



ELEMENT WASHINGTON DC LLC

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MEASUREMENT REPORT Bluetooth (Low Energy)

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

Date of Testing:
9/6/2023 - 11/06/2023
Test Report Issue Date:
11/06/2023
Test Site/Location:
Element lab., Columbia, MD, USA
Test Report Serial No.:
1M2308210092-10.A3L

FCC ID:	A3LSMS928U
APPLICANT:	Samsung Electronics Co., Ltd.

Application Type:	Certification
Model:	SM-S928U
Additional Model(s):	SM-S928U1
EUT Type:	Portable Handset
Max. RF Output Power:	82.376 mW (19.16 dBm) Peak Conducted
Frequency Range:	2402 – 2480MHz
FCC Classification:	Digital Transmission System (DTS)
FCC Rule Part(s):	Part 15 Subpart C (15.247)
Test Procedure(s):	ANSI C63.10-2013, KDB 558074 D01 v05r02

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 ANSI C63.10-2013 and KDB 558074 D01 v05r02. Test results reported herein relate only to the item(s) tested.

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

RJ Ortanez
Executive Vice President



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1.0 INTRODUCTION

1.1 Scope

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

1.2 Element Test Location

These measurement tests were conducted at the Element laboratory located at 7185 Oakland Mills Road, Columbia, MD 21046. The measurement facility is compliant with the test site requirements specified in ANSI C63.4-2014.

1.3 Test Facility / Accreditations

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

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

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2.0 ODUCT INFORMATION

2.1 Equipment Description

The Equipment Under Test (EUT) is the **Samsung Portable Handset FCC ID: A3LSMS928U**. The data found in this test report was taken with the EUT operating in Bluetooth low energy mode. While in low energy mode, the Bluetooth transmitter hops pseudo-randomly between 40 channels, three of which are “advertising channels”. When the transmitter is hopping only between the three advertising channels, the EUT does not fall under the category of a “hopper” as defined in 15.247(a)(iii) which states that a “frequency hopping systems in the 2400–2483.5 MHz band shall use at least 15 channels.” As operation on only the advertising channels does not qualify the EUT as a hopper, the EUT is certified as a DTS device in this mode. The data found in this report is representative of the device when it transmits on its advertising channels. Typical Bluetooth operation is covered under the DSS report found with this application.

Test Device Serial No.: 0876M, 0042M, 0900M

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 and FR2), 802.11b/g/n/ax/be WLAN, 802.11a/n/ac/ax/be UNII (5GHz and 6GHz), Bluetooth (1x, EDR, LE), NFC, Wireless Power Transfer, UWB

Ch.	Frequency (MHz)
0	2402
:	:
19	2440
:	:
39	2480

Table 2-1. Frequency / Channel Operations

2.3 Antenna Description

Following antenna was used for the testing.

Frequency [GHz]	Antenna 1 Gain (dBi)	Antenna 2 Gain (dBi)	Directional Gain (dBi)
2.4	-1.05	-3.52	0.81

Table 2-2. Antenna Peak Gain

Note: This device is capable of operating in hopping and non-hopping mode. The EUT can hop between 79 different channels in the 2400 – 2483.5MHz band.

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2.4 Test Configuration

The EUT was tested per the guidance of ANSI C63.10-2013 and KDB 558074 D01 v05r02. ANSI C63.10-2013 was used to reference the appropriate EUT setup for radiated spurious emissions testing and AC line conducted testing. See Sections 3.2 for AC line conducted emissions test setups, 3.3 for radiated emissions test setups, and 7.2, 7.3, 7.4, 7.5, and 7.6 for antenna port conducted emissions test setups.

2.5 Software and Firmware

The test was conducted with software/firmware version S928USQU0AW19 installed on the EUT.

2.6 EMI Suppression Device(s)/Modifications

No EMI suppression device(s) were added and/or 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 of Procedures for Compliance Testing of Unlicensed Wireless Devices (ANSI C63.10-2013) and the guidance provided in KDB 558074 D01 v05r02 were used in the measurement of the EUT.

Deviation from measurement procedure.....None

3.2 AC Line Conducted Emissions

The line-conducted facility is located inside a 10'x16'x9' shielded enclosure. The shielded enclosure is manufactured by ETS Lindgren RF. The shielding effectiveness of the shielded room is in accordance with MIL-Std-285 or NSA 65-5. A 1m x 1.5m wooden table 80cm high is placed 40cm away from the vertical wall and 80cm away from the sidewall of the shielded room. Two 10kHz-30MHz, 50Ω/50μH Line-Impedance Stabilization Networks (LISNs) are bonded to the shielded room floor. Power to the LISNs is filtered by external high-current high-insertion loss power line filters. The external power line filter is an ETS Lindgren Model LPRX-4X30 (100dB Attenuation, 14kHz-18GHz) and the two EMI/RFI filters are ETS Lindgren Model LRW-2030-S1 (100dB Minimum Insertion Loss, 14kHz – 10GHz). These filters attenuate ambient signal noise from entering the measurement lines. These filters are also bonded to the shielded enclosure.

The EUT is powered from one LISN and the support equipment is powered from the second LISN. If the EUT is a DC-powered device, power will be derived from the source power supply it normally will be powered from and this supply line(s) will be connected to the second LISN. All interconnecting cables more than 1 meter were shortened to a 1 meter length by non-inductive bundling (serpentine fashion) and draped over the back edge of the test table. All cables were at least 40cm above the horizontal reference groundplane. Power cables for support equipment were routed down to the second LISN while ensuring that those cables were not draped over the second LISN.

Sufficient time for the EUT, support equipment, and test equipment was allowed in order for them to warm up to their normal operating condition. The RF output of the LISN was connected to the spectrum analyzer and exploratory measurements were made to determine the frequencies producing the maximum emission from the EUT. The spectrum was scanned from 150kHz to 30MHz with a spectrum analyzer. The detector function was set to peak mode for exploratory measurements while the bandwidth of the analyzer was set to 10kHz. The EUT, support equipment, and interconnecting cables were arranged and manipulated to maximize each emission. Once the worst case emissions have been identified, the one EUT cable configuration/arrangement and mode of operation that produced these emissions is used for final measurements on the same test site. The analyzer is set to CISPR quasi-peak and average detectors with a 9kHz resolution bandwidth for final measurements.

Line conducted emissions test results are shown in Section 7.9. The EMI Receiver mode of the Agilent MXE was used to perform AC line conducted emissions testing.

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3.3 Radiated 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. An 80cm tall test table made of Styrodur is placed on top of the turn table. For measurements above 1GHz, an additional Styrodur pedestal is placed on top of the test table to bring the total table height to 1.5m.

For all measurements, the spectrum was scanned through all EUT azimuths and from 1 to 4 meter receive antenna height using a broadband antenna from 30MHz up to the upper frequency shown in 15.33 depending on the highest frequency generated or used in the device or on which the device operates or tunes. For frequencies above 1GHz, linearly polarized double ridge horn antennas were used. For frequencies below 30MHz, a calibrated loop antenna was used. When exploratory measurements were necessary, they were performed at 1 meter test distance inside the semi-anechoic chamber using broadband antennas, broadband amplifiers, and spectrum analyzers to determine the frequencies and modes producing the maximum emissions. Sufficient time for the EUT, support equipment, and test equipment was allowed in order for them to warm up to their normal operating condition. The test set-up was placed on top of the 1 x 1.5 meter table. The EUT, support equipment, and interconnecting cables were arranged and manipulated to maximize each emission. Appropriate precaution was taken to ensure that all emissions from the EUT were maximized and investigated. The system configuration, mode of operation, turntable azimuth, and receive antenna height was noted for each frequency found.

Final measurements were made in the semi-anechoic chamber using calibrated, linearly polarized broadband and horn antennas. The test setup was configured to the setup that produced the worst case emissions. The spectrum analyzer was set to investigate all frequencies required for testing to compare the highest radiated disturbances with respect to the specified limits. The turntable containing the EUT was rotated through 360 degrees and the height of the receive antenna was varied 1 to 4 meters and stopped at the azimuth and height producing the maximum emission. Each emission was maximized by changing the orientation of the EUT through three orthogonal planes and changing the polarity of the receive antenna, whichever produced the worst-case emissions.

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.

3.4 Environmental Conditions

The temperature is controlled within range of 15°C to 35°C. The relative humidity is controlled within range of 10% to 75%. The atmospheric pressure is monitored within the range 86-106kPa (860-1060mbar).

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4.0 ANTENNA REQUIREMENTS

Excerpt from §15.203 of the FCC Rules/Regulations:

“An intentional radiator antenna shall be designed to ensure that no antenna other than that furnished by the responsible party can be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section.”

- The antenna(s) of the EUT are **permanently attached**.
- There are no provisions for connection to an external antenna.

Conclusion:

The EUT complies with the requirement of §15.203.

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5.0 MEASUREMENT UNCERTAINTY

The measurement uncertainties shown below were calculated in accordance with the requirements of ANSI C63.10-2013. 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
Line Conducted Disturbance	3.09
Radiated Disturbance (<1GHz)	4.98
Radiated Disturbance (>1GHz)	5.07
Radiated Disturbance (>18GHz)	5.09

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6.0 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
-	NMLC-2	Line Conducted Emissions Cable (NM)	1/11/2023	Annual	1/11/2024	NMLC-2
-	AP2-001	EMC Cable and Switch System	1/11/2023	Annual	1/11/2024	AP2-001
-	AP2-002	EMC Cable and Switch System	1/11/2023	Annual	1/11/2024	AP2-002
-	ETS-001	EMC Cable and Switch System	1/11/2023	Annual	1/11/2024	ETS-001
-	ETS-002	EMC Cable and Switch System	1/11/2023	Annual	1/11/2024	ETS-002
-	MD 1M 18-40	EMC Cable and Switch System	1/11/2023	Annual	1/11/2024	MD 1M 18-40
-	WL25-1	Conducted Cable Set (25GHz)	1/12/2023	Annual	1/12/2024	WL25-1
-	WL40-1	WLAN Cable Set (40GHz)	1/12/2023	Annual	1/12/2024	WL40-1
EMCO	3115	Horn Antenna (1-18GHz)	8/8/2022	Biennial	8/8/2024	9704-5182
EMCO	3116	Horn Antenna (18-40GHz)	7/5/2023	Biennial	7/5/2025	9203-2178
Keysight Technologies	N9030A	PXA Signal Analyzer	8/7/2023	Annual	8/7/2024	MY54490576
Keysight Technologies	N9030A	PXA Signal Analyzer (44GHz)	3/15/2023	Annual	3/15/2024	MY52350166
Keysight Technologies	N9038A	MXE EMI Receiver	8/30/2023	Annual	8/30/2024	MY51210133
Rohde & Schwarz	FSW67	Signal / Spectrum Analyzer	1/13/2023	Annual	1/13/2024	101639
Rohde & Schwarz	ESU26	EMI Test Receiver (26.5GHz)	9/25/2023	Annual	9/25/2024	100342
Rohde & Schwarz	ESU40	EMI Test Receiver (40GHz)	9/11/2023	Annual	9/11/2024	100348
Rohde & Schwarz	VULB9162	Bilog Antenna	2/21/2023	Biennial	2/21/2025	00301
Sunol Sciences	DRH-118	Horn (Small)	2/14/2022	Biennial	2/14/2024	A102416-2
Sunol Sciences	JB5	Bi-Log Antenna (30M-5GHz)	8/30/2022	Biennial	8/30/2024	A102416-1

Table 6-1. Annual Test Equipment Calibration Schedule

Note:

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

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7.0 TEST RESULTS

7.1 Summary

Company Name: Samsung Electronics Co., Ltd.
 FCC ID: A3LSMS928U
 FCC Classification: Digital Transmission System (DTS)
 Number of Channels: 40

FCC Part Section(s)	RSS Section(s)	Test Description	Test Limit	Test Condition	Test Result	Reference
15.247(a)(2)	RSS-247 [5.2]	6dB Bandwidth	> 500kHz	CONDUCTED	PASS	Section 7.2
15.247(b)(3)	RSS-247 [5.4(4)]	Transmitter Output Power	< 1 Watt		PASS	Sections 7.3
15.247(e)	RSS-247 [5.2]	Transmitter Power Spectral Density	< 8dBm / 3kHz Band		PASS	Section 7.4
15.247(d)	RSS-247 [5.5]	Band Edge / Out-of-Band Emissions	≥ 20dBc		PASS	Sections 7.5, 7.6
15.205 15.209	RSS-Gen [8.9]	General Field Strength Limits (Restricted Bands and Radiated Emission Limits)	Emissions in restricted bands must meet the radiated limits detailed in 15.209 (RSS-Gen [8.9])	RADIATED	PASS	Sections 7.7, 7.8
15.207	RSS-Gen [8.8]	AC Conducted Emissions 150kHz – 30MHz	< FCC 15.207 limits (RSS-Gen[8.8])	LINE CONDUCTED	PASS	Section 7.9

Table 7-1. Summary of Test Results

Notes:

- All modes of operation were investigated. The test results shown in the following sections represent the worst case emissions.
- The analyzer plots shown in this section were all taken with a correction table loaded into the analyzer. The correction table was used to account for the losses of the cables and attenuators used as part of the system to connect the EUT to the analyzer at all frequencies of interest.
- 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 and attenuators.
- For conducted spurious emissions, automated test software was used to measure emissions and capture the corresponding plots necessary to show compliance. The measurement software utilized is ELEMENT “Bluetooth LE Automation,” Version 3.6.
- For radiated band edge, automated test software was used to measure emissions and capture the corresponding plots necessary to show compliance. The measurement software utilized is ELEMENT “Chamber Automation,” Version 1.3.1.

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7.2 6dB Bandwidth Measurement – Bluetooth (LE)

§15.247(a.2); RSS-247 [5.2]

Test Overview and Limit

The bandwidth at 6dB down from the highest in-band spectral density is measured with a spectrum analyzer connected to the transmitter antenna terminal of the EUT while the EUT is operating at maximum power and at the appropriate frequencies. All modes of operation were investigated and the worst case configuration results are reported in this section.

The minimum permissible 6dB bandwidth is 500 kHz.

Test Procedure Used

ANSI C63.10-2013 – Section 11.8.2 Option 2

KDB 558074 D01 v05r02 – Section 8.2

Test Settings

1. The signal analyzers' automatic bandwidth measurement capability of the spectrum analyzer was used to perform the 6dB bandwidth measurement. The "X" dB bandwidth parameter was set to X = 6. The bandwidth measurement was not influenced by any intermediate power nulls in the fundamental emission.
2. RBW = 100kHz
3. VBW \geq 3 x RBW
4. Detector = Peak
5. Trace mode = max hold
6. Sweep = auto couple
7. The trace was allowed to stabilize

Test Setup

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



Figure 7-1. Test Instrument & Measurement Setup

Test Notes

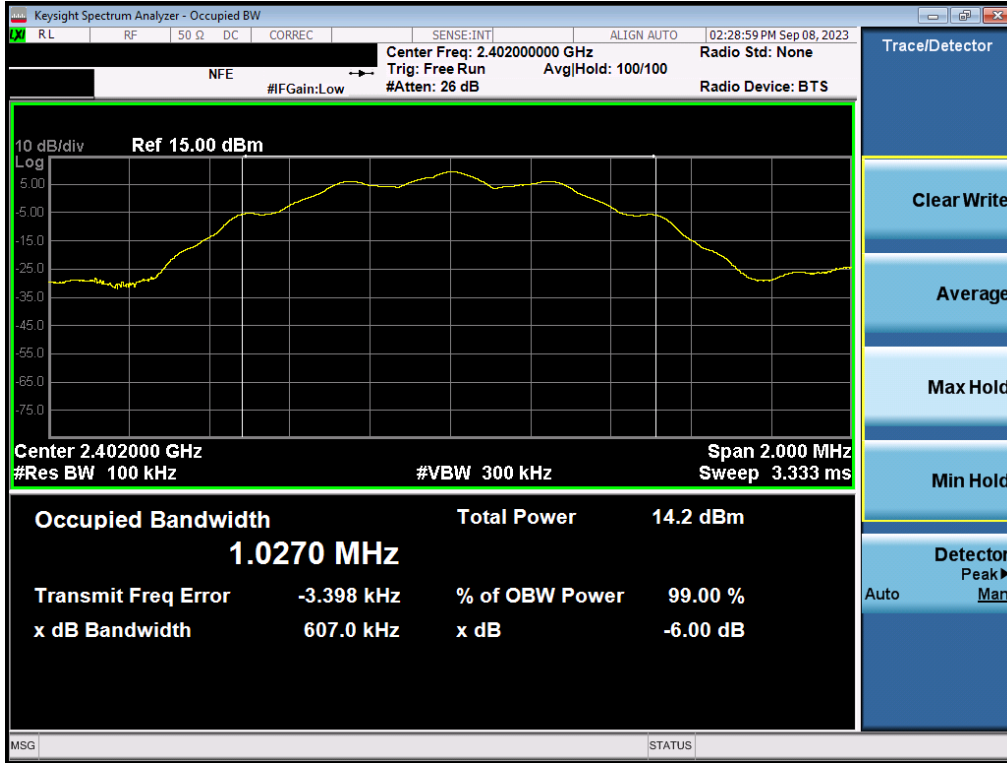
None

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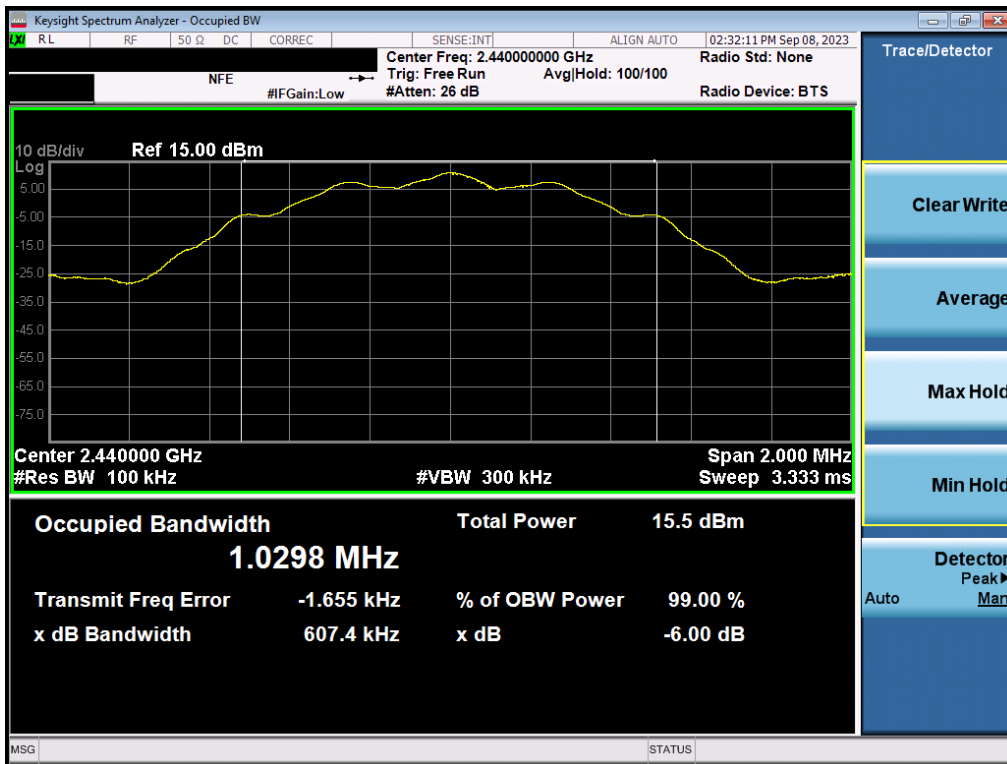
Frequency [MHz]	Data Rate	Channel No.	Bluetooth Mode	Measured Bandwidth [kHz]	Minimum Bandwidth [kHz]	Pass / Fail
2402	125 kbps	0	LE	607.0	500	Pass
2440	125 kbps	19	LE	607.4	500	Pass
2480	125 kbps	39	LE	609.0	500	Pass
2402	500 kbps	0	LE	659.4	500	Pass
2440	500 kbps	19	LE	660.9	500	Pass
2480	500 kbps	39	LE	661.1	500	Pass
2402	1 Mbps	0	LE	696.7	500	Pass
2440	1 Mbps	19	LE	701.6	500	Pass
2480	1 Mbps	39	LE	699.4	500	Pass
2402	2 Mbps	0	LE	1152.4	500	Pass
2440	2 Mbps	19	LE	1155.8	500	Pass
2480	2 Mbps	39	LE	1155.6	500	Pass

Table 7-2. Conducted Bandwidth Measurements – ANT1

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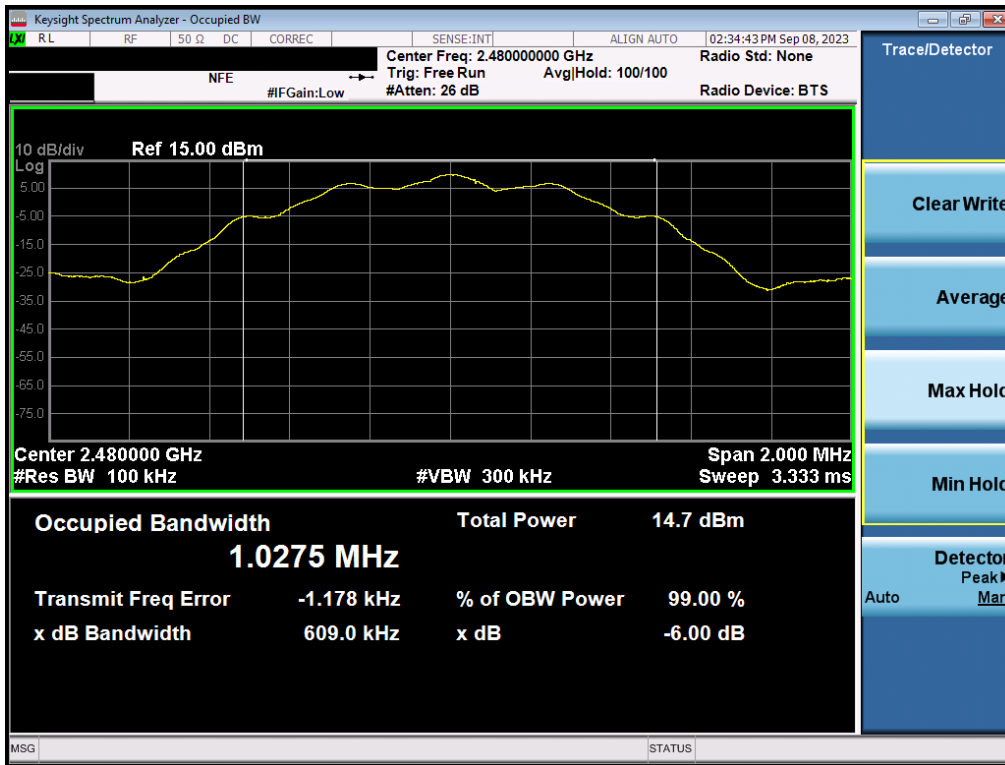


Plot 7-1. 6dB Bandwidth Plot (Bluetooth (LE), 125kbps – Ch. 0 – ANT1)

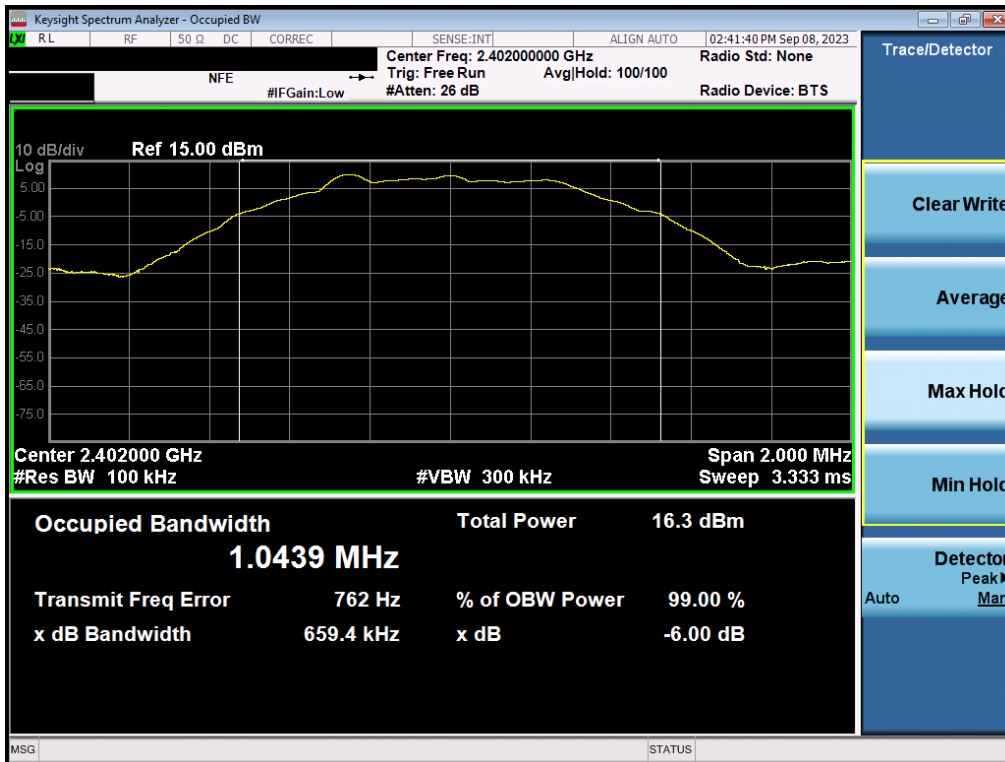


Plot 7-2. 6dB Bandwidth Plot (Bluetooth (LE), 125kbps – Ch. 19 ANT1)

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Plot 7-3. 6dB Bandwidth Plot (Bluetooth (LE), 125kbps – Ch. 39 ANT1)

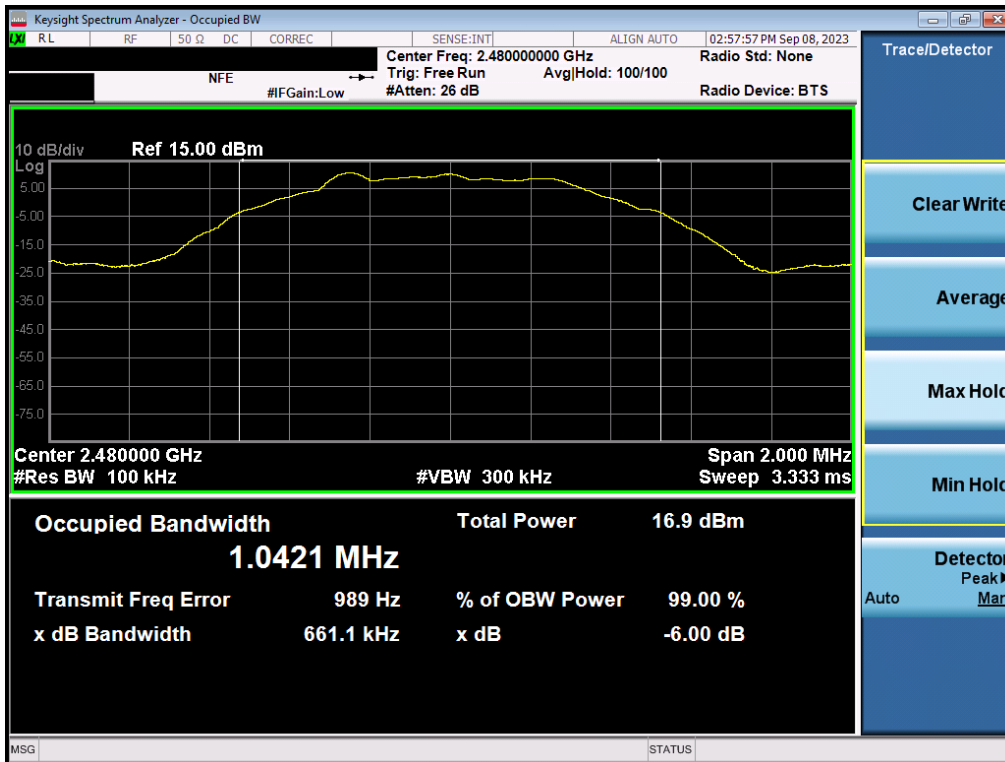


Plot 7-4. 6dB Bandwidth Plot (Bluetooth (LE), 500kbps – Ch. 0 ANT1)

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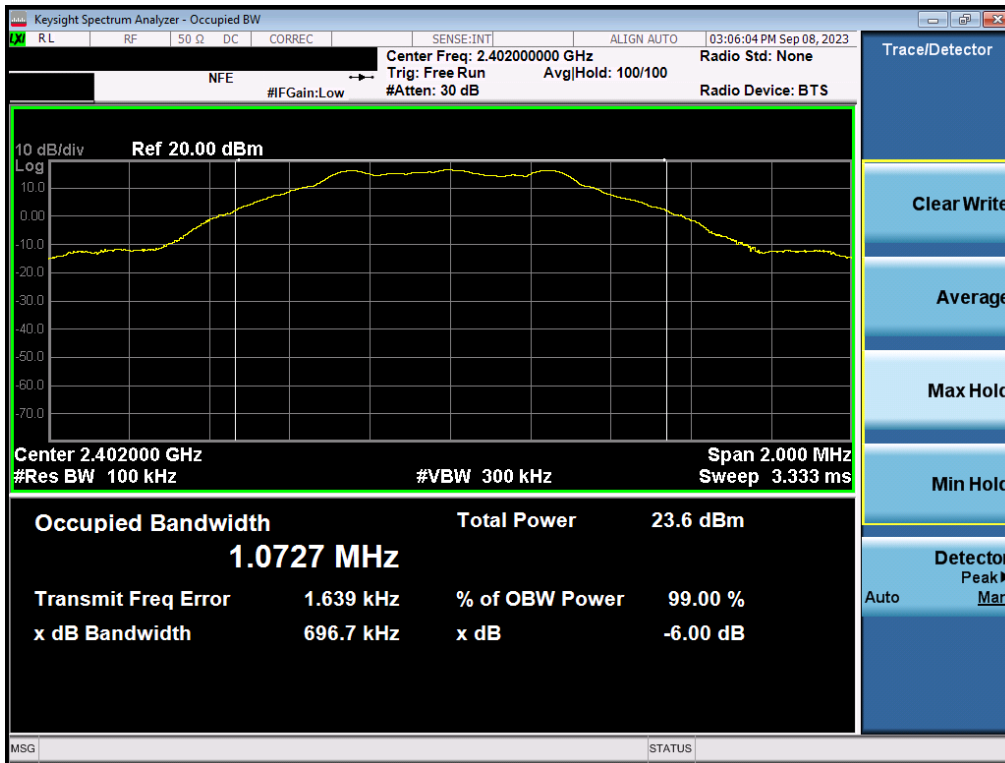


Plot 7-5. 6dB Bandwidth Plot (Bluetooth (LE), 500kbps – Ch. 19 ANT1)

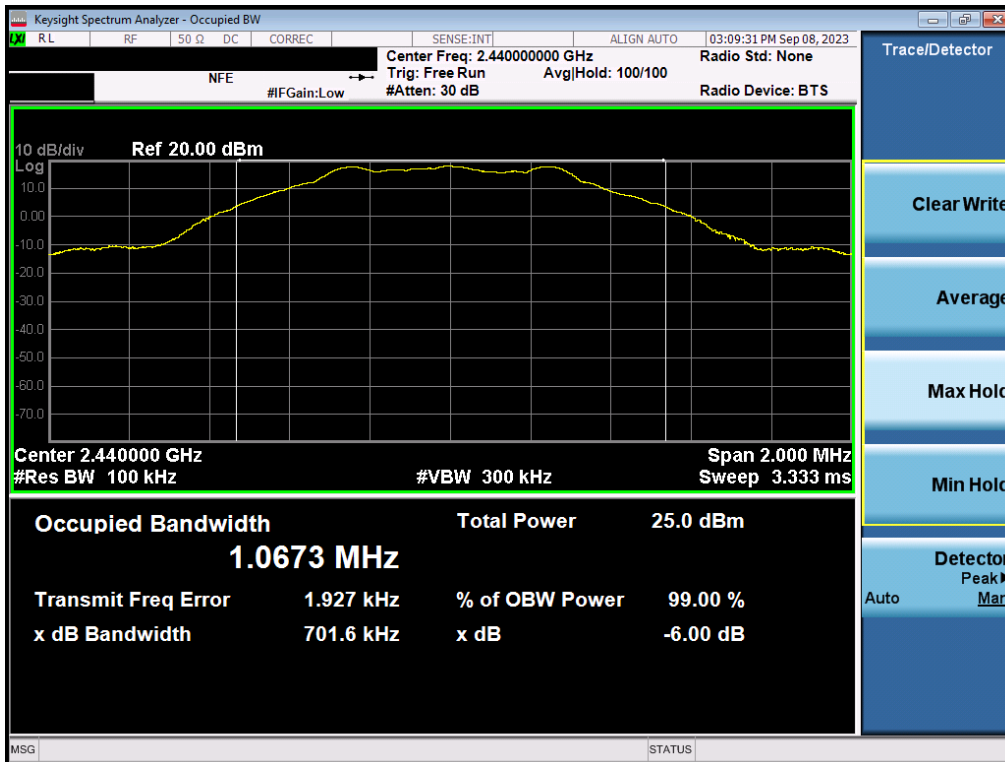


Plot 7-6. 6dB Bandwidth Plot (Bluetooth (LE), 500kbps – Ch. 39 ANT1)

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Plot 7-7. 6dB Bandwidth Plot (Bluetooth (LE), 1Mbps – Ch. 0 ANT1)

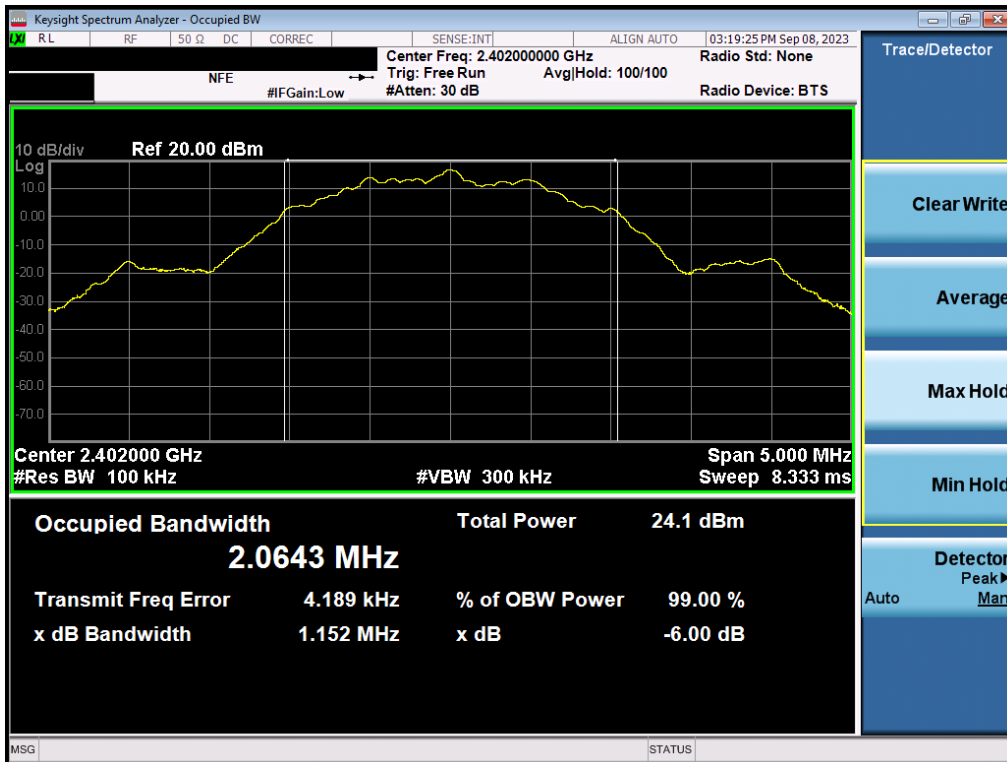


Plot 7-8. 6dB Bandwidth Plot (Bluetooth (LE), 1Mbps – Ch. 19 ANT1)

FCC ID: A3LSMS928U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2308210092-10.A3L	Test Dates: 9/6/2023 - 11/06/2023	EUT Type: Portable Handset	Page 17 of 121	



Plot 7-9. 6dB Bandwidth Plot (Bluetooth (LE), 1Mbps – Ch. 39 ANT1)

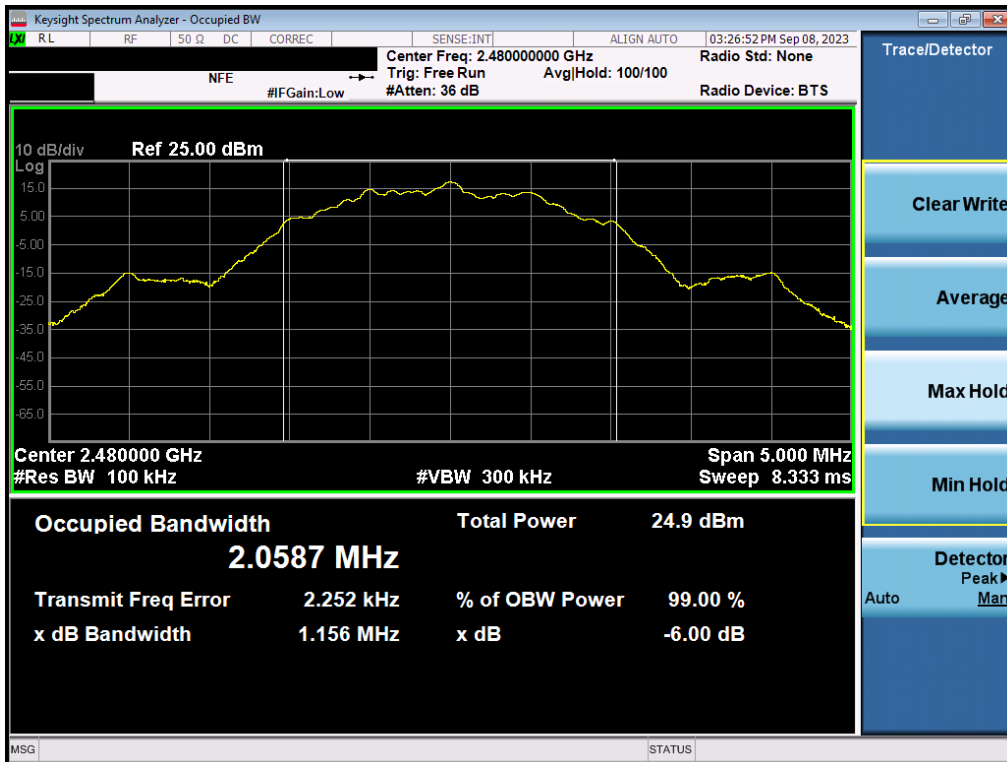


Plot 7-10. 6dB Bandwidth Plot (Bluetooth (LE), 2Mbps – Ch. 0 ANT1)

FCC ID: A3LSMS928U	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2308210092-10.A3L	Test Dates: 9/6/2023 - 11/06/2023	EUT Type: Portable Handset	Page 18 of 121



Plot 7-11. 6dB Bandwidth Plot (Bluetooth (LE), 2Mbps – Ch. 19 ANT1)



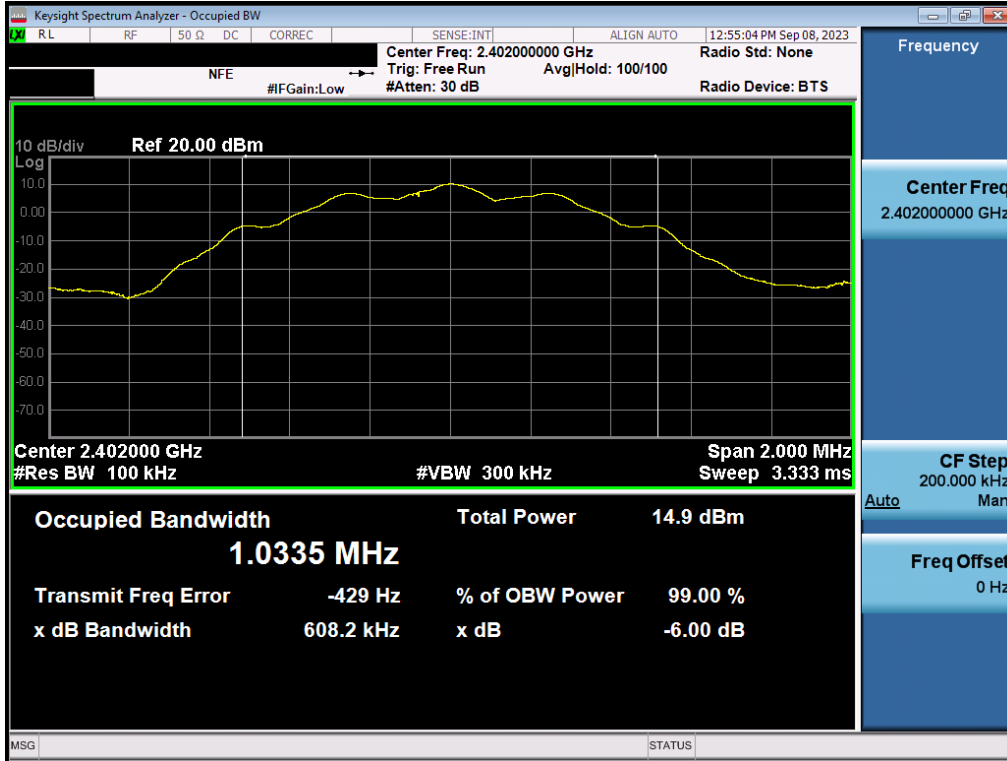
Plot 7-12. 6dB Bandwidth Plot (Bluetooth (LE), 2Mbps – Ch. 39 ANT1)

FCC ID: A3LSMS928U	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2308210092-10.A3L	Test Dates: 9/6/2023 - 11/06/2023	EUT Type: Portable Handset	Page 19 of 121

Frequency [MHz]	Data Rate	Channel No.	Bluetooth Mode	Measured Bandwidth [kHz]	Minimum Bandwidth [kHz]	Pass / Fail
2402	125 kbps	0	LE	608.2	500	Pass
2440	125 kbps	19	LE	607.4	500	Pass
2480	125 kbps	39	LE	606.0	500	Pass
2402	500 kbps	0	LE	661.6	500	Pass
2440	500 kbps	19	LE	662.8	500	Pass
2480	500 kbps	39	LE	659.8	500	Pass
2402	1 Mbps	0	LE	692.3	500	Pass
2440	1 Mbps	19	LE	696.3	500	Pass
2480	1 Mbps	39	LE	686.3	500	Pass
2402	2 Mbps	0	LE	1151.3	500	Pass
2440	2 Mbps	19	LE	1151.8	500	Pass
2480	2 Mbps	39	LE	1147.9	500	Pass

Table 7-3. Conducted Bandwidth Measurements – ANT2

FCC ID: A3LSMS928U	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2308210092-10.A3L	Test Dates: 9/6/2023 - 11/06/2023	EUT Type: Portable Handset	Page 20 of 121



Plot 7-13. 6dB Bandwidth Plot (Bluetooth (LE), 125kbps – Ch. 0 – ANT2)

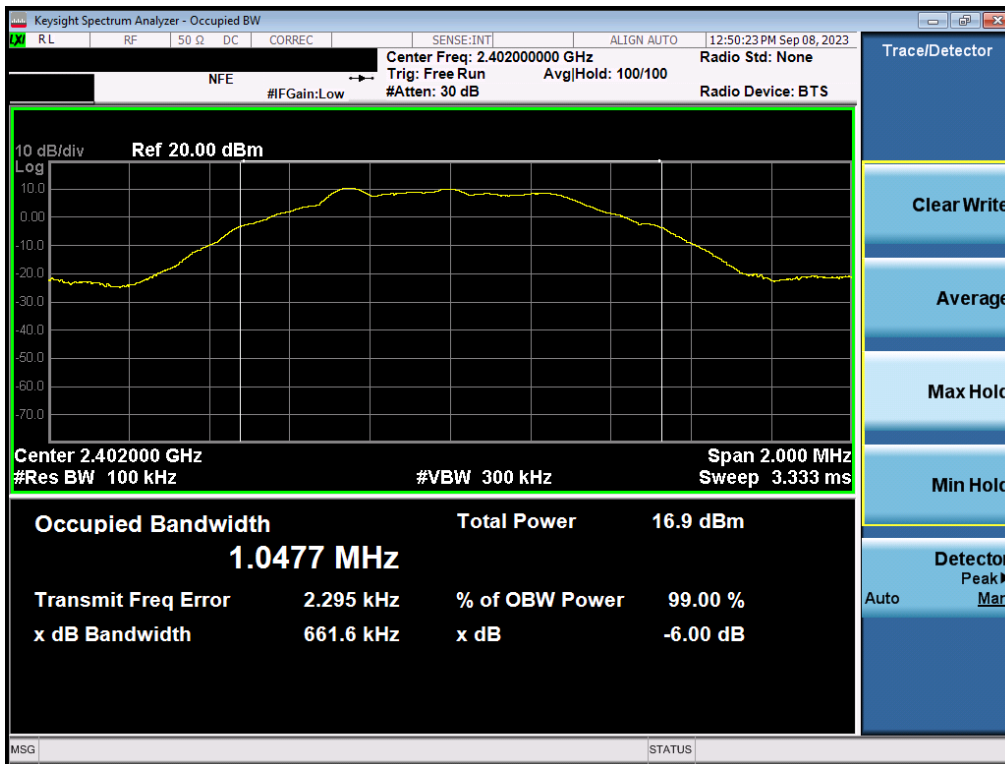


Plot 7-14. 6dB Bandwidth Plot (Bluetooth (LE), 125kbps – Ch. 19 ANT2)

FCC ID: A3LSMS928U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2308210092-10.A3L	Test Dates: 9/6/2023 - 11/06/2023	EUT Type: Portable Handset	Page 21 of 121	

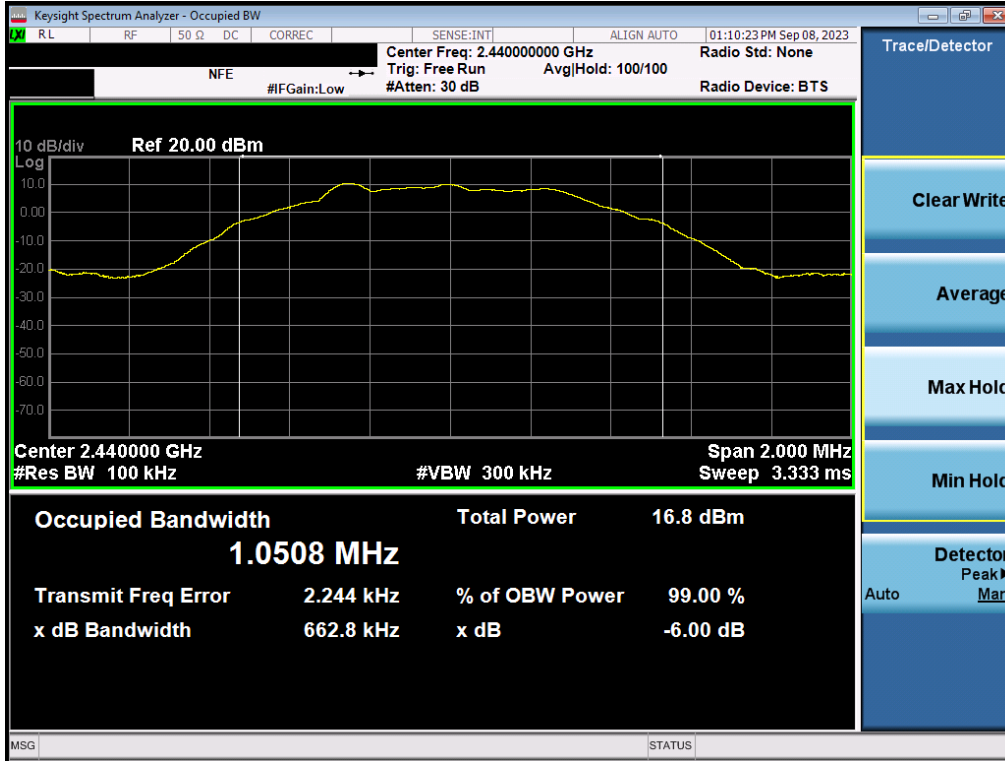


Plot 7-15. 6dB Bandwidth Plot (Bluetooth (LE), 125kbps – Ch. 39 ANT2)

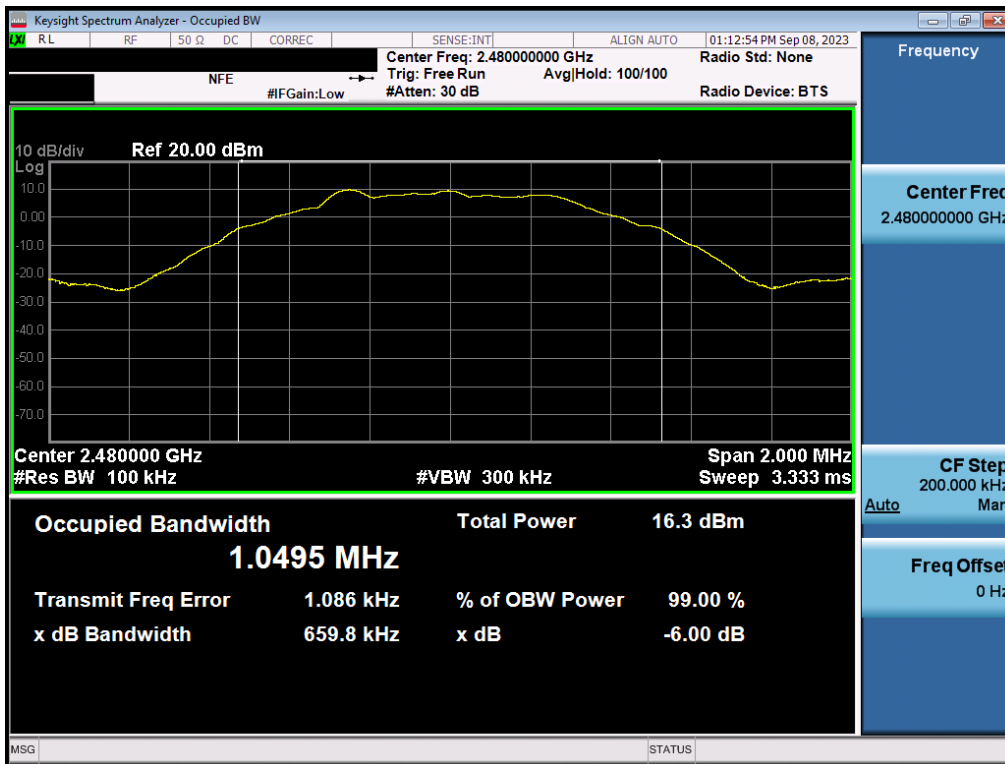


Plot 7-16. 6dB Bandwidth Plot (Bluetooth (LE), 500kbps – Ch. 0 ANT2)

FCC ID: A3LSMS928U	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2308210092-10.A3L	Test Dates: 9/6/2023 - 11/06/2023	EUT Type: Portable Handset	Page 22 of 121



Plot 7-17. 6dB Bandwidth Plot (Bluetooth (LE), 500kbps – Ch. 19 ANT2)

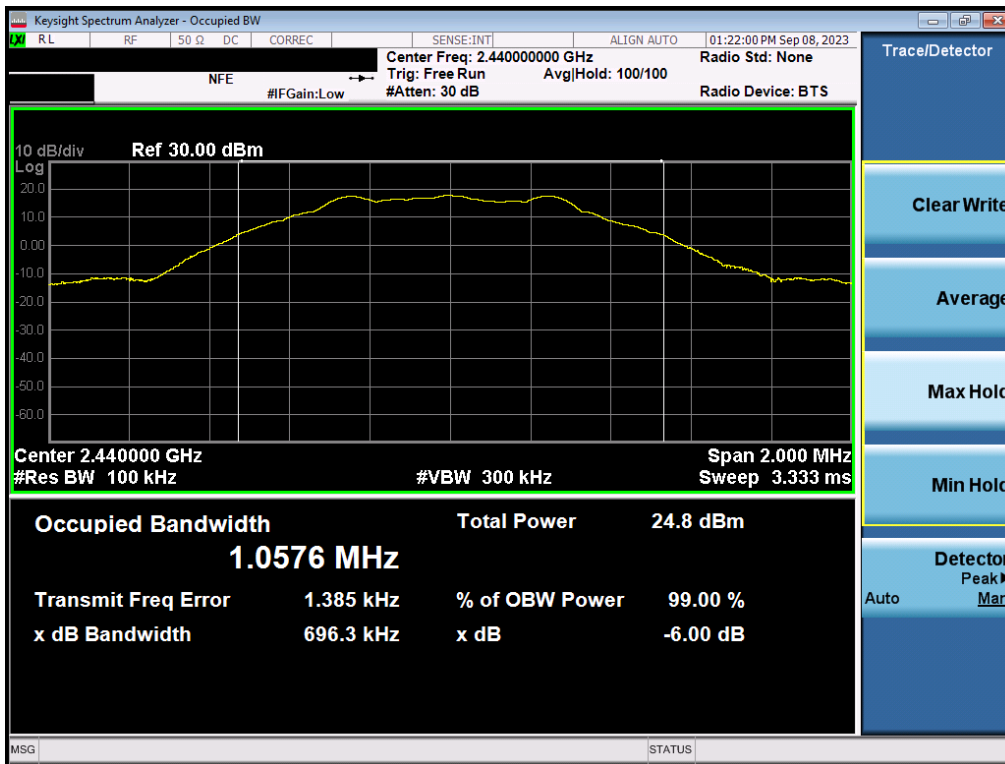


Plot 7-18. 6dB Bandwidth Plot (Bluetooth (LE), 500kbps – Ch. 39 ANT2)

FCC ID: A3LSMS928U	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2308210092-10.A3L	Test Dates: 9/6/2023 - 11/06/2023	EUT Type: Portable Handset	Page 23 of 121



Plot 7-19. 6dB Bandwidth Plot (Bluetooth (LE), 1Mbps – Ch. 0 ANT2)

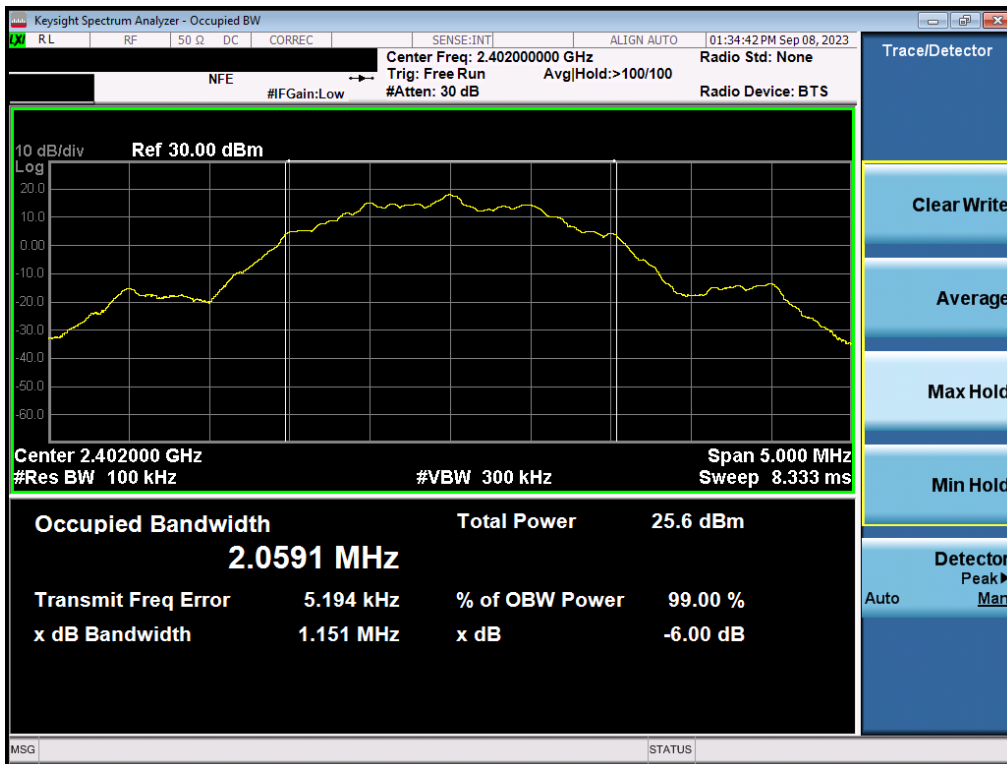


Plot 7-20. 6dB Bandwidth Plot (Bluetooth (LE), 1Mbps – Ch. 19 ANT2)

FCC ID: A3LSMS928U	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2308210092-10.A3L	Test Dates: 9/6/2023 - 11/06/2023	EUT Type: Portable Handset	Page 24 of 121

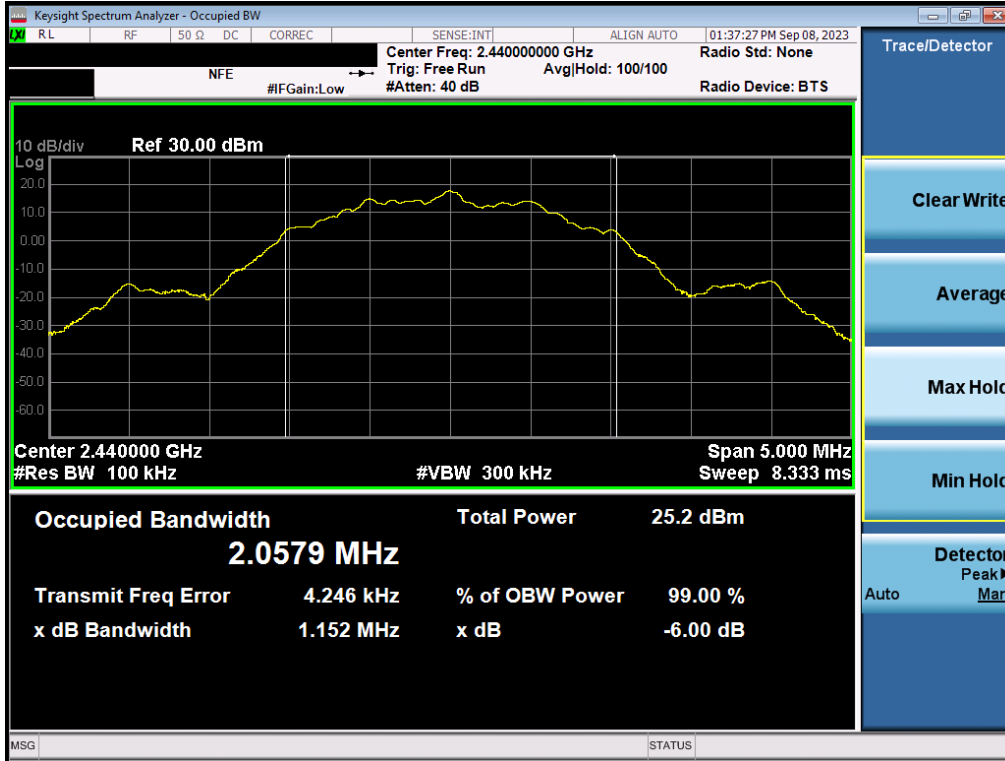


Plot 7-21. 6dB Bandwidth Plot (Bluetooth (LE), 1Mbps – Ch. 39 ANT2)

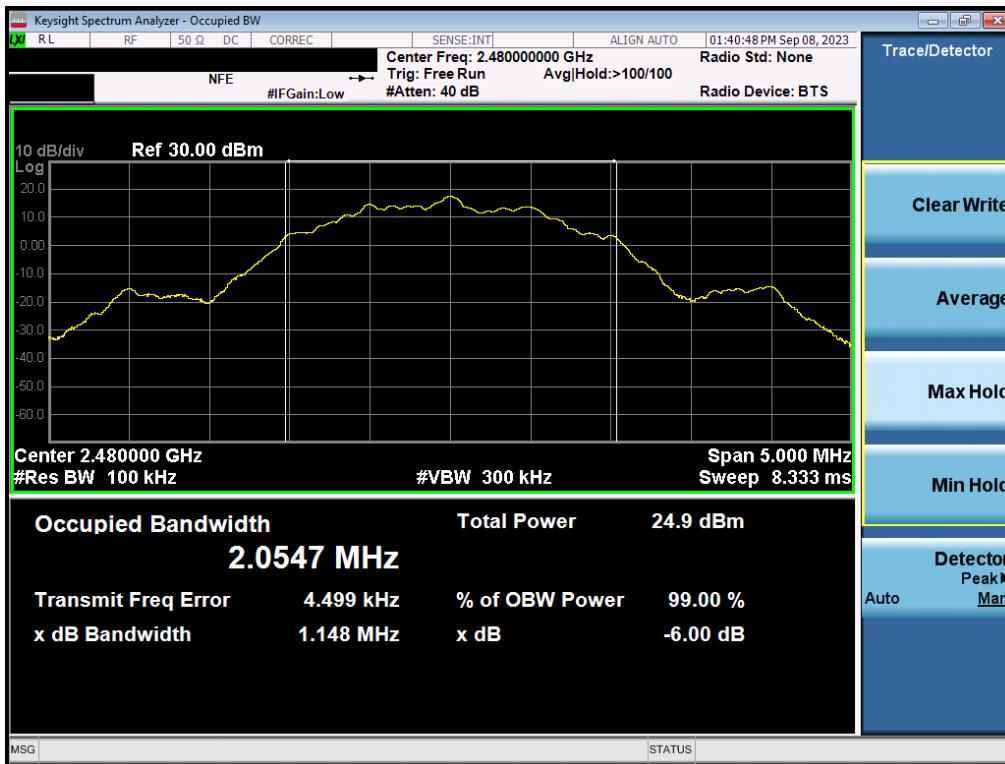


Plot 7-22. 6dB Bandwidth Plot (Bluetooth (LE), 2Mbps – Ch. 0 ANT2)

FCC ID: A3LSMS928U	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2308210092-10.A3L	Test Dates: 9/6/2023 - 11/06/2023	EUT Type: Portable Handset	Page 25 of 121



Plot 7-23. 6dB Bandwidth Plot (Bluetooth (LE), 2Mbps – Ch. 19 ANT2)



Plot 7-24. 6dB Bandwidth Plot (Bluetooth (LE), 2Mbps – Ch. 39 ANT2)

FCC ID: A3LSMS928U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2308210092-10.A3L	Test Dates: 9/6/2023 - 11/06/2023	EUT Type: Portable Handset	Page 26 of 121	

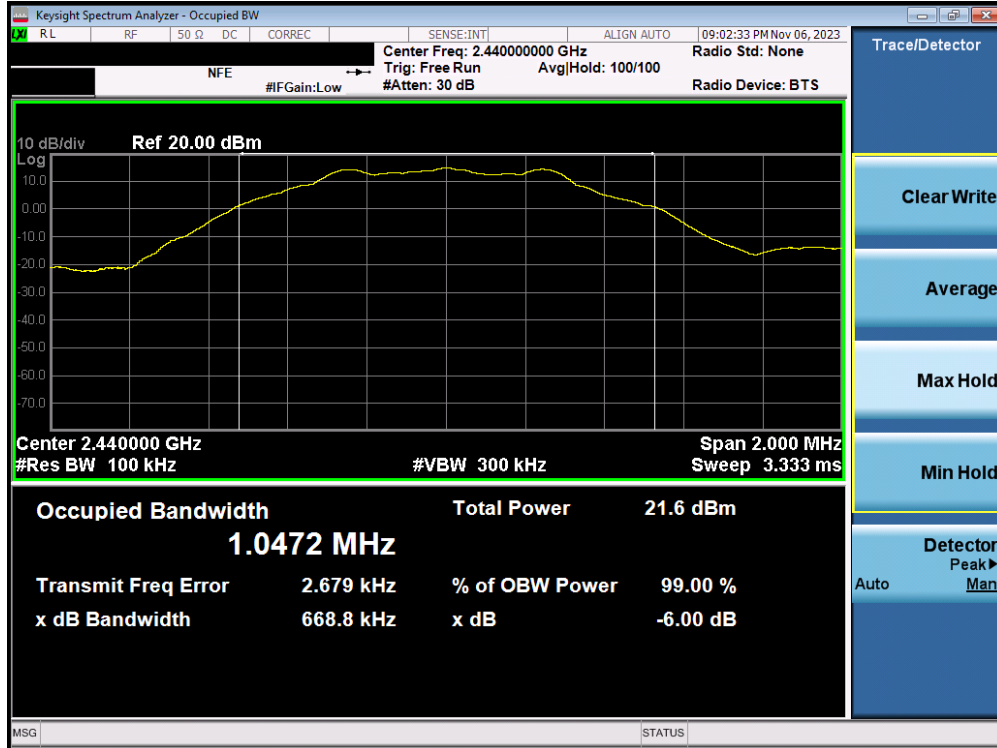
Frequency [MHz]	Data Rate	Channel No.	Bluetooth Mode	Measured Bandwidth [kHz]	Minimum Bandwidth [kHz]	Pass / Fail
2402	1 Mbps	0	LE	664.0	500	Pass
2440	1 Mbps	19	LE	668.8	500	Pass
2480	1 Mbps	39	LE	688.3	500	Pass
2402	2 Mbps	0	LE	1138.0	500	Pass
2440	2 Mbps	19	LE	1131.0	500	Pass
2480	2 Mbps	39	LE	1140.0	500	Pass

Table 7-4. Conducted Bandwidth Measurements – Dual Ant1

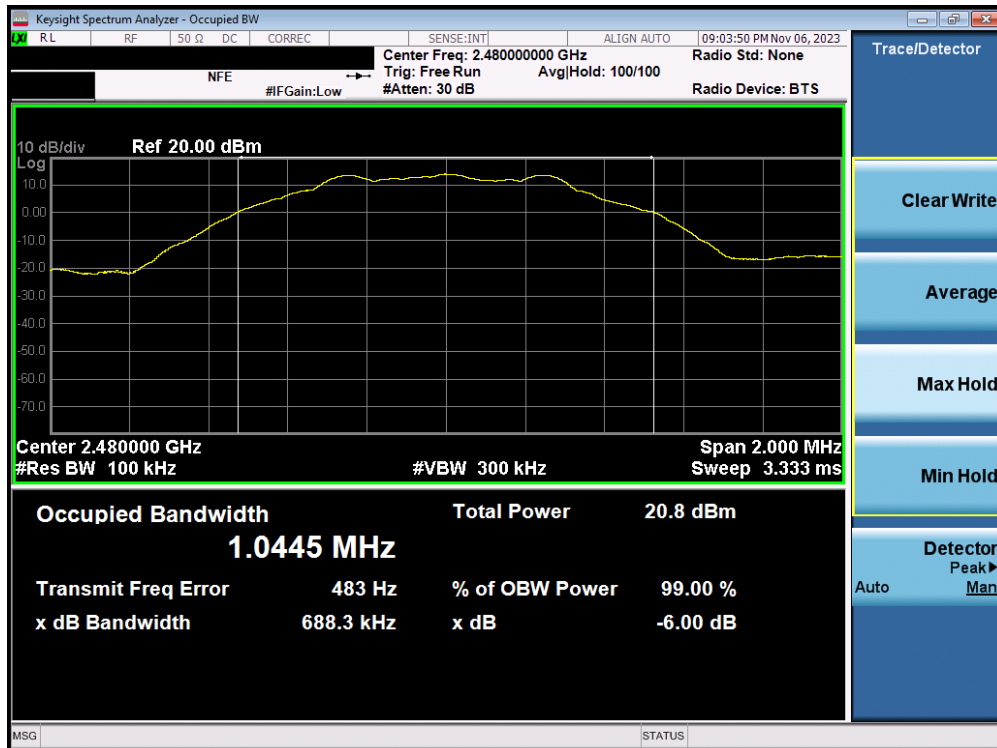


Plot 7-25. 6dB Bandwidth Plot (Bluetooth (LE), 1Mbps – Ch. 0 DUAL ANT1)

FCC ID: A3LSMS928U	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2308210092-10.A3L	Test Dates: 9/6/2023 - 11/06/2023	EUT Type: Portable Handset	Page 27 of 121

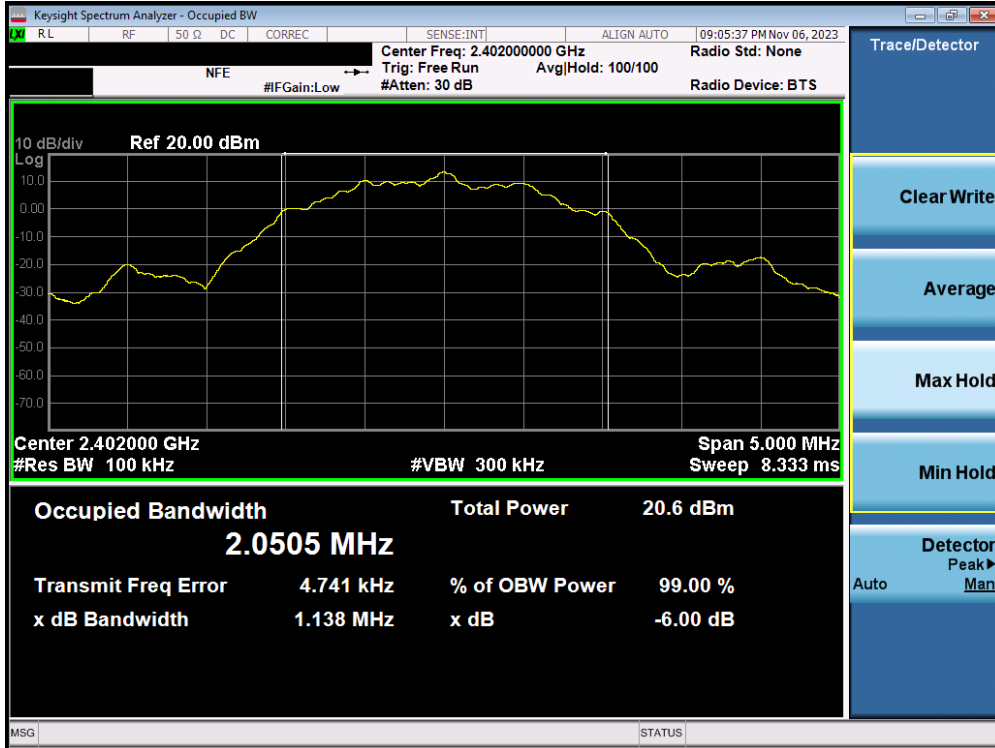


Plot 7-26. 6dB Bandwidth Plot (Bluetooth (LE), 1Mbps – Ch. 19 DUAL ANT1)

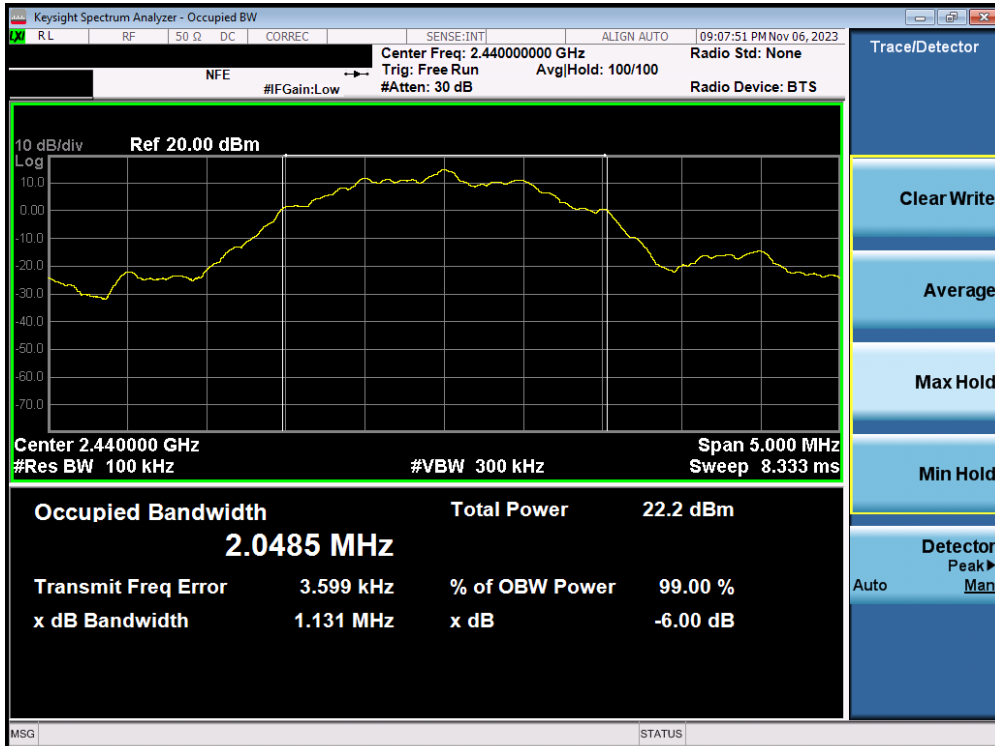


Plot 7-27. 6dB Bandwidth Plot (Bluetooth (LE), 1Mbps – Ch. 39 DUAL ANT1)

FCC ID: A3LSMS928U	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2308210092-10.A3L	Test Dates: 9/6/2023 - 11/06/2023	EUT Type: Portable Handset	Page 28 of 121



Plot 7-28. 6dB Bandwidth Plot (Bluetooth (LE), 2Mbps – Ch. 0 DUAL ANT1)



Plot 7-29. 6dB Bandwidth Plot (Bluetooth (LE), 2Mbps – Ch. 19 DUAL ANT1)

FCC ID: A3LSMS928U	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2308210092-10.A3L	Test Dates: 9/6/2023 - 11/06/2023	EUT Type: Portable Handset	Page 29 of 121



Plot 7-30. 6dB Bandwidth Plot (Bluetooth (LE), 2Mbps – Ch. 39 DUAL ANT1)

FCC ID: A3LSMS928U	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2308210092-10.A3L	Test Dates: 9/6/2023 - 11/06/2023	EUT Type: Portable Handset	Page 30 of 121

Frequency [MHz]	Data Rate	Channel No.	Bluetooth Mode	Measured Bandwidth [kHz]	Minimum Bandwidth [kHz]	Pass / Fail
2402	1 Mbps	0	LE	671.1	500	Pass
2440	1 Mbps	19	LE	676.0	500	Pass
2480	1 Mbps	39	LE	675.3	500	Pass
2402	2 Mbps	0	LE	1134.7	500	Pass
2440	2 Mbps	19	LE	1131.4	500	Pass
2480	2 Mbps	39	LE	1135.4	500	Pass

Table 7-5. Conducted Bandwidth Measurements – Dual Ant2

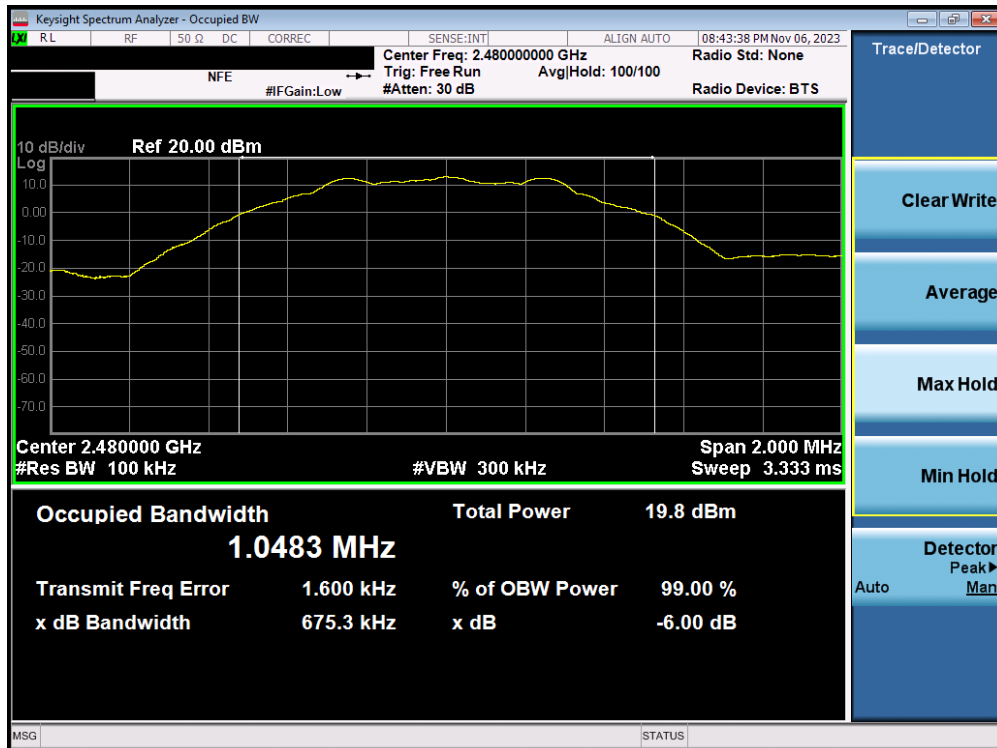


Plot 7-31. 6dB Bandwidth Plot (Bluetooth (LE), 1Mbps – Ch. 0 DUAL ANT2)

FCC ID: A3LSMS928U	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2308210092-10.A3L	Test Dates: 9/6/2023 - 11/06/2023	EUT Type: Portable Handset	Page 31 of 121



Plot 7-32. 6dB Bandwidth Plot (Bluetooth (LE), 1Mbps – Ch. 19 DUAL ANT2)

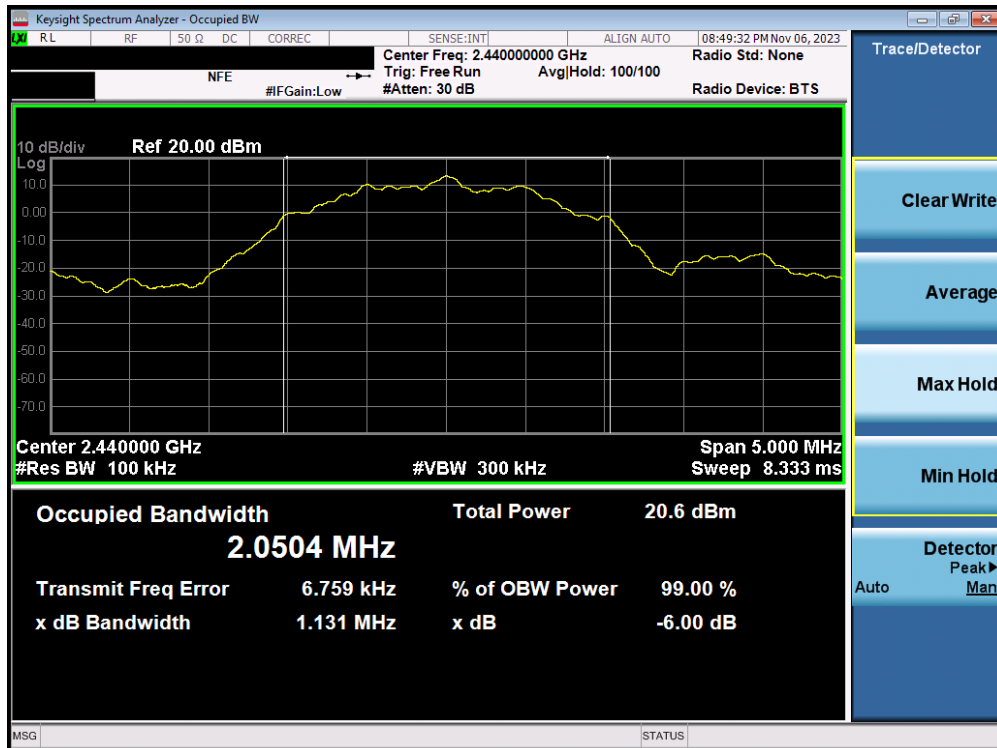


Plot 7-33. 6dB Bandwidth Plot (Bluetooth (LE), 1Mbps – Ch. 39 DUAL ANT2)

FCC ID: A3LSMS928U	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2308210092-10.A3L	Test Dates: 9/6/2023 - 11/06/2023	EUT Type: Portable Handset	Page 32 of 121

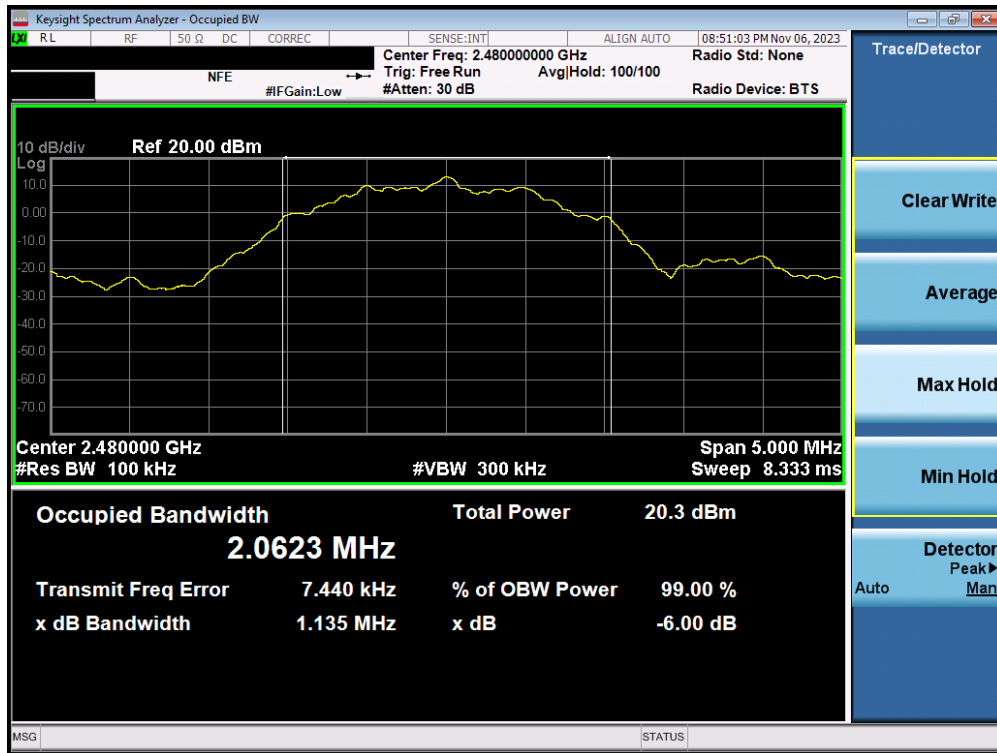


Plot 7-34. 6dB Bandwidth Plot (Bluetooth (LE), 2Mbps – Ch. 0 DUAL ANT2)



Plot 7-35. 6dB Bandwidth Plot (Bluetooth (LE), 2Mbps – Ch. 19 DUAL ANT2)

FCC ID: A3LSMS928U	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2308210092-10.A3L	Test Dates: 9/6/2023 - 11/06/2023	EUT Type: Portable Handset	Page 33 of 121



Plot 7-36. 6dB Bandwidth Plot (Bluetooth (LE), 2Mbps – Ch. 39 DUAL ANT2)

FCC ID: A3LSMS928U	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2308210092-10.A3L	Test Dates: 9/6/2023 - 11/06/2023	EUT Type: Portable Handset	Page 34 of 121

7.3 Output Power Measurement – Bluetooth (LE)

§15.247(b.3); RSS-247 [5.4(4)]

Test Overview and Limits

The transmitter antenna terminal of the EUT is connected to the input of a spectrum analyzer. Measurements are made while the EUT is operating at maximum power and at the appropriate frequencies.

The maximum permissible conducted output power is 1 Watt.

Test Procedure Used

ANSI C63.10-2013 – Section 11.9.1.1
KDB 558074 D01 v05r02 – Section 8.3.1.1

Test Settings

1. RBW = 3MHz
2. VBW = 50MHz
3. Span $\geq 3 \times$ RBW
4. Sweep = auto couple
5. Detector = Peak
6. Trace mode = max hold
7. The trace was allowed to stabilize

Test Setup

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



Figure 7-2. Test Instrument & Measurement Setup

Test Notes

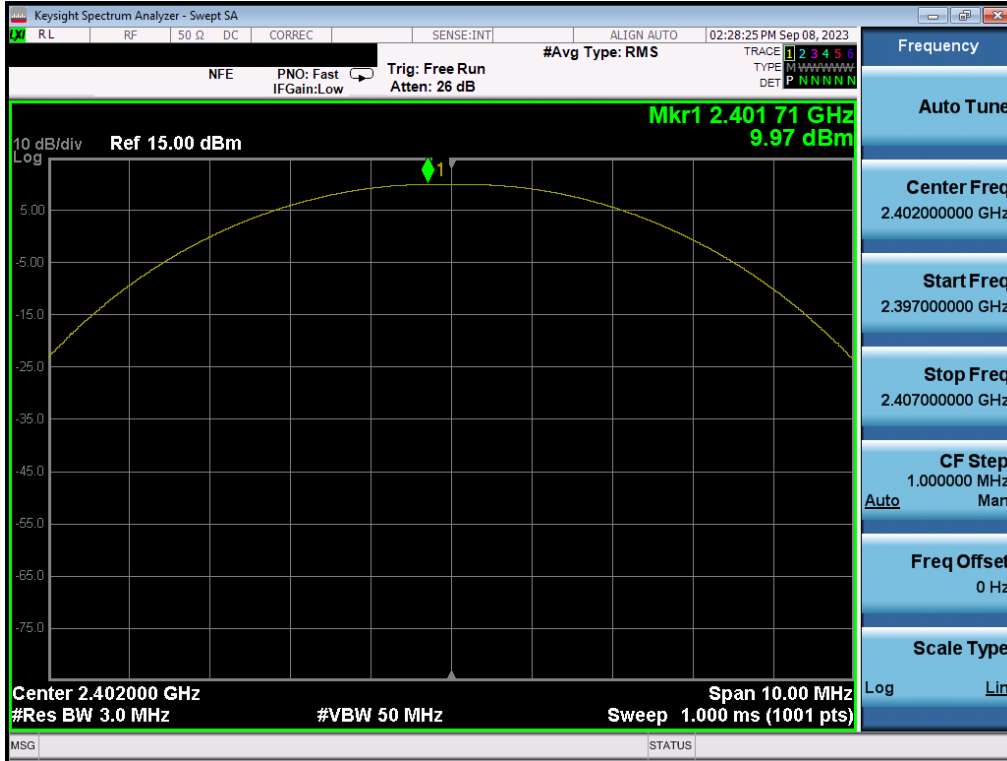
None

FCC ID: A3LSMS928U	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2308210092-10.A3L	Test Dates: 9/6/2023 - 11/06/2023	EUT Type: Portable Handset	Page 35 of 121

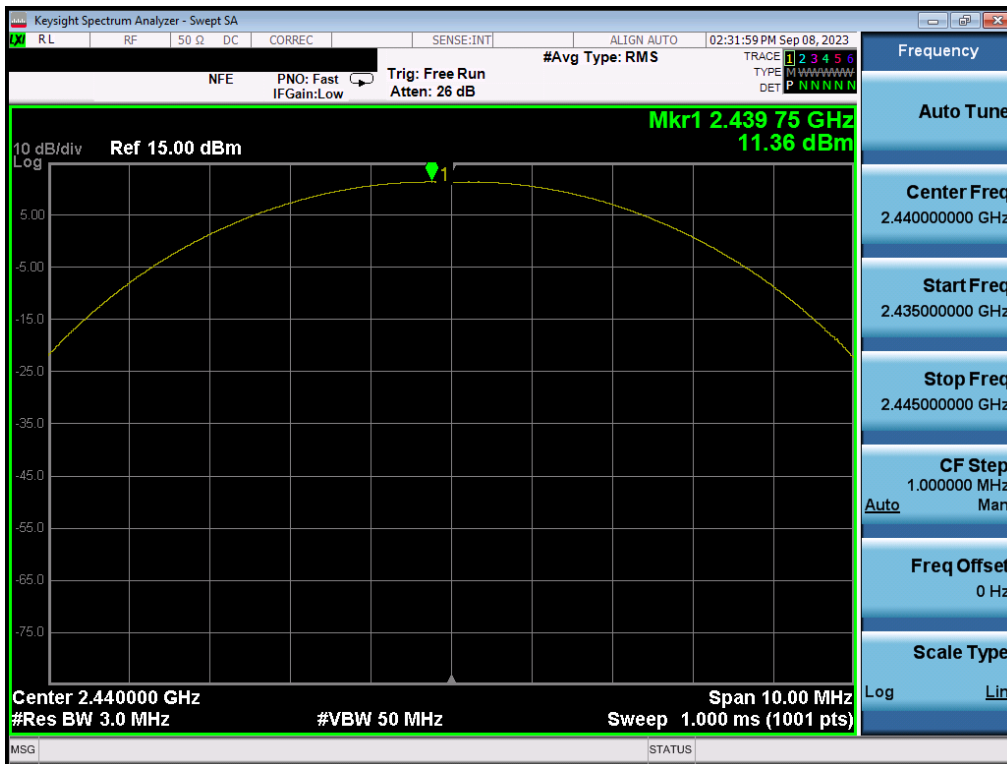
Frequency [MHz]	Data Rate [Mbps]	Channel No.	Bluetooth Mode	Peak Conducted Power	
				[dBm]	[mW]
2402	125 kbps	0	LE	9.97	9.920
2440	125 kbps	19	LE	11.36	13.668
2480	125 kbps	39	LE	10.56	11.382
2402	500 kbps	0	LE	10.01	10.012
2440	500 kbps	19	LE	11.42	13.868
2480	500 kbps	39	LE	10.64	11.588
2402	1 Mbps	0	LE	17.78	60.007
2440	1 Mbps	19	LE	19.16	82.376
2480	1 Mbps	39	LE	18.43	69.647
2402	2 Mbps	0	LE	17.78	59.938
2440	2 Mbps	19	LE	19.11	81.452
2480	2 Mbps	39	LE	18.55	71.548

Table 7-6. Conducted Output Power Measurements (Bluetooth (LE)) – ANT1

FCC ID: A3LSMS928U	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2308210092-10.A3L	Test Dates: 9/6/2023 - 11/06/2023	EUT Type: Portable Handset	Page 36 of 121

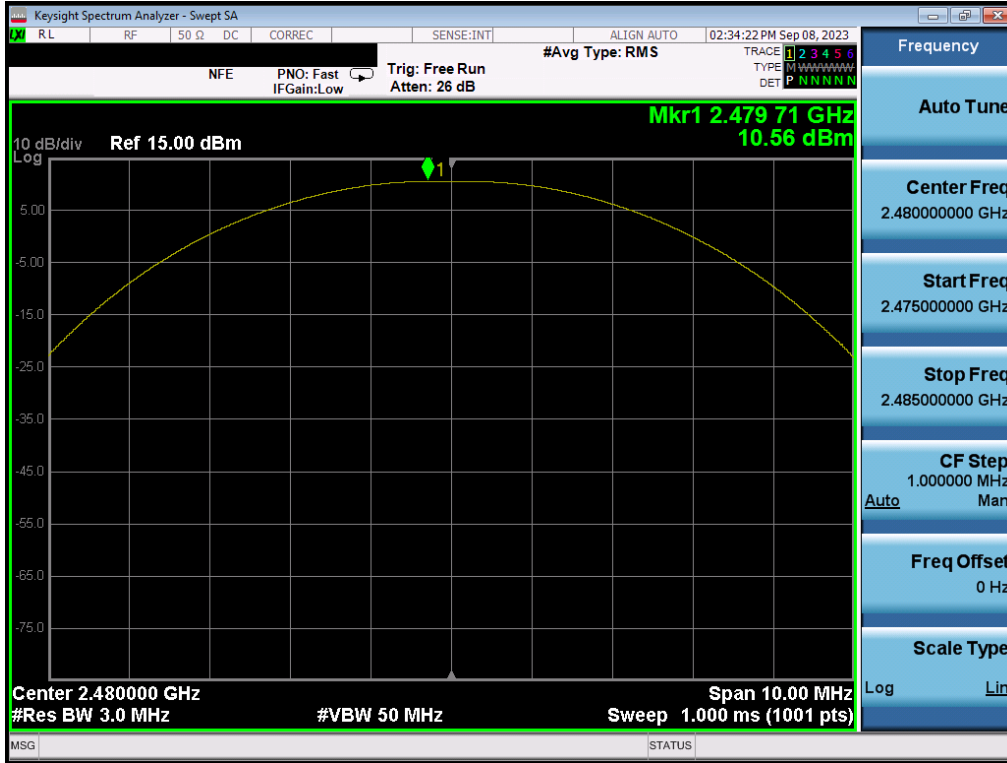


Plot 7-37. Peak Power Plot (Bluetooth (LE), 125kbps – Ch. 0) – ANT1

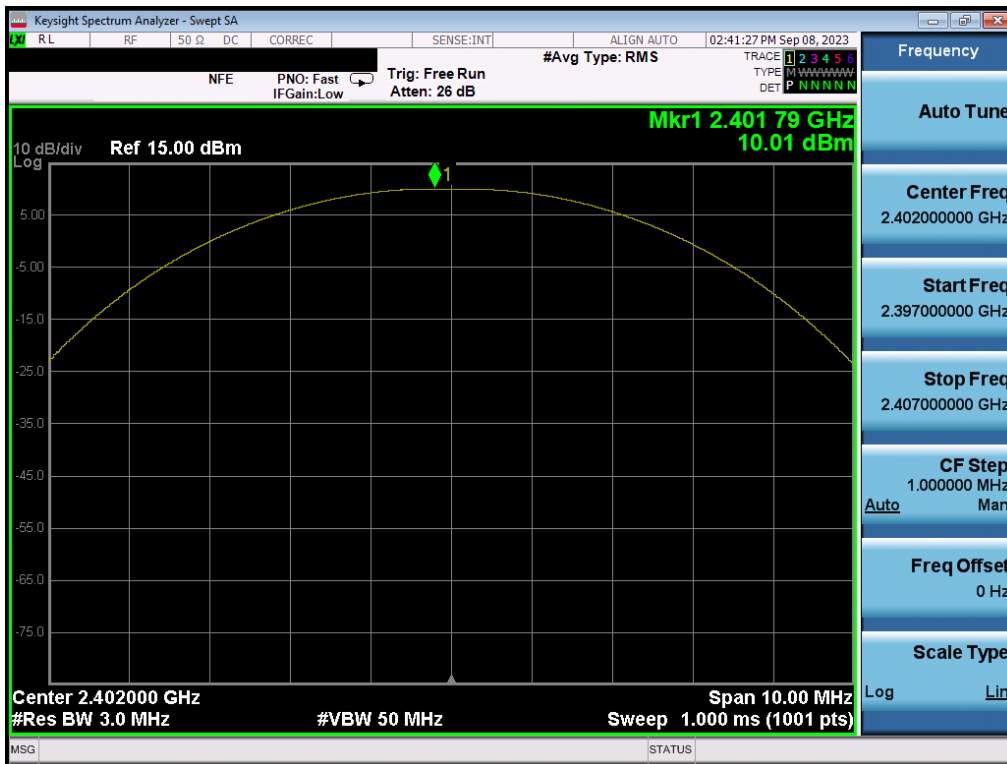


Plot 7-38. Peak Power Plot (Bluetooth (LE), 125kbps – Ch. 19) – ANT1

FCC ID: A3LSMS928U	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2308210092-10.A3L	Test Dates: 9/6/2023 - 11/06/2023	EUT Type: Portable Handset	Page 37 of 121

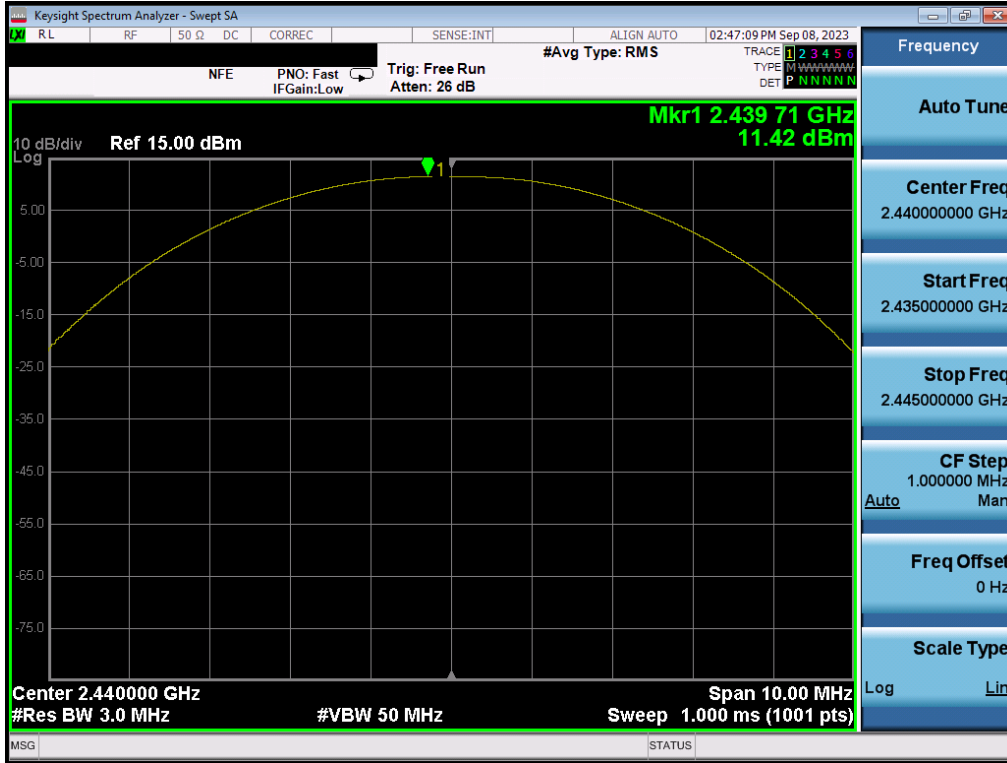


Plot 7-39. Peak Power Plot (Bluetooth (LE), 125kbps – Ch. 39) – ANT1

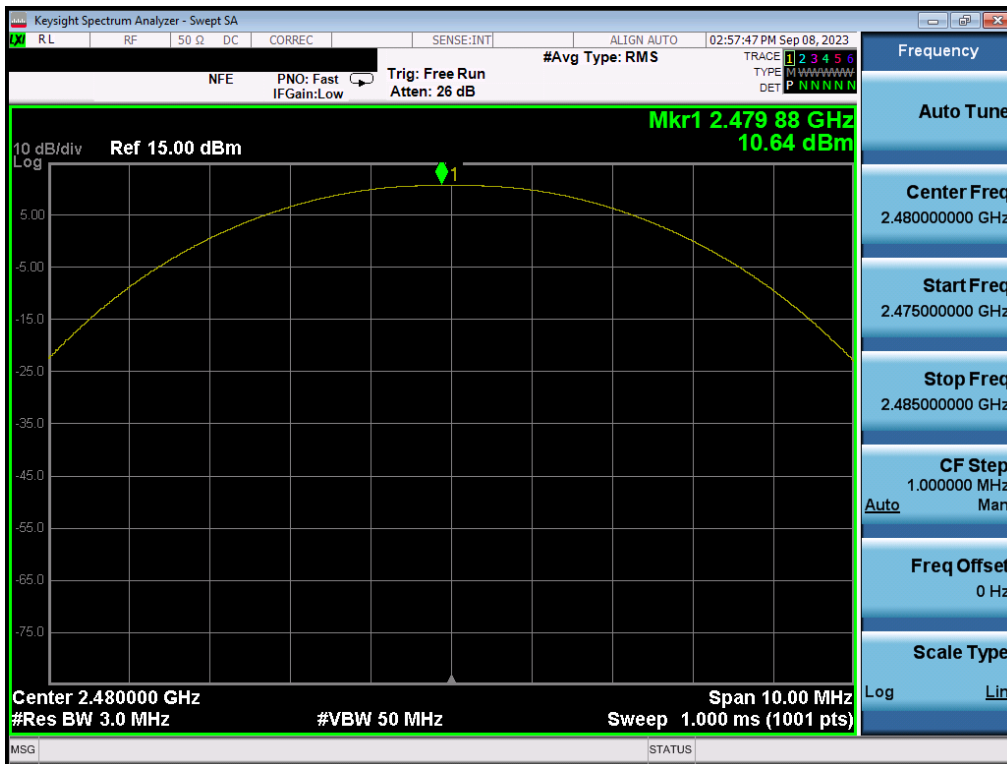


Plot 7-40. Peak Power Plot (Bluetooth (LE), 500kbps – Ch. 0) – ANT1

FCC ID: A3LSMS928U	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2308210092-10.A3L	Test Dates: 9/6/2023 - 11/06/2023	EUT Type: Portable Handset	Page 38 of 121

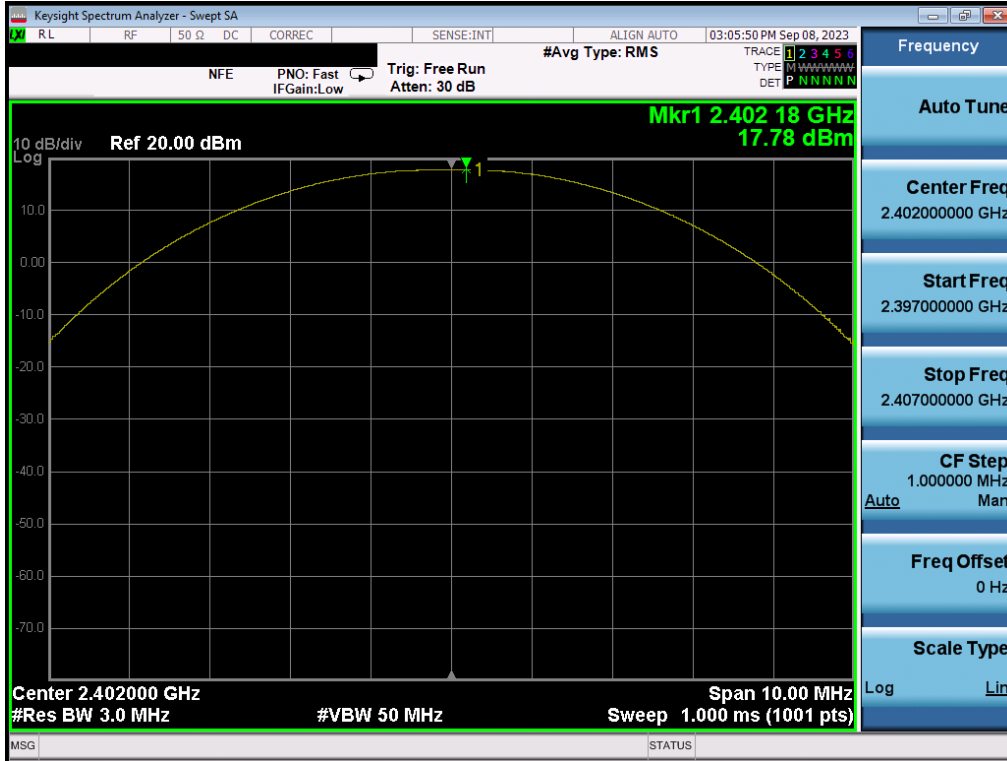


Plot 7-41. Peak Power Plot (Bluetooth (LE), 500kbps – Ch. 19) – ANT1

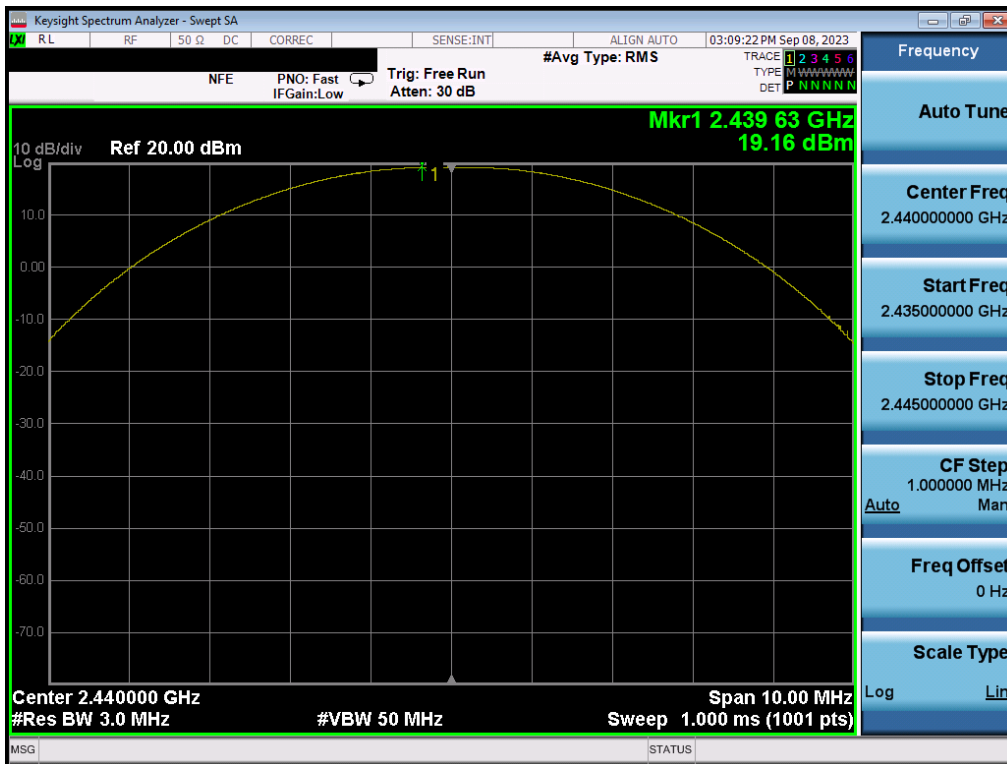


Plot 7-42. Peak Power Plot (Bluetooth (LE), 500kbps – Ch. 39) – ANT1

FCC ID: A3LSMS928U	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2308210092-10.A3L	Test Dates: 9/6/2023 - 11/06/2023	EUT Type: Portable Handset	Page 39 of 121

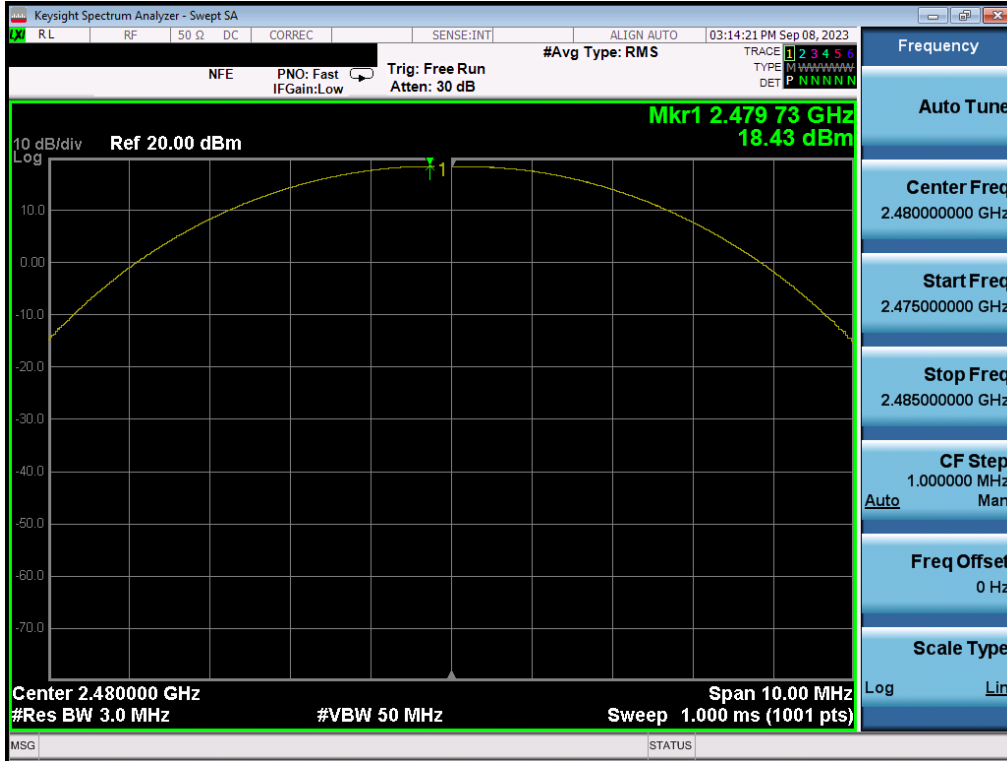


Plot 7-43. Peak Power Plot (Bluetooth (LE), 1Mbps – Ch. 0) – ANT1

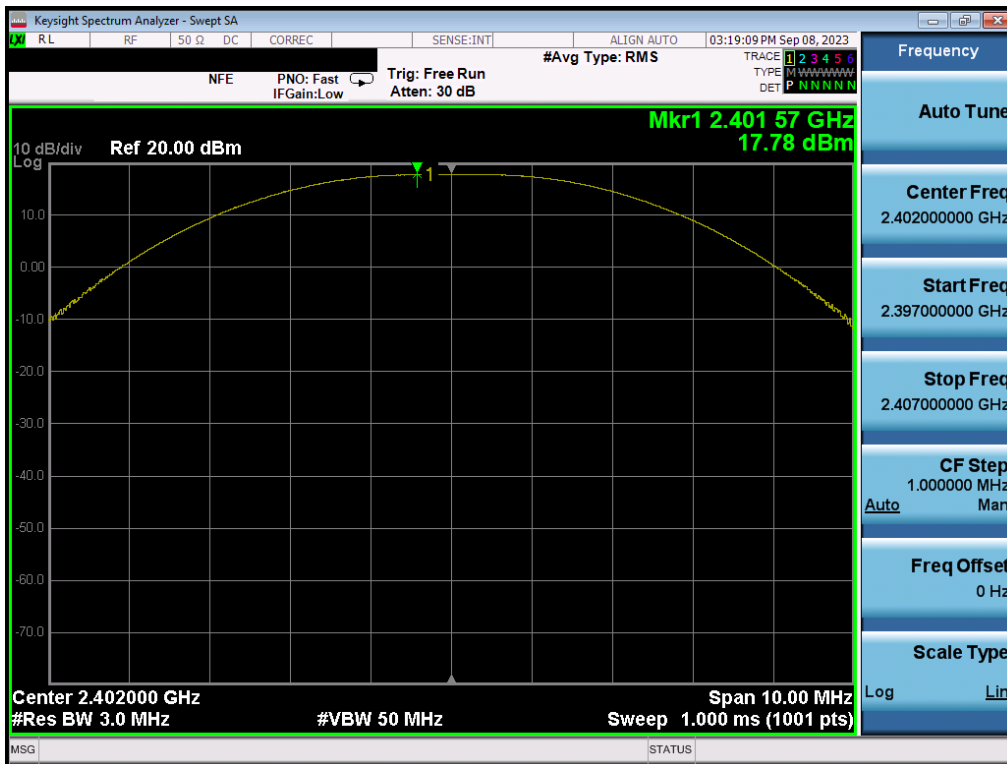


Plot 7-44. Peak Power Plot (Bluetooth (LE), 1Mbps – Ch. 19) – ANT1

FCC ID: A3LSMS928U	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2308210092-10.A3L	Test Dates: 9/6/2023 - 11/06/2023	EUT Type: Portable Handset	Page 40 of 121



Plot 7-45. Peak Power Plot (Bluetooth (LE), 1Mbps – Ch. 39) – ANT1



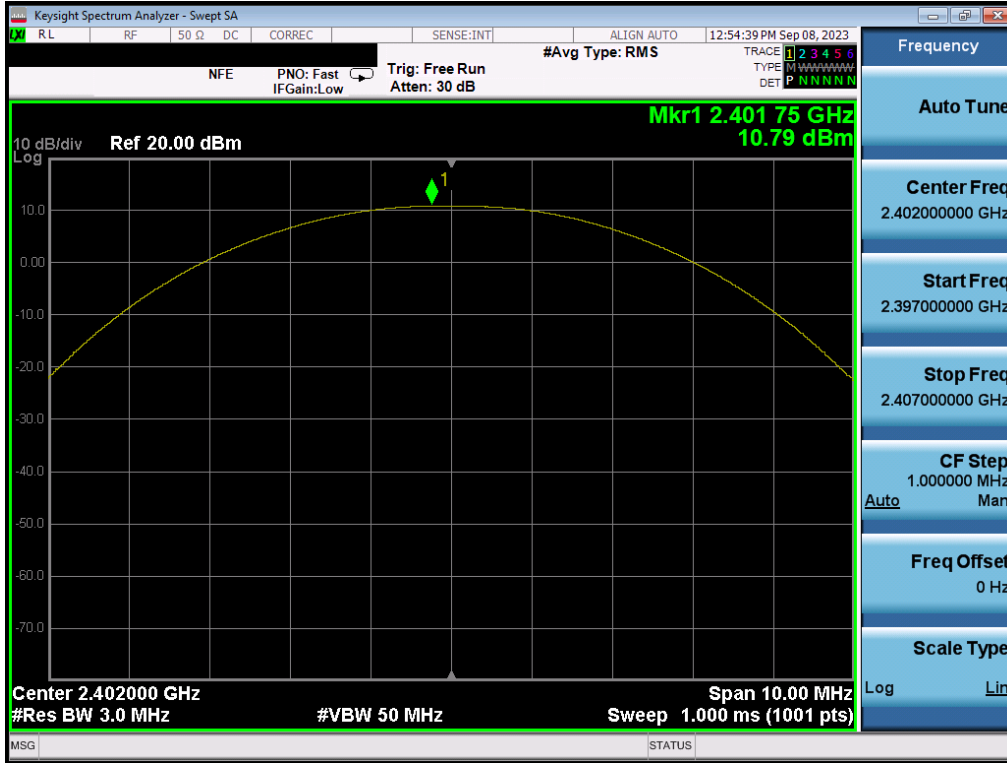
Plot 7-46. Peak Power Plot (Bluetooth (LE), 2Mbps – Ch. 0) – ANT1

FCC ID: A3LSMS928U	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2308210092-10.A3L	Test Dates: 9/6/2023 - 11/06/2023	EUT Type: Portable Handset	Page 41 of 121

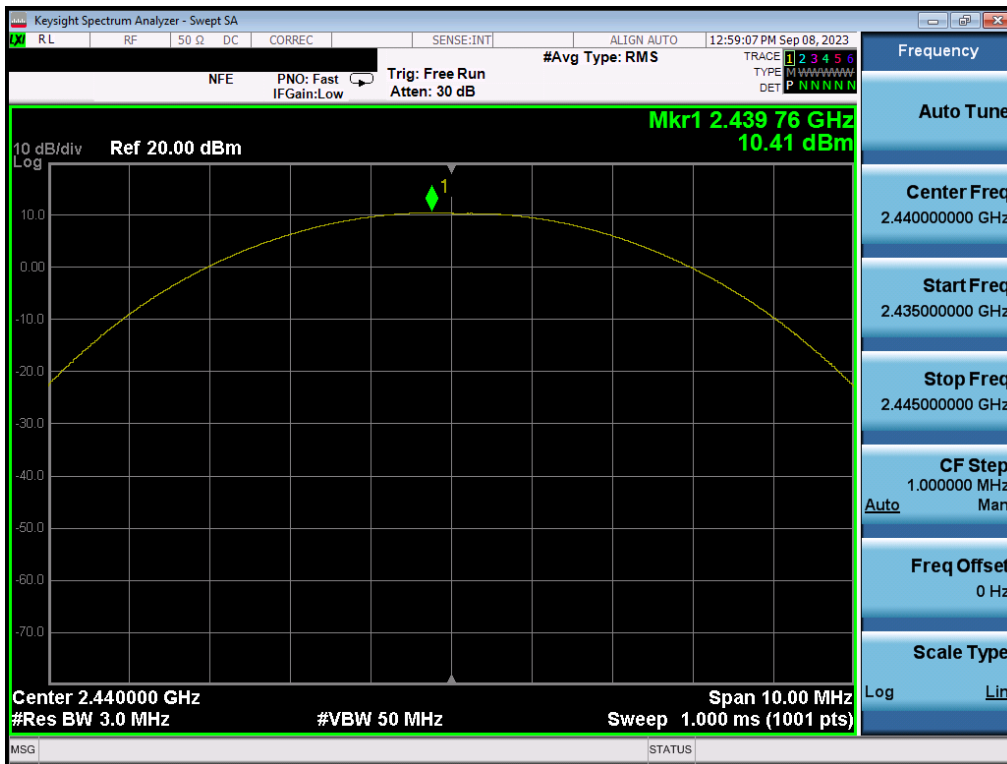
Frequency [MHz]	Data Rate [Mbps]	Channel No.	Bluetooth Mode	Peak Conducted Power	
				[dBm]	[mW]
2402	125 kbps	0	LE	10.79	11.987
2440	125 kbps	19	LE	10.41	10.988
2480	125 kbps	39	LE	9.92	9.822
2402	500 kbps	0	LE	10.80	12.034
2440	500 kbps	19	LE	10.49	11.184
2480	500 kbps	39	LE	9.95	9.892
2402	1 Mbps	0	LE	19.11	81.452
2440	1 Mbps	19	LE	18.97	78.832
2480	1 Mbps	39	LE	18.35	68.328
2402	2 Mbps	0	LE	18.92	77.929
2440	2 Mbps	19	LE	18.85	76.754
2480	2 Mbps	39	LE	18.59	72.260

Table 7-7. Conducted Output Power Measurements (Bluetooth (LE)) – ANT2

FCC ID: A3LSMS928U	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2308210092-10.A3L	Test Dates: 9/6/2023 - 11/06/2023	EUT Type: Portable Handset	Page 43 of 121

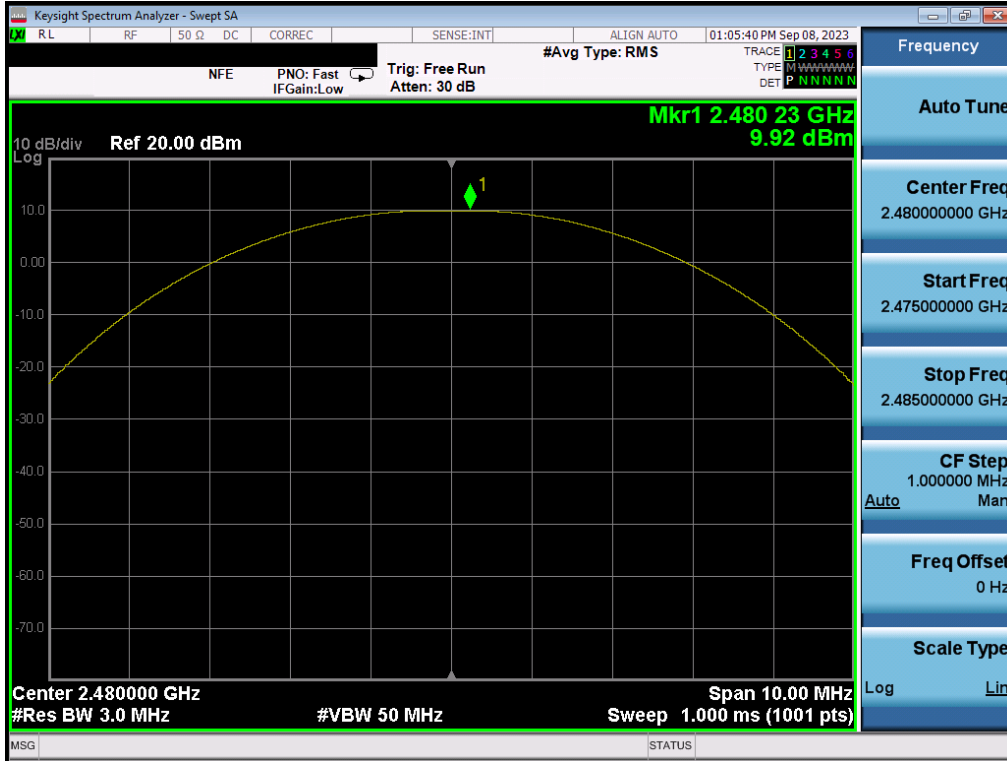


Plot 7-49. Peak Power Plot (Bluetooth (LE), 125kbps – Ch. 0) – ANT2

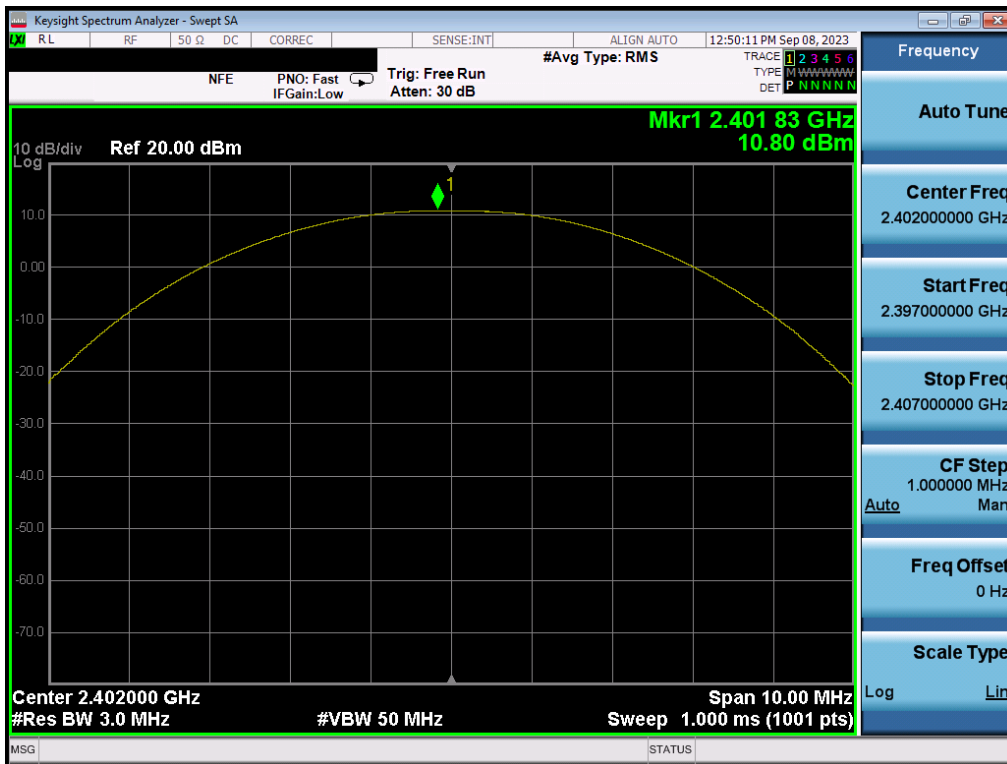


Plot 7-50. Peak Power Plot (Bluetooth (LE), 125kbps – Ch. 19) – ANT2

FCC ID: A3LSMS928U	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2308210092-10.A3L	Test Dates: 9/6/2023 - 11/06/2023	EUT Type: Portable Handset	Page 44 of 121

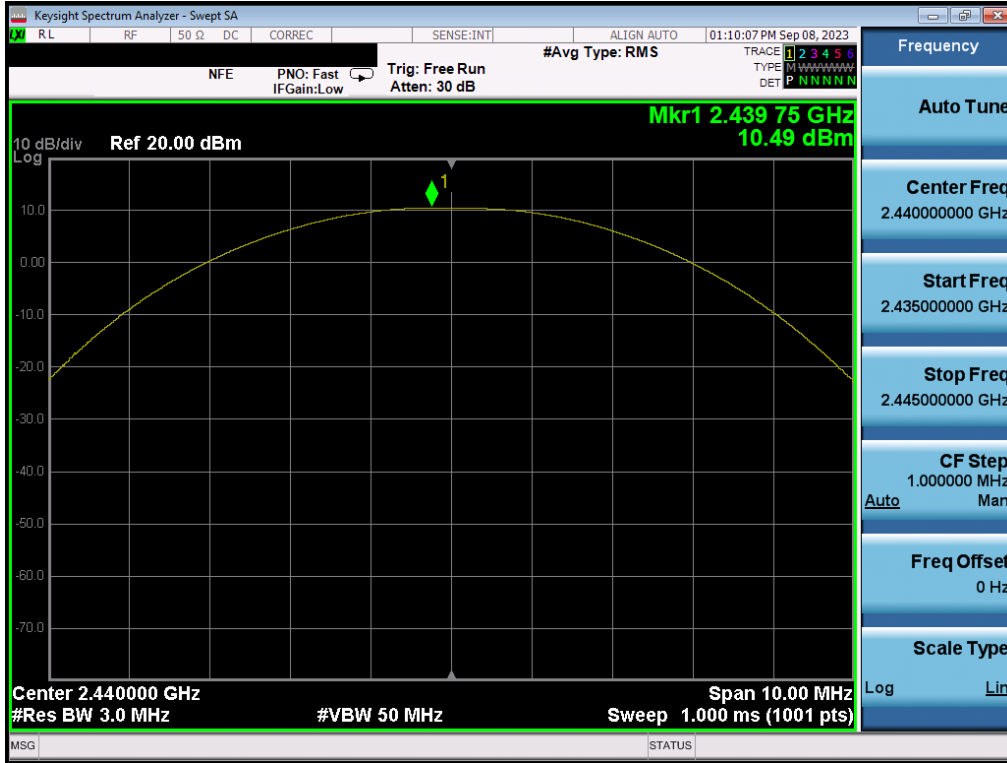


Plot 7-51. Peak Power Plot (Bluetooth (LE), 125kbps – Ch. 39) – ANT2

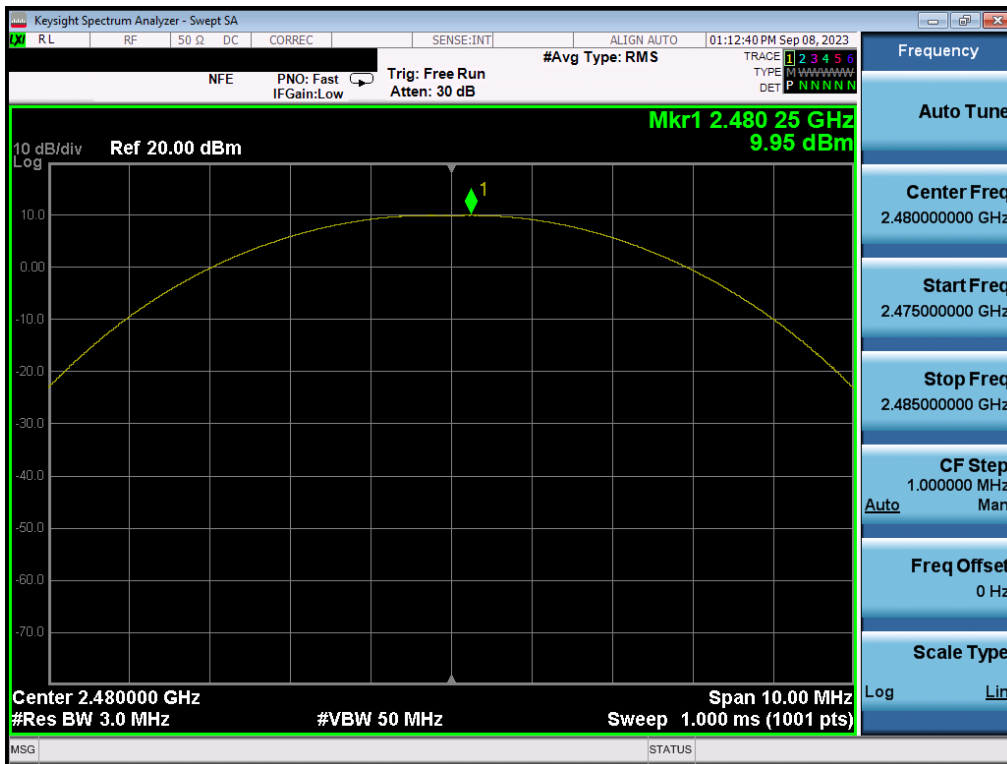


Plot 7-52. Peak Power Plot (Bluetooth (LE), 500kbps – Ch. 0) – ANT2

FCC ID: A3LSMS928U	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2308210092-10.A3L	Test Dates: 9/6/2023 - 11/06/2023	EUT Type: Portable Handset	Page 45 of 121

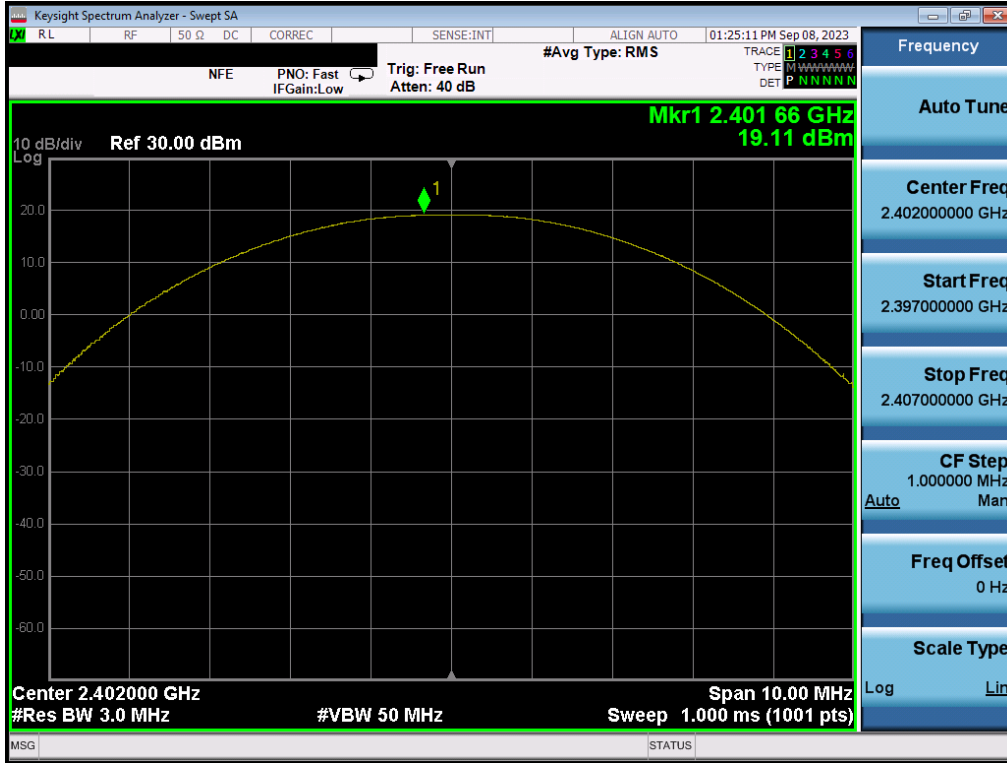


Plot 7-53. Peak Power Plot (Bluetooth (LE), 500kbps – Ch. 19) – ANT2

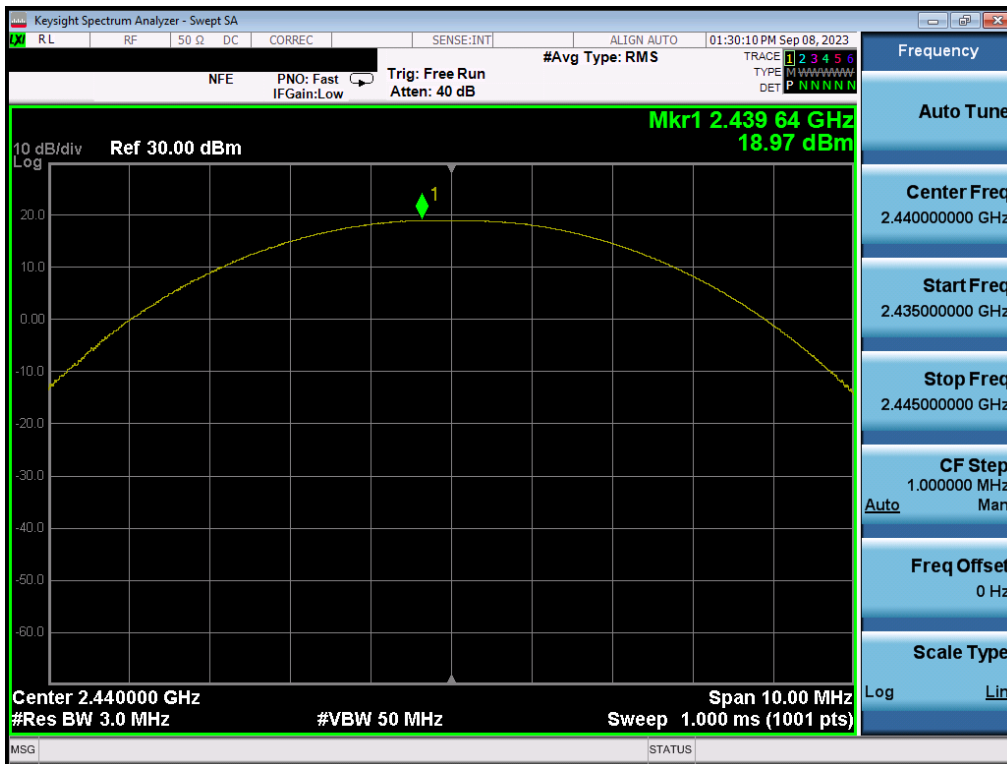


Plot 7-54. Peak Power Plot (Bluetooth (LE), 500kbps – Ch. 39) – ANT2

FCC ID: A3LSMS928U	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2308210092-10.A3L	Test Dates: 9/6/2023 - 11/06/2023	EUT Type: Portable Handset	Page 46 of 121

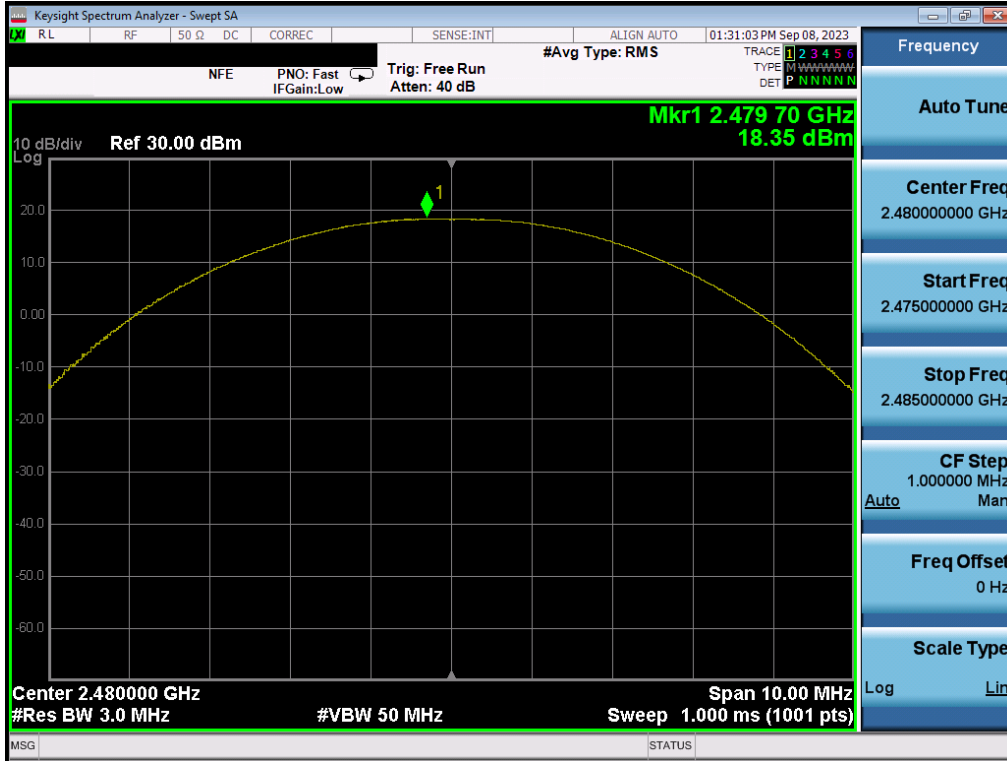


Plot 7-55. Peak Power Plot (Bluetooth (LE), 1Mbps – Ch. 0) – ANT2

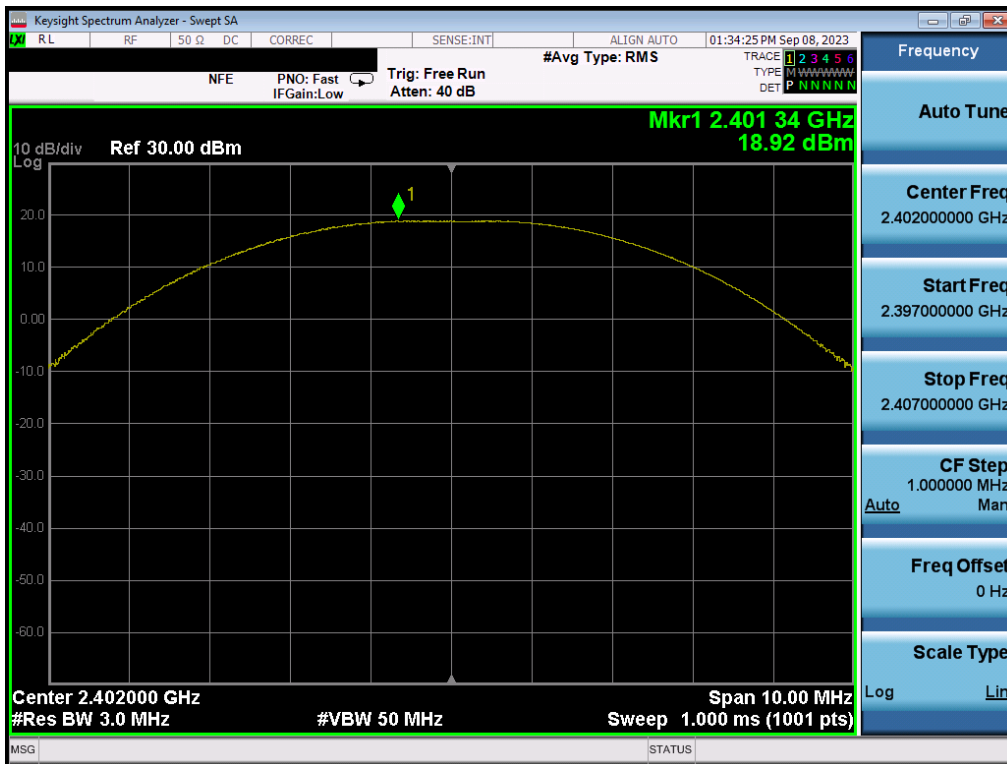


Plot 7-56. Peak Power Plot (Bluetooth (LE), 1Mbps – Ch. 19) – ANT2

FCC ID: A3LSMS928U	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2308210092-10.A3L	Test Dates: 9/6/2023 - 11/06/2023	EUT Type: Portable Handset	Page 47 of 121

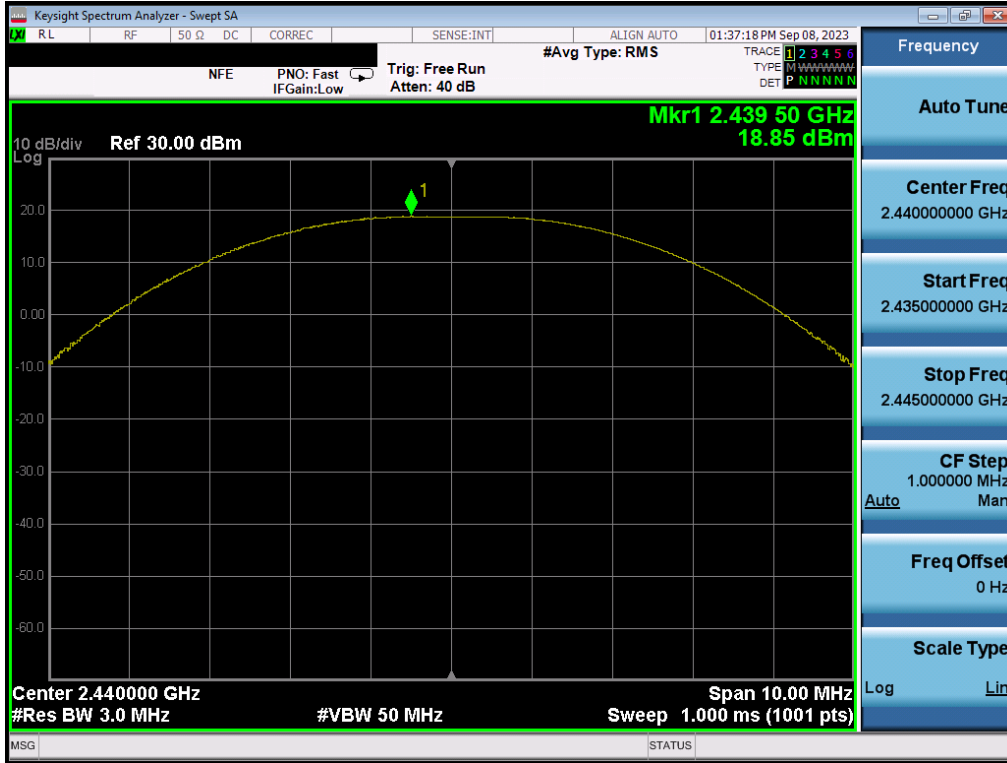


Plot 7-57. Peak Power Plot (Bluetooth (LE), 1Mbps – Ch. 39) – ANT2

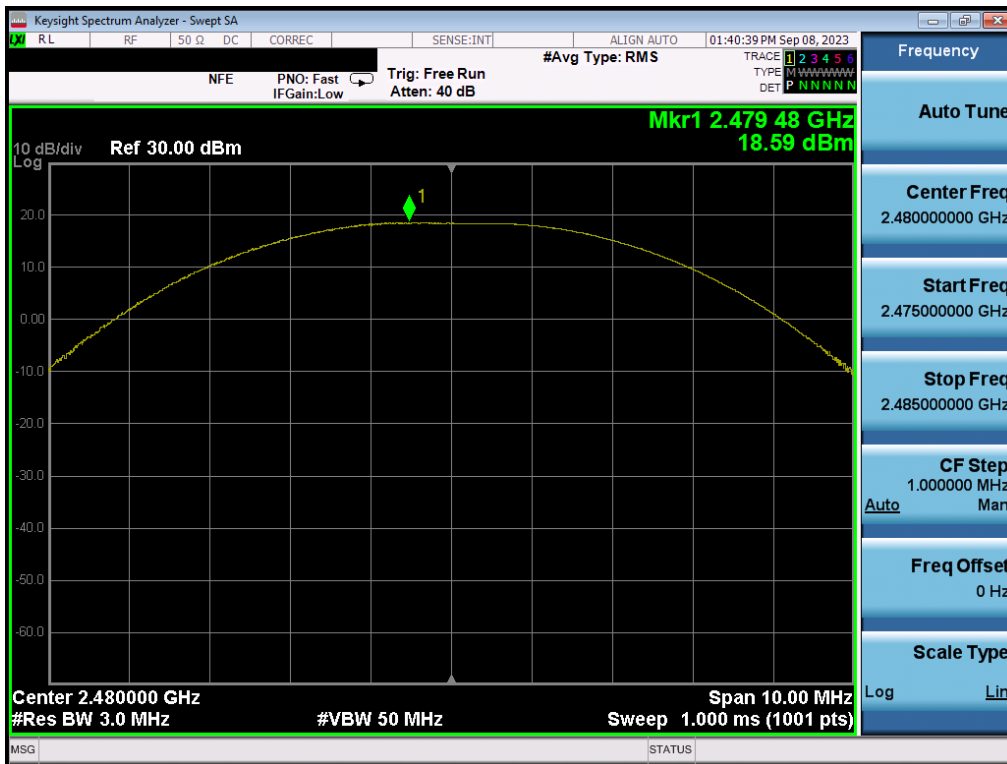


Plot 7-58. Peak Power Plot (Bluetooth (LE), 2Mbps – Ch. 0) – ANT2

FCC ID: A3LSMS928U	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
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Plot 7-59. Peak Power Plot (Bluetooth (LE), 2Mbps – Ch. 19) – ANT2



Plot 7-60. Peak Power Plot (Bluetooth (LE), 2Mbps – Ch. 39) – ANT2

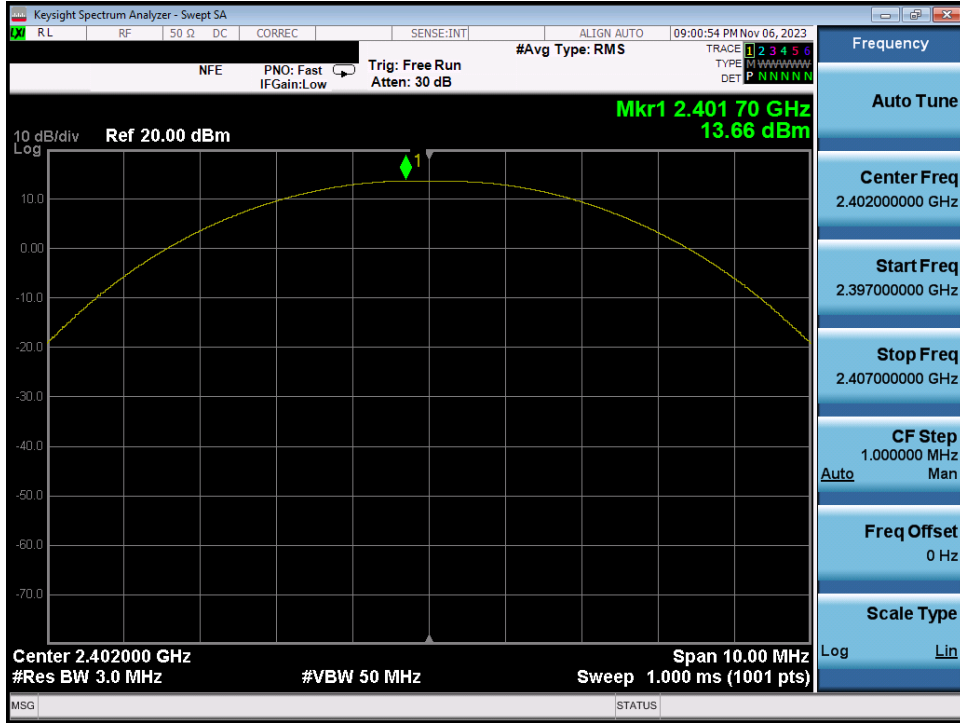
FCC ID: A3LSMS928U	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2308210092-10.A3L	Test Dates: 9/6/2023 - 11/06/2023	EUT Type: Portable Handset	Page 49 of 121



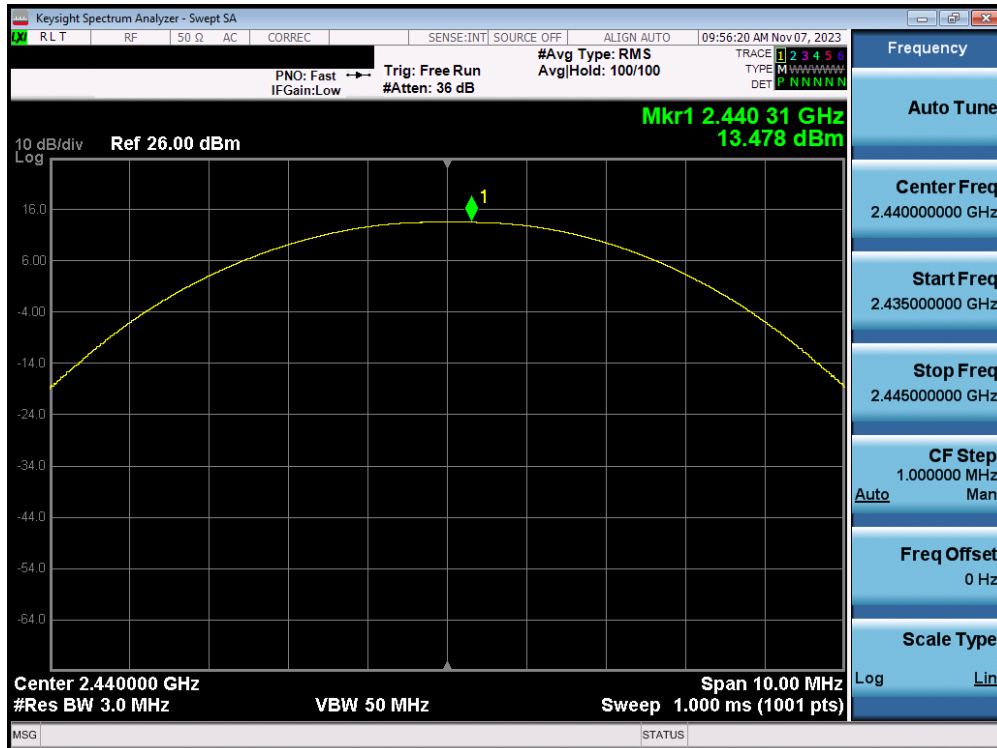
Frequency [MHz]	Data Rate [Mbps]	Channel No.	Bluetooth Mode	Ant1 Peak Cond. Power		Ant2 Peak Cond. Power		Dual Peak Cond. Power	
				[dBm]	[mW]	[dBm]	[mW]	[dBm]	[mW]
2402	1 Mbps	0	LE	13.66	23.211	14.42	27.689	17.07	50.900
2440	1 Mbps	19	LE	13.48	22.274	13.71	23.496	16.61	45.770
2480	1 Mbps	39	LE	13.64	23.121	13.37	21.732	16.52	44.853
2402	2 Mbps	0	LE	13.64	23.137	14.69	29.431	17.21	52.567
2440	2 Mbps	19	LE	15.04	31.915	13.72	23.523	17.44	55.439
2480	2 Mbps	39	LE	14.69	29.424	13.39	21.827	17.10	51.251

Table 7-8. Conducted Output Power Measurements (Bluetooth (LE)) – Dual

FCC ID: A3LSMS928U	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
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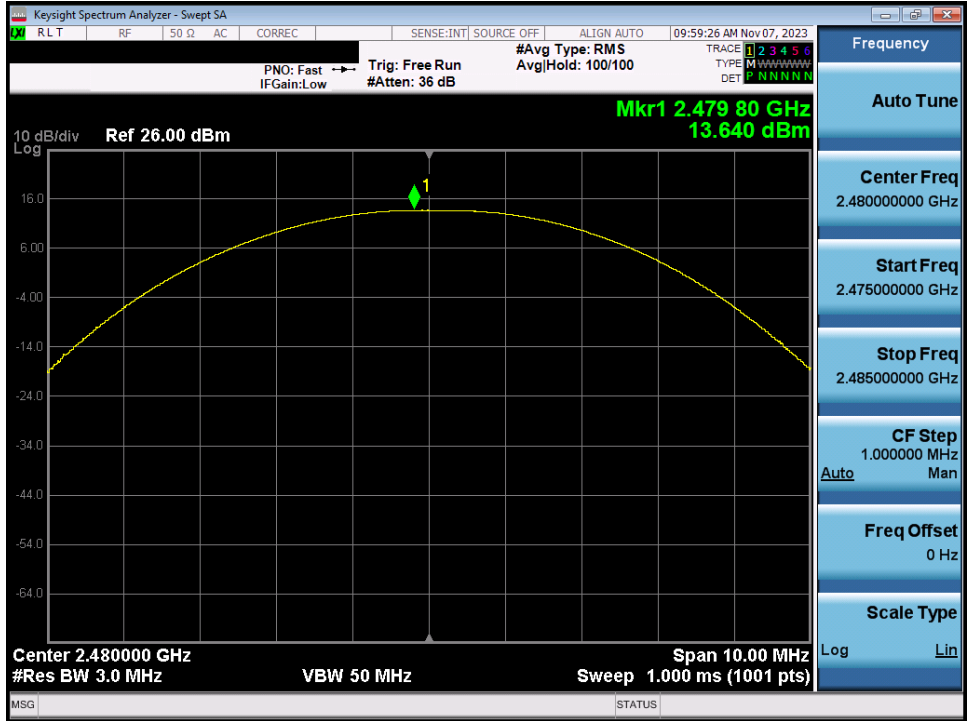


Plot 7-61. Peak Power Plot (Bluetooth (LE), 1Mbps – Ch. 0) – Dual ANT1

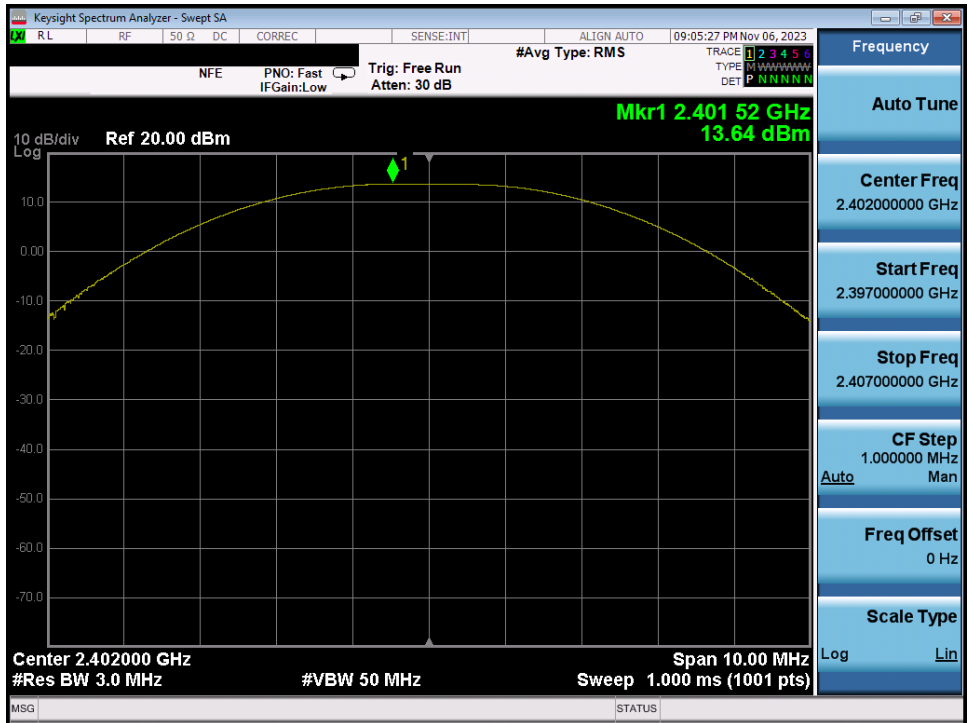


Plot 7-62. Peak Power Plot (Bluetooth (LE), 1Mbps – Ch. 19) – Dual ANT1

FCC ID: A3LSMS928U	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2308210092-10.A3L	Test Dates: 9/6/2023 - 11/06/2023	EUT Type: Portable Handset	Page 51 of 121

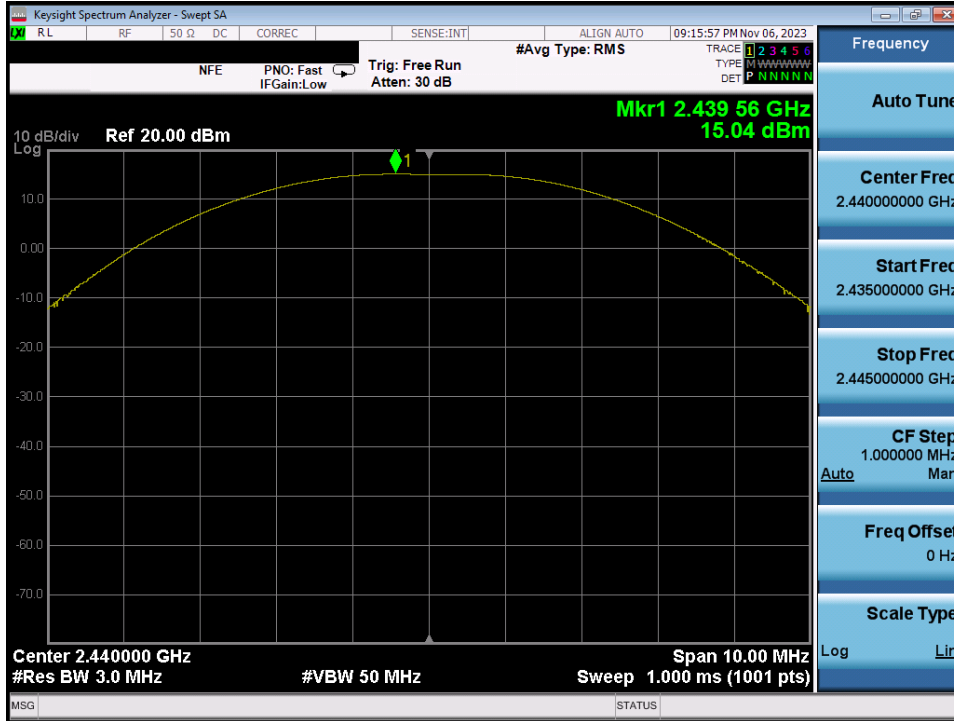


Plot 7-63. Peak Power Plot (Bluetooth (LE), 1Mbps – Ch. 39) – Dual ANT1

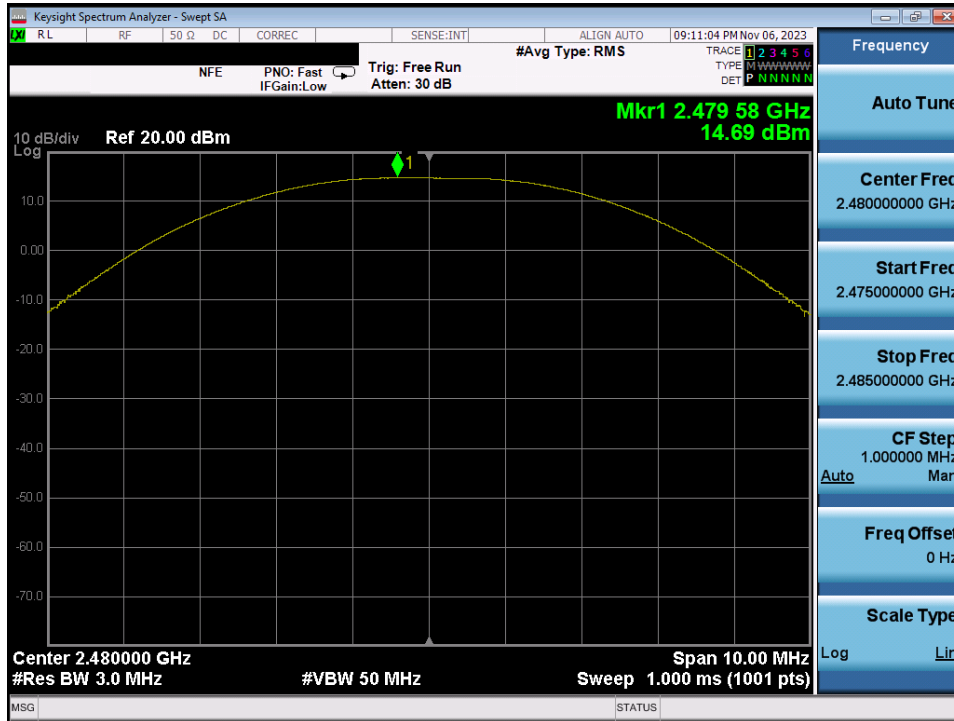


Plot 7-64. Peak Power Plot (Bluetooth (LE), 2Mbps – Ch. 0) – Dual ANT1

FCC ID: A3LSMS928U	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2308210092-10.A3L	Test Dates: 9/6/2023 - 11/06/2023	EUT Type: Portable Handset	Page 52 of 121

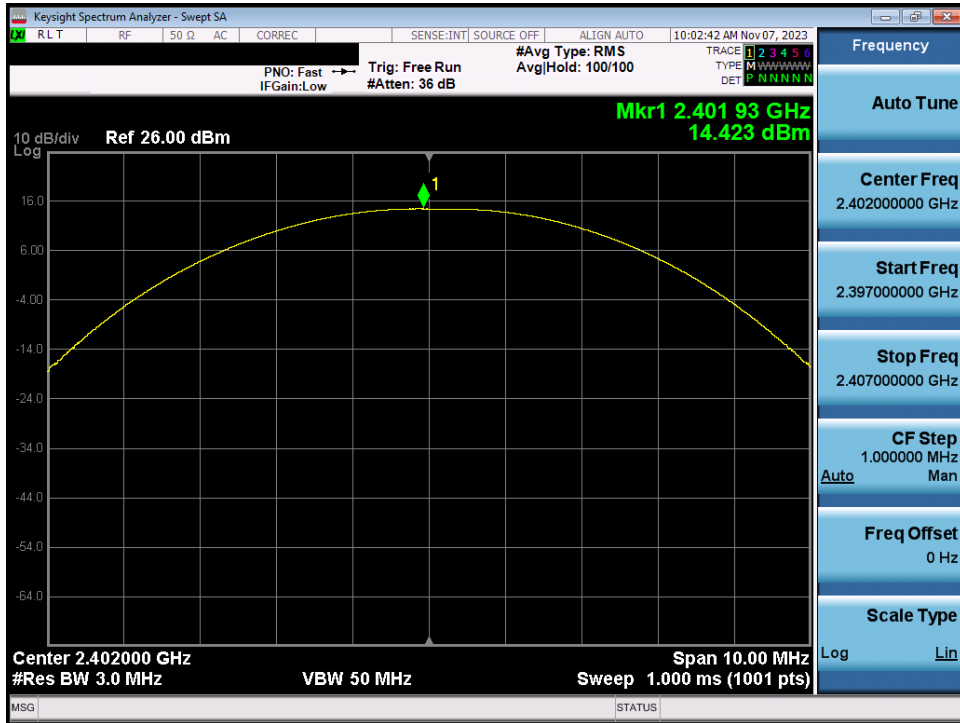


Plot 7-65. Peak Power Plot (Bluetooth (LE), 2Mbps – Ch. 19) – Dual ANT1

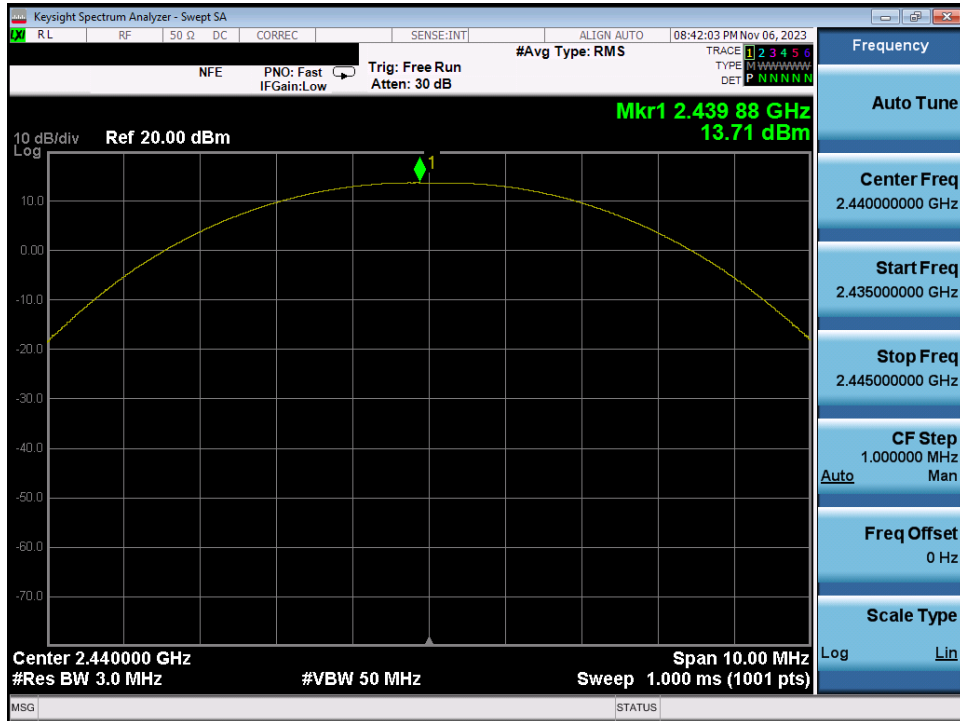


Plot 7-66. Peak Power Plot (Bluetooth (LE), 2Mbps – Ch. 39) – Dual ANT1

FCC ID: A3LSMS928U	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2308210092-10.A3L	Test Dates: 9/6/2023 - 11/06/2023	EUT Type: Portable Handset	Page 53 of 121

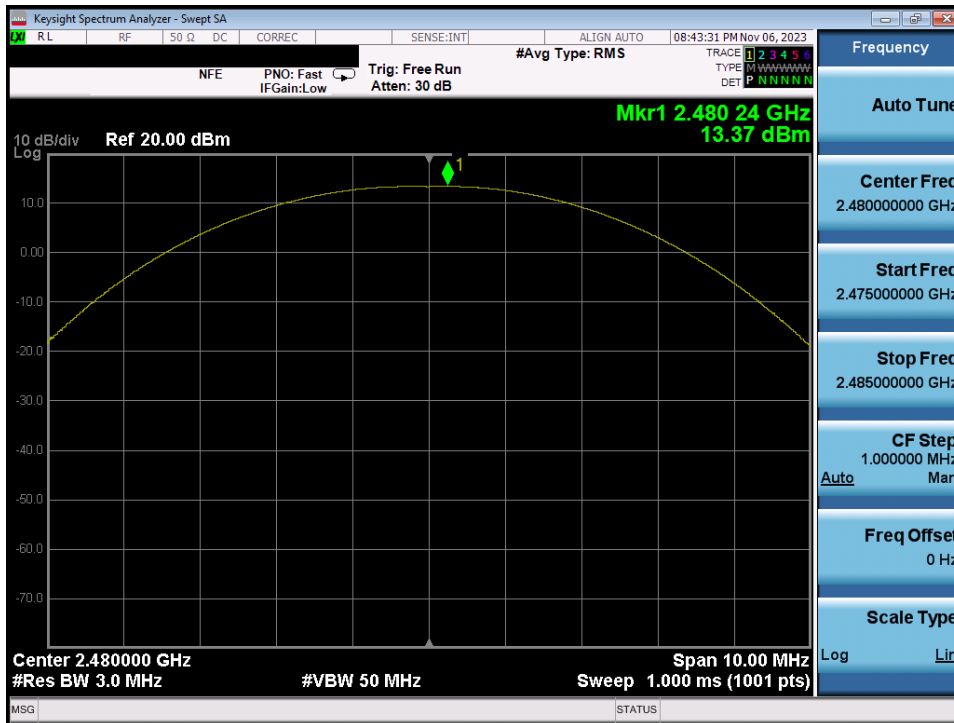


Plot 7-67. Peak Power Plot (Bluetooth (LE), 1Mbps – Ch. 0) – Dual ANT2

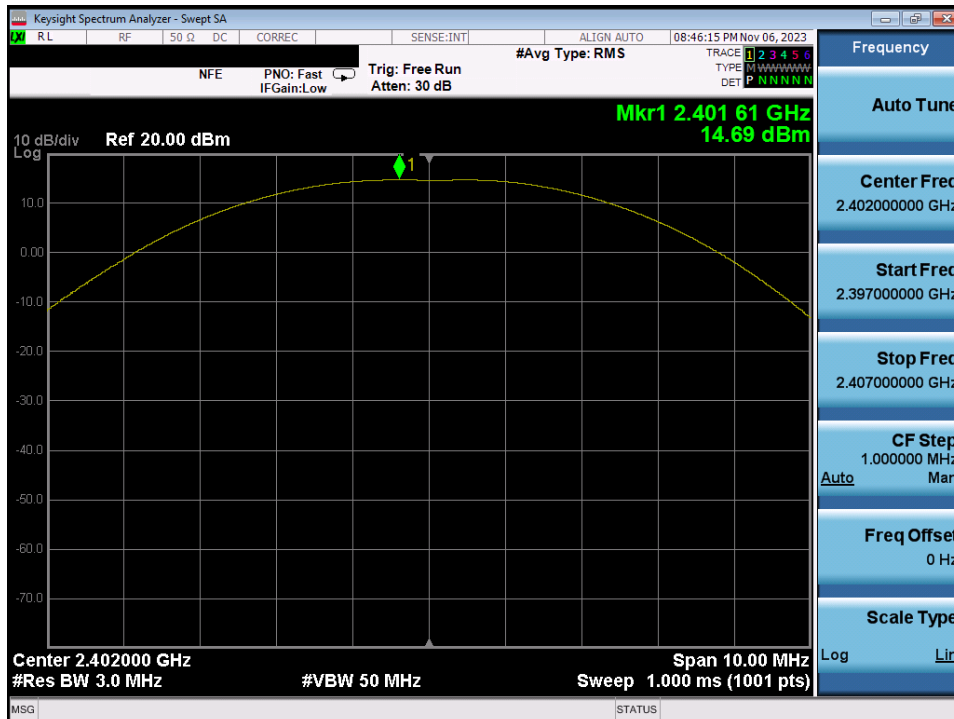


Plot 7-68. Peak Power Plot (Bluetooth (LE), 1Mbps – Ch. 19) – Dual ANT2

FCC ID: A3LSMS928U	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2308210092-10.A3L	Test Dates: 9/6/2023 - 11/06/2023	EUT Type: Portable Handset	Page 54 of 121

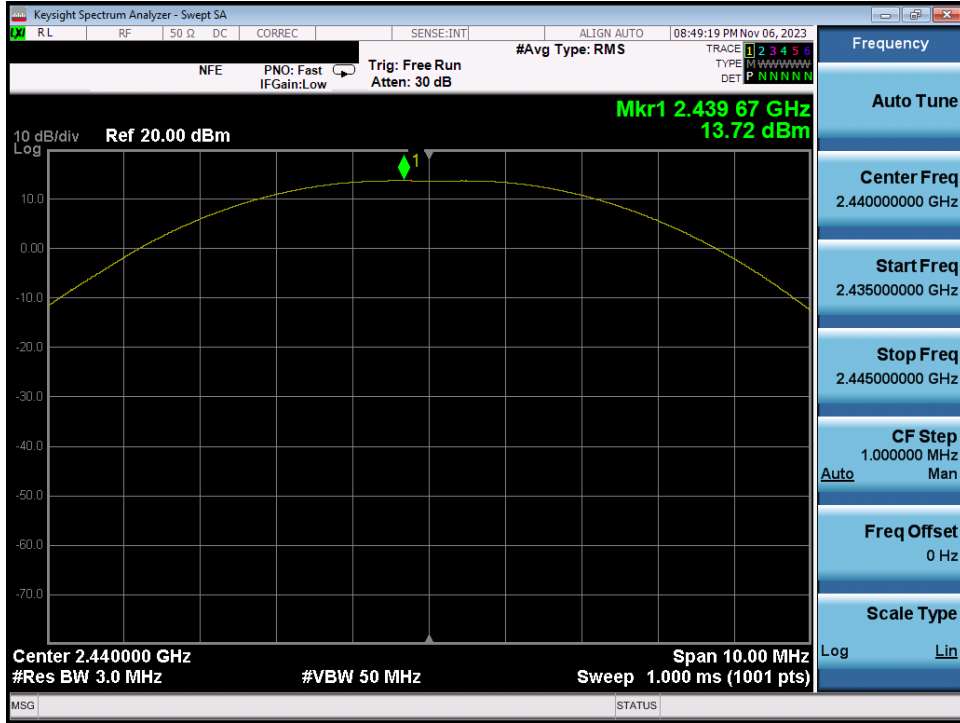


Plot 7-69. Peak Power Plot (Bluetooth (LE), 1Mbps – Ch. 39) – Dual ANT2

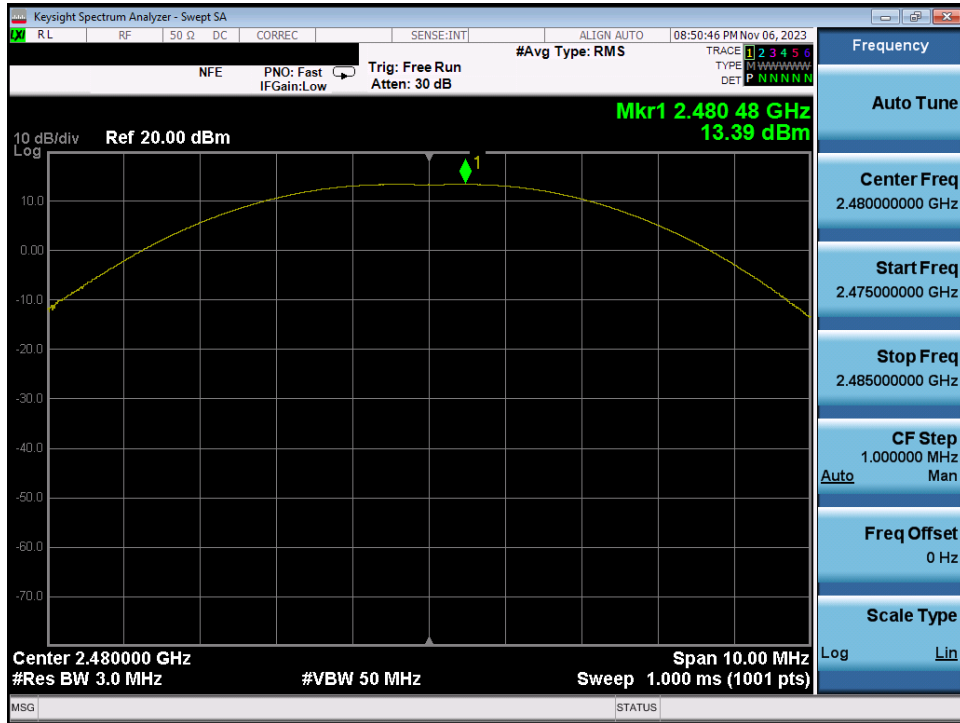


Plot 7-70. Peak Power Plot (Bluetooth (LE), 2Mbps – Ch. 0) – Dual ANT2

FCC ID: A3LSMS928U	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
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Plot 7-71. Peak Power Plot (Bluetooth (LE), 2Mbps – Ch. 19) – Dual ANT2



Plot 7-72. Peak Power Plot (Bluetooth (LE), 2Mbps – Ch. 39) – Dual ANT2

FCC ID: A3LSMS928U	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2308210092-10.A3L	Test Dates: 9/6/2023 - 11/06/2023	EUT Type: Portable Handset	Page 56 of 121

7.4 Power Spectral Density – Bluetooth (LE)

§15.247(e); RSS-247 [5.2]

Test Overview and Limit

The peak power density is 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.

The maximum permissible power spectral density is 8 dBm in any 3 kHz band.

Test Procedure Used

ANSI C63.10-2013 – Section 11.10.2 Method PKPSD

KDB 558074 D01 v05r02 – Section 8.4 DTS Maximum Power Spectral Density level in the fundamental emission

Test Settings

1. Analyzer was set to the center frequency of the DTS channel under investigation
2. Span = 1.5 times the DTS channel bandwidth
3. RBW = 3kHz
4. VBW = 1MHz
5. Detector = peak
6. Sweep time = auto couple
7. Trace mode = max hold
8. Trace was allowed to stabilize

Test Setup

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



Figure 7-3. Test Instrument & Measurement Setup

Test Notes

None

FCC ID: A3LSMS928U	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
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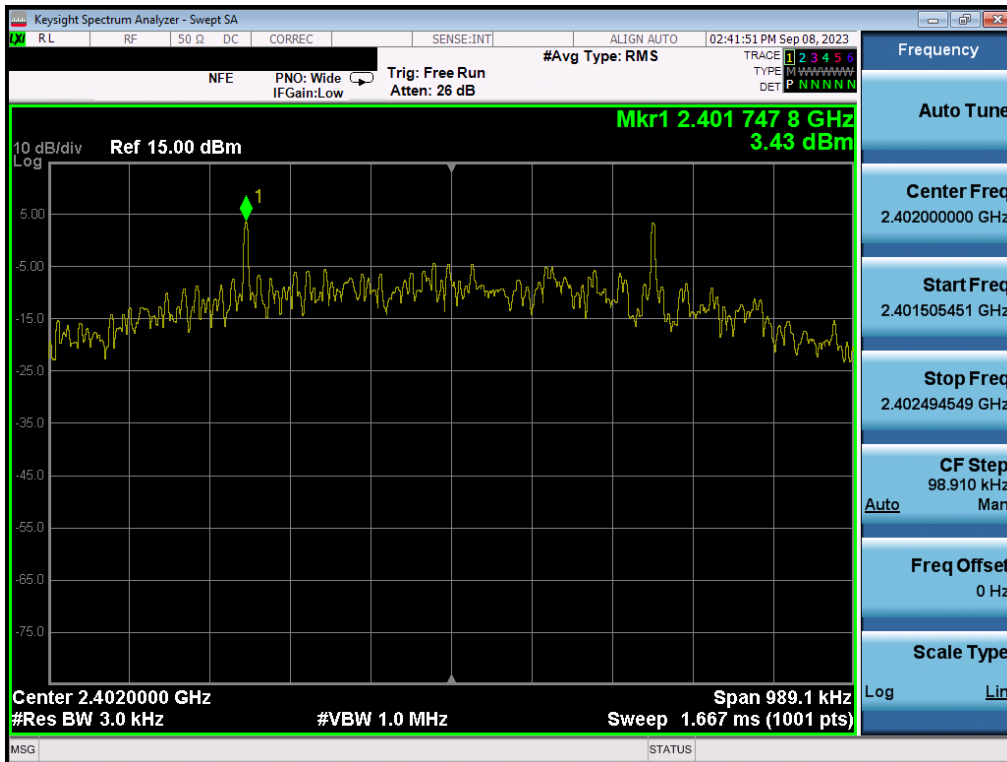
Frequency [MHz]	Data Rate [Mbps]	Channel No.	Bluetooth Mode	Measured Power Spectral Density [dBm]	Maximum Permissible Power Density [dBm / 3kHz]	Margin [dB]
2402	125 kbps	0	LE	3.61	8.0	-4.39
2440	125 kbps	19	LE	5.01	8.0	-2.99
2480	125 kbps	39	LE	4.01	8.0	-3.99
2402	500 kbps	0	LE	3.43	8.0	-4.57
2440	500 kbps	19	LE	4.90	8.0	-3.10
2480	500 kbps	39	LE	4.10	8.0	-3.90
2402	1 Mbps	0	LE	1.66	8.0	-6.34
2440	1 Mbps	19	LE	3.08	8.0	-4.92
2480	1 Mbps	39	LE	2.26	8.0	-5.74
2402	2 Mbps	0	LE	-0.41	8.0	-8.41
2440	2 Mbps	19	LE	0.79	8.0	-7.21
2480	2 Mbps	39	LE	0.37	8.0	-7.63

Table 7-9. Conducted Power Density Measurements – ANT1

FCC ID: A3LSMS928U	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2308210092-10.A3L	Test Dates: 9/6/2023 - 11/06/2023	EUT Type: Portable Handset	Page 58 of 121

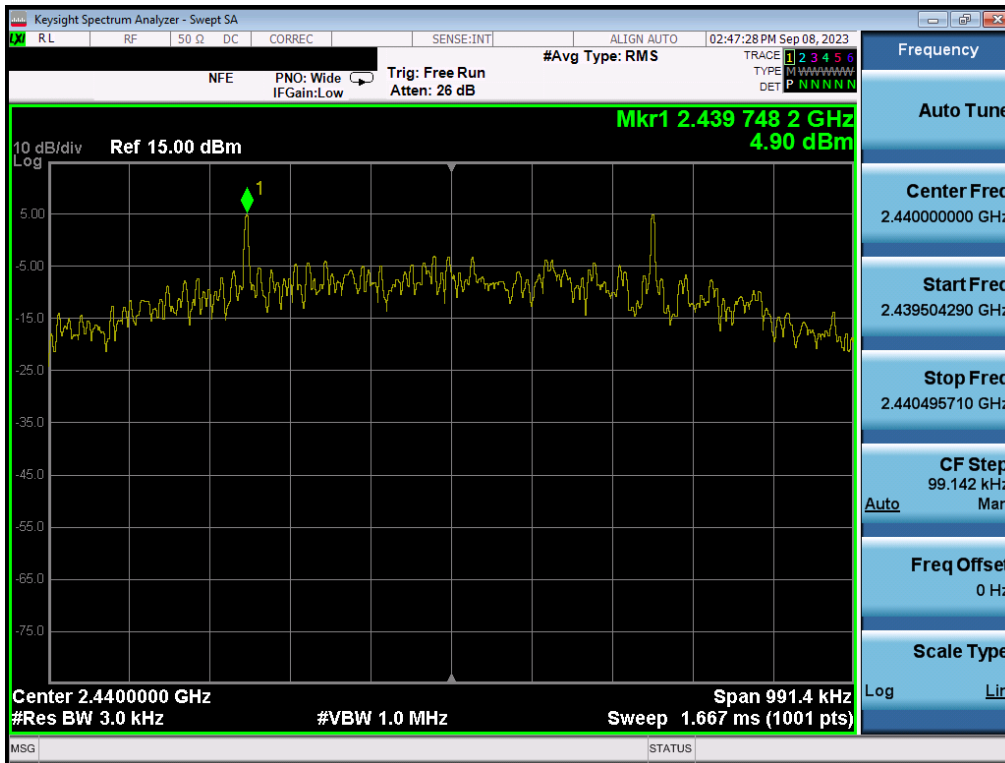


Plot 7-75. Power Spectral Density Plot (Bluetooth (LE), 125kbps – Ch. 39) – ANT1

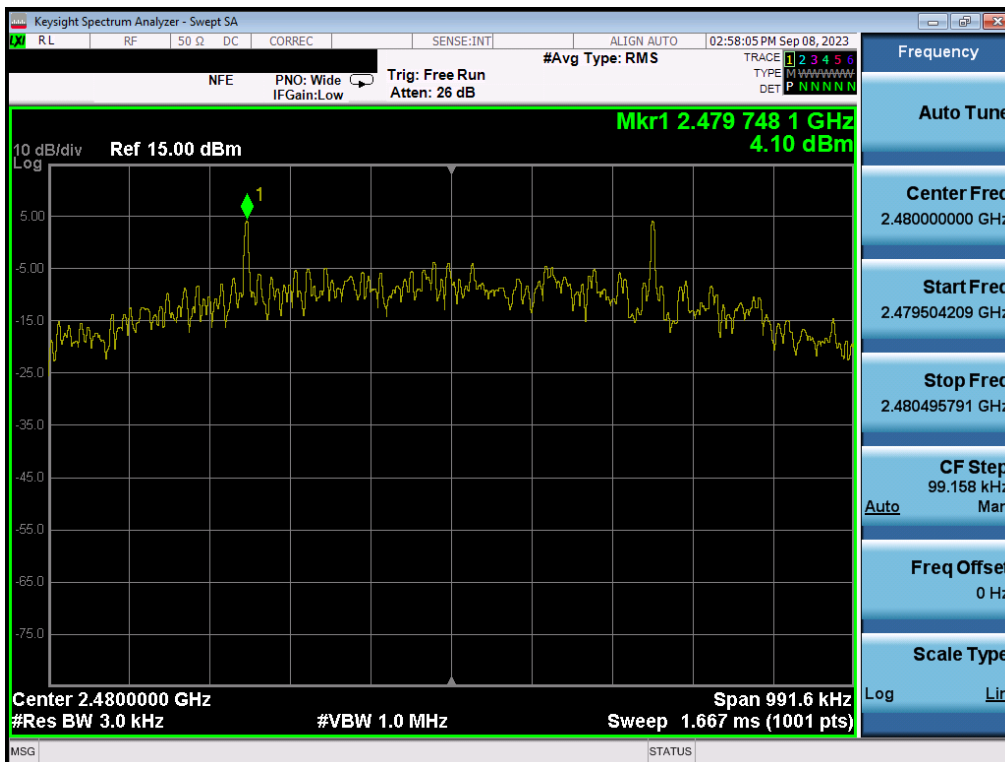


Plot 7-76. Power Spectral Density Plot (Bluetooth (LE), 500kbps – Ch. 0) – ANT1

FCC ID: A3LSMS928U	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2308210092-10.A3L	Test Dates: 9/6/2023 - 11/06/2023	EUT Type: Portable Handset	Page 60 of 121

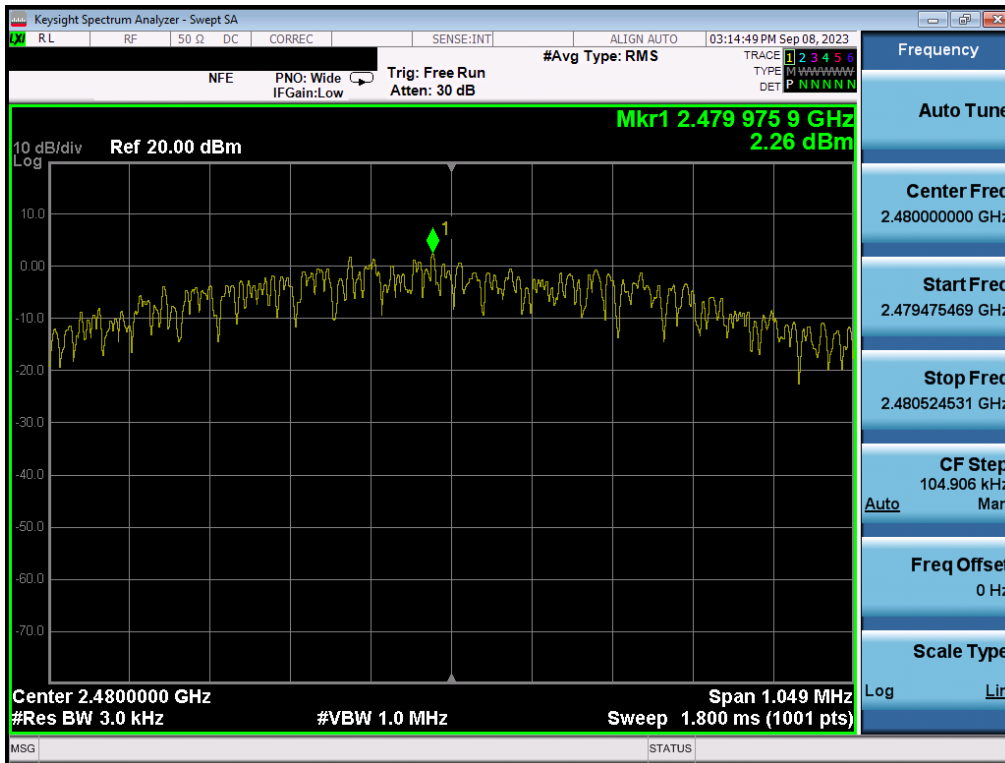


Plot 7-77. Power Spectral Density Plot (Bluetooth (LE), 500kbps – Ch. 19) – ANT1

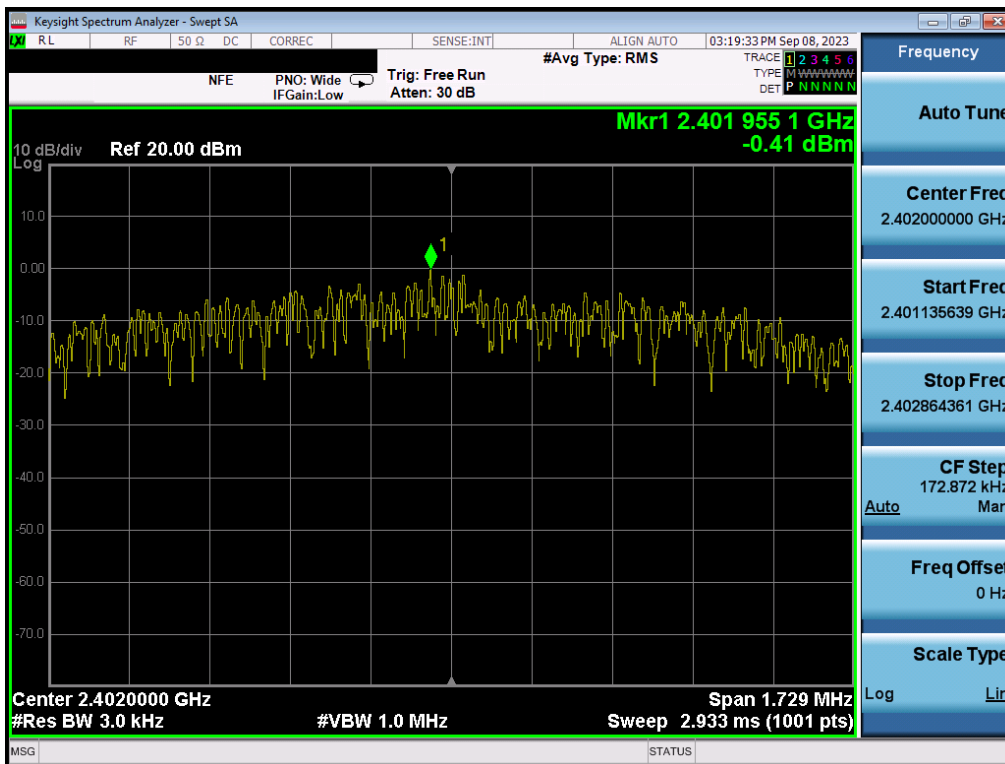


Plot 7-78. Power Spectral Density Plot (Bluetooth (LE), 500kbps – Ch. 39) – ANT1

FCC ID: A3LSMS928U	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2308210092-10.A3L	Test Dates: 9/6/2023 - 11/06/2023	EUT Type: Portable Handset	Page 61 of 121

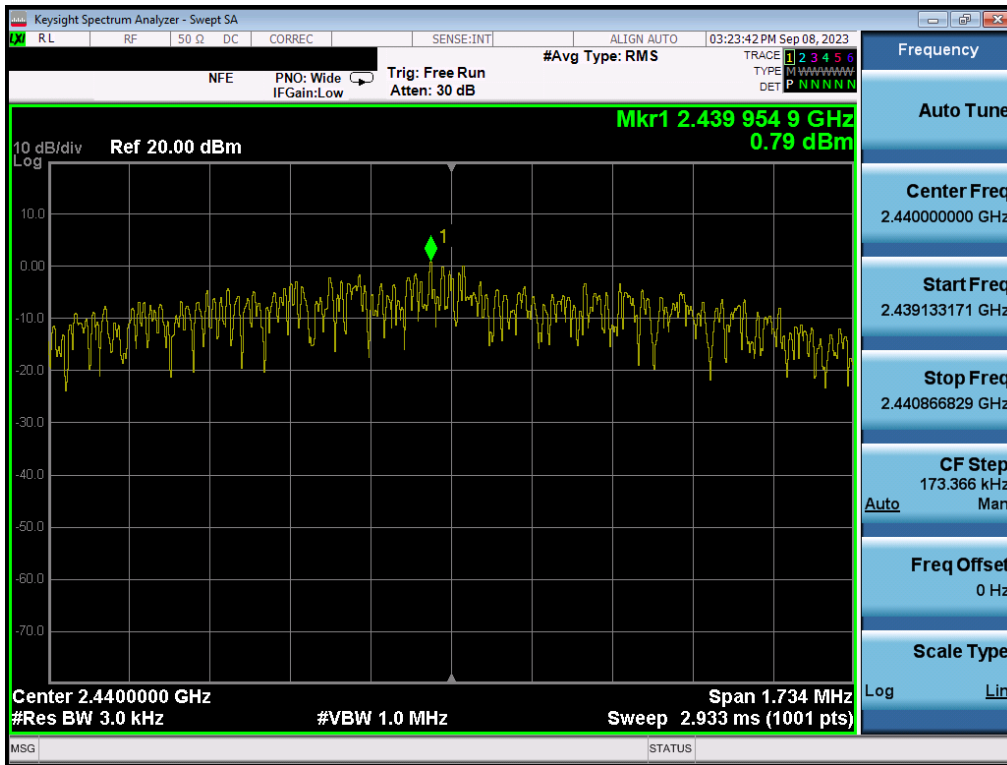


Plot 7-81. Power Spectral Density Plot (Bluetooth (LE), 1Mbps – Ch. 39) – ANT1

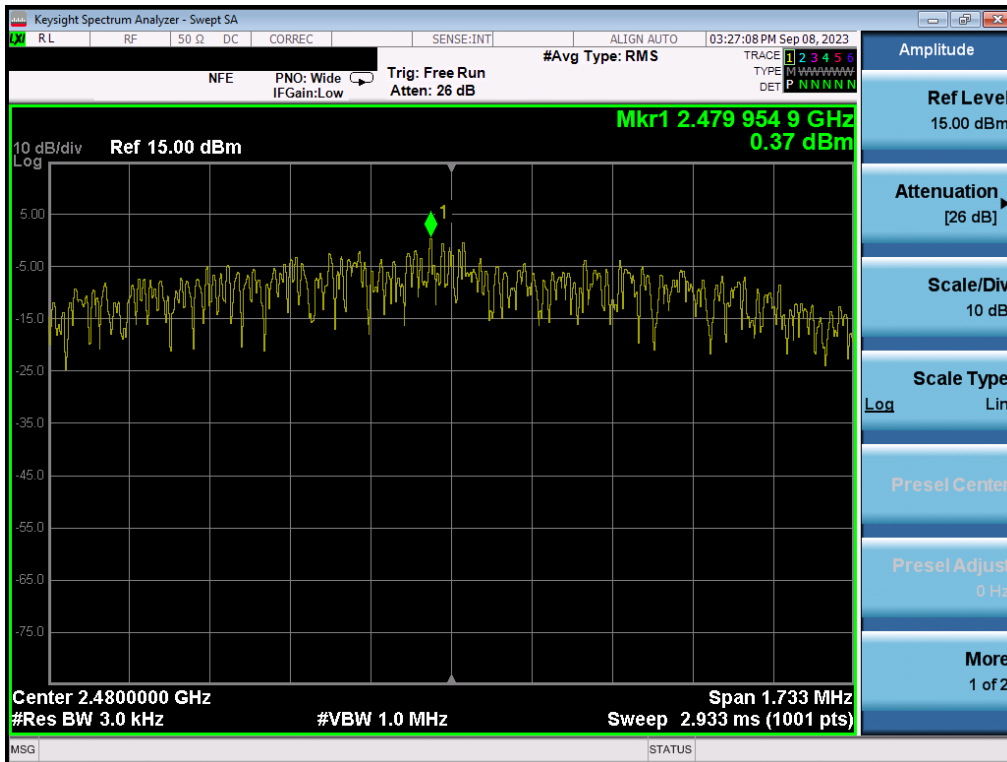


Plot 7-82. Power Spectral Density Plot (Bluetooth (LE), 2Mbps – Ch. 0) – ANT1

FCC ID: A3LSMS928U	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
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Plot 7-83. Power Spectral Density Plot (Bluetooth (LE), 2Mbps – Ch. 19) – ANT1



Plot 7-84. Power Spectral Density Plot (Bluetooth (LE), 2Mbps – Ch. 39) – ANT1

FCC ID: A3LSMS928U	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2308210092-10.A3L	Test Dates: 9/6/2023 - 11/06/2023	EUT Type: Portable Handset	Page 64 of 121

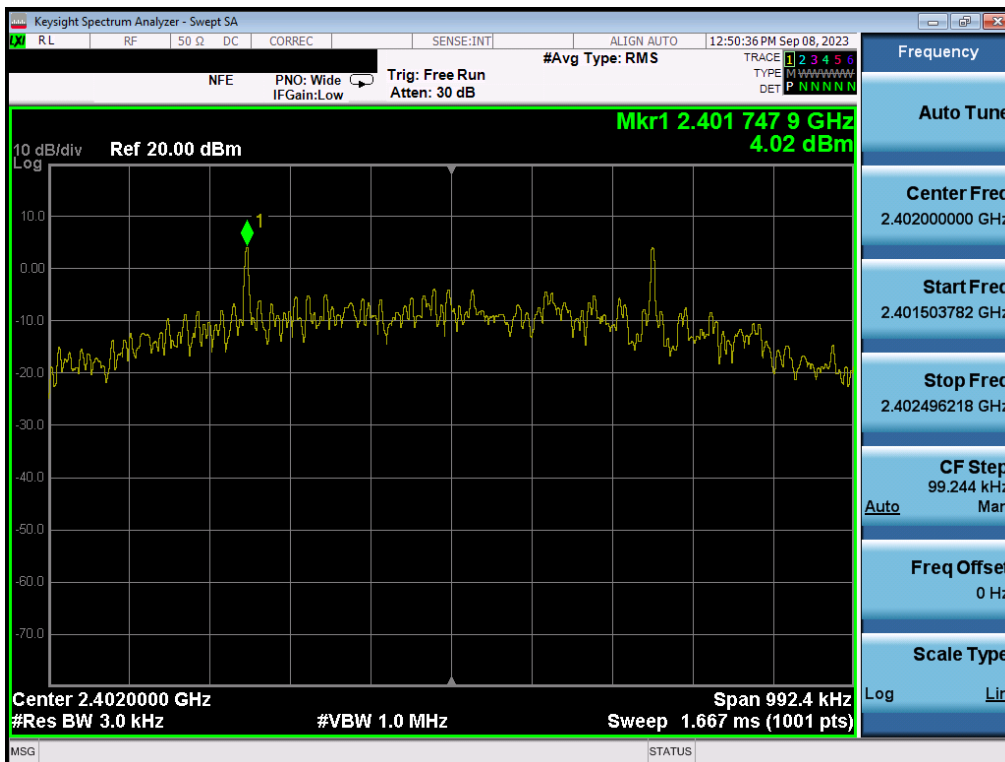
Frequency [MHz]	Data Rate [Mbps]	Channel No.	Bluetooth Mode	Measured Power Spectral Density [dBm]	Maximum Permissible Power Density [dBm / 3kHz]	Margin [dB]
2402	125 kbps	0	LE	4.38	8.0	-3.62
2440	125 kbps	19	LE	4.10	8.0	-3.90
2480	125 kbps	39	LE	3.56	8.0	-4.44
2402	500 kbps	0	LE	4.02	8.0	-3.98
2440	500 kbps	19	LE	3.96	8.0	-4.04
2480	500 kbps	39	LE	3.33	8.0	-4.67
2402	1 Mbps	0	LE	3.05	8.0	-4.95
2440	1 Mbps	19	LE	2.82	8.0	-5.18
2480	1 Mbps	39	LE	2.35	8.0	-5.65
2402	2 Mbps	0	LE	1.03	8.0	-6.98
2440	2 Mbps	19	LE	0.92	8.0	-7.09
2480	2 Mbps	39	LE	0.46	8.0	-7.54

Table 7-10. Conducted Power Density Measurements – ANT2

FCC ID: A3LSMS928U	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
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Plot 7-87. Power Spectral Density Plot (Bluetooth (LE), 125kbps – Ch. 39) – ANT2



Plot 7-88. Power Spectral Density Plot (Bluetooth (LE), 500kbps – Ch. 0) – ANT2

FCC ID: A3LSMS928U	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2308210092-10.A3L	Test Dates: 9/6/2023 - 11/06/2023	EUT Type: Portable Handset	Page 67 of 121