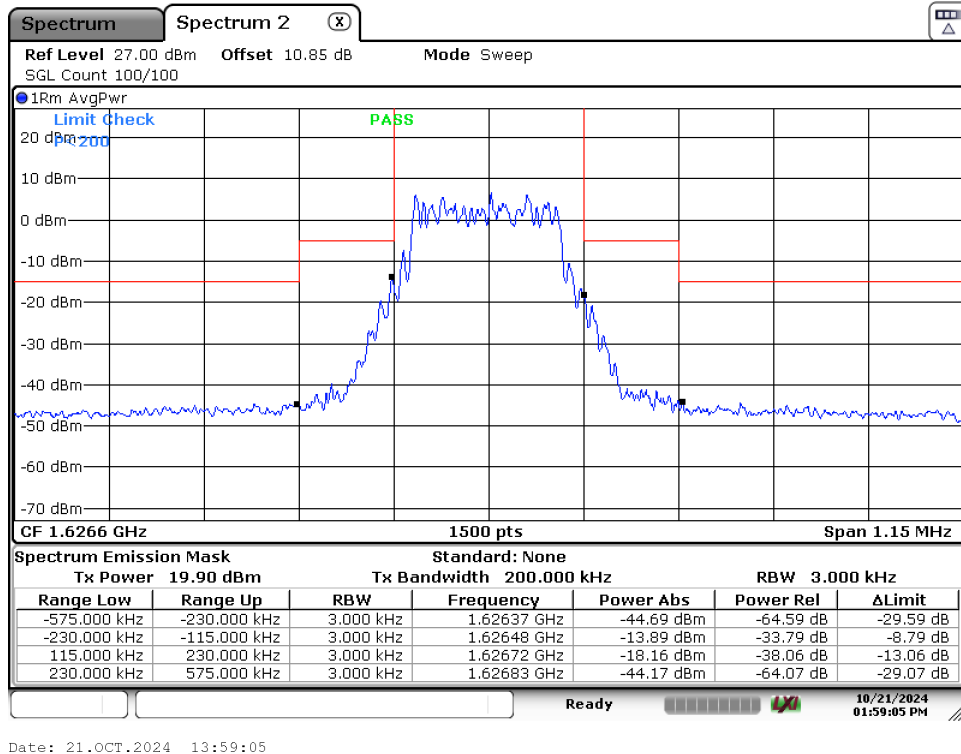


Plot 7-10. Low Channel Conducted Emission Mask – 15kHz SCS – 6SC0

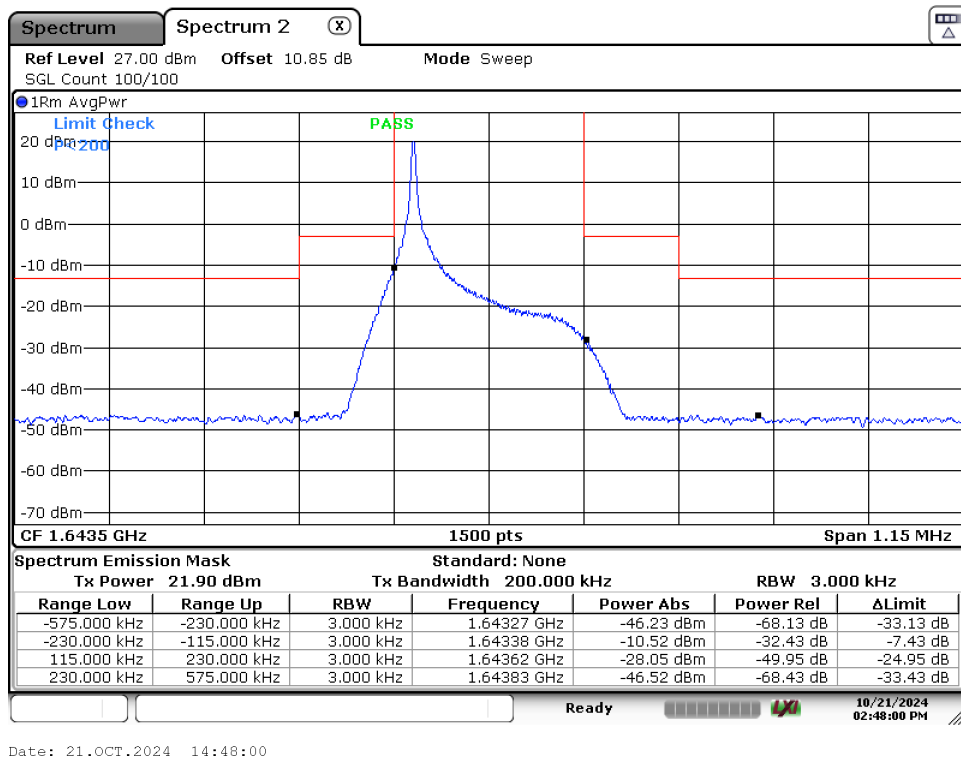


Plot 7-11. Low Channel Conducted Emission Mask – 15kHz SCS – 6SC6

FCC ID: A3LSMS936U	PART 25 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2408260064-32-R1.A3L	Test Dates: 9/4/2024 – 11/04/2024	EUT Type: Portable Handset	Page 20 of 55

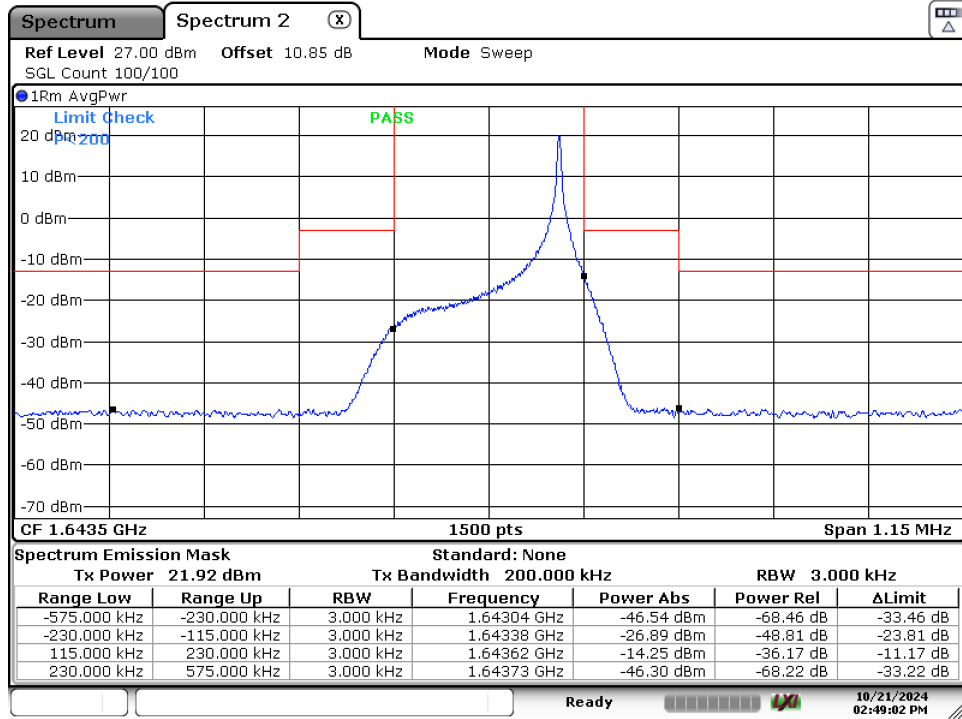


Plot 7-12. Low Channel Conducted Emission Mask – 15kHz SCS – 12SC0



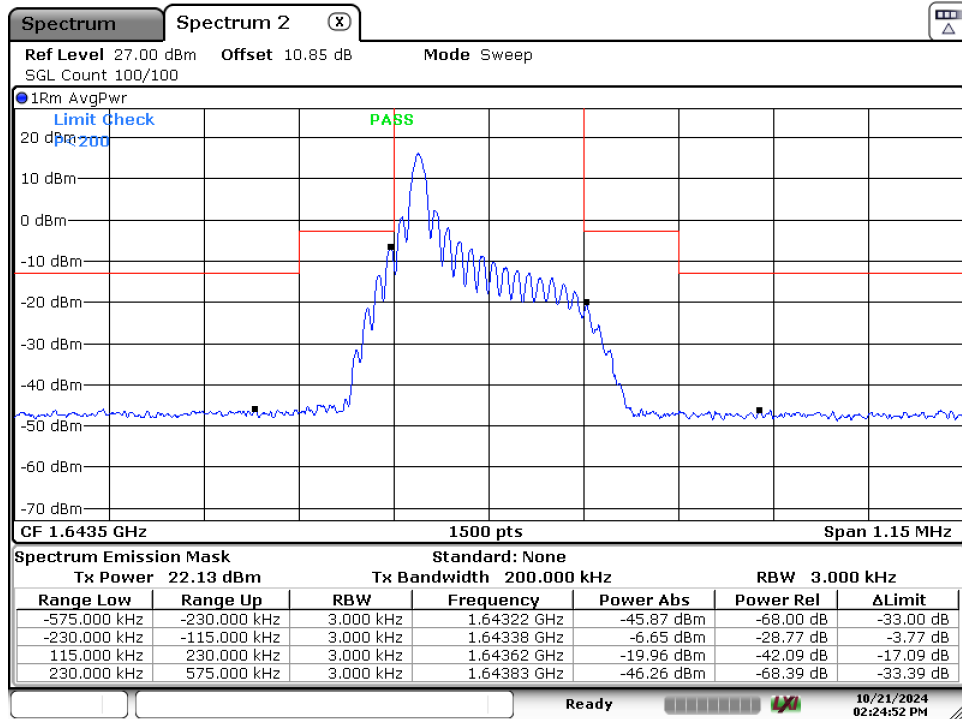
Plot 7-13. Mid Channel Conducted Emission Mask – 3.75kHz SCS – 1SC0

FCC ID: A3LSMS936U	PART 25 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2408260064-32-R1.A3L	Test Dates: 9/4/2024 – 11/04/2024	EUT Type: Portable Handset	Page 21 of 55



Date: 21.OCT.2024 14:49:02

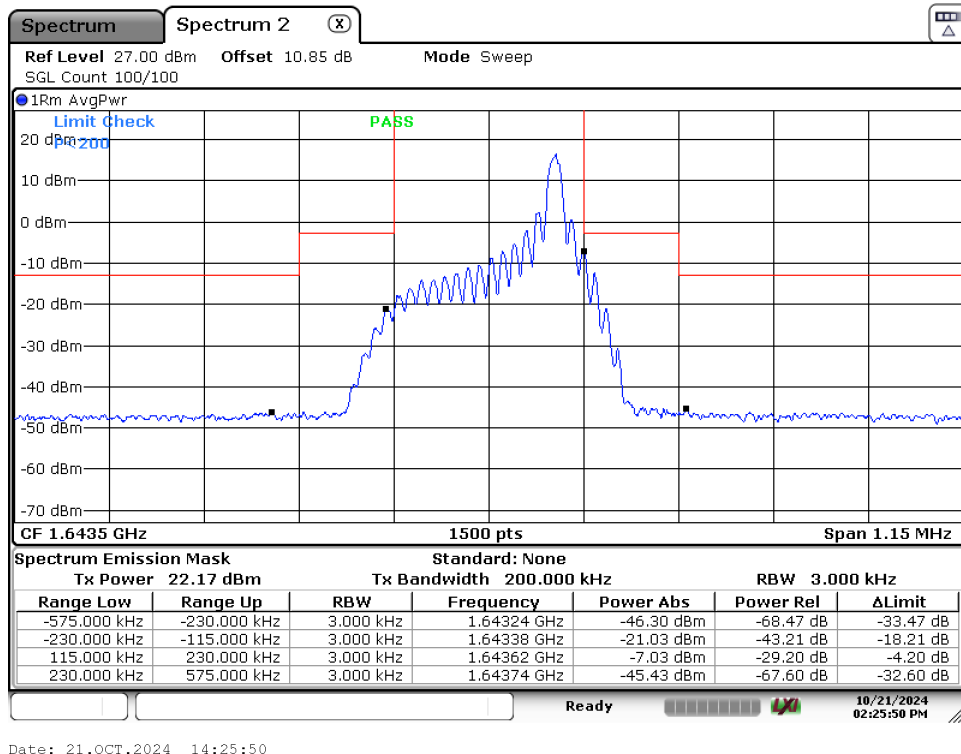
Plot 7-14. Mid Channel Conducted Emission Mask – 3.75kHz SCS – 1SC47



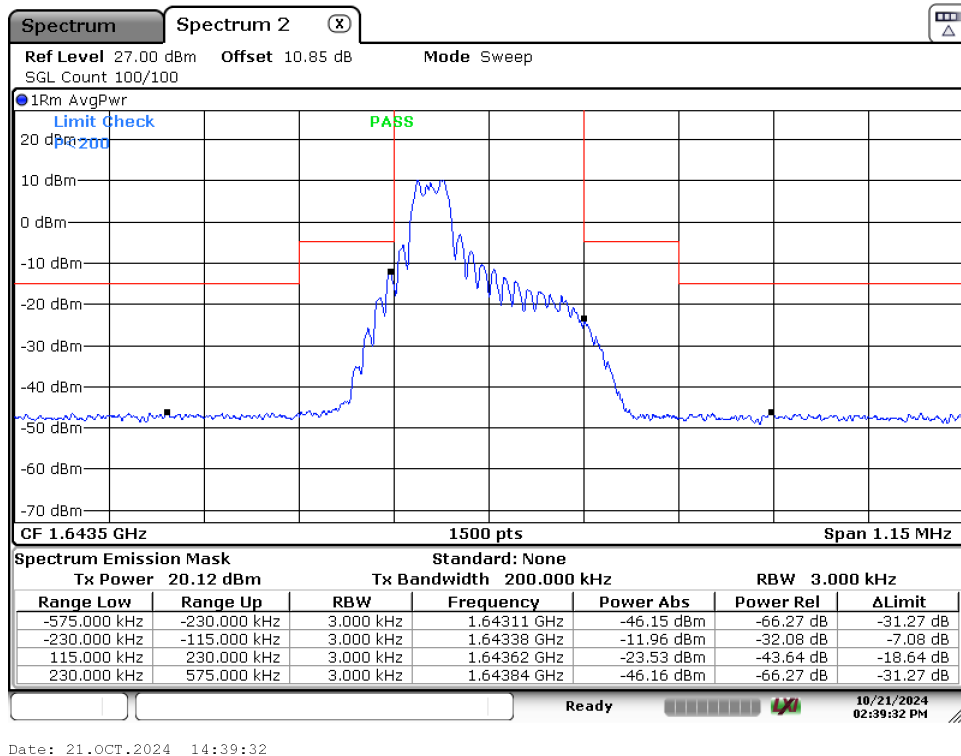
Date: 21.OCT.2024 14:24:52

Plot 7-15. Mid Channel Conducted Emission Mask – 15kHz SCS – 1SC0

FCC ID: A3LSMS936U	PART 25 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2408260064-32-R1.A3L	Test Dates: 9/4/2024 – 11/04/2024	EUT Type: Portable Handset	Page 22 of 55

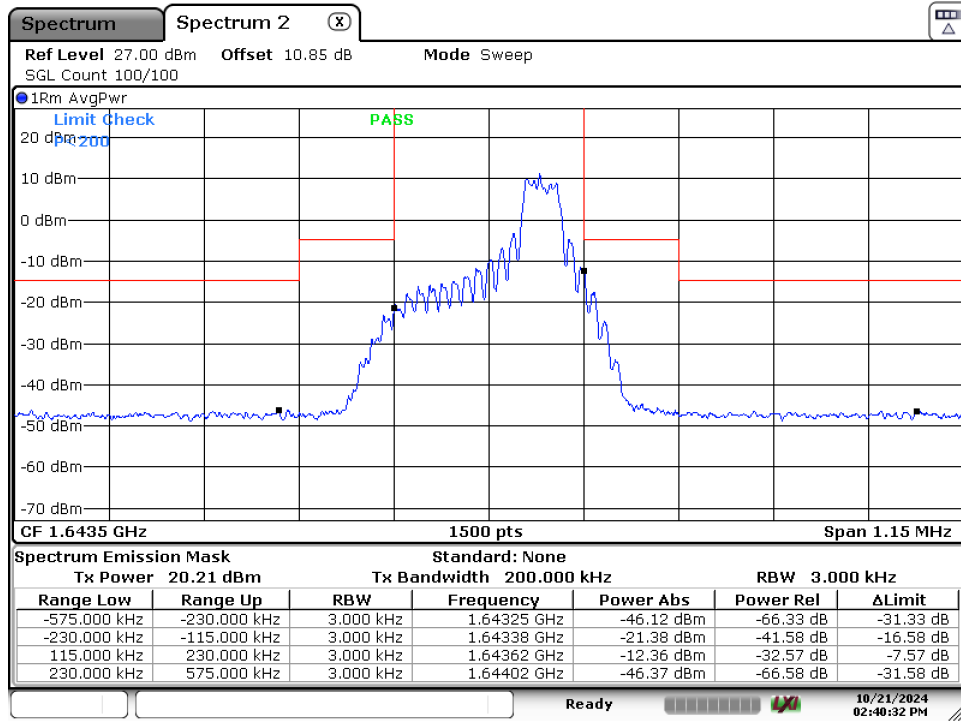


Plot 7-16. Mid Channel Conducted Emission Mask – 15kHz SCS – 1SC11



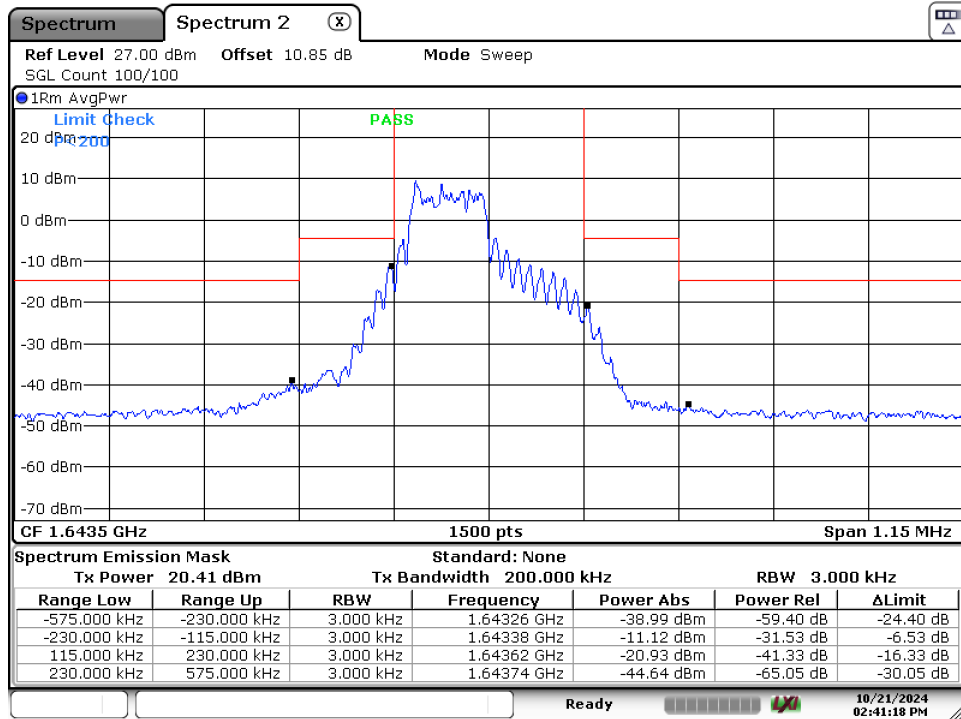
Plot 7-17. Mid Channel Conducted Emission Mask – 15kHz SCS – 3SC0

FCC ID: A3LSMS936U	PART 25 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2408260064-32-R1.A3L	Test Dates: 9/4/2024 – 11/04/2024	EUT Type: Portable Handset	Page 23 of 55



Date: 21.OCT.2024 14:40:31

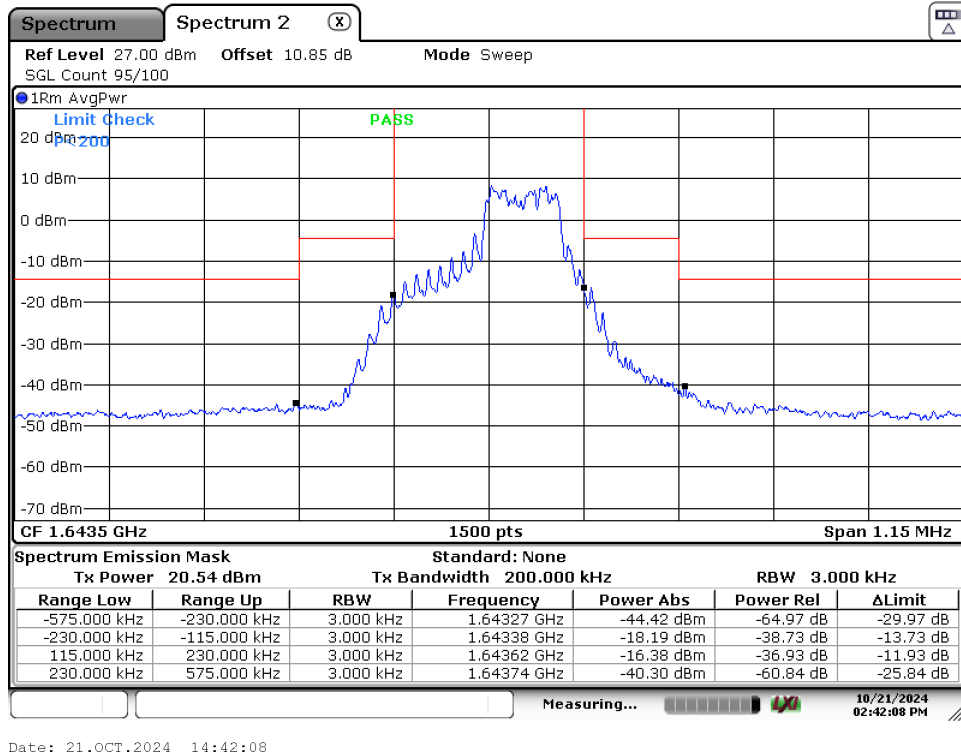
Plot 7-18. Mid Channel Conducted Emission Mask – 15kHz SCS – 3SC9



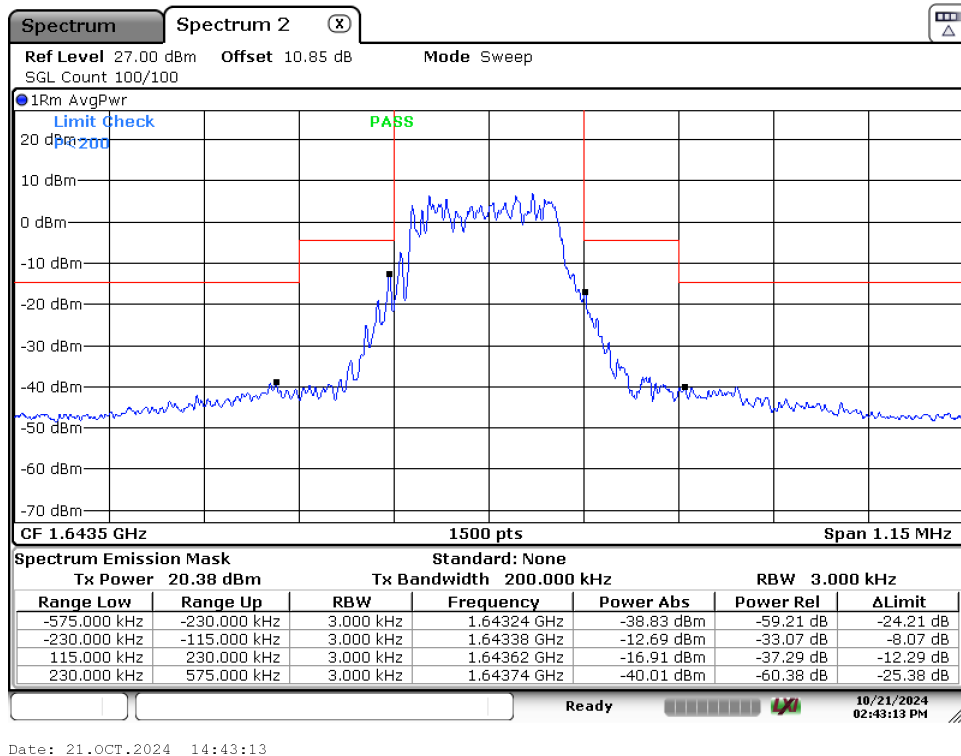
Date: 21.OCT.2024 14:41:17

Plot 7-19. Mid Channel Conducted Emission Mask – 15kHz SCS – 6SC0

FCC ID: A3LSMS936U	PART 25 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2408260064-32-R1.A3L	Test Dates: 9/4/2024 – 11/04/2024	EUT Type: Portable Handset	Page 24 of 55

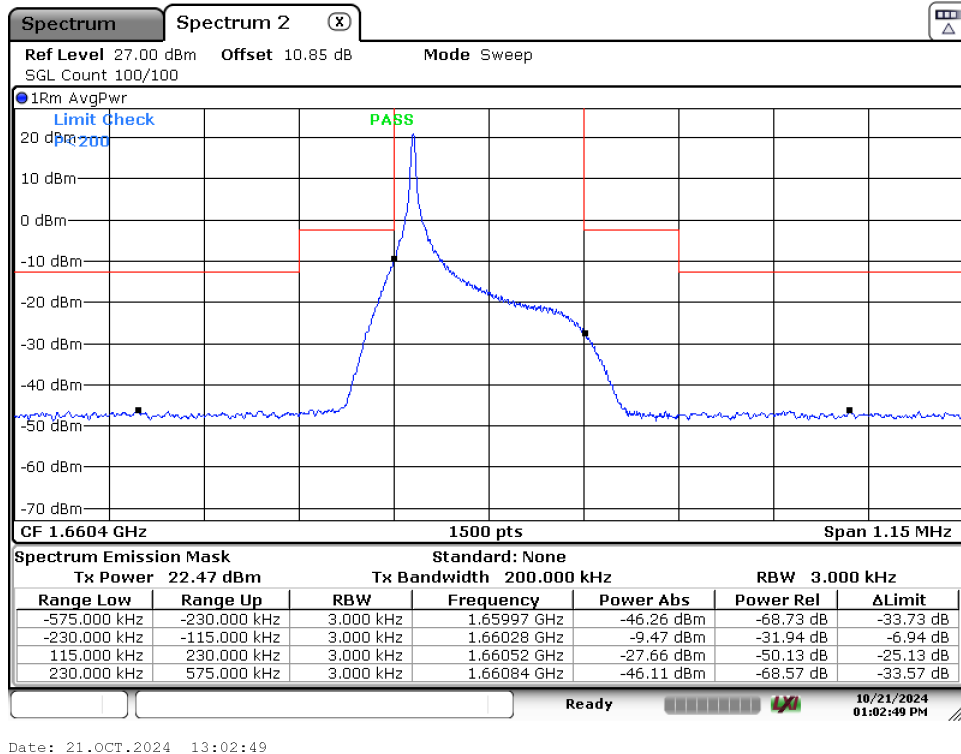


Plot 7-20. Mid Channel Conducted Emission Mask – 15kHz SCS – 6SC6

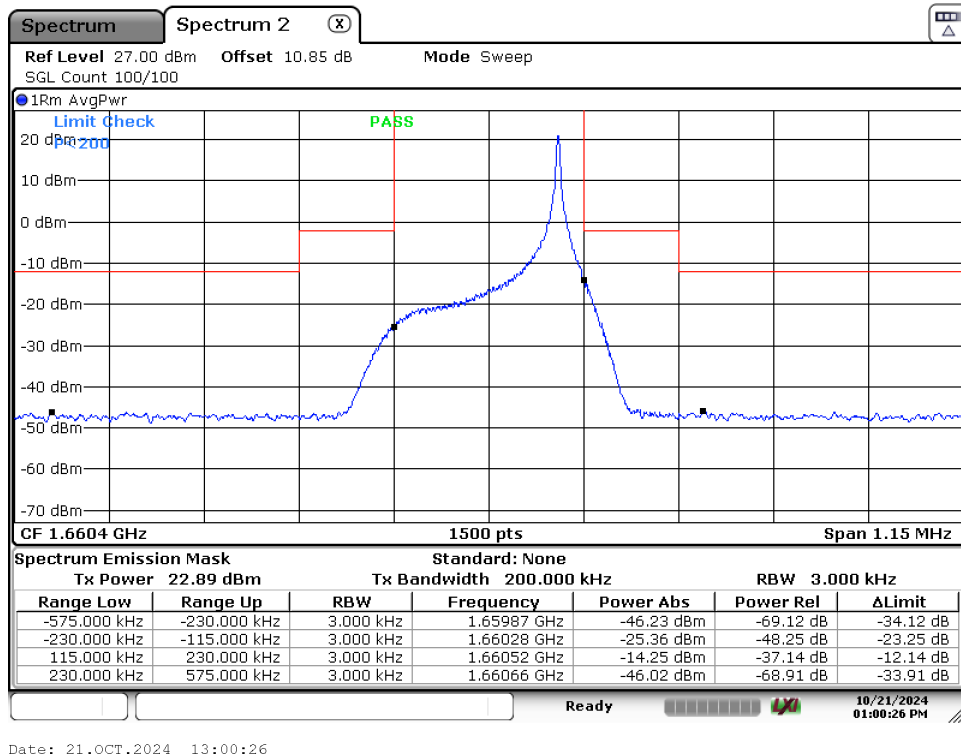


Plot 7-21. Mid Channel Conducted Emission Mask – 15kHz SCS – 12SC0

FCC ID: A3LSMS936U	PART 25 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2408260064-32-R1.A3L	Test Dates: 9/4/2024 – 11/04/2024	EUT Type: Portable Handset	Page 25 of 55

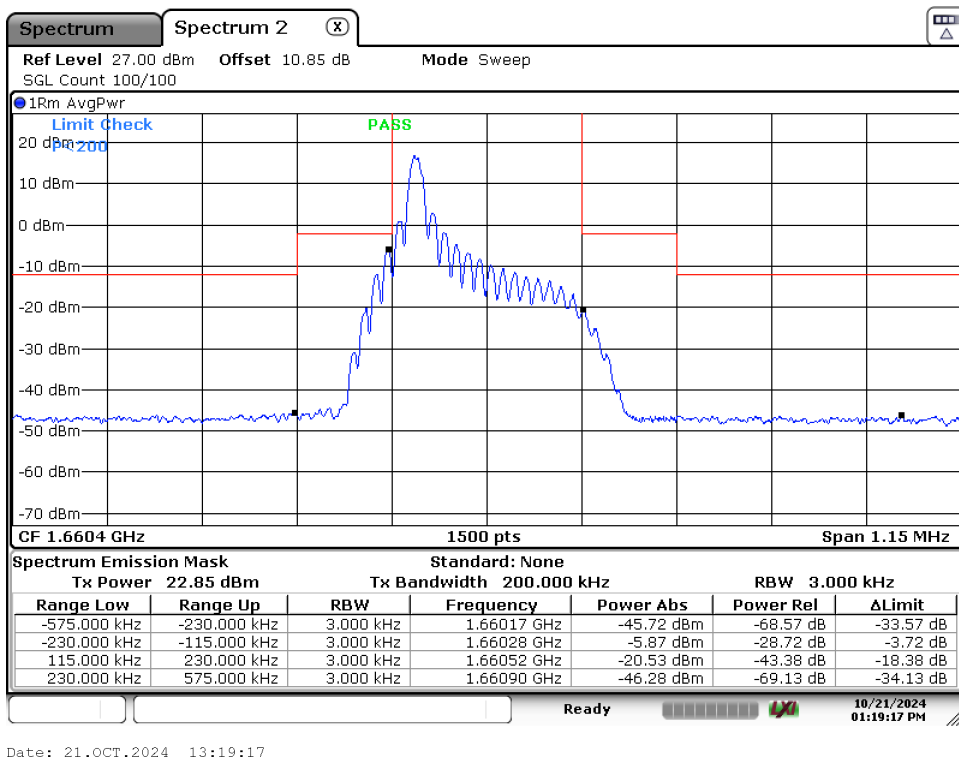


Plot 7-22. High Channel Conducted Emission Mask – 3.75kHz SCS – 1SC0

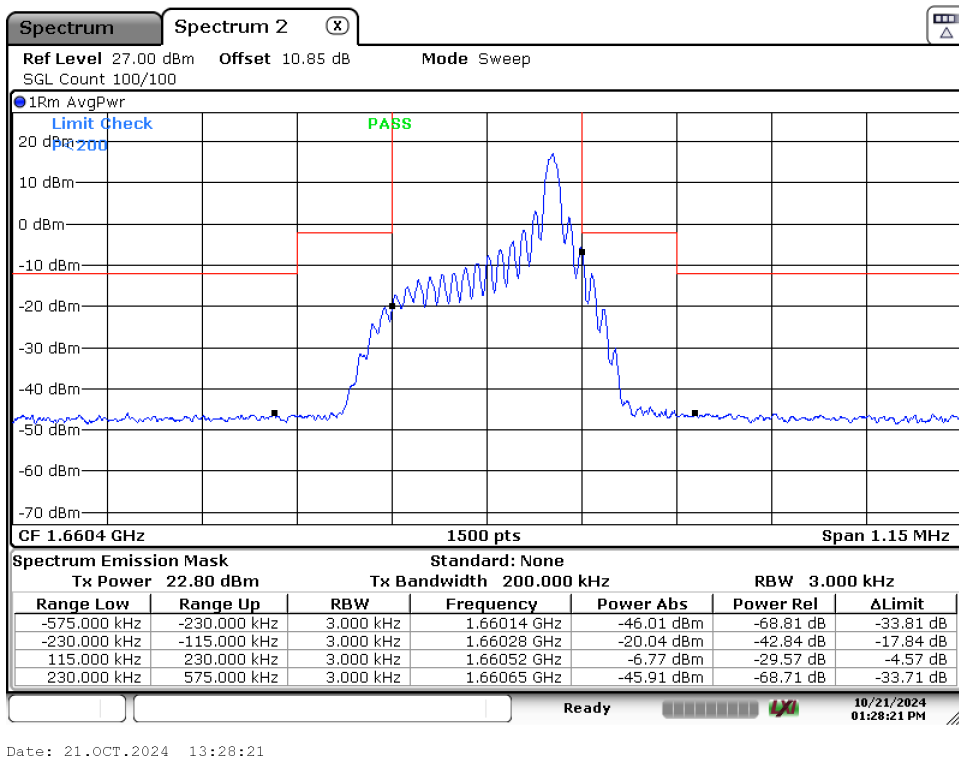


Plot 7-23. High Channel Conducted Emission Mask – 3.75kHz SCS – 1SC47

FCC ID: A3LSMS936U	PART 25 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2408260064-32-R1.A3L	Test Dates: 9/4/2024 – 11/04/2024	EUT Type: Portable Handset	Page 26 of 55

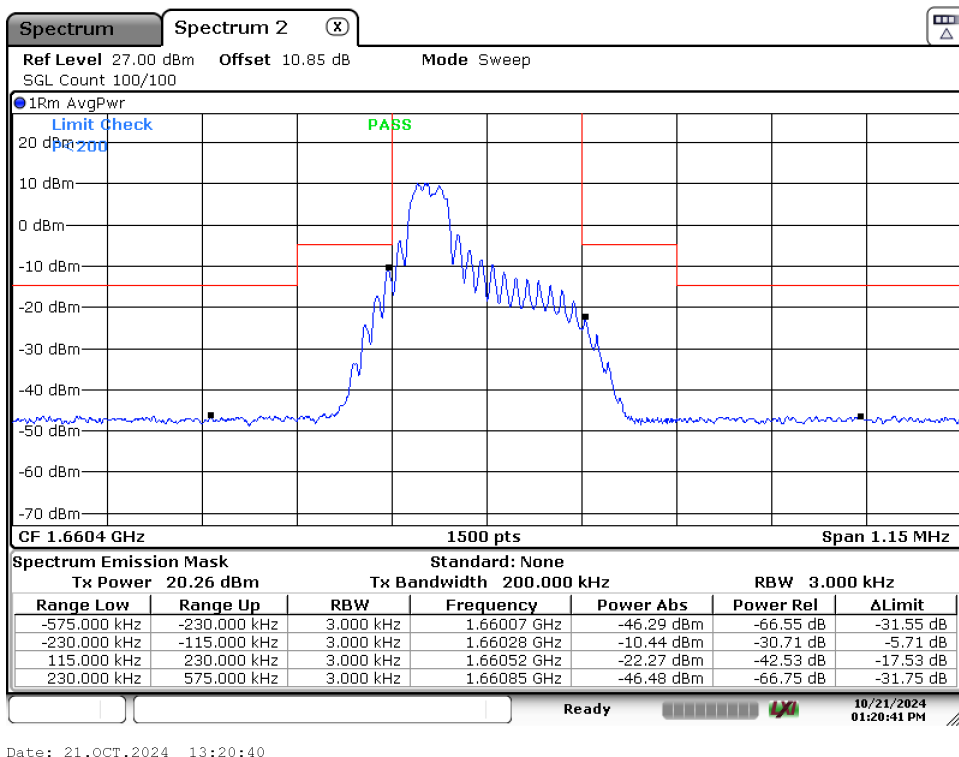


Plot 7-24. High Channel Conducted Emission Mask – 15kHz SCS – 1SC0

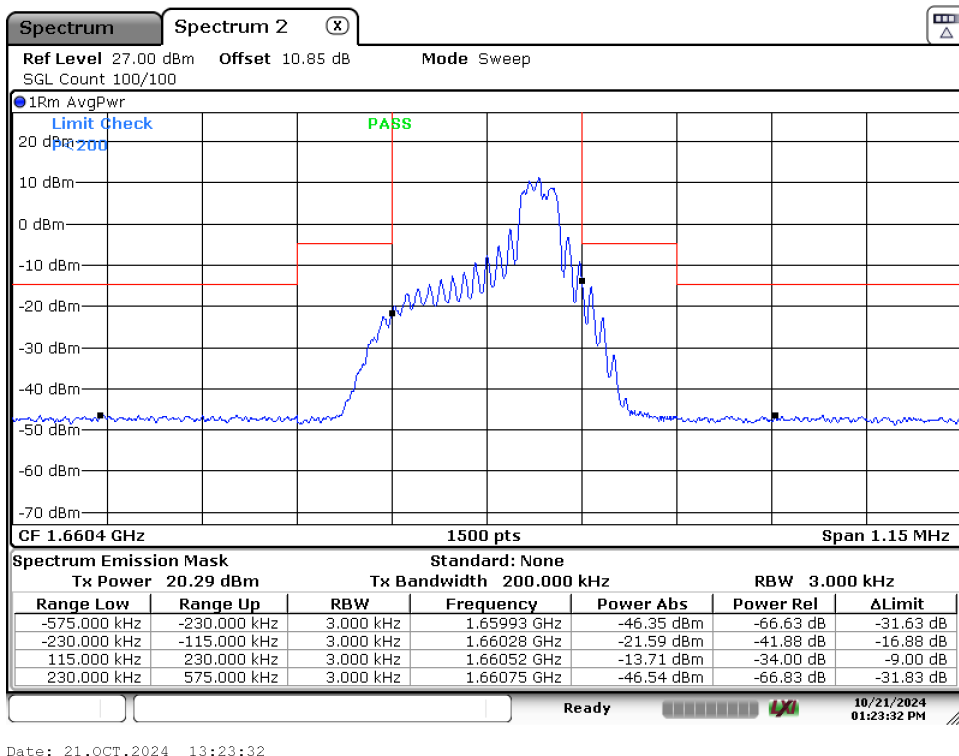


Plot 7-25. High Channel Conducted Emission Mask – 15kHz SCS – 1SC11

FCC ID: A3LSMS936U	PART 25 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2408260064-32-R1.A3L	Test Dates: 9/4/2024 – 11/04/2024	EUT Type: Portable Handset	Page 27 of 55

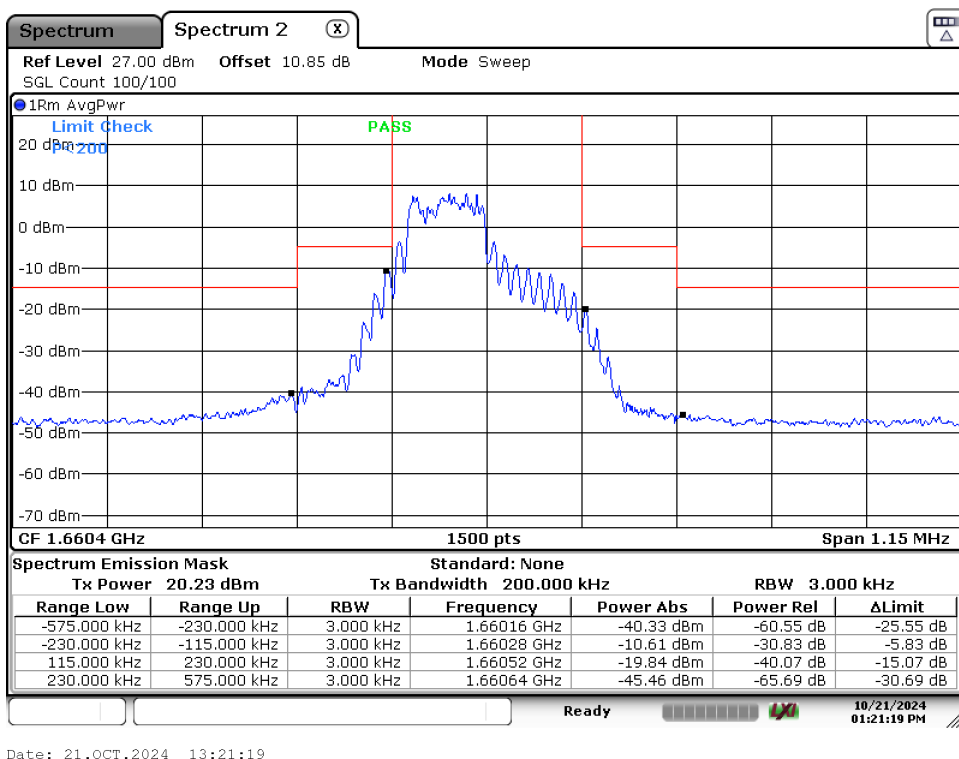


Plot 7-26. High Channel Conducted Emission Mask – 15kHz SCS – 3SC0

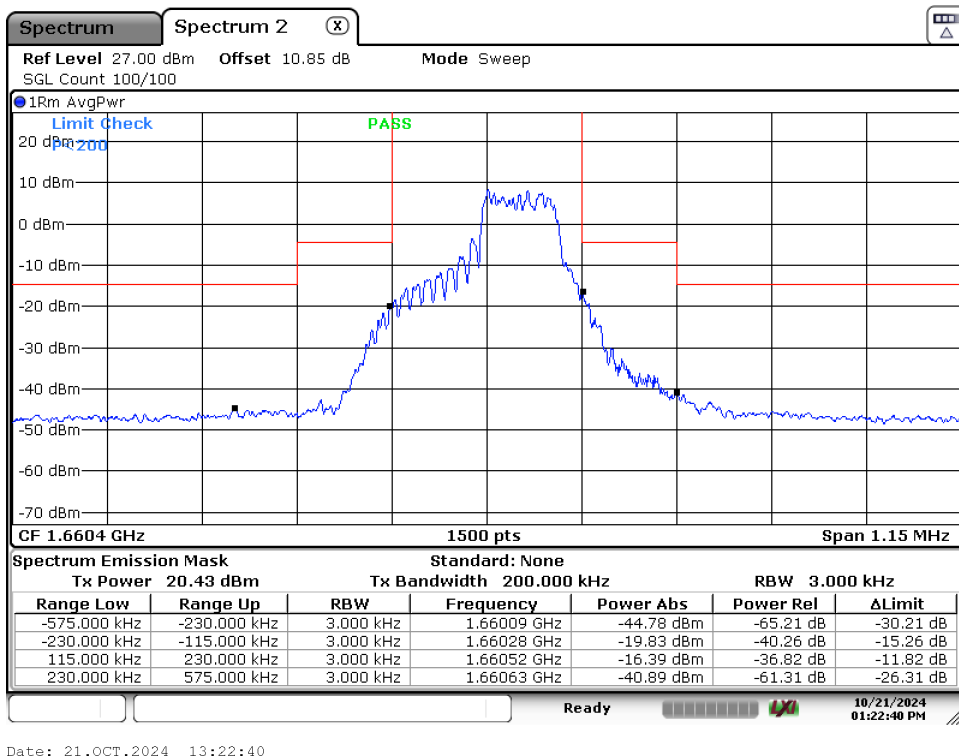


Plot 7-27. High Channel Conducted Emission Mask – 15kHz SCS – 3SC9

FCC ID: A3LSMS936U	PART 25 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2408260064-32-R1.A3L	Test Dates: 9/4/2024 – 11/04/2024	EUT Type: Portable Handset	Page 28 of 55

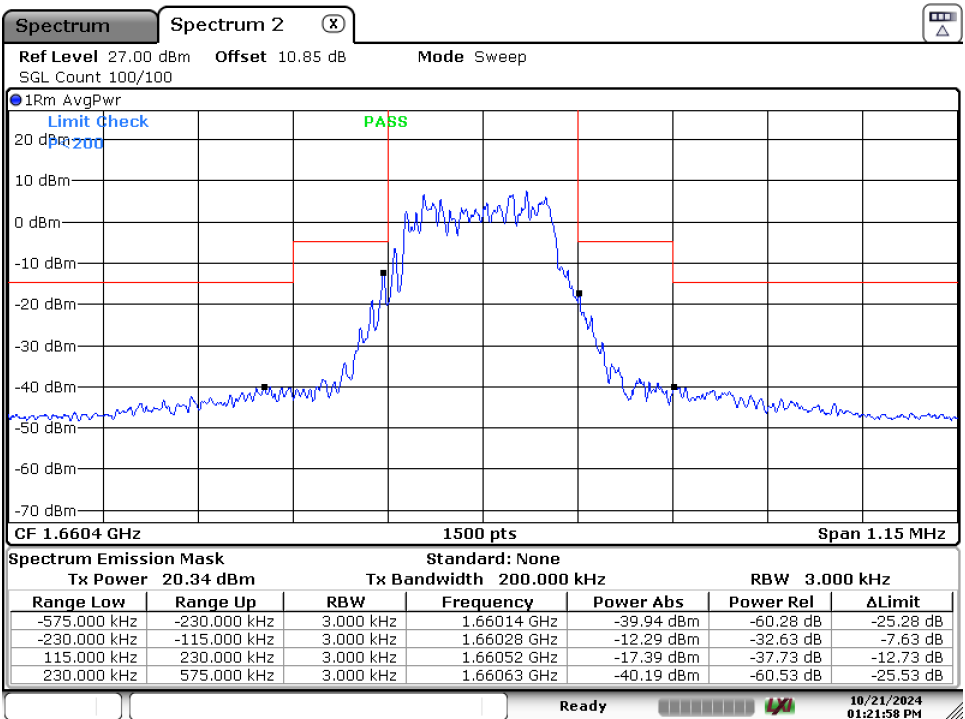


Plot 7-28. High Channel Conducted Emission Mask – 15kHz SCS – 6SC0



Plot 7-29. High Channel Conducted Emission Mask – 15kHz SCS – 6SC6

FCC ID: A3LSMS936U	PART 25 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2408260064-32-R1.A3L	Test Dates: 9/4/2024 – 11/04/2024	EUT Type: Portable Handset	Page 29 of 55



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Plot 7-30. High Channel Conducted Emission Mask – 15kHz SCS – 12SC0

FCC ID: A3LSMS936U	PART 25 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2408260064-32-R1.A3L	Test Dates: 9/4/2024 – 11/04/2024	EUT Type: Portable Handset	Page 30 of 55

7.5 Conducted Spurious Emission

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.

Per FCC Part 25.202(f):

Emission limitations.

(3) In any 4 kHz band, the center frequency of which is removed from the assigned frequency by more than 250 percent of the authorized bandwidth: An amount equal to 43 dB plus 10 times the logarithm (to the base 10) of 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. RBW = 100kHz
3. VBW = 300kHz
4. Detector = RMS
5. Number of sweep points $\geq 2 \times \text{Span/RBW}$
6. Trace mode = max hold
7. Sweep time = auto couple
8. The trace was allowed to stabilize

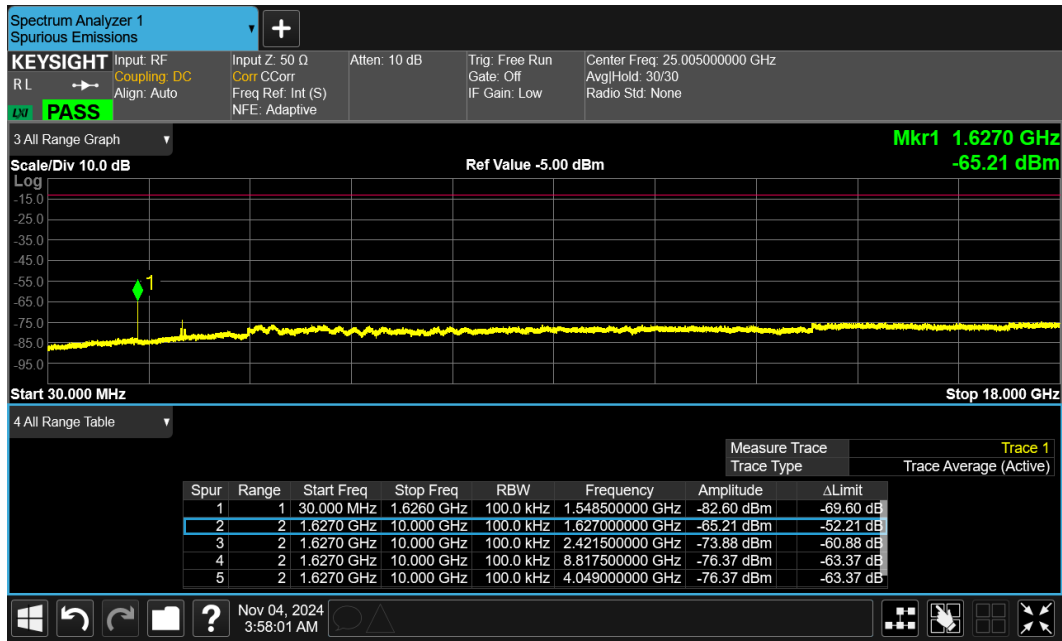
Test Setup

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

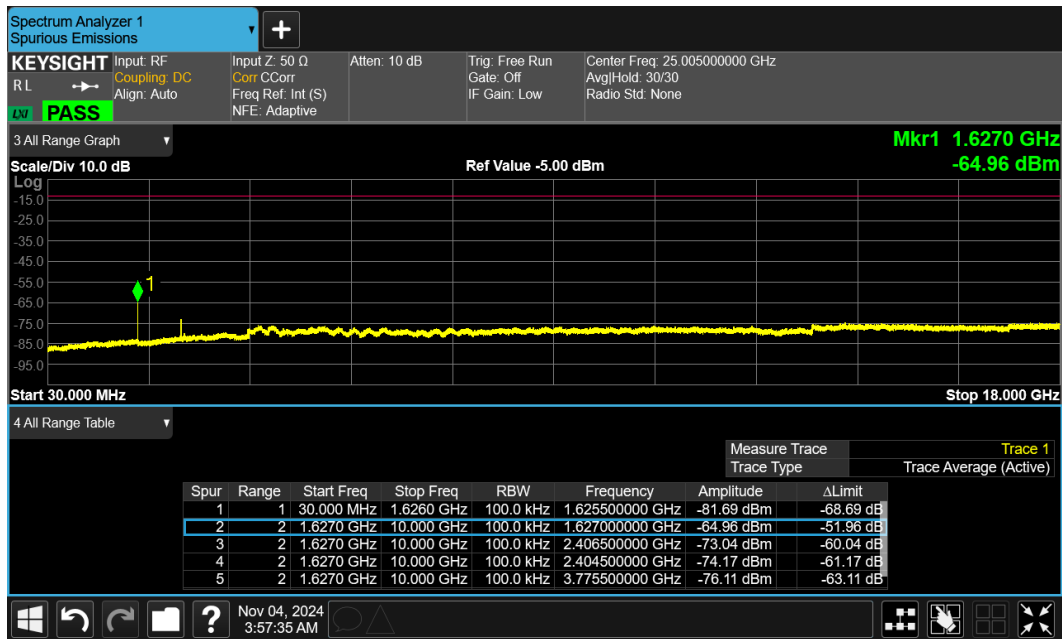


Figure 7-4. Test Instrument & Measurement Setup

FCC ID: A3LSMS936U	PART 25 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2408260064-32-R1.A3L	Test Dates: 9/4/2024 – 11/04/2024	EUT Type: Portable Handset	Page 31 of 55

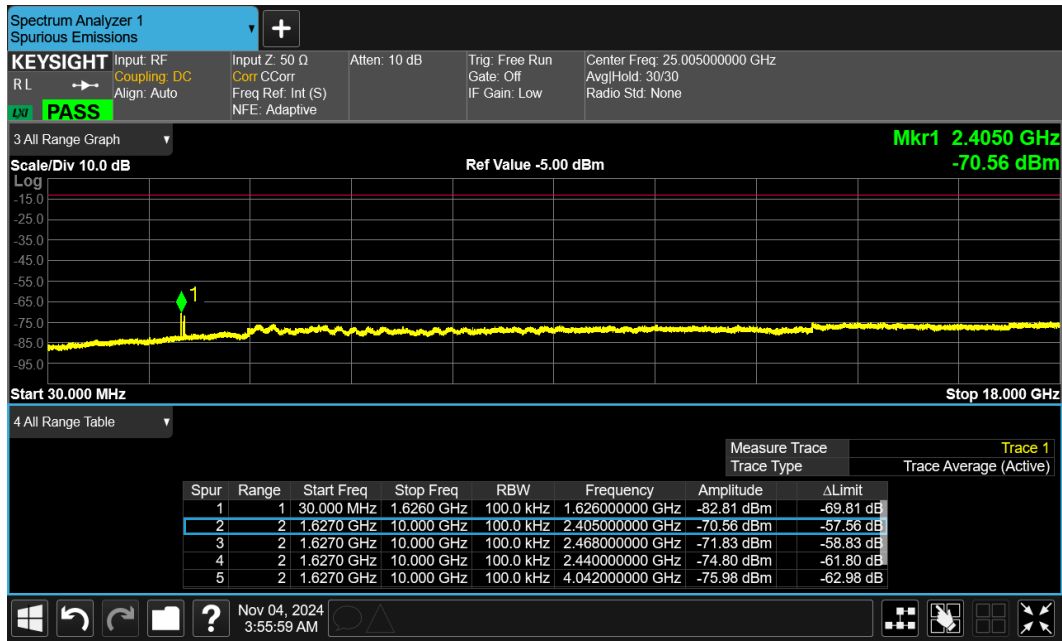


Plot 7-31. Conducted Spurious Emission - 3.75kHz SCS - Low Channel - 1SC0 - QPSK

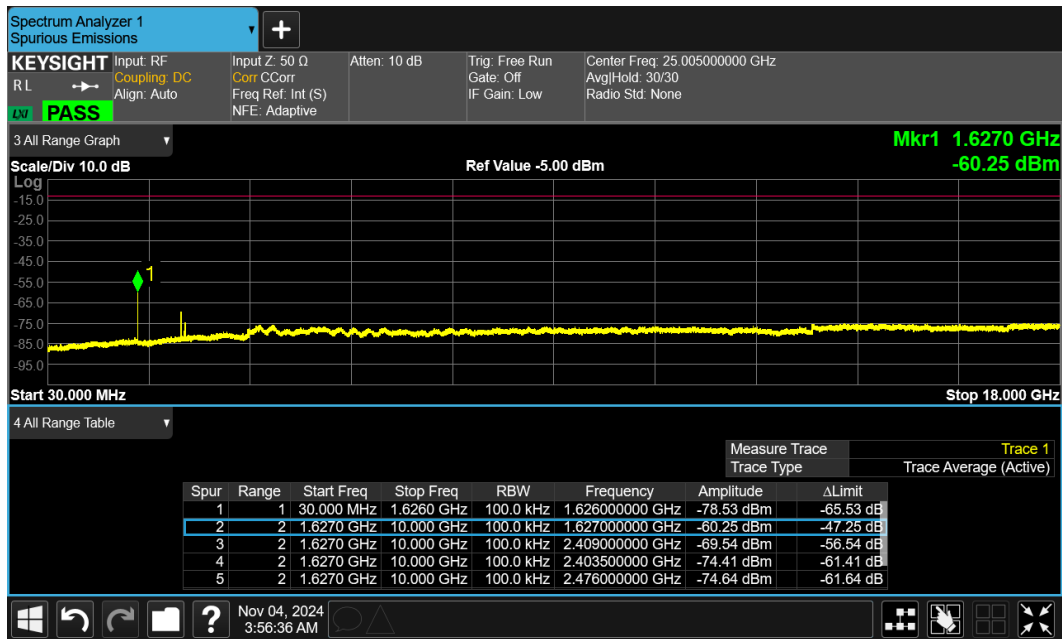


Plot 7-32. Conducted Spurious Emission - 3.75kHz SCS - Low Channel - 1SC0 - BPSK

FCC ID: A3LSMS936U	PART 25 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2408260064-32-R1.A3L	Test Dates: 9/4/2024 – 11/04/2024	EUT Type: Portable Handset	Page 32 of 55

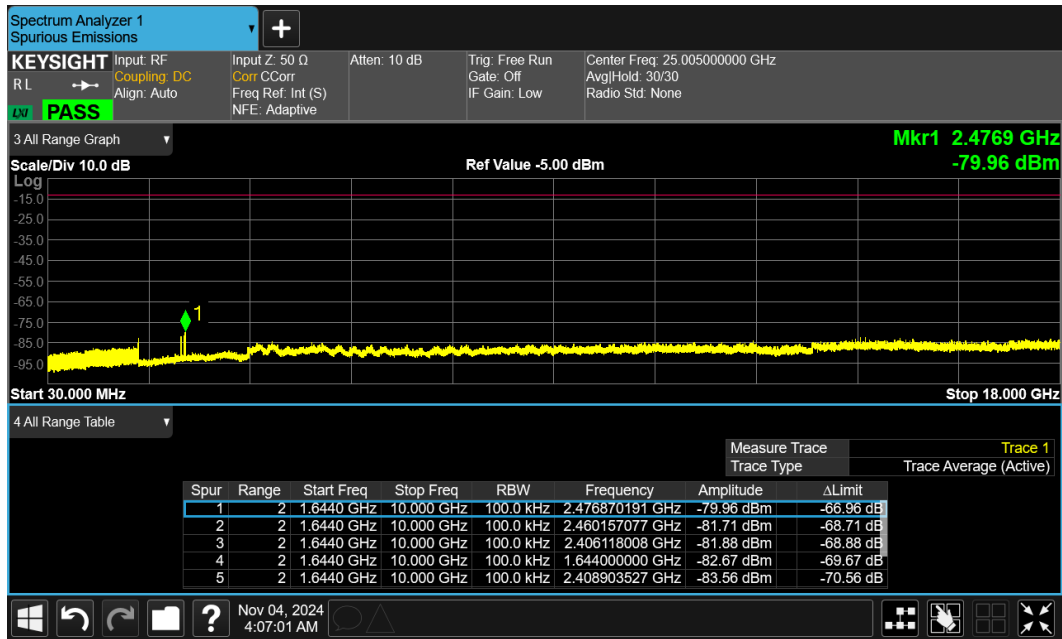


Plot 7-33. Conducted Spurious Emission - 15kHz SCS - Low Channel - 1SC0 – QPSK

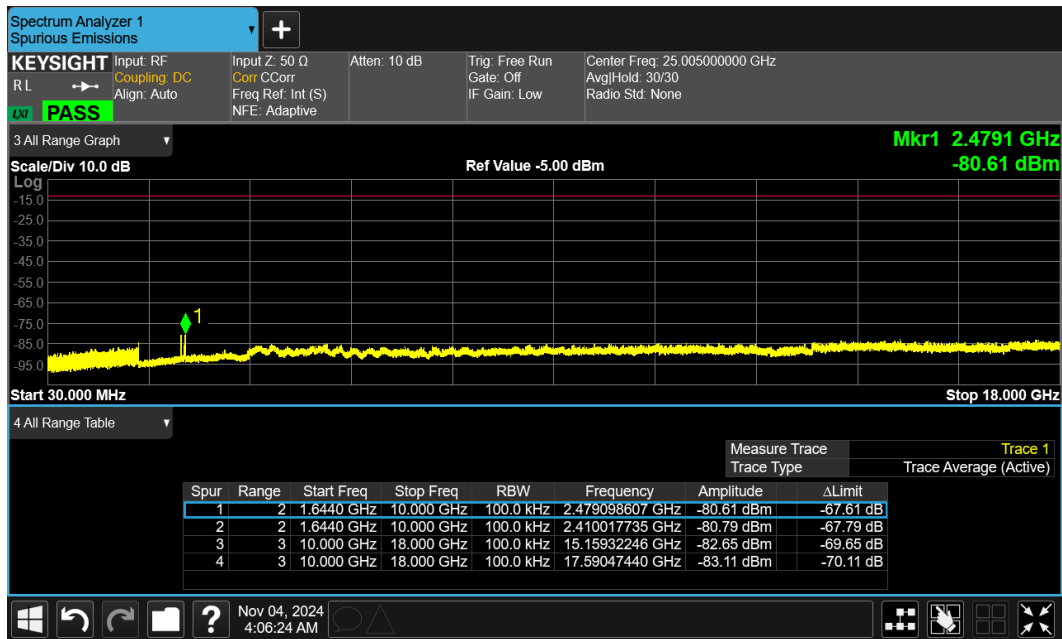


Plot 7-34. Conducted Spurious Emission - 15kHz SCS - Low Channel - 1SC0 - BPSK

FCC ID: A3LSMS936U	PART 25 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2408260064-32-R1.A3L	Test Dates: 9/4/2024 – 11/04/2024	EUT Type: Portable Handset	Page 33 of 55

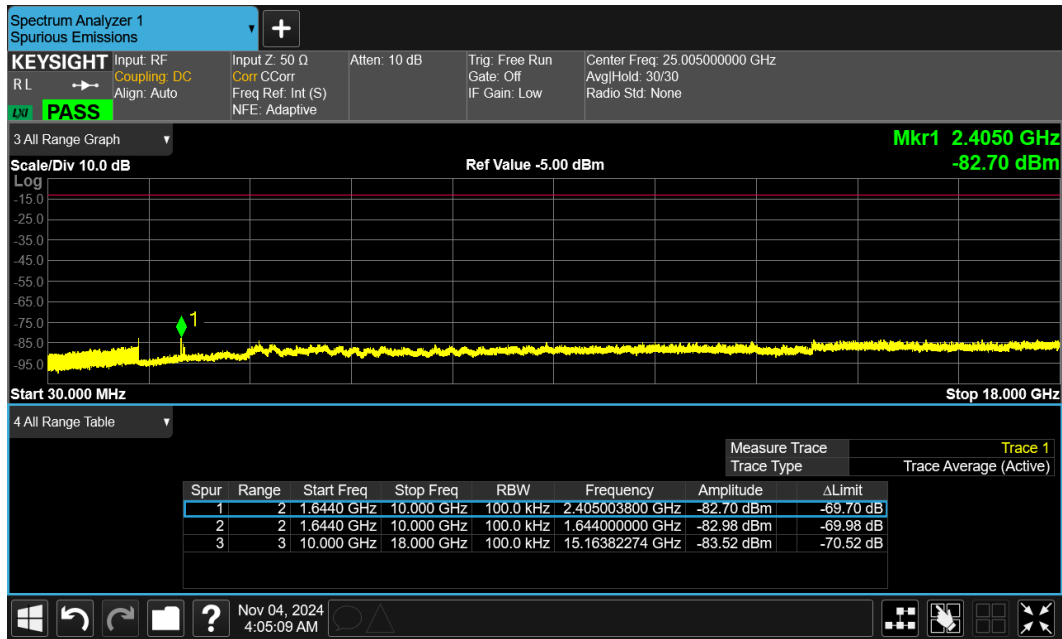


Plot 7-35. Conducted Spurious Emission - 3.75kHz SCS - Mid Channel - 1SC0 – QPSK

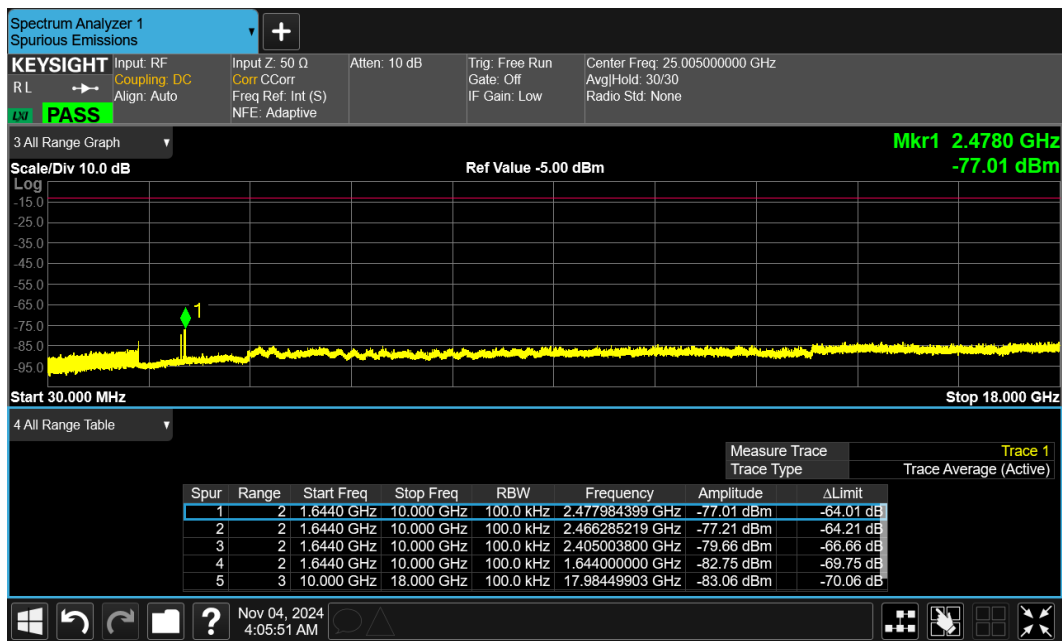


Plot 7-36. Conducted Spurious Emission - 3.75kHz SCS - Mid Channel - 1SC0 - BPSK

FCC ID: A3LSMS936U	PART 25 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2408260064-32-R1.A3L	Test Dates: 9/4/2024 – 11/04/2024	EUT Type: Portable Handset	Page 34 of 55

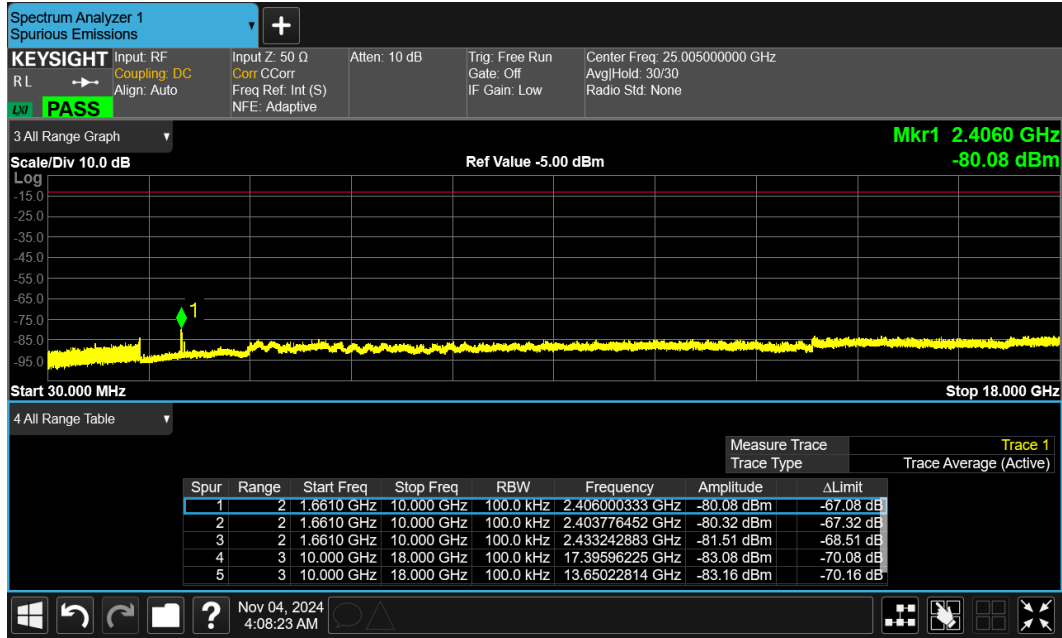


Plot 7-37. Conducted Spurious Emission - 15kHz SCS - Mid Channel - 1SC0 – QPSK

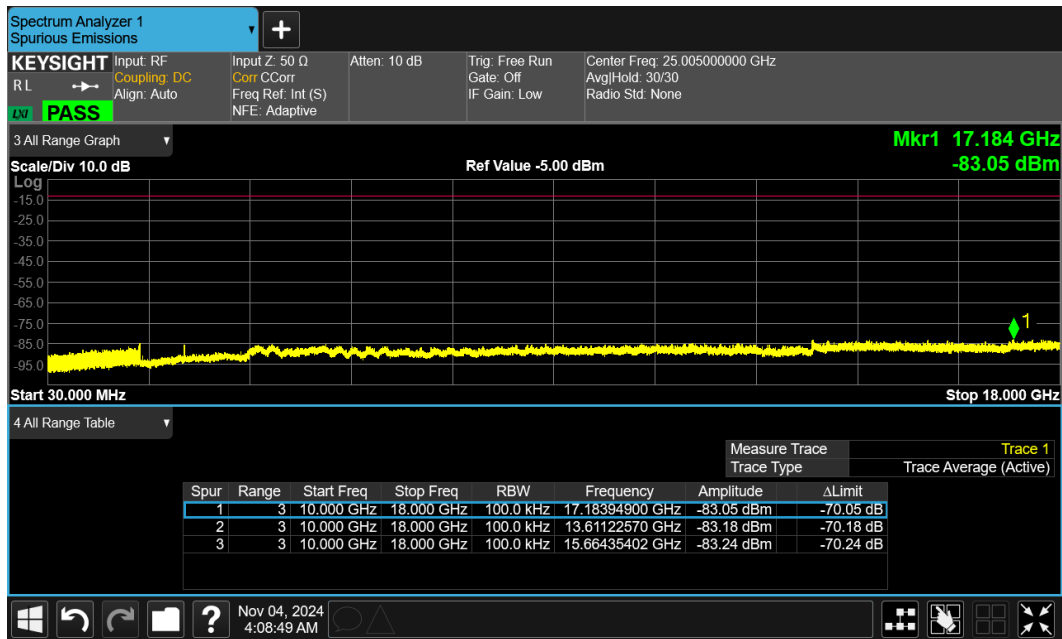


Plot 7-38. Conducted Spurious Emission - 15kHz SCS - Mid Channel - 1SC0 - BPSK

FCC ID: A3LSMS936U	PART 25 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2408260064-32-R1.A3L	Test Dates: 9/4/2024 – 11/04/2024	EUT Type: Portable Handset	Page 35 of 55

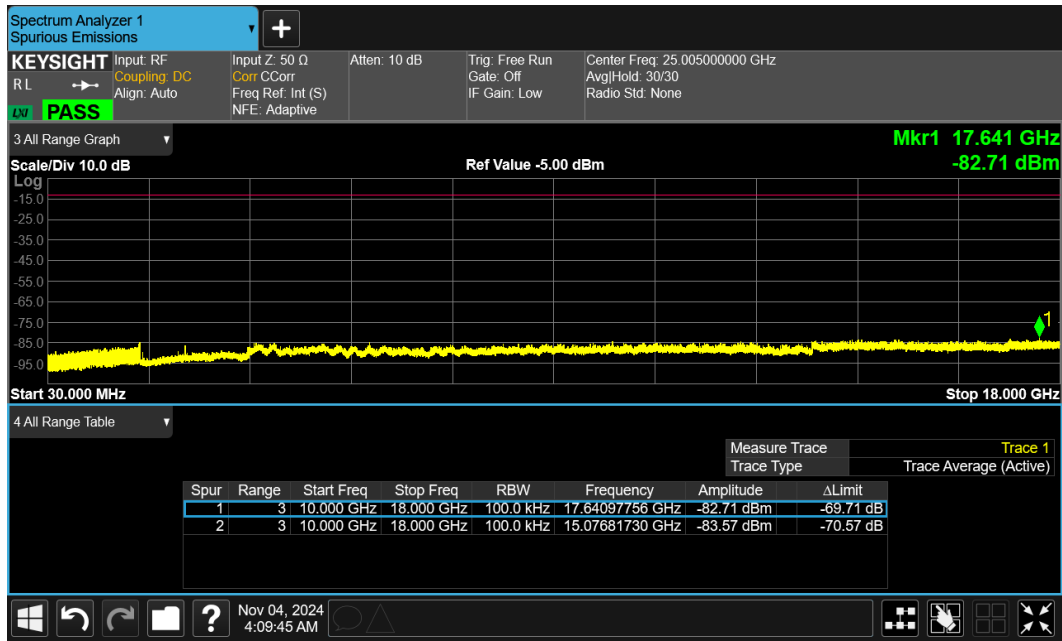


Plot 7-39. Conducted Spurious Emission - 3.75kHz SCS - High Channel - 1SC0 – QPSK

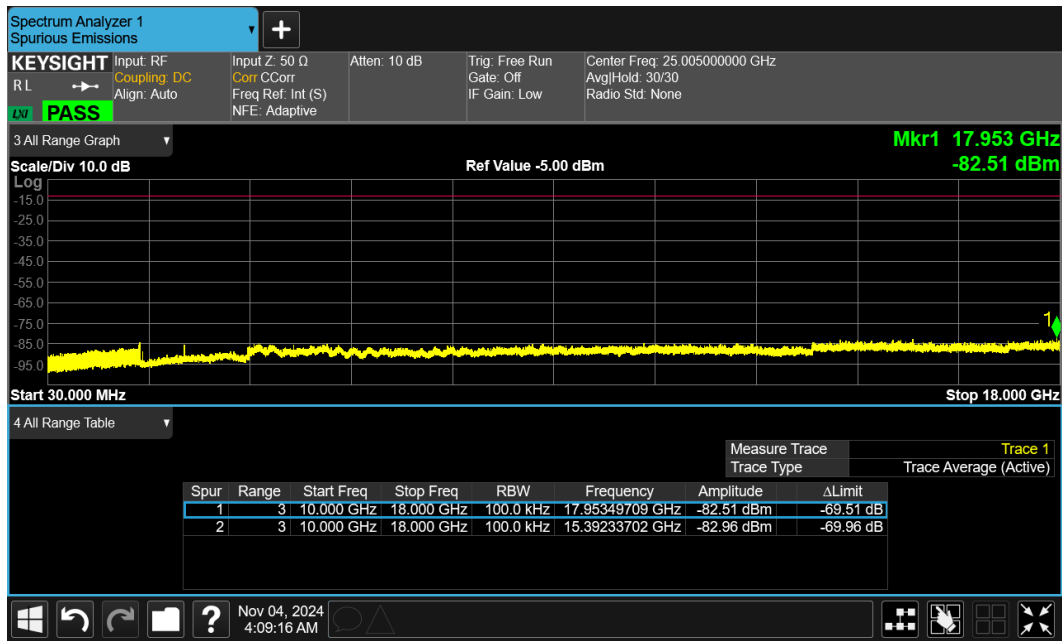


Plot 7-40. Conducted Spurious Emission - 3.75kHz SCS - High Channel - 1SC0 - BPSK

FCC ID: A3LSMS936U	PART 25 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2408260064-32-R1.A3L	Test Dates: 9/4/2024 – 11/04/2024	EUT Type: Portable Handset	Page 36 of 55



Plot 7-41. Conducted Spurious Emission - 15kHz SCS - High Channel - 1SC0 – QPSK



Plot 7-42. Conducted Spurious Emission - 15kHz SCS - High Channel - 1SC0 - BPSK

FCC ID: A3LSMS936U	PART 25 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2408260064-32-R1.A3L	Test Dates: 9/4/2024 – 11/04/2024	EUT Type: Portable Handset	Page 37 of 55

7.6 Radiated Power (EIRP)

Test Overview

Equivalent Isotropic Radiated Power (EIRP) measurements are performed using the substitution method described in ANSI C63.26-2015 with the EUT transmitting into an integral antenna. Measurements are performed using vertically and horizontally polarized broadband horn antennas. All measurements are performed as RMS average measurements while the EUT is operating at maximum power, and at the appropriate frequencies.

The EIRP shall not exceed +40 dBW in any 4 kHz band.

Test Procedures Used

ANSI C63.26-2015 – Section 5.2.4.4

Test Settings

1. Radiated power measurements are performed using the signal analyzer's "channel power" measurement capability for signals with continuous operation.
2. RBW = 1 – 5% of the expected OBW, not to exceed 1MHz
3. VBW $\geq 3 \times$ RBW
4. Span = 1.5 times the OBW
5. No. of sweep points $\geq 2 \times$ span / RBW
6. Detector = RMS
7. Trigger is set to "free run" for signals with continuous operation with the sweep times set to "auto".
8. The integration bandwidth was roughly set equal to the measured OBW of the signal for signals with continuous operation.
9. Trace mode = trace averaging (RMS) over 100 sweeps
10. The trace was allowed to stabilize

FCC ID: A3LSMS936U	PART 25 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2408260064-32-R1.A3L	Test Dates: 9/4/2024 – 11/04/2024	EUT Type: Portable Handset	Page 38 of 55

Test Setup

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

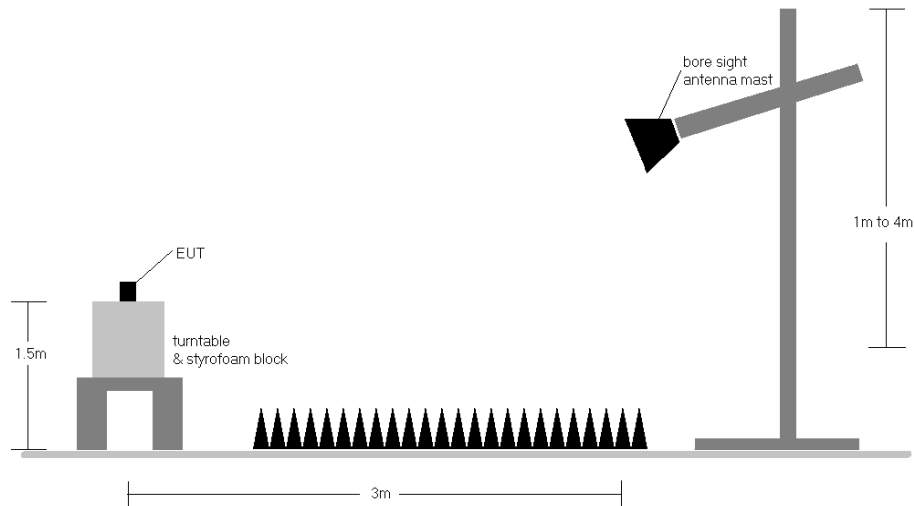


Figure 7-5. Radiated Test Setup >1GHz

Test Notes

- 1) The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst-case emissions are reported with the EUT positioning, modulations, RB sizes and offsets, and channel bandwidth configurations shown in the tables below.
- 2) The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst-case emissions are reported with the EUT positioning, modulations, RB sizes and offsets, and channel bandwidth configurations shown in the tables below.
- 3) This unit was tested with its standard battery.

SCS	SC Size	Mod.	Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Ant. Gain [dBi]	Substitute Level [dBm]	EIRP [dBm]	EIRP [Watts]	Result
3.75kHz	1SC0	BPSK	1626.60	H	115	138	1.69	18.87	20.56	0.114	Pass
	1SC24	BPSK	1626.60	H	115	138	1.69	19.34	21.03	0.127	Pass
	1SC47	BPSK	1626.60	H	115	138	1.69	19.02	20.71	0.118	Pass
15kHz	1SC0	QPSK	1626.60	H	115	138	1.69	18.87	20.56	0.114	Pass
	1SC5	QPSK	1626.60	H	115	138	1.69	19.19	20.88	0.122	Pass
	1SC11	QPSK	1626.60	H	115	138	1.69	18.81	20.50	0.112	Pass
	3SC0	QPSK	1626.60	H	115	138	1.69	16.21	17.90	0.062	Pass
	3SC6	QPSK	1626.60	H	115	138	1.69	16.28	17.97	0.063	Pass
	3SC9	QPSK	1626.60	H	115	138	1.69	16.30	17.99	0.063	Pass
	6SC0	QPSK	1626.60	H	115	138	1.69	15.56	17.25	0.053	Pass
	6SC6	QPSK	1626.60	H	115	138	1.69	16.33	18.02	0.063	Pass
	12SC0	QPSK	1626.60	H	115	138	1.69	16.22	17.91	0.062	Pass

Table 7-6. EIRP Power Result - Low Channel

FCC ID: A3LSMS936U	PART 25 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2408260064-32-R1.A3L	Test Dates: 9/4/2024 – 11/04/2024	EUT Type: Portable Handset	Page 39 of 55

SCS	SC Size	Mod.	Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Ant. Gain [dBi]	Substitute Level [dBm]	EIRP [dBm]	EIRP [Watts]	Result
3.75kHz	1SC0	BPSK	1643.50	H	155	129	1.69	18.35	20.04	0.101	Pass
	1SC24	BPSK	1643.50	H	155	129	1.69	18.68	20.37	0.109	Pass
	1SC47	BPSK	1643.50	H	155	129	1.69	18.23	19.92	0.098	Pass
15kHz	1SC0	BPSK	1643.50	H	155	129	1.69	18.56	20.25	0.106	Pass
	1SC5	BPSK	1643.50	H	155	129	1.69	19.04	20.73	0.118	Pass
	1SC11	BPSK	1643.50	H	155	129	1.69	18.79	20.48	0.112	Pass
	3SC0	QPSK	1643.50	H	155	129	1.69	16.31	18.00	0.063	Pass
	3SC6	QPSK	1643.50	H	155	129	1.69	16.54	18.23	0.066	Pass
	3SC9	QPSK	1643.50	H	155	129	1.69	16.38	18.07	0.064	Pass
	6SC0	QPSK	1643.50	H	155	129	1.69	16.57	18.26	0.067	Pass
	6SC6	QPSK	1643.50	H	155	129	1.69	16.53	18.22	0.066	Pass
	12SC0	QPSK	1643.50	H	155	129	1.69	16.83	18.52	0.071	Pass

Table 7-7. EIRP Power Result - Mid Channel

SCS	SC Size	Mod.	Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Ant. Gain [dBi]	Substitute Level [dBm]	EIRP [dBm]	EIRP [Watts]	Result
3.75kHz	1SC0	BPSK	1660.40	H	160	128	1.69	18.47	20.16	0.104	Pass
	1SC24	BPSK	1660.40	H	160	128	1.69	18.95	20.64	0.116	Pass
	1SC47	BPSK	1660.40	H	160	128	1.69	18.64	20.33	0.108	Pass
15kHz	1SC0	BPSK	1660.40	H	160	128	1.69	18.59	20.28	0.107	Pass
	1SC5	BPSK	1660.40	H	160	128	1.69	19.00	20.69	0.117	Pass
	1SC11	BPSK	1660.40	H	160	128	1.69	18.42	20.11	0.103	Pass
	3SC0	QPSK	1660.40	H	160	128	1.69	16.32	18.01	0.063	Pass
	3SC6	QPSK	1660.40	H	160	128	1.69	16.19	17.88	0.061	Pass
	3SC9	QPSK	1660.40	H	160	128	1.69	16.06	17.75	0.060	Pass
	6SC0	QPSK	1660.40	H	160	128	1.69	16.65	18.34	0.068	Pass
	6SC6	QPSK	1660.40	H	160	128	1.69	16.78	18.47	0.070	Pass
	12SC0	QPSK	1660.40	H	160	128	1.69	17.03	18.72	0.074	Pass

Table 7-8. EIRP Power Result - High Channel

FCC ID: A3LSMS936U	PART 25 MEASUREMENT REPORT		Approved by: Technical Manager
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7.7 Radiated Spurious Emissions Measurements

Test Overview

Radiated spurious emissions measurements are performed using the field strength conversion method described in ANSI C63.26-2015 with the EUT transmitting into an integral antenna. Measurements on signals operating below 1GHz are performed using hybrid (biconical/log) antennas. Measurements on signals operating above 1GHz are performed using vertically and horizontally polarized broadband horn antennas. All measurements are performed as RMS measurements while the EUT is operating at maximum power, and at the appropriate frequencies.

Test Procedures Used

ANSI C63.26-2015 – Section 5.5.4

Test Settings

1. RBW $\geq$ 100kHz
2. VBW $\geq$ 3 x RBW
3. Span = 1.5 times the OBW
4. No. of sweep points $\geq$ 2 x span / RBW
5. Detector = RMS
6. Trace mode = Average
7. The trace was allowed to stabilize

FCC ID: A3LSMS936U	PART 25 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2408260064-32-R1.A3L	Test Dates: 9/4/2024 – 11/04/2024	EUT Type: Portable Handset	Page 41 of 55

Test Setup

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

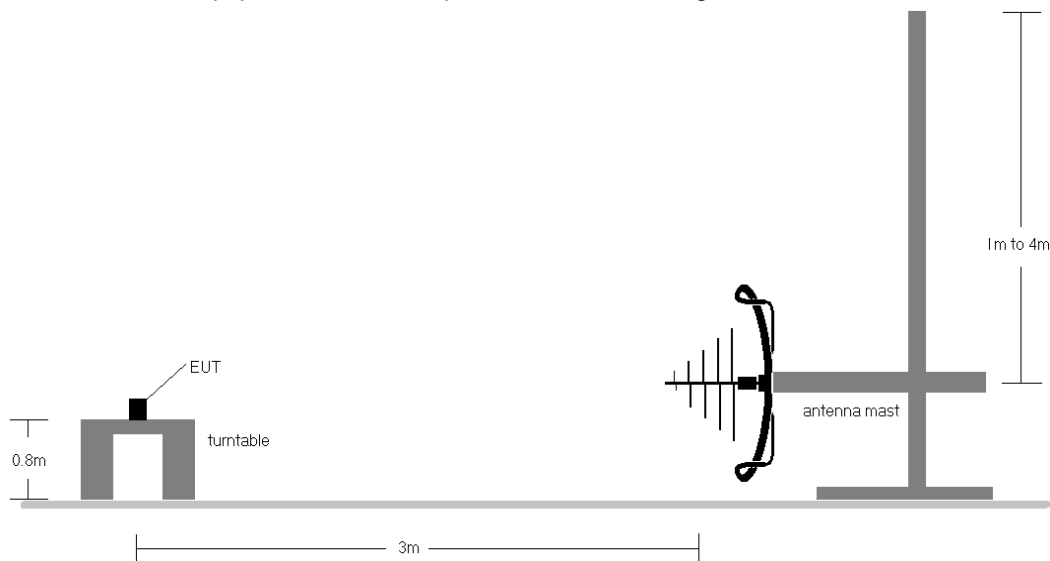


Figure 7-6. Test Instrument & Measurement Setup < 1GHz

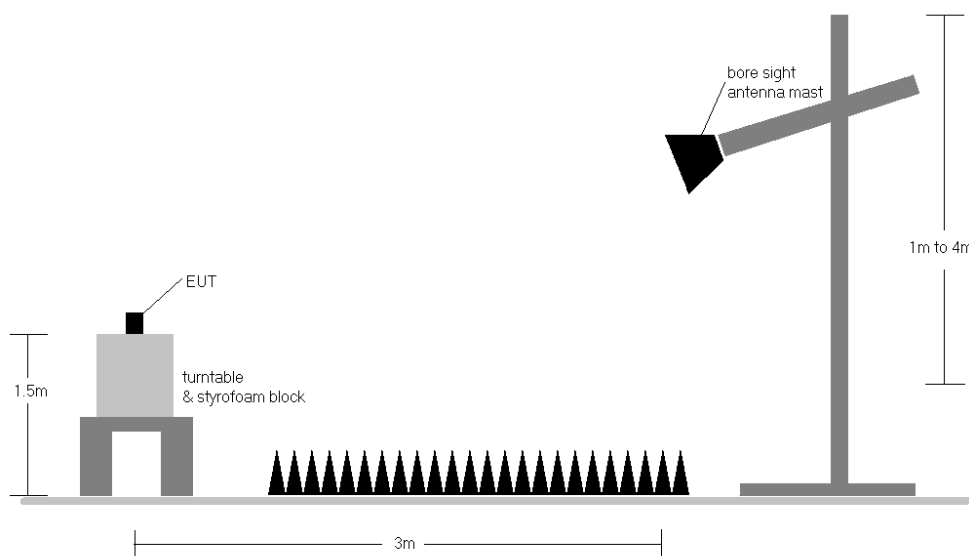


Figure 7-7. Test Instrument & Measurement Setup >1 GHz

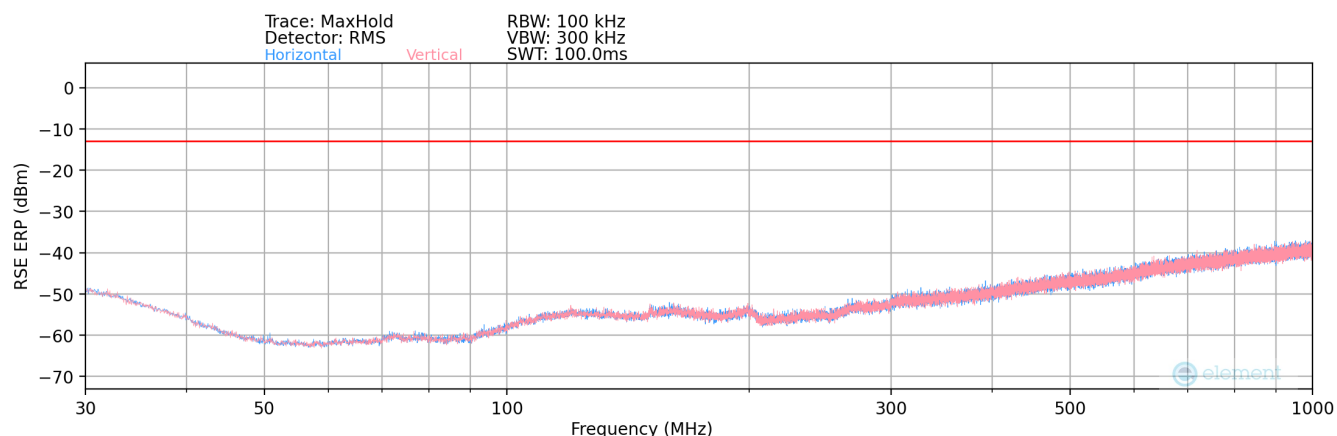
FCC ID: A3LSMS936U	PART 25 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2408260064-32-R1.A3L	Test Dates: 9/4/2024 – 11/04/2024	EUT Type: Portable Handset	Page 42 of 55

Test Notes

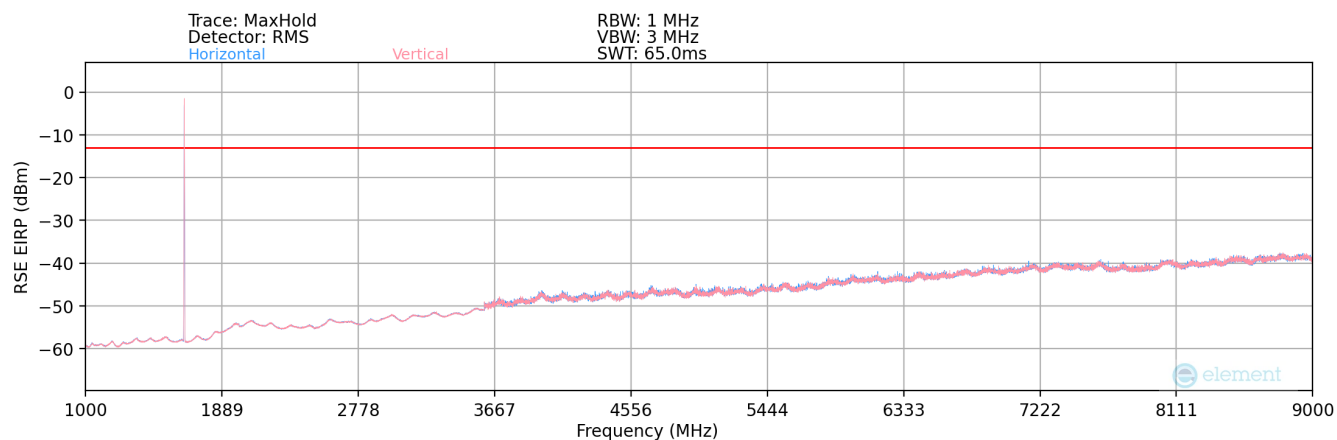
- 1) Field strengths are calculated using the Measurement quantity conversions in ANSI C63.26-2015 Section 5.2.7:
 - a) $E(\text{dB}\mu\text{V/m}) = \text{Measured amplitude level (dBm)} + 107 + \text{Cable Loss (dB)} + \text{Antenna Factor (dB/m)}$
 - b) $\text{EIRP (dBm)} = E(\text{dB}\mu\text{V/m}) + 20\log D - 104.8$; where D is the measurement distance in meters.
- 2) The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst-case emissions are reported with the EUT positioning, modulations, RB sizes and offsets, and channel bandwidth configurations shown in the tables below.
- 3) This unit was tested with its standard battery.
- 4) The spectrum is measured from 9kHz to the 10th harmonic of the fundamental frequency of the transmitter. The worst-case emissions are reported.
- 5) The "-" shown in the following RSE tables are used to denote a noise floor measurement.

FCC ID: A3LSMS936U	PART 25 MEASUREMENT REPORT		Approved by: Technical Manager
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Band 255



Plot 7-43. Radiated Spurious Plot – Band 255



Plot 7-44. Radiated Spurious Plot – Band 255

Frequency (MHz):	1626.6
SC / Offset:	1 / 7
Detector / Trace Mode:	RMS / Average
RBW / VBW:	1MHz / 3MHz

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
3251.00	H	-	-	-75.66	-0.90	30.44	-64.82	-13.00	-51.82
4880.20	H	-	-	-74.85	2.79	34.94	-60.32	-13.00	-47.32
6504.00	H	-	-	-76.01	7.37	38.36	-56.90	-13.00	-43.90

Table 7-9. Radiated Spurious Data – Band 255 – Low Channel

FCC ID: A3LSMS936U	PART 25 MEASUREMENT REPORT			Approved by: Technical Manager
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Frequency (MHz):	1643.5
SC / Offset:	1 / 7
Detector / Trace Mode:	RMS / Average
RBW / VBW:	1MHz / 3MHz

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
3286.00	H	-	-	-76.01	-0.62	30.37	-64.89	-13.00	-51.89
4928.44	H	-	-	-74.98	2.81	34.83	-60.43	-13.00	-47.43
6573.00	H	-	-	-76.21	7.21	38.00	-57.26	-13.00	-44.26

Table 7-10. Radiated Spurious Data – Band 255 – Mid Channel

Frequency (MHz):	1660.4
SC / Offset:	1 / 7
Detector / Trace Mode:	RMS / Average
RBW / VBW:	1MHz / 3MHz

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
3218.00	H	-	-	-75.77	-0.95	30.28	-64.97	-13.00	-51.97
4980.70	H	-	-	-75.11	3.06	34.95	-60.31	-13.00	-47.31
6639.00	H	-	-	-76.01	7.21	38.20	-57.06	-13.00	-44.06

Table 7-11. Radiated Spurious Data – Band 255 – High Channel

FCC ID: A3LSMS936U	PART 25 MEASUREMENT REPORT		Approved by: Technical Manager
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7.8 Radiated Spurious Emissions Measurements (1559 – 1610MHz)

Test Overview

Radiated spurious emissions measurements are performed using the field strength conversion method described in ANSI C63.26-2015 with the EUT transmitting into an integral antenna. Measurements on signals operating below 1GHz are performed using hybrid (biconical/log) antennas. Measurements on signals operating above 1GHz are performed using vertically and horizontally polarized broadband horn antennas. All measurements are performed as RMS measurements while the EUT is operating at maximum power, and at the appropriate frequencies.

Per FCC Part 25.216:

(c) The e.i.r.p. density of emissions from mobile earth stations placed in service after July 21, 2002 with assigned uplink frequencies between 1610 MHz and 1660.5 MHz shall not exceed -70 dBW/MHz, averaged over any 2 millisecond active transmission interval, in the band 1559-1605 MHz. The e.i.r.p. of discrete emissions of less than 700 Hz bandwidth from such stations shall not exceed -80 dBW, averaged over any 2 millisecond active transmission interval, in the 1559-1605 MHz band

(h) Mobile earth stations manufactured more than six months after Federal Register publication of the rule changes adopted in FCC 03-283 with assigned uplink frequencies in the 1626.5-1660.5 MHz band shall suppress the power density of emissions in the 1605-1610 MHz band-segment to an extent determined by linear interpolation from -70 dBW/MHz at 1605 MHz to -46 dBW/MHz at 1610 MHz, averaged over any 2 millisecond active transmission interval. The e.i.r.p of discrete emissions of less than 700 Hz bandwidth from such stations shall not exceed a level determined by linear interpolation from -80 dBW at 1605 MHz to -56 dBW at 1610 MHz, averaged over any 2 millisecond active transmission interval.

Test Procedures Used

ANSI C63.26-2015 – Section 5.5.4

Test Settings

1. RBW = 1MHz
2. VBW $\geq 3 \times$ RBW
3. Span = 1559 – 1610MHz
4. No. of sweep points = 1001
5. Detector = RMS
6. Trace mode = Average
7. The trace was allowed to stabilize

FCC ID: A3LSMS936U	PART 25 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2408260064-32-R1.A3L	Test Dates: 9/4/2024 – 11/04/2024	EUT Type: Portable Handset	Page 46 of 55

Test Setup

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

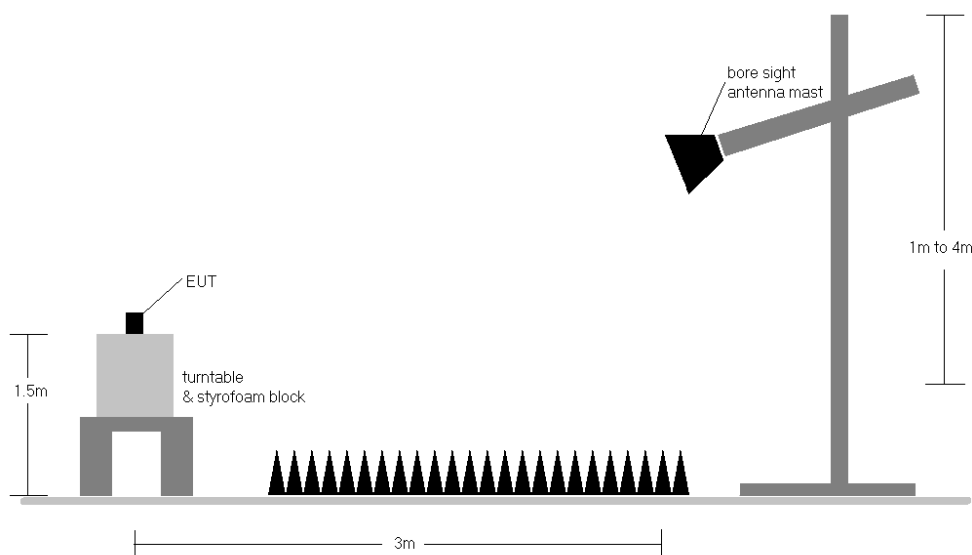


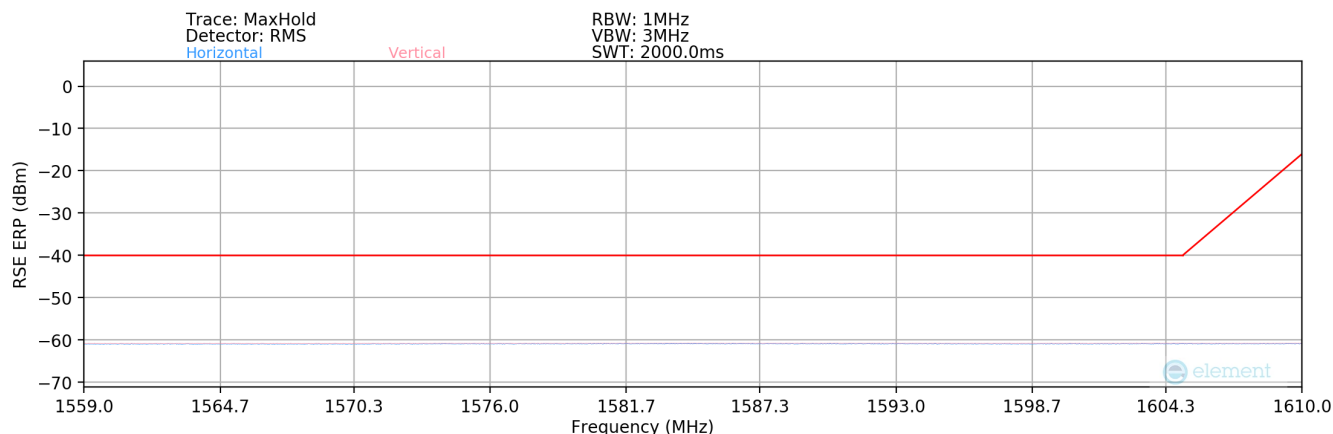
Figure 7-8. Test Instrument & Measurement Setup >1 GHz

Test Notes

- Field strengths are calculated using the Measurement quantity conversions in ANSI C63.26-2015 Section 5.2.7:
 - $E(\text{dB}\mu\text{V/m}) = \text{Measured amplitude level (dBm)} + 107 + \text{Cable Loss (dB)} + \text{Antenna Factor (dB/m)}$
 - $\text{EIRP (dBm)} = E(\text{dB}\mu\text{V/m}) + 20\log D - 104.8$; where D is the measurement distance in meters.
- The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst-case emissions are reported with the EUT positioning, modulations, RB sizes and offsets, and channel bandwidth configurations shown in the tables below.
- This unit was tested with its standard battery.
- The spectrum is measured from 9kHz to the 10th harmonic of the fundamental frequency of the transmitter. The worst-case emissions are reported.
- The "-" shown in the following RSE tables are used to denote a noise floor measurement.

FCC ID: A3LSMS936U	PART 25 MEASUREMENT REPORT		Approved by: Technical Manager
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Band 255 (1559 – 1610MHz)



Plot 7-45. Radiated Spurious Plot – Band 255 (1559 – 1610MHz)

Frequency (MHz):	1626.6
SC / Offset:	1 / 0
Detector / Trace Mode:	RMS / Average
RBW / VBW:	1MHz / 3MHz

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
1560.20	H	-	-	-76.17	2.45	33.28	-61.97	-40.00	-21.97
1597.63	H	-	-	-76.28	2.46	33.18	-62.08	-40.00	-22.08
1599.00	H	-	-	-76.33	2.46	33.13	-62.13	-40.00	-22.13

Table 7-12. Radiated Spurious Data – Band 255 – Low Channel

Frequency (MHz):	1626.6
SC / Offset:	1 / 0
Detector / Trace Mode:	RMS / Average
RBW / VBW:	1MHz / 3MHz

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
1601.20	H	-	-	-76.48	2.46	32.98	-62.28	-40.00	-22.28
1604.00	H	-	-	-76.49	2.46	32.97	-62.28	-40.00	-22.28
1604.90	H	-	-	-76.30	2.47	33.17	-62.09	-40.00	-22.09

Table 7-13. Radiated Spurious Data – Band 255 – Mid Channel

FCC ID: A3LSMS936U	PART 25 MEASUREMENT REPORT		Approved by: Technical Manager
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Frequency (MHz):	1643.5
SC / Offset:	1 / 0
Detector / Trace Mode:	RMS / Average
RBW / VBW:	1MHz / 3MHz

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
1558.69	H	-	-	-76.15	2.45	33.30	-61.96	-40.00	-21.96
1561.20	H	-	-	-75.48	2.45	33.97	-61.28	-40.00	-21.28
1605.40	H	-	-	-76.33	2.47	33.14	-62.12	-40.00	-22.12

Table 7-14. Radiated Spurious Data – Band 255 – High Channel

FCC ID: A3LSMS936U	PART 25 MEASUREMENT REPORT		Approved by: Technical Manager
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7.9 Carrier-Off State Emissions Measurements (1559 – 1610MHz)

Test Overview

Radiated spurious emissions measurements are performed using the field strength conversion method described in ANSI C63.26-2015 with the EUT transmitting into an integral antenna. Measurements on signals operating below 1GHz are performed using hybrid (biconical/log) antennas. Measurements on signals operating above 1GHz are performed using vertically and horizontally polarized broadband horn antennas. All measurements are performed as RMS measurements while the EUT is operating at maximum power, and at the appropriate frequencies.

Per FCC Part 25.216:

Mobile earth stations manufactured more than six months after Federal Register publication of the rule changes adopted in FCC 03-283 with assigned uplink frequencies in the 1626.5-1660.5 MHz band shall suppress the power density of emissions in the 1605-1610 MHz band-segment to an extent determined by linear interpolation from -70 dBW/MHz at 1605 MHz to -46 dBW/MHz at 1610 MHz, averaged over any 2 millisecond active transmission interval. The e.i.r.p of discrete emissions of less than 700 Hz bandwidth from such stations shall not exceed a level determined by linear interpolation from -80 dBW at 1605 MHz to -56 dBW at 1610 MHz, averaged over any 2 millisecond active transmission interval.

Test Procedures Used

ANSI C63.26-2015 – Section 5.5.4

Test Settings

1. RBW = 1MHz
2. VBW $\geq 3 \times$ RBW
3. Span = 1.5 times the OBW
4. No. of sweep points = 1001
5. Detector = RMS
6. Trace mode = Average
7. The trace was allowed to stabilize

FCC ID: A3LSMS936U	PART 25 MEASUREMENT REPORT		Approved by: Technical Manager
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Test Setup

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

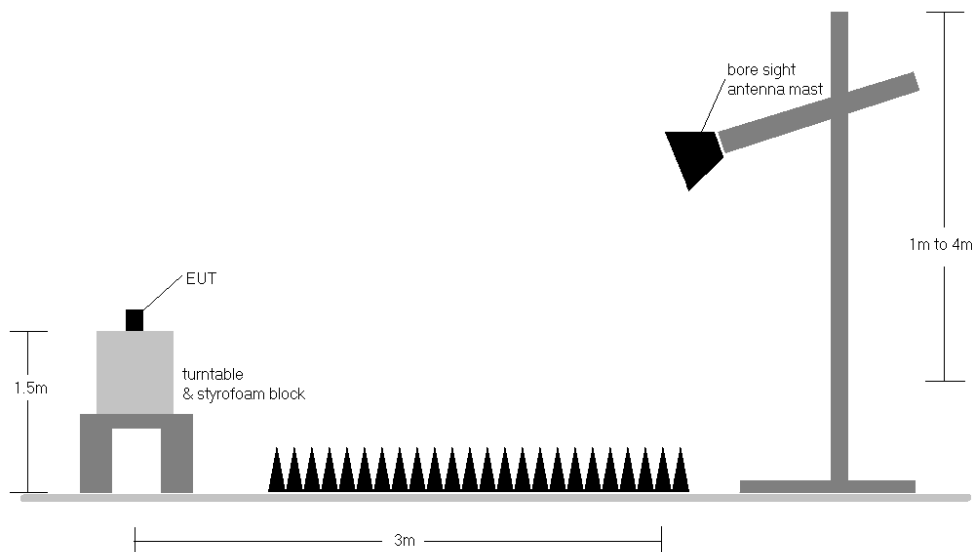


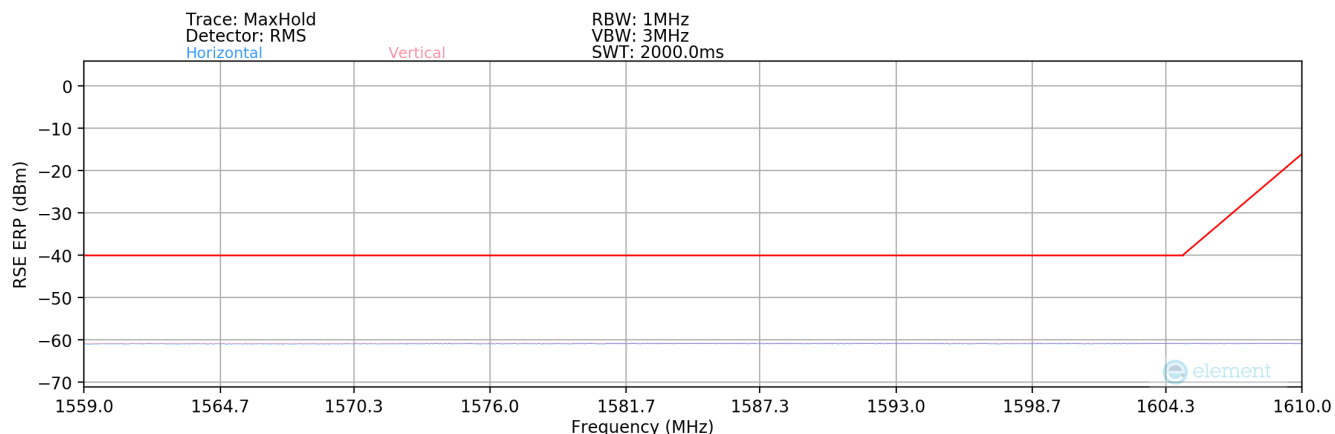
Figure 7-9. Test Instrument & Measurement Setup >1 GHz

Test Notes

- 1) Field strengths are calculated using the Measurement quantity conversions in ANSI C63.26-2015 Section 5.2.7:
 - a) $E(\text{dB}\mu\text{V/m}) = \text{Measured amplitude level (dBm)} + 107 + \text{Cable Loss (dB)} + \text{Antenna Factor (dB/m)}$
 - b) $\text{EIRP (dBm)} = E(\text{dB}\mu\text{V/m}) + 20\log D - 104.8$; where D is the measurement distance in meters.
- 2) The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst-case emissions are reported with the EUT positioning, modulations, RB sizes and offsets, and channel bandwidth configurations shown in the tables below.
- 3) This unit was tested with its standard battery.
- 4) The spectrum is measured from 9kHz to the 10th harmonic of the fundamental frequency of the transmitter. The worst-case emissions are reported.
- 5) The "-" shown in the following RSE tables are used to denote a noise floor measurement.

FCC ID: A3LSMS936U	PART 25 MEASUREMENT REPORT		Approved by: Technical Manager
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Band 255 (1559 – 1610MHz, Carrier Off)



Plot 7-46. Radiated Spurious Plot – Band 255 (1559 – 1610MHz, Carrier Off)

Frequency (MHz):	1660.4
SC / Offset:	1 / 0
Detector / Trace Mode:	RMS / Average
RBW / VBW:	1MHz / 3MHz

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	ERP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
1552.69	H	-	-	-75.48	2.45	33.97	-61.29	-40.00	-21.29
1590.40	H	-	-	-76.23	2.47	33.24	-62.02	-40.00	-22.02
1604.00	H	-	-	-74.89	2.46	34.57	-60.68	-40.00	-20.68

Table 7-15. Radiated Spurious Data – Band 255 – Low Channel, Carrier Off

FCC ID: A3LSMS936U	PART 25 MEASUREMENT REPORT		Approved by: Technical Manager
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7.10 Frequency Stability / Temperature Variation

Test Overview and Limit

Frequency stability testing is performed in accordance with the guidelines of ANSI C63.26-2015. The frequency stability of the transmitter is measured by:

- a.) **Temperature:** The temperature is varied from -30°C to +50°C in 10°C increments using an environmental chamber.
- b.) **Primary Supply Voltage:** The primary supply voltage is varied from 85% to 115% of the nominal value for non hand-carried battery and AC powered equipment. For hand-carried, battery-powered equipment, primary supply voltage is reduced to the battery operating end point which shall be specified by the manufacturer.

Per FCC Part 25.202(d) Frequency tolerance, Earth stations. The carrier frequency of each earth station transmitter authorized in these services shall be maintained within 0.001 percent of the reference frequency.

Test Procedure Used

ANSI C63.26-2015 – Section 5.6

Test Settings

1. The carrier frequency of the transmitter is measured at room temperature (20°C to provide a reference).
2. The equipment is turned on in a “standby” condition for fifteen minutes before applying power to the transmitter. Measurement of the carrier frequency of the transmitter is made within one minute after applying power to the transmitter.
3. Frequency measurements are made at 10°C intervals ranging from -30°C to +50°C. A period of at least one half-hour is provided to allow stabilization of the equipment at each temperature level.

Test Setup

The EUT was connected via an RF cable to a spectrum analyzer with the EUT placed inside an environmental chamber.

Test Notes

None

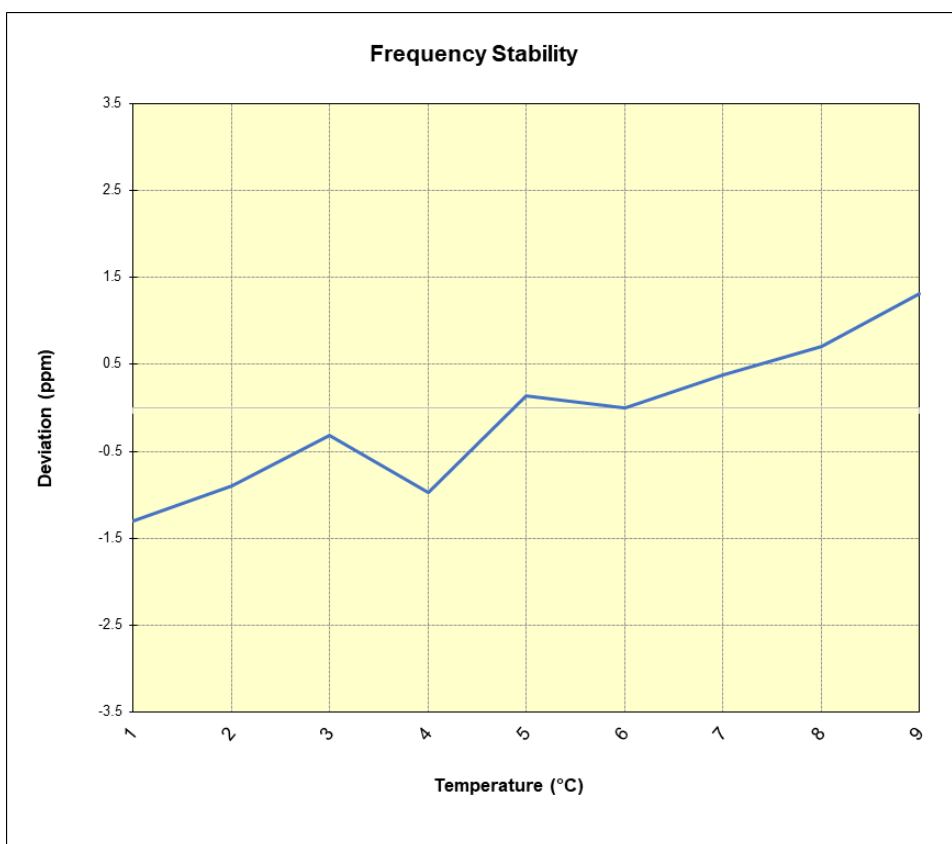
FCC ID: A3LSMS936U	PART 25 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2408260064-32-R1.A3L	Test Dates: 9/4/2024 – 11/04/2024	EUT Type: Portable Handset	Page 53 of 55

Band 255

Operating Frequency (Hz):	1,643,500,000
Ref. Voltage (VDC):	3.85

Voltage (%)	Power (VDC)	Temp (°C)	Frequency (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.85	- 30	1,643,498,968	-2,144	-0.0001305
		- 20	1,643,499,637	-1,475	-0.0000897
		- 10	1,643,500,590	-522	-0.0000318
		0	1,643,499,513	-1,599	-0.0000973
		+ 10	1,643,501,334	222	0.0000135
		+ 20 (Ref)	1,643,501,112	0	0.0000000
		+ 30	1,643,501,733	621	0.0000378
		+ 40	1,643,502,271	1,159	0.0000705
		+ 50	1,643,503,259	2,147	0.0001306
Battery Endpoint	3.21	+ 20	1,643,500,998	-114	-0.0000069

Table 7-16. Frequency Stability Data



Plot 7-47. Frequency Stability Chart

FCC ID: A3LSMS936U	PART 25 MEASUREMENT REPORT		Approved by: Technical Manager
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8.0 CONCLUSION

The data collected relate only to the item(s) tested and show that the **Samsung Portable Handset FCC ID: A3LSMS936U** complies with the requirements of Part 25 of the FCC rules for operation in the 1626.5 – 1660.5MHz band.

FCC ID: A3LSMS936U	PART 25 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2408260064-32-R1.A3L	Test Dates: 9/4/2024 – 11/04/2024	EUT Type: Portable Handset	Page 55 of 55