FCC Test Report

Report No.: AGC12383250701FR02

FCC ID	:	2AX2R-TONALITE
APPLICATION PURPOSE	:	Original Equipment
PRODUCT DESIGNATION	:	TWS Bluetooth Earphone
BRAND NAME	:	final
MODEL NAME	:	FI-TODPLTW
APPLICANT	:	final Inc.
DATE OF ISSUE	:	Aug. 01, 2025
STANDARD(S)	:	FCC Part 15 Subpart C §15.247
REPORT VERSION	:	V1.0

Attestation Of ***G***lobal ***C***ompliance (Shenzhen) Co., Ltd

Report Revise Record

Report Version	Revise Time	Issued Date	Valid Version	Notes
V1.0	/	Aug. 01, 2025	Valid	Initial Release

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1. General Information

Applicant	final Inc.
Address	4-44-1, Nakasaiwai-cho, Saiwai-Ku, Kawasaki-shi, Kanagawa 212-0012, Japan
Manufacturer	final Inc.
Address	4-44-1, Nakasaiwai-cho, Saiwai-Ku, Kawasaki-shi, Kanagawa 212-0012, Japan
Factory	Jiangxi Risound Electronics Co., Ltd.
Address	No.271, Innovation Avenue, Jinggangshan Economic and Technological Development Zone, Ji'an City, Jiangxi Province, China
Product Designation	TWS Bluetooth Earphone
Brand Name	final
Test Model	FI-TODPLTW
Series Model(s)	N/A
Difference Description	N/A
Date of receipt of test item	Jul. 11, 2025
Date of Test	Jul. 11, 2025~Aug. 01, 2025
Deviation from Standard	No any deviation from the test method
Condition of Test Sample	Normal
Test Result	Pass
Test Report Form No	AGCER-FCC-BLE-V1

Note: The test results of this report relate only to the tested sample identified in this report.

Prepared By	CiCi Li (Project Engineer)	Aug. 01, 2025
Reviewed By	Bibo Zhang (Reviewer)	Aug. 01, 2025
Approved By	Angela Li (Authorized Officer)	Aug. 01, 2025

2. Product Information

2.1 Product Technical Description

Technology Type	Bluetooth Low Energy
Frequency Band	2400MHz-2483.5MHz
Operation Frequency Range	BLE GFSK 1Mbps: 2402MHz-2480MHz BLE GFSK 2Mbps: 2404MHz-2478MHz
Bluetooth Version	V5.3
Modulation Type	BLE ☒GFSK 1Mbps ☒GFSK 2Mbps
Number of channels	BLE GFSK 1Mbps:40 BLE GFSK 2Mbps: 37
Carrier Frequency of Each Channel	BLE GFSK 1Mbps: 40 Channels (37 Data channels + 3 Advertising channels) BLE GFSK 2Mbps: 37 channels (34 Data channels)
Channel Separation	2 MHz
Maximum Transmitter Power	Left earphone: 3.994dBm Right earphone: 3.960dBm
Hardware Version	V4.0
Software Version	V1.0
Antenna Designation	LDS Antenna
Antenna Gain	Left earphone: -3.13dBi Right earphone: -3.4dBi
Power Supply	DC 3.85V by battery or DC 5V by charging case
Note: The EUT comprises left and right channel earphones, both are the same in SCH but different in the PCB Layout, the left and right channel earphones have been tested and recorded in this report.	

2.2 Test Frequency List

BLE GFSK 1Mbps:

Channel No.	Frequency (GHz)	Channel No.	Frequency (GHz)
00	2.402	20	2.442
01	2.404	21	2.444
02	2.406	22	2.446
03	2.408	23	2.448
04	2.410	24	2.450
05	2.412	25	2.452
06	2.414	26	2.454
07	2.416	27	2.456
08	2.418	28	2.458
09	2.420	29	2.460
10	2.422	30	2.462
11	2.424	31	2.464
12	2.426	32	2.466
13	2.428	33	2.468
14	2.430	34	2.470
15	2.432	35	2.472
16	2.434	36	2.474
17	2.436	37	2.476
18	2.438	38	2.478
19	2.440	39	2.480

BLE GFSK 2Mbps:

Channel No.	Frequency (GHz)	Channel No.	Frequency (GHz)
00	--	20	2.442
01	2.404	21	2.444
02	2.406	22	2.446
03	2.408	23	2.448
04	2.410	24	2.450
05	2.412	25	2.452
06	2.414	26	2.454
07	2.416	27	2.456
08	2.418	28	2.458
09	2.420	29	2.460
10	2.422	30	2.462
11	2.424	31	2.464
12	--	32	2.466
13	2.428	33	2.468
14	2.430	34	2.470
15	2.432	35	2.472
16	2.434	36	2.474
17	2.436	37	2.476
18	2.438	38	2.478
19	2.440	39	--

2.3 Related Submittal(S) / Grant (S)

This submittal(s) (test report) is intended for FCC ID: **2AX2R-TONALITE,** filing to comply with Part 2, Part 15 of the Federal Communication Commission rules.

2.4 Test Methodology

The tests were performed according to following standards:

No.	Identity	Document Title
1	FCC 47 CFR Part 2	Frequency allocations and radio treaty matters; general rules and regulations
2	FCC 47 CFR Part 15	Radio Frequency Devices
3	ANSI C63.10-2013	American National Standard for Testing Unlicensed Wireless Devices
4	KDB 558074 D01 15.247 Meas Guidance v05r02	Guidance for compliance measurements on Digital Transmission Systems, Frequency Hopping Spread Spectrum system, and Hybrid system devices operating under Section 15.247 of the FCC rules

2.5 Special Accessories

Not available for this EUT intended for grant.

2.6 Equipment Modifications

Not available for this EUT intended for grant.

2.7 Antenna Requirement

Standard Requirement
15.203 requirement: An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall 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, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. **15.247(b) (4) requirement:** The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi
EUT Antenna
The non-detachable antenna inside the device cannot be replaced by the user at will. The antenna gain of the left ear is -3.13dBi, the antenna gain of the right ear is -3.4 dBi.

3. Test Environment

3.1 Address of the Test Laboratory

Laboratory: Attestation of Global Compliance (Shenzhen) Co., Ltd.

Address: 1-2/F, Building 19, Junfeng Industrial Park, Chongqing Road, Heping Community, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China

3.2 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

CNAS-Lab Code: L5488

Attestation of Global Compliance (Shenzhen) Co., Ltd. has been assessed and proved to follow CNAS-CL01 Accreditation Criteria for Testing and Calibration Laboratories (identical to ISO/IEC17025: 2017 General Requirements for the Competence of Testing and Calibration Laboratories).

A2LA-Lab Cert. No.: 5054.02

Attestation of Global Compliance (Shenzhen) Co., Ltd. EMC Laboratory has been accredited by A2LA for technical competence in the field of electrical testing, and proved to follow ISO/IEC 17025: 2017 General Requirements for the Competence of Testing and Calibration Laboratories and any additional program requirements in the identified field of testing.

FCC-Registration No.: 975832

Attestation of Global Compliance (Shenzhen) Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the FCC (Federal Communications Commission). The acceptance letter from the FCC is maintained in our files with Registration 975832.

IC-Registration No.: 24842 (CAB identifier: CN0063)

Attestation of Global Compliance (Shenzhen) Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the Certification and Engineering Bureau of Industry Canada. The acceptance letter from the IC is maintained in our files with Registration 24842.

3.3 Environmental Conditions

	Normal Conditions
Temperature range (℃)	15 - 35
Relative humidity range	20 % - 75 %
Pressure range (kPa)	86 - 106
Power supply	DC 3.85V by battery or DC 5V by charging case

3.4 Measurement Uncertainty

The reported uncertainty of measurement y ±U, where expended uncertainty U is based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95%.

Item	Measurement Uncertainty
Uncertainty of Conducted Emission for AC Port	U_c = ±2.9 dB
Uncertainty of Radiated Emission below 1GHz	U_c = ±3.9 dB
Uncertainty of Radiated Emission above 1GHz	U_c = ±4.9 dB
Uncertainty of total RF Power, Conducted	U_c = ±0.8 dB
Uncertainty of RF Power Density, Conducted	U_c = ±2.6 dB
Uncertainty of Spurious Emissions, Conducted	U_c = ±2 %
Uncertainty of Occupied Channel Bandwidth	U_c = ±2 %
Uncertainty of Dwell Time	U_c = ±2 %

3.5 List of Equipment Use

● RF Conducted Test System							
Used	Equipment No.	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal. Date (YY-MM-DD)	Next Cal. Date (YY-MM-DD)
☒	AGC-ER-E036	Spectrum Analyzer	Agilent	N9020A	MY49100060	2025-05-08	2026-05-07
☐	AGC-ER-E062	Power Sensor	Agilent	U2021XA	MY54110007	2025-05-08	2026-05-07
☐	AGC-ER-E063	Power Sensor	Agilent	U2021XA	MY54110009	2025-05-08	2026-05-07
☒	AGC-ER-A007	6dB Fixed Attenuator	Mini circuits	BW-S6-2W263A+	N/A	2025-01-30	2026-01-29
☐	AGC-ER-E083	Signal Generator	Agilent	E4421B	US39340815	2025-05-21	2026-05-20
☒	N/A	RF Connection Cable	N/A	1#	N/A	Each time	N/A
☒	N/A	RF Connection Cable	N/A	2#	N/A	Each time	N/A

● Radiated Spurious Emission							
Used	Equipment No.	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal. Date (YY-MM-DD)	Next Cal. Date (YY-MM-DD)
☐	AGC-EM-E046	EMI Test Receiver	R&S	ESCI	100096	2025-01-14	2026-01-13
☒	AGC-EM-E116	EMI Test Receiver	R&S	ESCI	100034	2025-05-08	2026-05-07
☒	AGC-EM-E061	Spectrum Analyzer	Agilent	N9010A	MY53470504	2025-05-08	2026-05-07
☒	AGC-EM-E086	Loop Antenna	ZHINAN	ZN30900C	18051	2024-03-05	2026-03-04
☒	AGC-ER-E005	Wideband Antenna	SCHWARZBECK	VULB9168	VULB9168-494	2025-01-15	2027-01-14
☒	AGC-EM-E029	Broadband Ridged Horn Antenna	ETS	3117	00034609	2025-03-27	2026-03-26
☒	AGC-EM-E082	Horn Antenna	SCHWARZBECK	BBHA 9170	#768	2023-09-24	2025-09-23
☒	AGC-EM-E146	Pre-amplifier	ETS	3117-PA	00246148	2024-07-24	2026-07-23
☒	AGC-EM-A119	2.4GHz Filter	SongYi	N/A	N/A	2025-05-16	2026-05-15
☐	AGC-EM-A138	6dB Attenuator	Eeatsheep	LM-XX-6-5W	N/A	2025-05-16	2027-05-15
☒	AGC-EM-A139	6dB Attenuator	Eeatsheep	LM-XX-6-5W	N/A	2025-05-16	2027-05-15

● AC Power Line Conducted Emission							
Used	Equipment No.	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal. Date (YY-MM-DD)	Next Cal. Date (YY-MM-DD)
☒	AGC-EM-A171	Attenuator	Mini-Circuits	UNAT-10A+	N/A	2024-02-01	2026-01-31
☒	AGC-EM-E023	Artificial Mains Network	R&S	ESH2-Z5	100086	2025-05-08	2026-05-07
☒	AGC-EM-E116	Test Receiver	R&S	ESCI	100034	2025-05-08	2026-05-07

● Test Software					
Used	Equipment No.	Test Equipment	Manufacturer	Model No.	Version Information
☒	AGC-EM-S001	CE Test System	R&S	ES-K1	V1.71
☐	AGC-EM-S003	RE Test System	FARA	EZ-EMC	VRA-03A
☒	AGC-EM-S004	RE Test System	Tonscend	TS+Ver2.1(JS32-RE)	4.0.0.0
☒	AGC-ER-S012	BT/WIFI Test System	Tonscend	JS1120-2	2.6
☒	AGC-EM-S011	RSE Test System	Tonscend	TS+-Ver2.1(JS36-RSE)	4.0.0.0

4.System Test Configuration

4.1 EUT Configuration

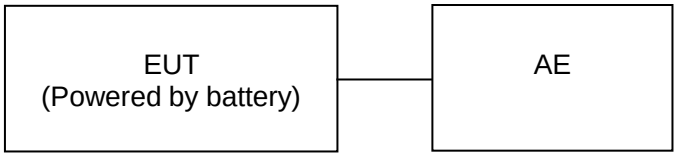
The EUT configuration for testing is installed on RF field strength measurement to meet the Commission's requirement and operating in a manner which intends to maximize its emission characteristics in a continuous normal application.

4.2 EUT Exercise

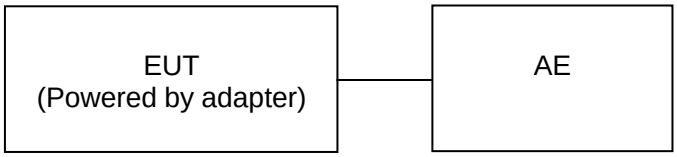
The Transmitter was operated in the normal operating mode. The TX frequency was fixed which was for the purpose of the measurements.

4.3 Configuration of Tested System

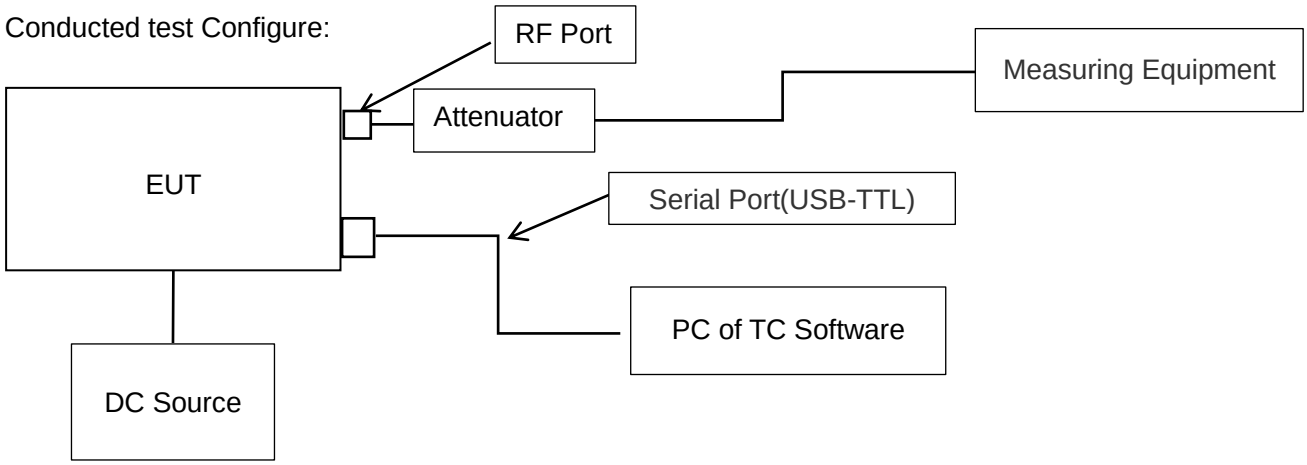
Radiated Emission Configure:



Conducted Emission Configure:



RF Conducted test Configure:



4.4 Equipment Used In Tested System

The following peripheral devices and interface cables were connected during the measurement:

☒ Test Accessories Come From The Laboratory

No.	Equipment	Manufacturer	Model No.	Specification Information	Cable
1	Adapter	Apple	A2452	--	0.8m unshielded
2	Control Box	RISYM	USB-TTL	--	--

☐ Test Accessories Come From The Manufacturer

No.	Equipment	Manufacturer	Model No.	Specification Information	Cable
1	--	--	--	--	--

4.5 Summary of Test Results

Item	FCC Rules	Description of Test	Result
1	§15.203&15.247(b)(4)	Antenna Equipment	Pass
2	§15.247 (b)(3)	RF Output Power	Pass
3	§15.247 (a)(2)	6 dB Bandwidth	Pass
4	§15.247 (e)	Power Spectral Density	Pass
5	§15.247 (d)	Conducted Band Edge and Out-of-Band Emissions	Pass
6	§15.209	Radiated Emission& Band Edge	Pass
7	§15.207	AC Power Line Conducted Emission	Pass

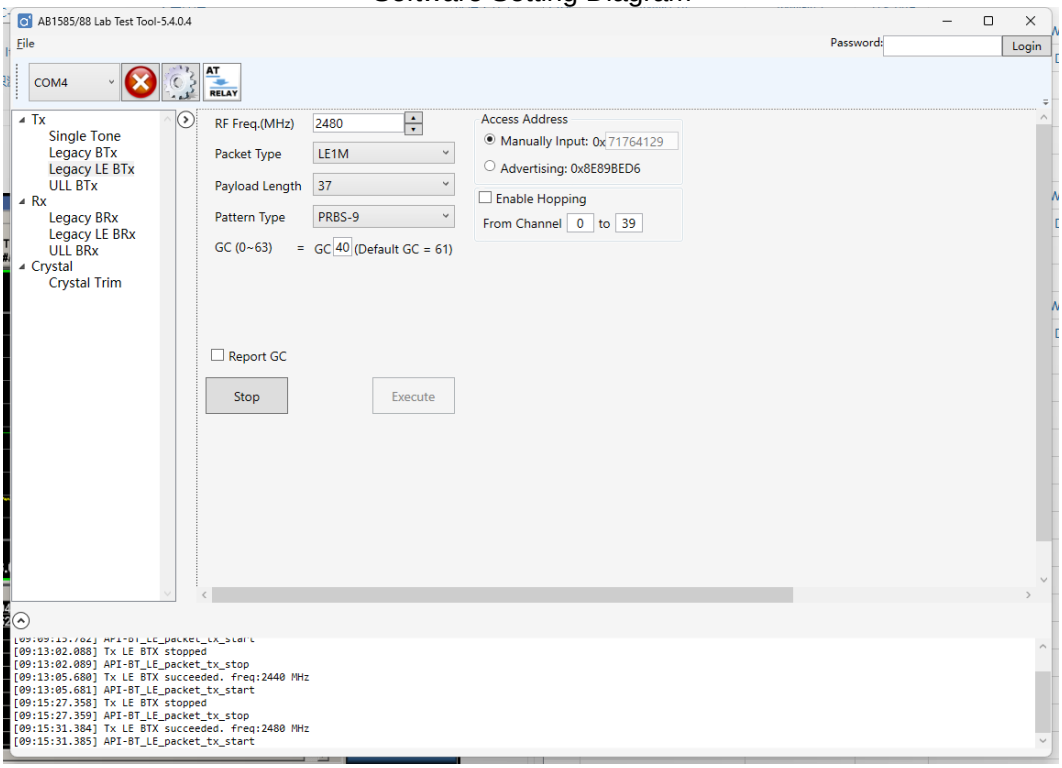
5. Description of Test Modes

Summary Table of Test Cases	
Test Item	Data Rate / Modulation
	Bluetooth–LE(1Mbps/2Mbps)/GFSK
Radiated & Conducted Test Cases	Mode 1: Bluetooth Tx CH00_2402 MHz_1Mbps(Battery powered) Mode 2: Bluetooth Tx CH19_2440 MHz_1Mbps(Battery powered) Mode 3: Bluetooth Tx CH39_2480 MHz_1Mbps(Battery powered) Mode 4: Bluetooth Tx CH01_2404 MHz_2Mbps(Battery powered) Mode 5: Bluetooth Tx CH19_2440 MHz_2Mbps(Battery powered) Mode 6: Bluetooth Tx CH38_2478 MHz_2Mbps(Battery powered)
Radiated & Conducted Test Cases	Mode 1: Bluetooth Tx CH00_2402 MHz_1Mbps(Powered By DC Source) Mode 2: Bluetooth Tx CH19_2440 MHz_1Mbps(Powered By DC Source) Mode 3: Bluetooth Tx CH39_2480 MHz_1Mbps(Powered By DC Source) Mode 4: Bluetooth Tx CH01_2404 MHz_2Mbps(Powered By DC Source) Mode 5: Bluetooth Tx CH19_2440 MHz_2Mbps(Powered By DC Source) Mode 6: Bluetooth Tx CH38_2478 MHz_2Mbps(Powered By DC Source)
AC Conducted Emission	Mode 1: Bluetooth Link + Battery + USB Cable (Charging from AC Adapter)

Note:

1. Only the result of the worst case was recorded in the report, if no other cases.
2. The battery is full-charged during the test.
3. For Radiated Emission, 3axis were chosen for testing for each applicable mode.
4. For Conducted Test method, a temporary antenna connector is provided by the manufacture.
5. The manufacturer of RF external cable claims that the cable loss is 0.5dB, and the cable loss and attenuator have been compensated into the Corrections Configuration of measuring equipment.
6. Input correction factor includes external cable loss and attenuator amplitude compensation. The formula is: Input compensation coefficient (dB) = Cable Loss (dB) + Attenuator attenuation value (dB)

Software Setting Diagram



6. Duty Cycle Measurement

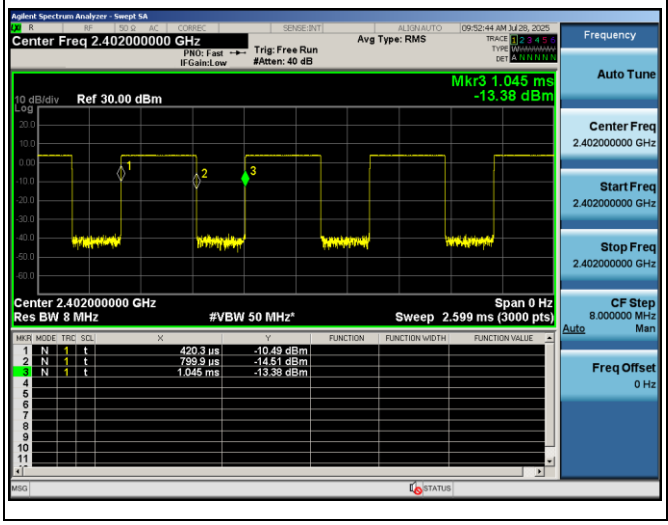
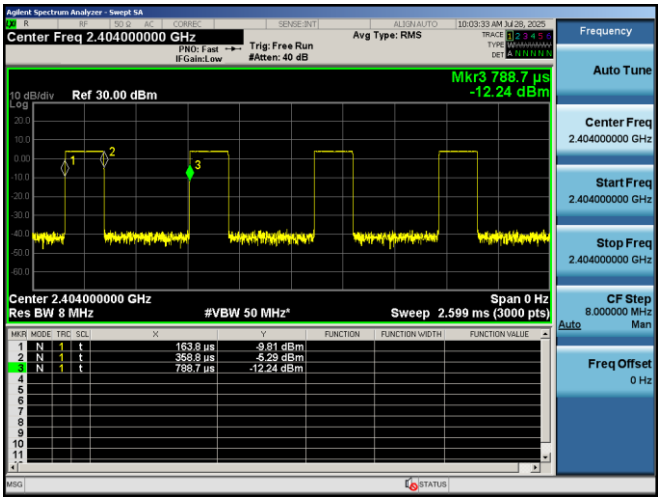
The maximum achievable duty cycles for all modes were determined based on measurements performed on a spectrum analyzer in zero-span mode with RBW = 8MHz, VBW = 50MHz, and detector = Average. The RBW and VBW were both greater than 50/T, where T is the minimum transmission duration, and the number of sweep points across T was greater than 100. The duty cycles are as follows:

Left earphone:

Operating mode	T(μs)	Duty Cycle (%)	Duty Cycle Factor (dB)	1/ T Minimum VBW (kHz)
BLE_1Mbps	380	60.77	2.16	2.63
BLE_2Mbps	195	31.20	5.06	5.13

Remark:
1. Duty Cycle factor = 10 * log (1/ Duty cycle)
2. The duty cycle of each frequency band mode reflects the determination requirements of the low channel measurement value

- The test plots as follows:

Bluetooth–LE for 1Mbps	Bluetooth–LE for 2Mbps
	

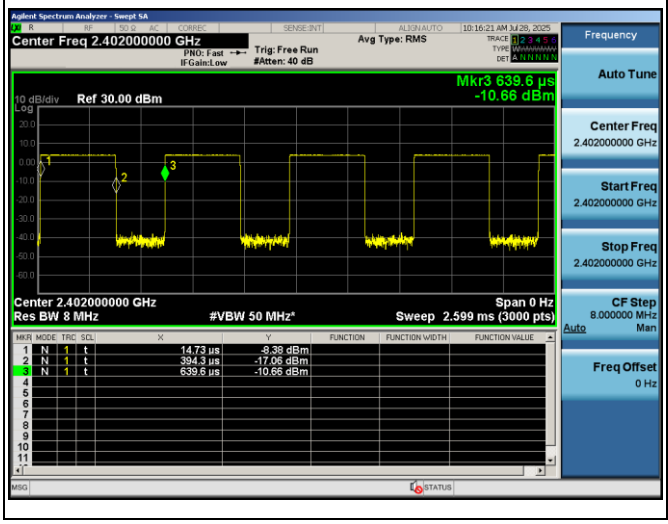
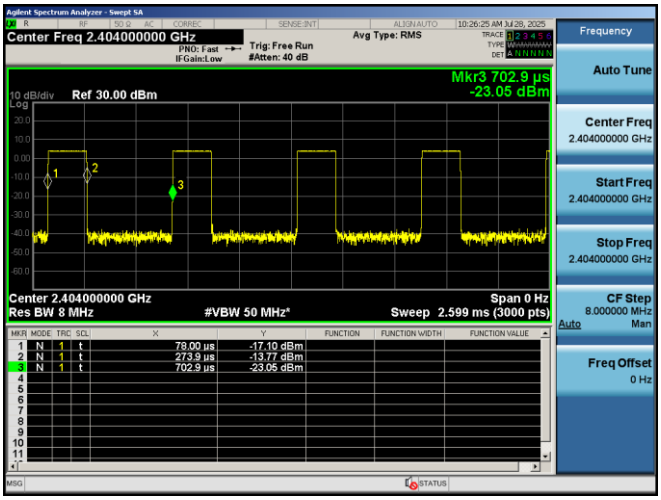
Right earphone:

Operating mode	T(μs)	Duty Cycle (%)	Duty Cycle Factor (dB)	1/ T Minimum VBW (kHz)
BLE_1Mbps	379.57	60.74	2.17	2.63
BLE_2Mbps	195.9	31.35	5.04	5.10

Remark:

3. Duty Cycle factor = 10 * log (1/ Duty cycle)
4. The duty cycle of each frequency band mode reflects the determination requirements of the low channel measurement value

- The test plots as follows:

Bluetooth–LE for 1Mbps	Bluetooth–LE for 2Mbps
	

7. RF Output Power Measurement

7.1 Provisions Applicable

For DTSs employing digital modulation techniques operating in the bands 2400-2483.5 MHz, the maximum peak conducted output power shall not exceed 1 W.

7.2 Measurement Procedure

☒ For Peak Power, the testing follows ANSI C63.10 Section 11.9.1.1 Method Max peak power:

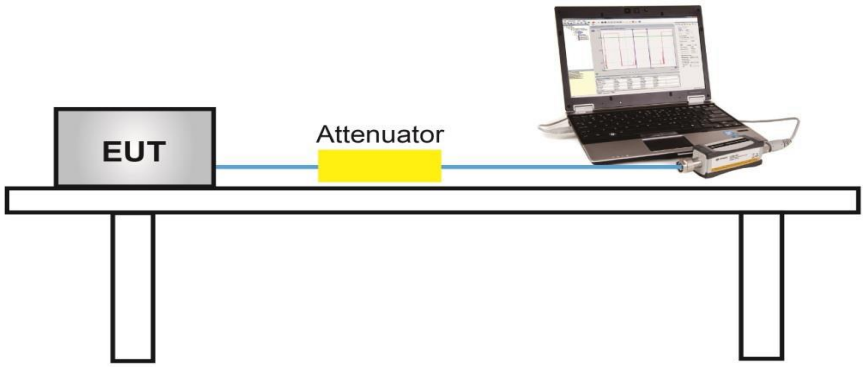
1. Connect EUT RF output port to the Spectrum Analyzer through an RF attenuator
2. Set the RBW≥DTS bandwidth
3. Set the VBW≥[3 × RBW].
4. Span≥[3 × RBW].
5. Sweep= auto couple.
6. Detector Function= Peak.
7. Trace mode= Max hold.
8. Allow trace to stabilize. Use the marker-to-peak function to set the marker to the peak of the emission. The indicated level is the peak output power, after any corrections for external attenuators and cables.

☐ For Average power, the testing follows ANSI C63.10 Section 11.9.2.3.2 Method AVGPM-G:

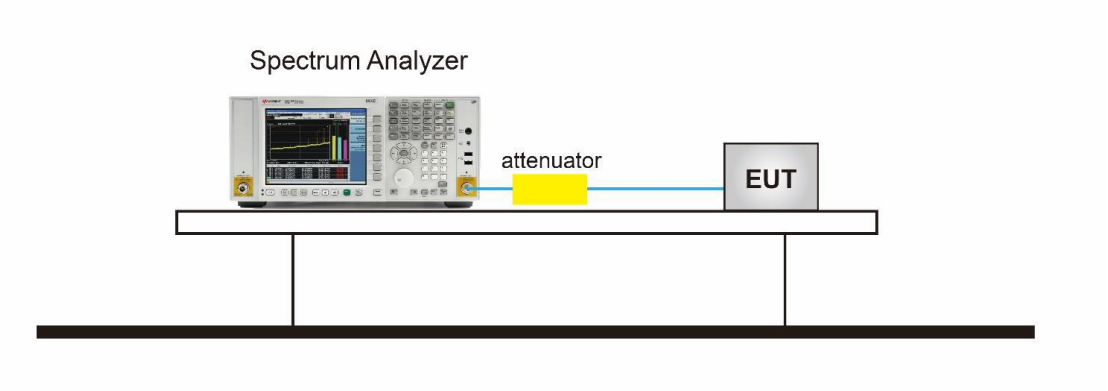
1. The RF output of EUT was connected to the power meter by RF cable and attenuator.
2. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. Measure the conducted output power and record the results in the test report.

7.3 Measurement Setup (Block Diagram of Configuration)

☐For Average power test setup



☒For peak power test setup

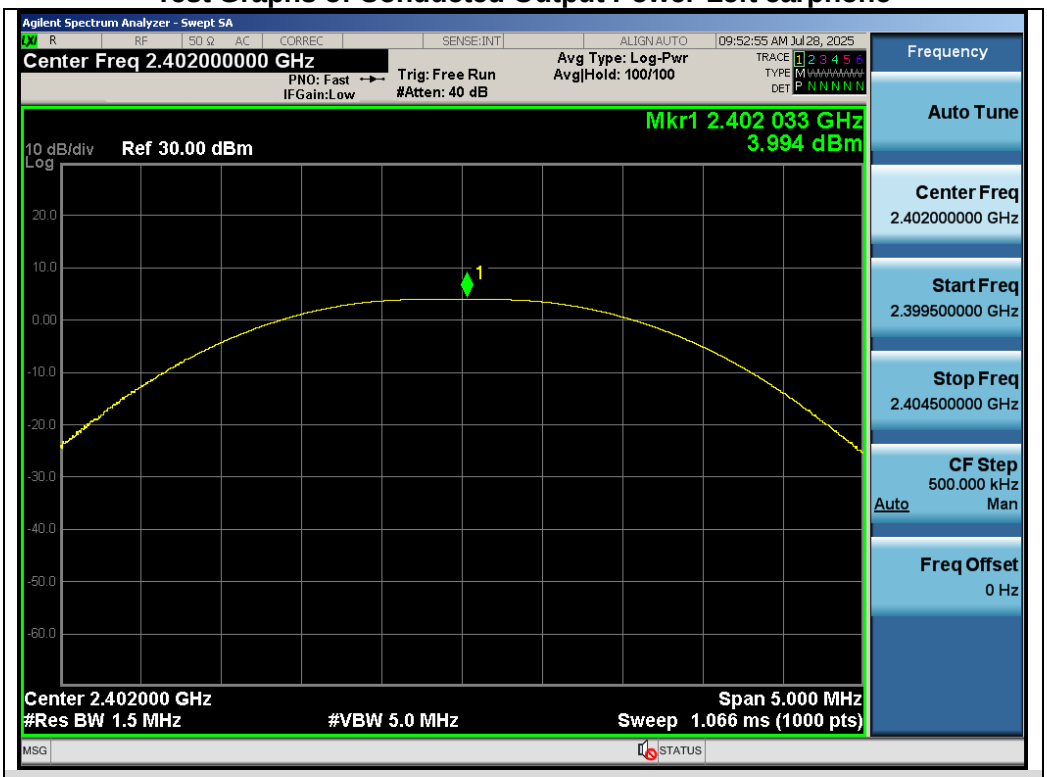


7.4 Measurement Result

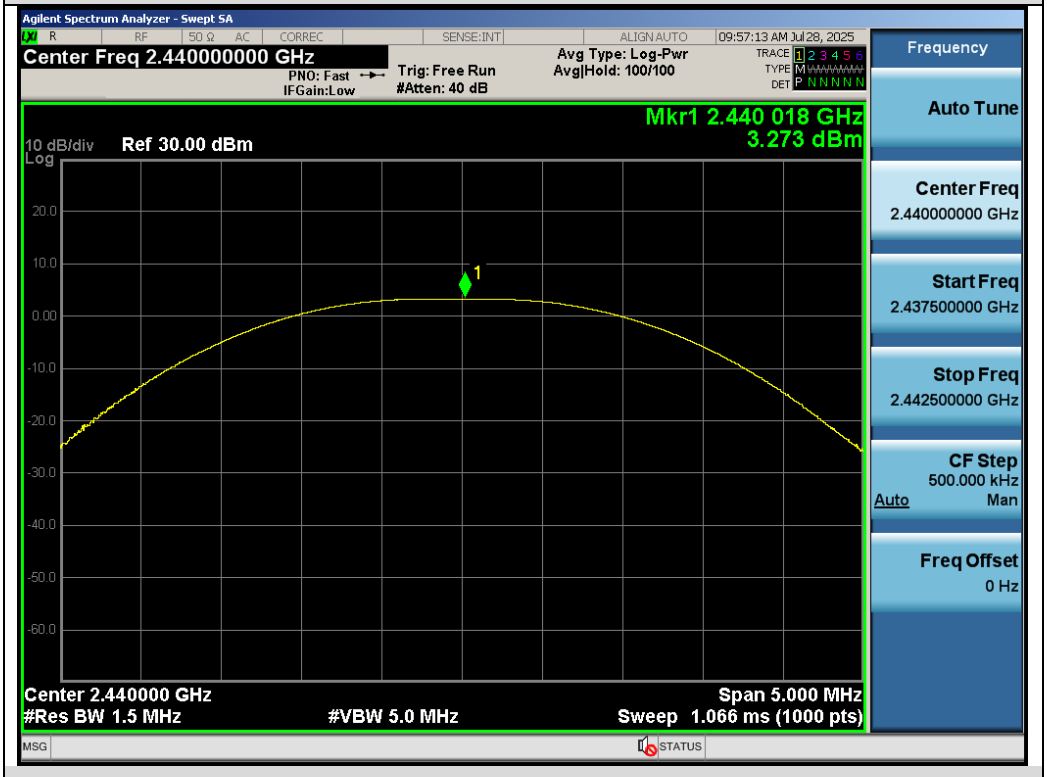
Test Data of Conducted Output Power-Left earphone				
Test Mode	Test Frequency (MHz)	Peak Power (dBm)	Limits (dBm)	Pass or Fail
GFSK_1Mbps	2402	3.994	⩽30	Pass
	2440	3.273	⩽30	Pass
	2480	2.735	⩽30	Pass
GFSK_2Mbps	2404	3.945	⩽30	Pass
	2440	3.165	⩽30	Pass
	2478	2.610	⩽30	Pass

Test Data of Conducted Output Power-Right earphone				
Test Mode	Test Frequency (MHz)	Peak Power (dBm)	Limits (dBm)	Pass or Fail
GFSK_1Mbps	2402	3.960	⩽30	Pass
	2440	3.511	⩽30	Pass
	2480	3.101	⩽30	Pass
GFSK_2Mbps	2404	3.940	⩽30	Pass
	2440	3.482	⩽30	Pass
	2478	3.036	⩽30	Pass

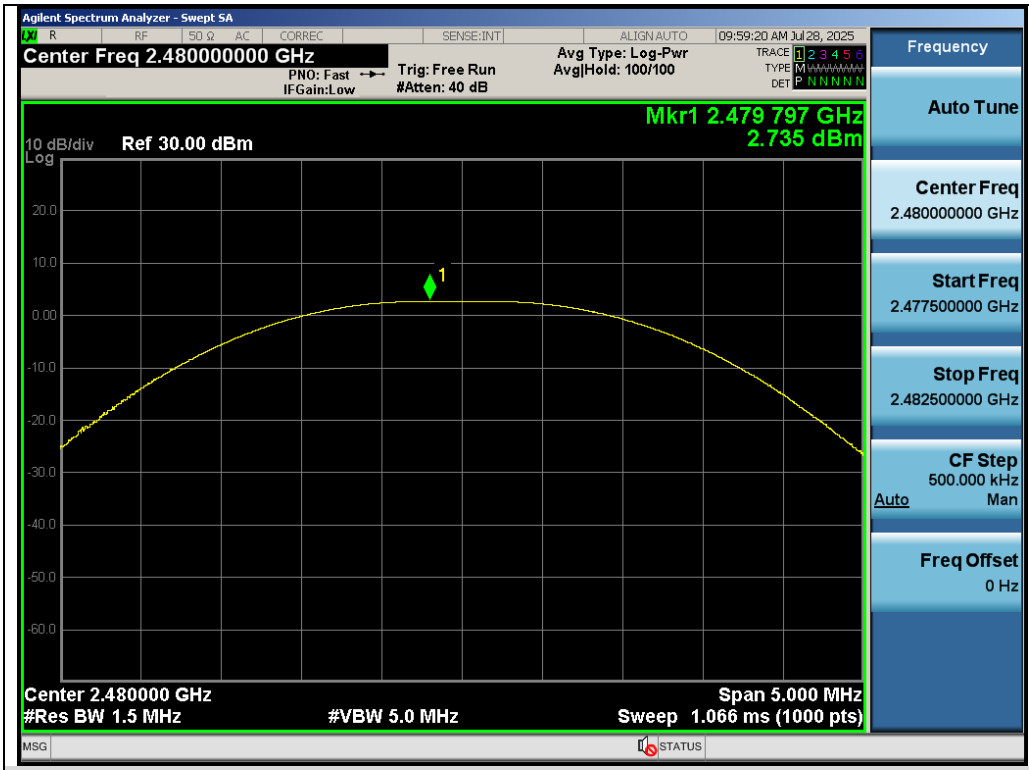
Test Graphs of Conducted Output Power-Left earphone



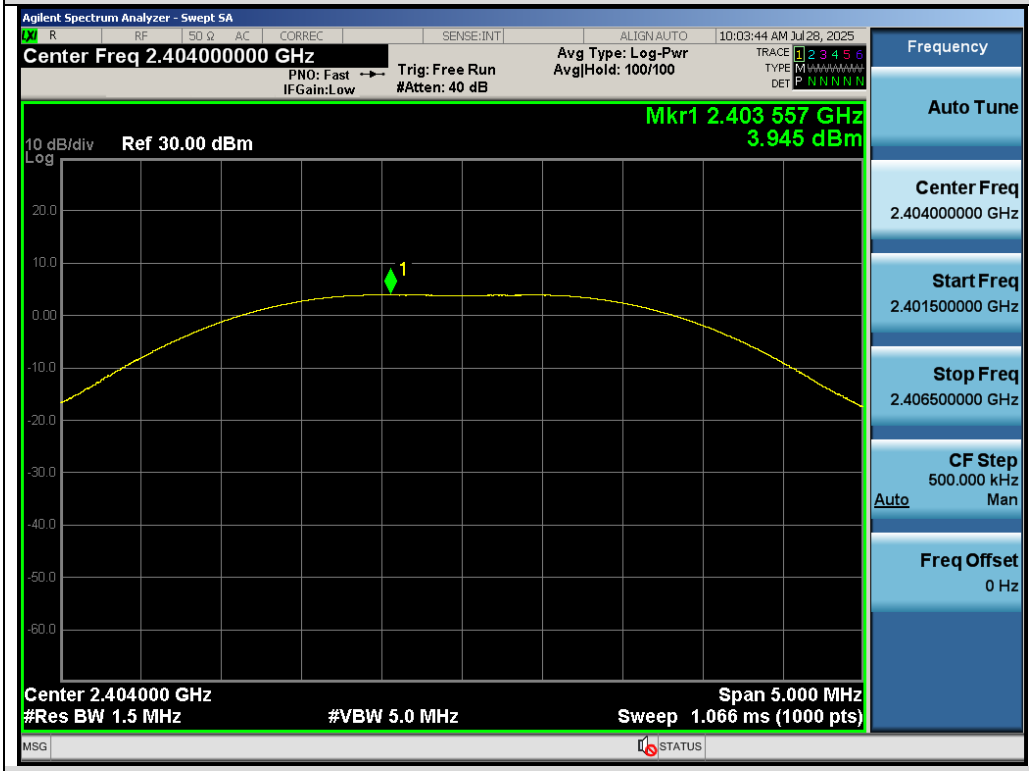
Test_Graph_LE1M_ANT1_2402_1Mbps_Peak Power



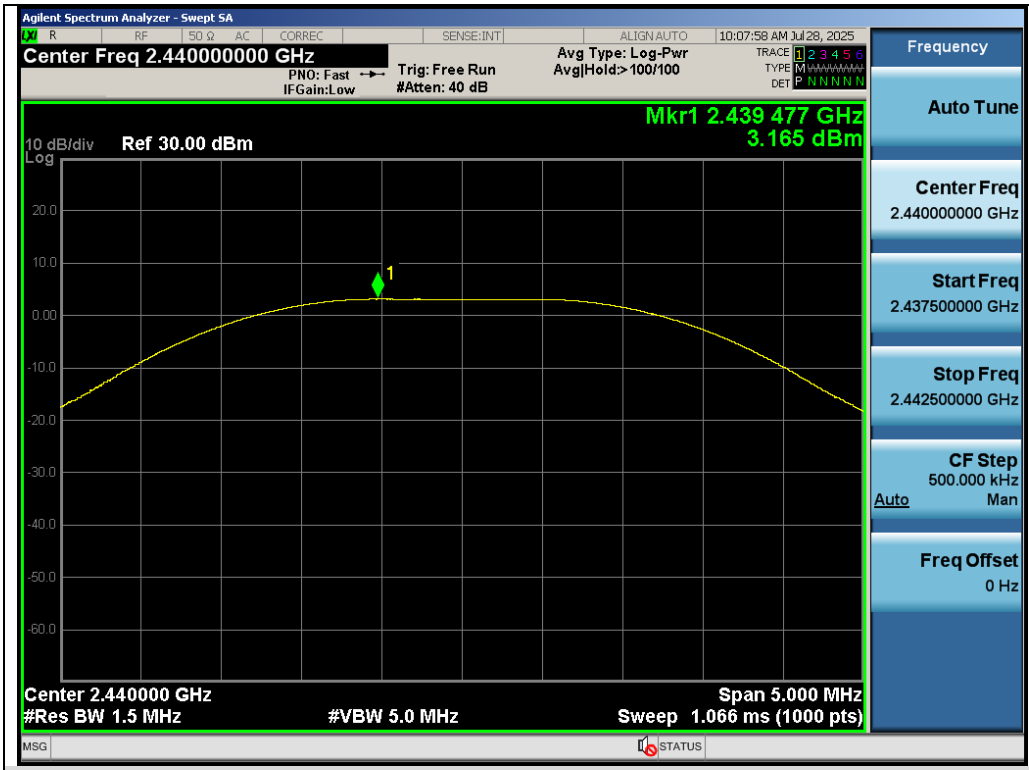
Test_Graph_LE1M_ANT1_2440_1Mbps_Peak Power



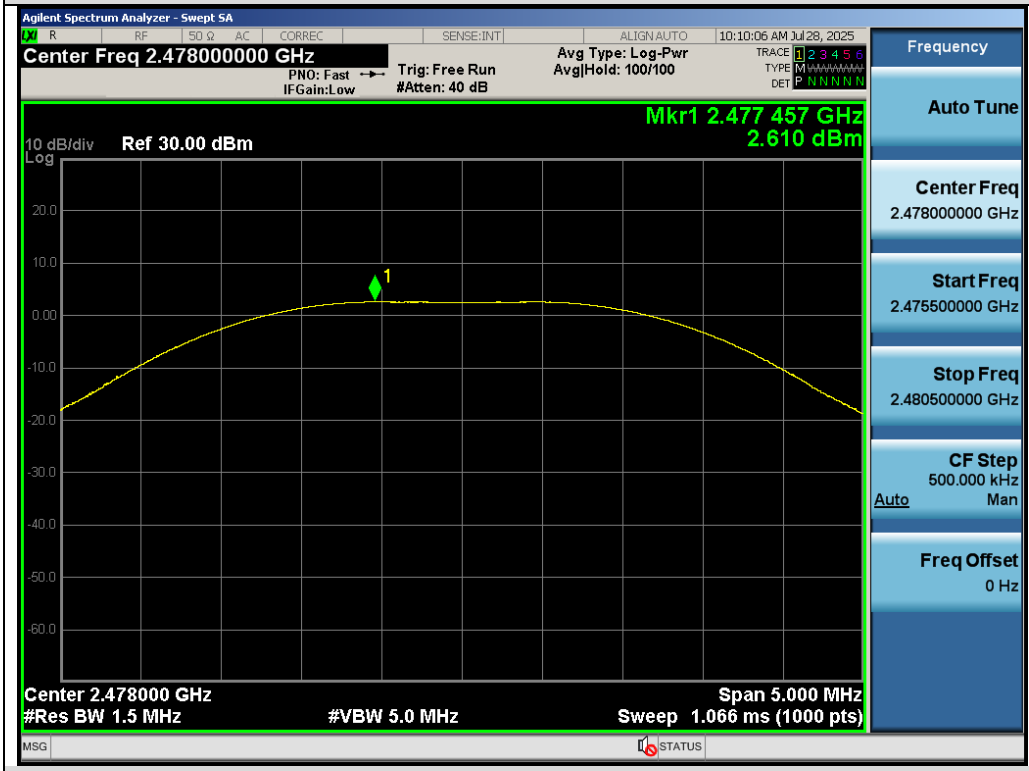
Test_Graph_LE1M_ANT1_2480_1Mbps_Peak Power



Test_Graph_LE2M_ANT1_2404_2Mbps_Peak Power

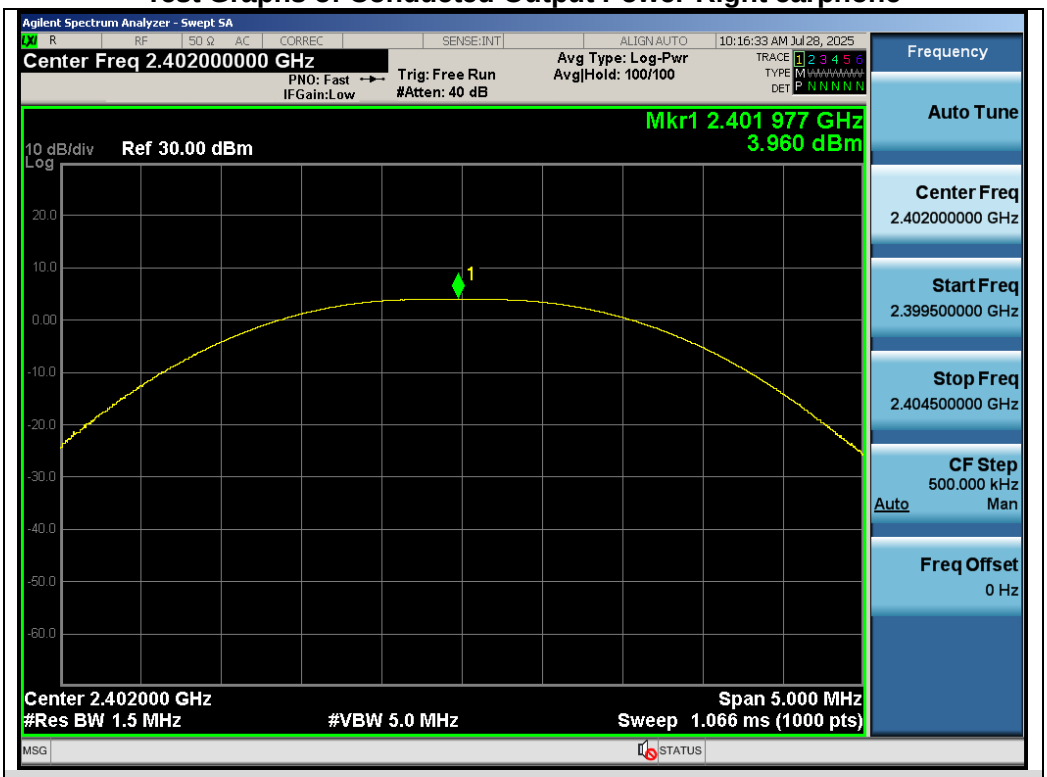


Test_Graph_LE2M_ANT1_2440_2Mbps_Peak Power

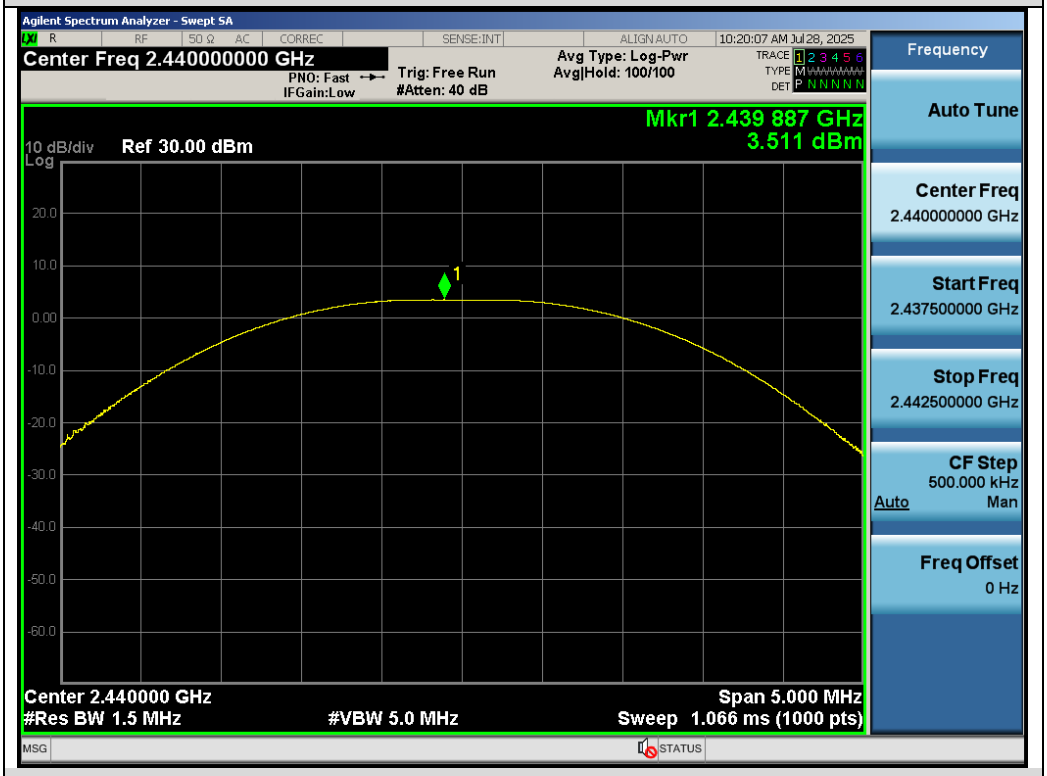


Test_Graph_LE2M_ANT1_2478_2Mbps_Peak Power

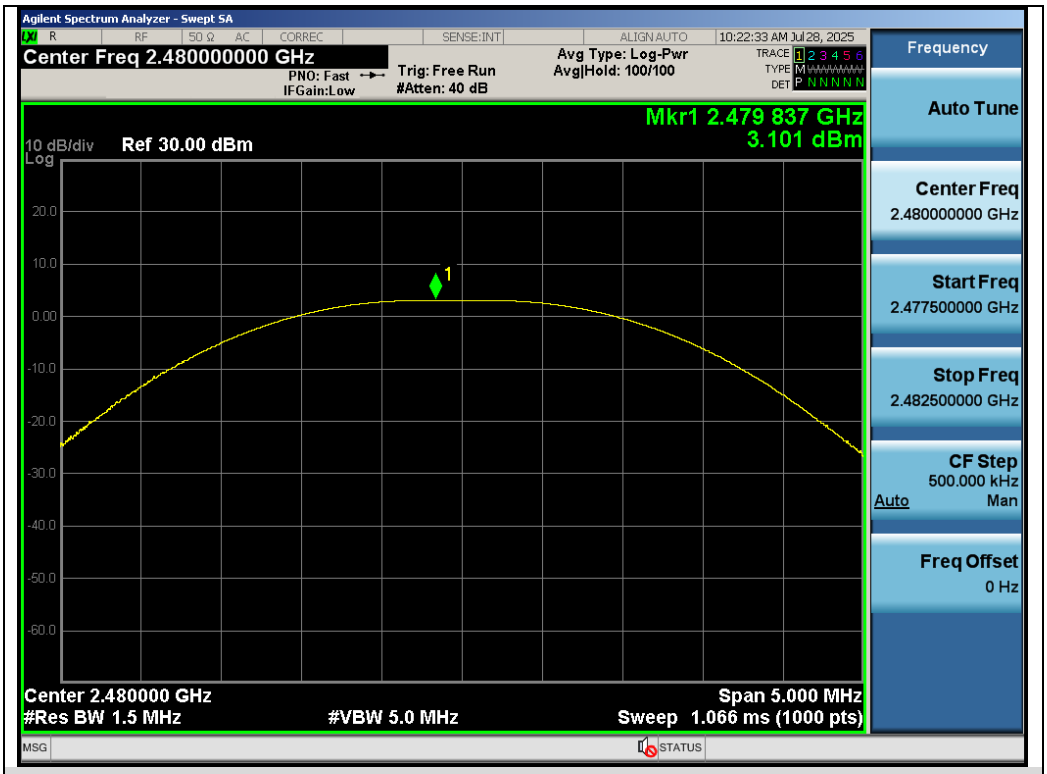
Test Graphs of Conducted Output Power-Right earphone



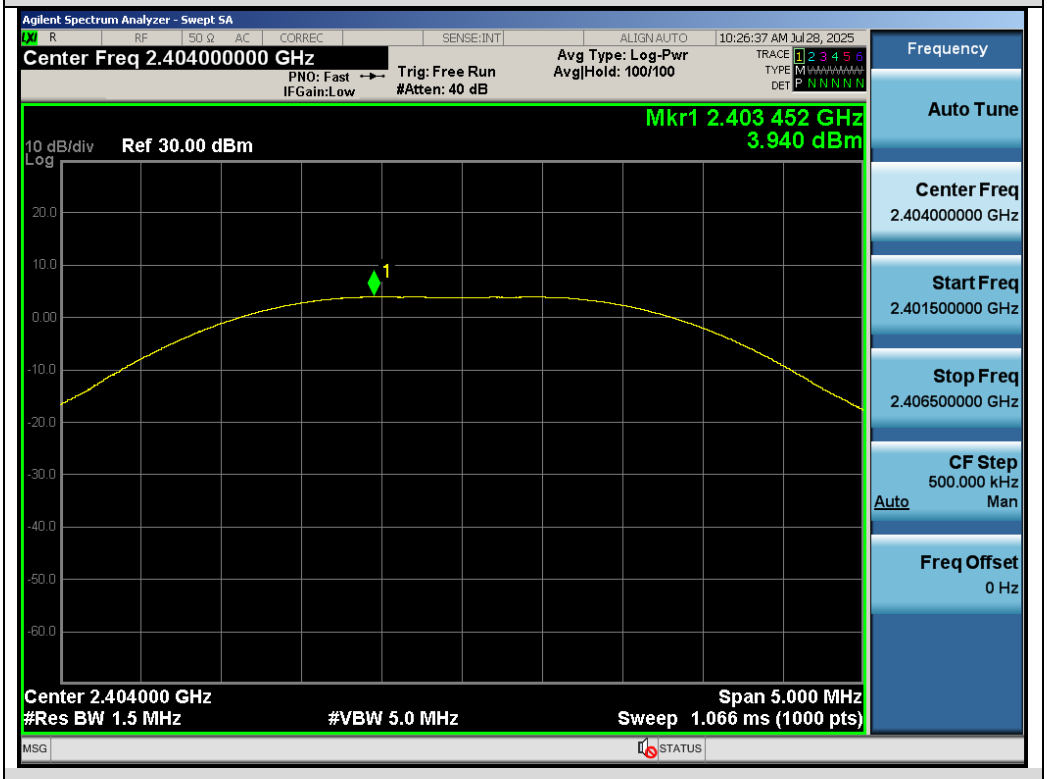
Test_Graph_LE1M_ANT1_2402_1Mbps_Peak Power



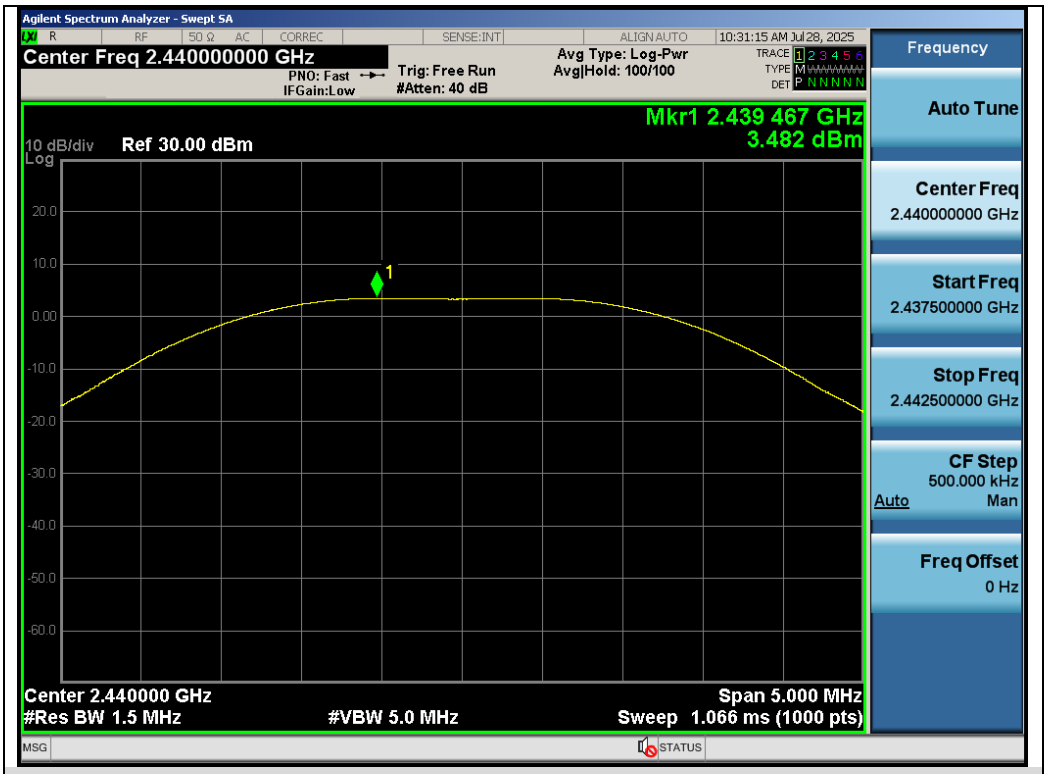
Test_Graph_LE1M_ANT1_2440_1Mbps_Peak Power



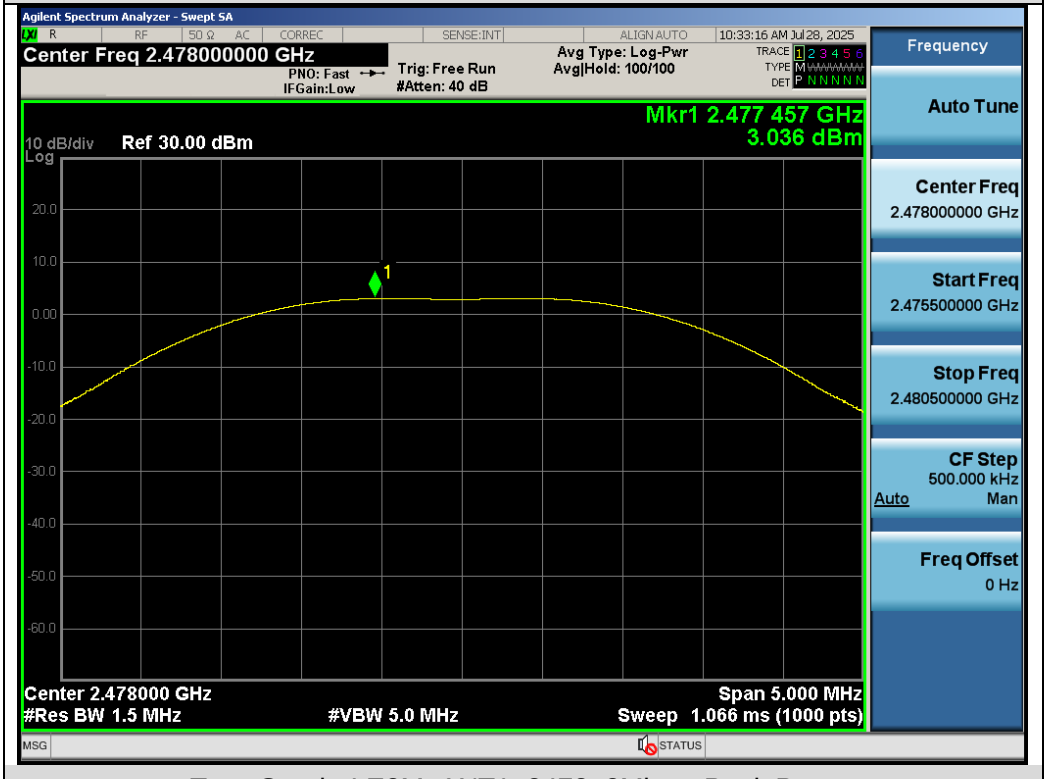
Test_Graph_LE1M_ANT1_2480_1Mbps_Peak Power



Test_Graph_LE2M_ANT1_2404_2Mbps_Peak Power



Test_Graph_LE2M_ANT1_2440_2Mbps_Peak Power



Test_Graph_LE2M_ANT1_2478_2Mbps_Peak Power

8. 6dB Bandwidth Measurement

8.1 Provisions Applicable

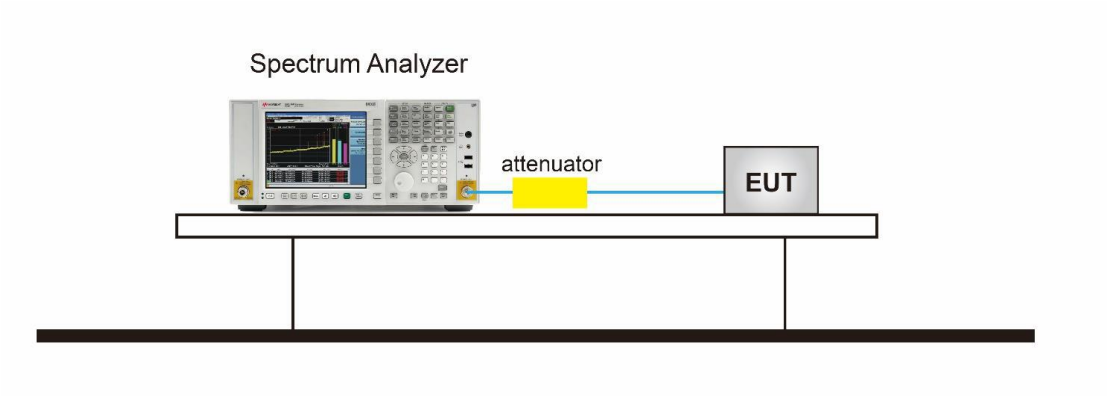
The minimum 6dB bandwidth shall be 500 kHz.

8.2 Measurement Procedure

■ The testing follows the ANSI C63.10 Section 6.9.3 (OBW) and 11.8.1 (6dB BW).

1. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
2. Set to the maximum power setting and enable the EUT transmit continuously.
3. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 100 kHz. Set the Video bandwidth (VBW) = 300 kHz. In order to make an accurate measurement. The 6 dB bandwidth must be greater than 500 kHz.
4. For 99% Bandwidth Measurement, the spectrum analyzer's resolution bandwidth (RBW) is set 1-5% of the OBW and set the Video bandwidth (VBW) ≥ 3 * RBW.
5. Measure and record the results in the test report.

8.3 Measurement Setup (Block Diagram of Configuration)

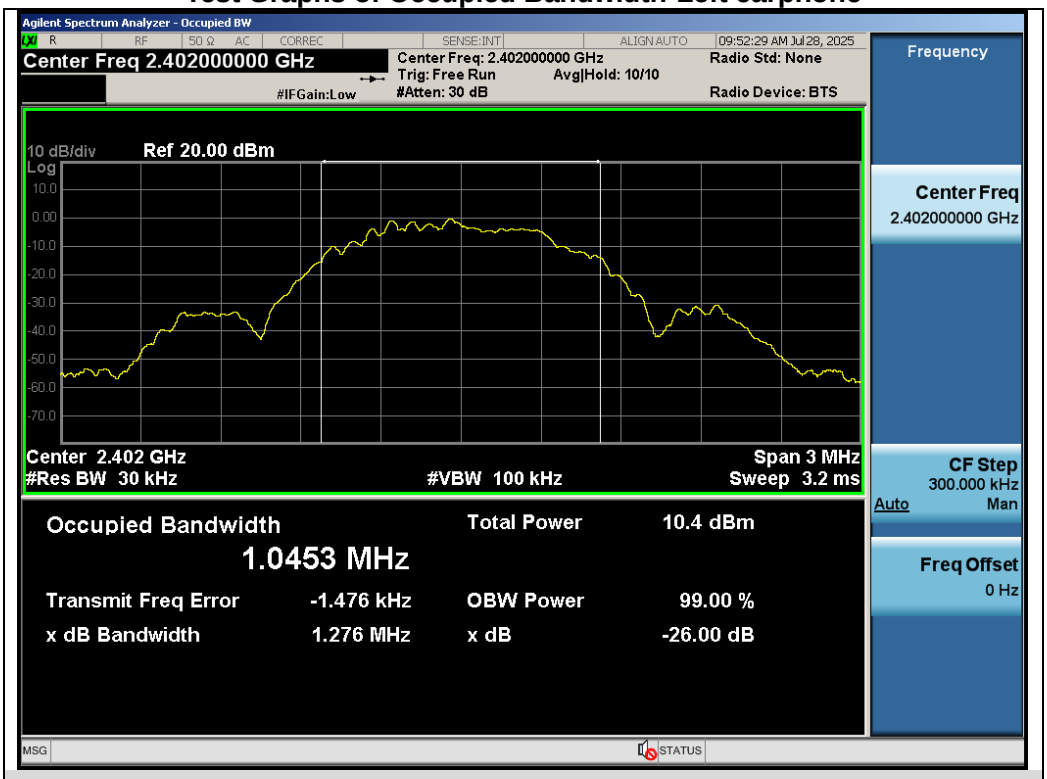


8.4 Measurement Results

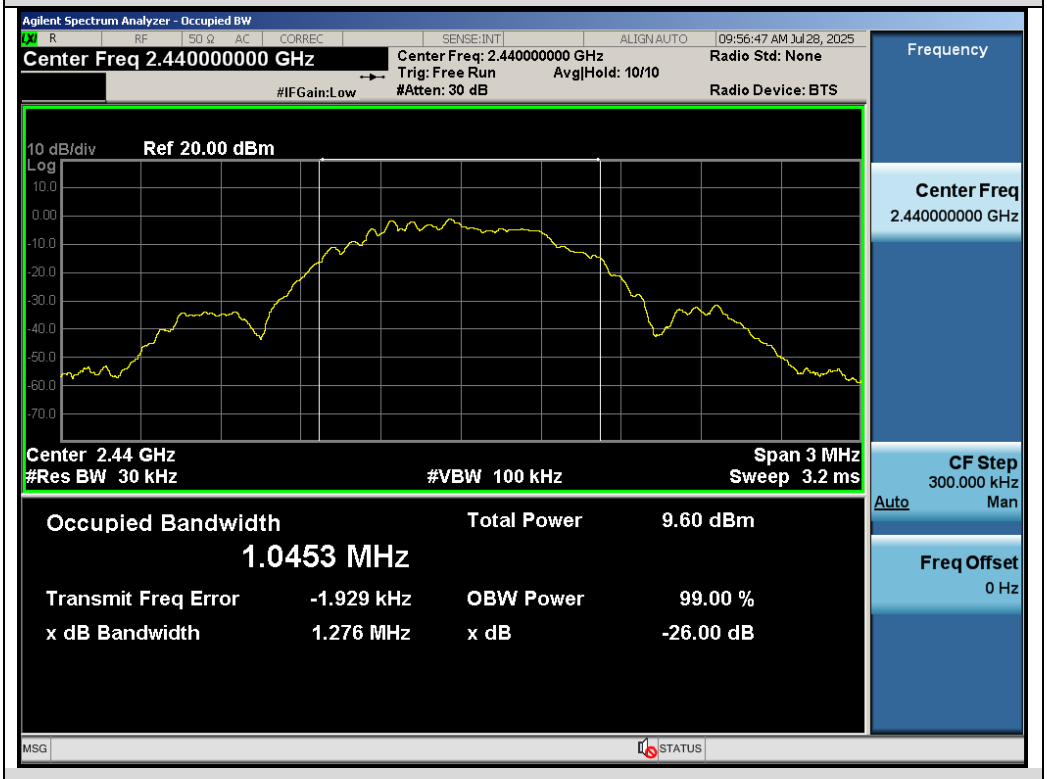
Test Data of Occupied Bandwidth and DTS Bandwidth-Left earphone					
Test Mode	Test Frequency (MHz)	Occupied Bandwidth (MHz)	DTS BW (MHz)	DTS BW Limits	Pass or Fail
GFSK_1Mbps	2402	1.045	0.714	⩾0.5	Pass
	2440	1.045	0.715	⩾0.5	Pass
	2480	1.045	0.714	⩾0.5	Pass
GFSK_2Mbps	2404	2.071	1.252	⩾0.5	Pass
	2440	2.072	1.256	⩾0.5	Pass
	2478	2.072	1.253	⩾0.5	Pass

Test Data of Occupied Bandwidth and DTS Bandwidth-Right earphone					
Test Mode	Test Frequency (MHz)	Occupied Bandwidth (MHz)	DTS BW (MHz)	DTS BW Limits	Pass or Fail
GFSK_1Mbps	2402	1.044	0.715	⩾0.5	Pass
	2440	1.044	0.714	⩾0.5	Pass
	2480	1.044	0.716	⩾0.5	Pass
GFSK_2Mbps	2404	2.070	1.254	⩾0.5	Pass
	2440	2.071	1.258	⩾0.5	Pass
	2478	2.071	1.257	⩾0.5	Pass

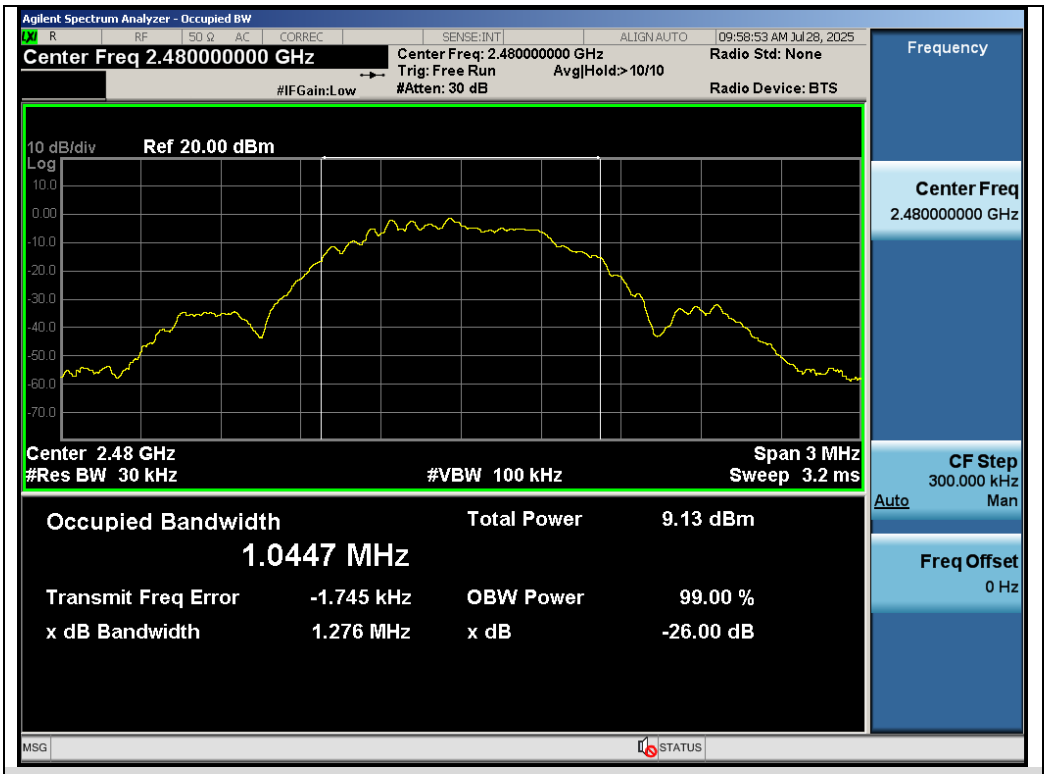
Test Graphs of Occupied Bandwidth-Left earphone



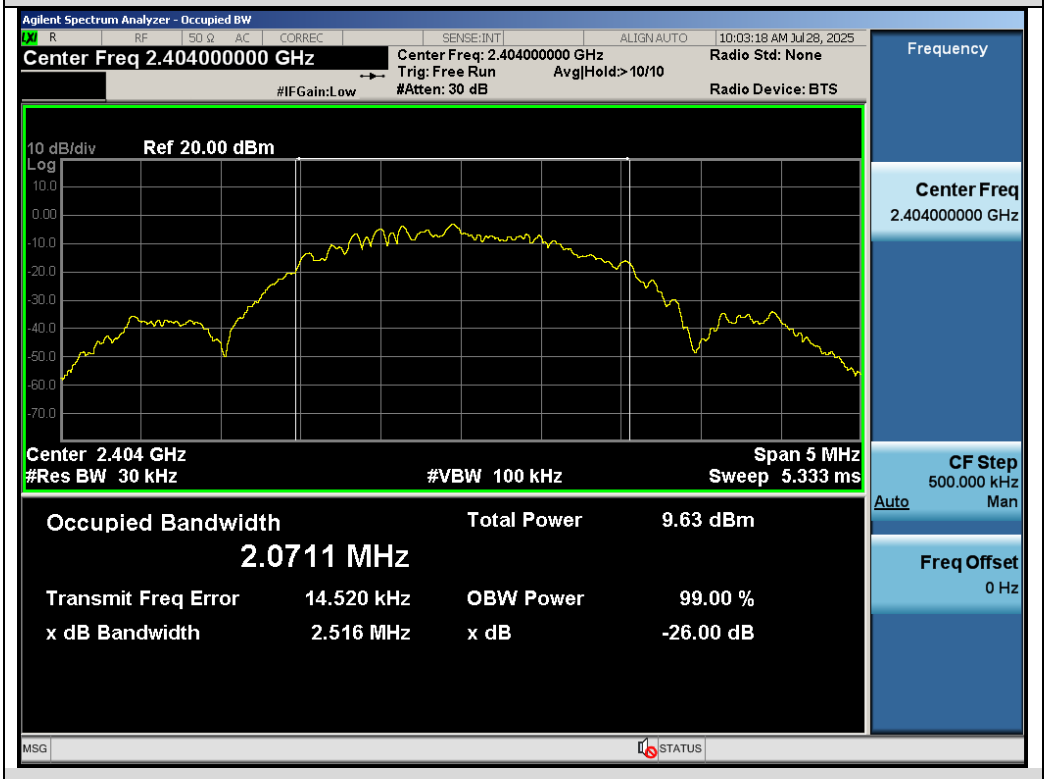
Test_Graph_LE1M_ANT1_2402_1Mbps_OBW



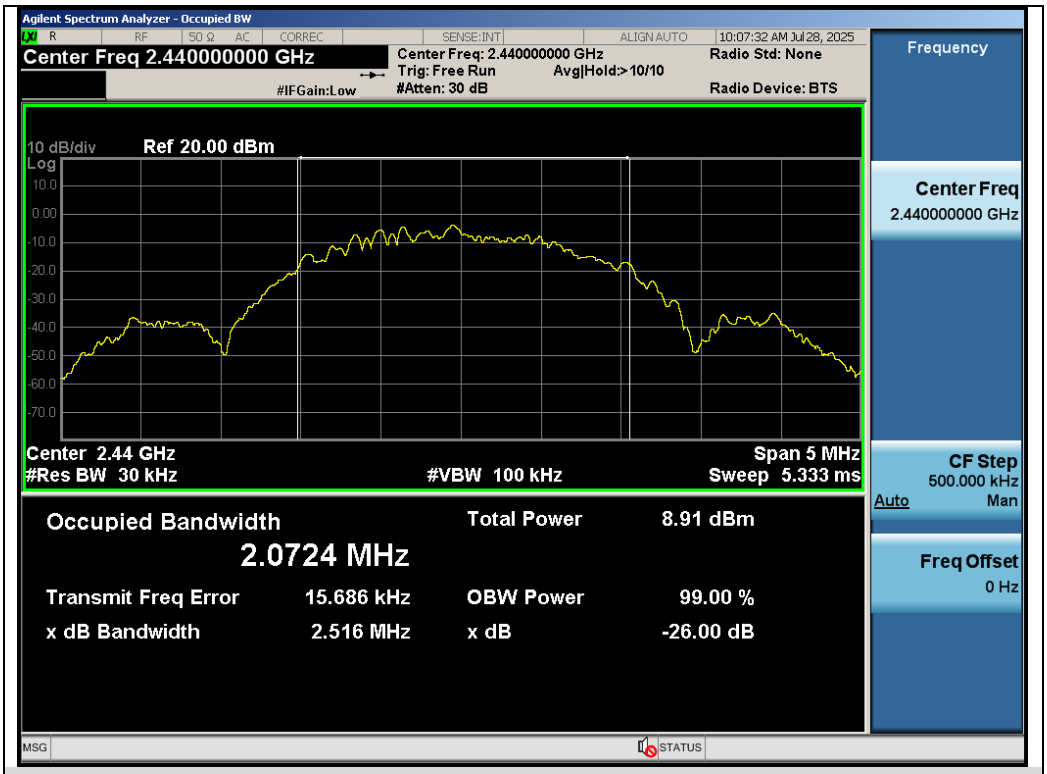
Test_Graph_LE1M_ANT1_2440_1Mbps_OBW



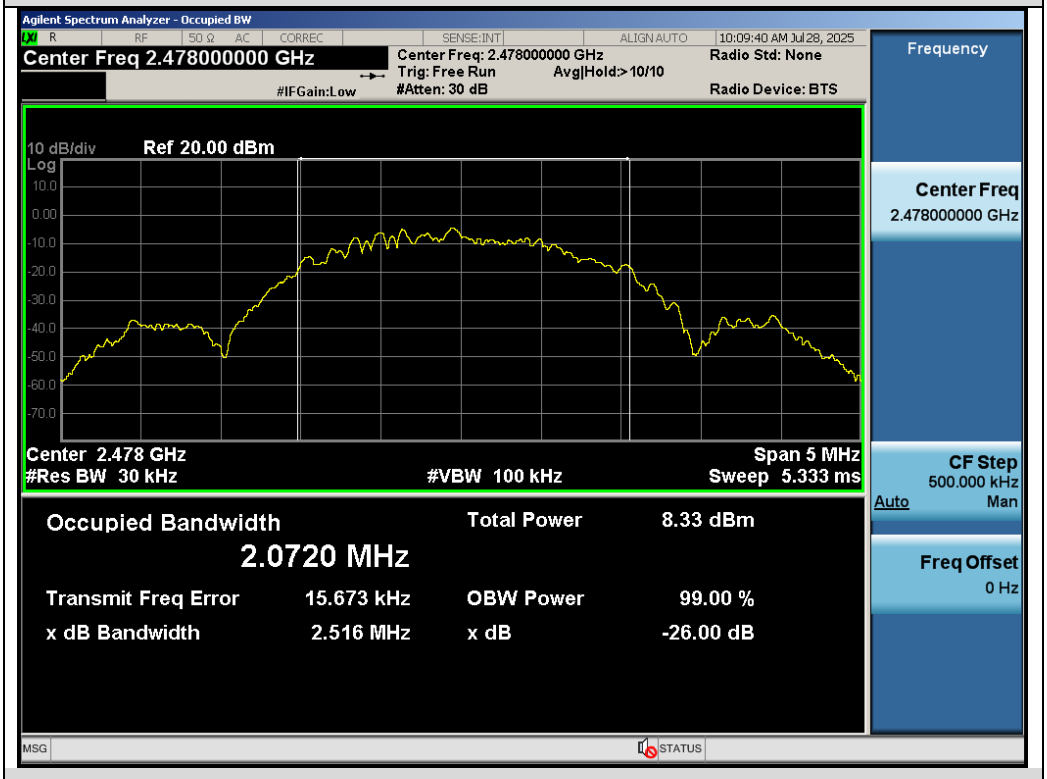
Test_Graph_LE1M_ANT1_2480_1Mbps_OBW



Test_Graph_LE2M_ANT1_2404_2Mbps_OBW

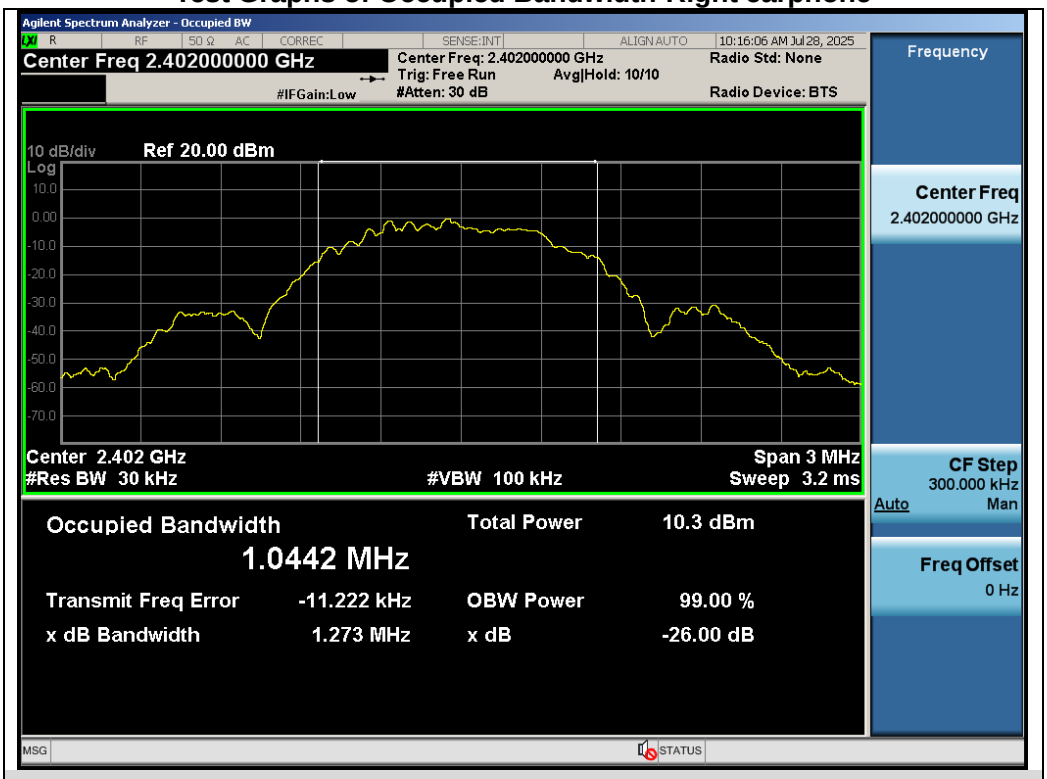


Test_Graph_LE2M_ANT1_2440_2Mbps_OBW

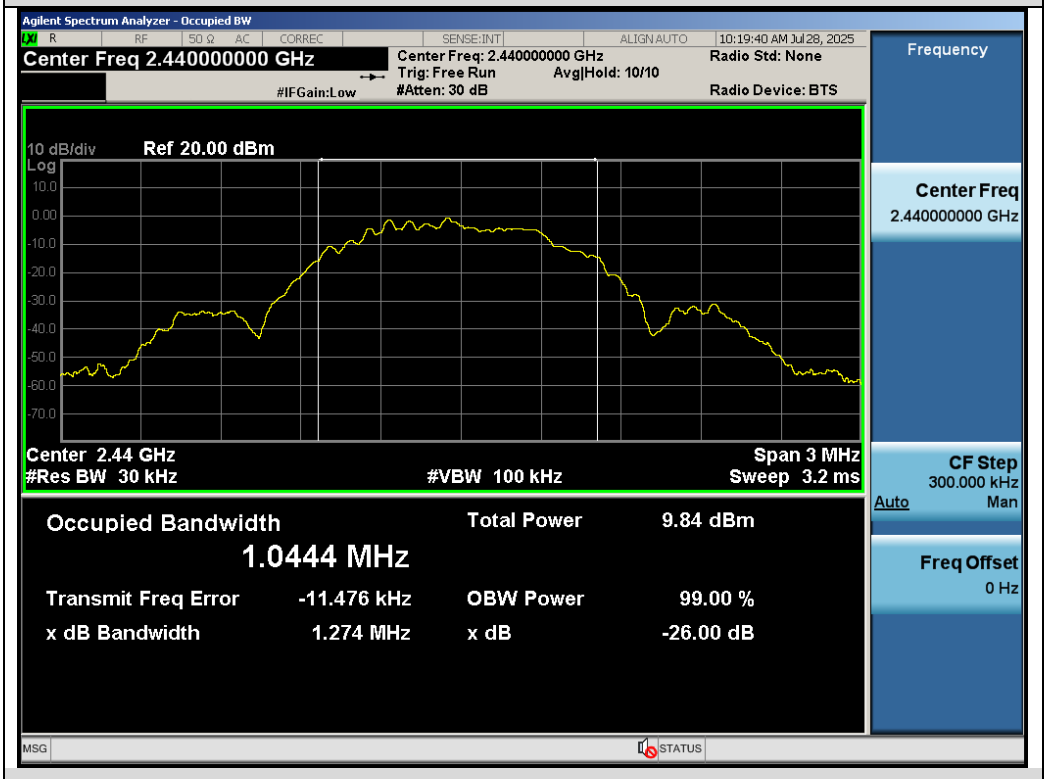


Test_Graph_LE2M_ANT1_2478_2Mbps_OBW

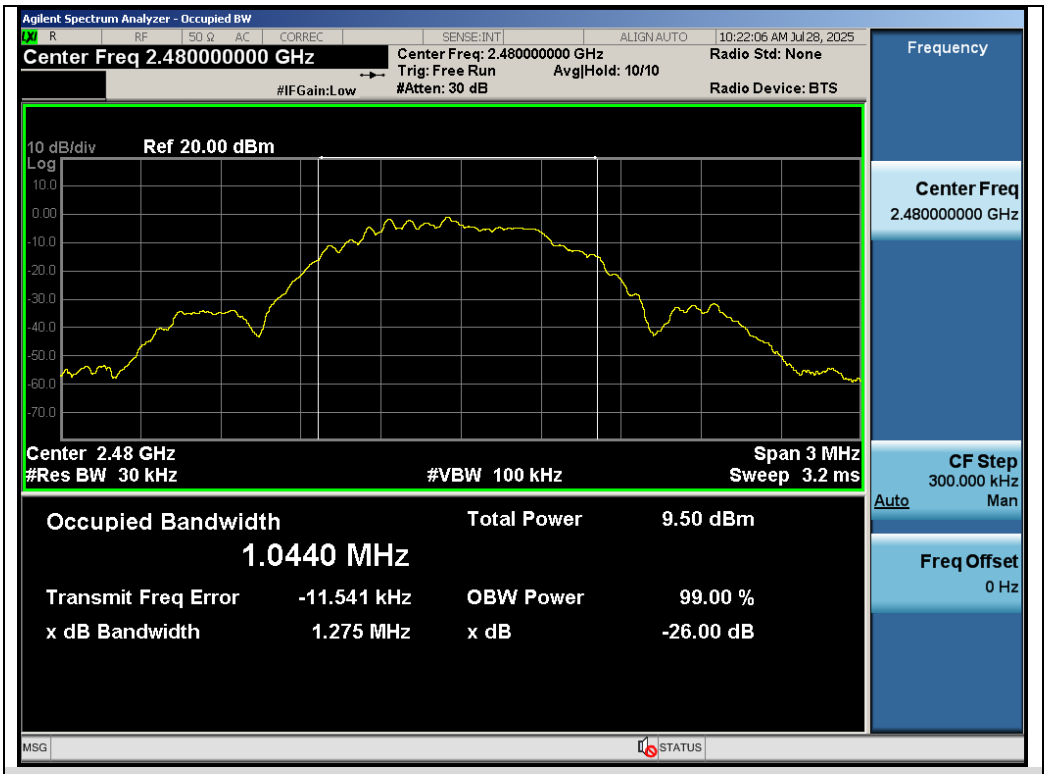
Test Graphs of Occupied Bandwidth-Right earphone



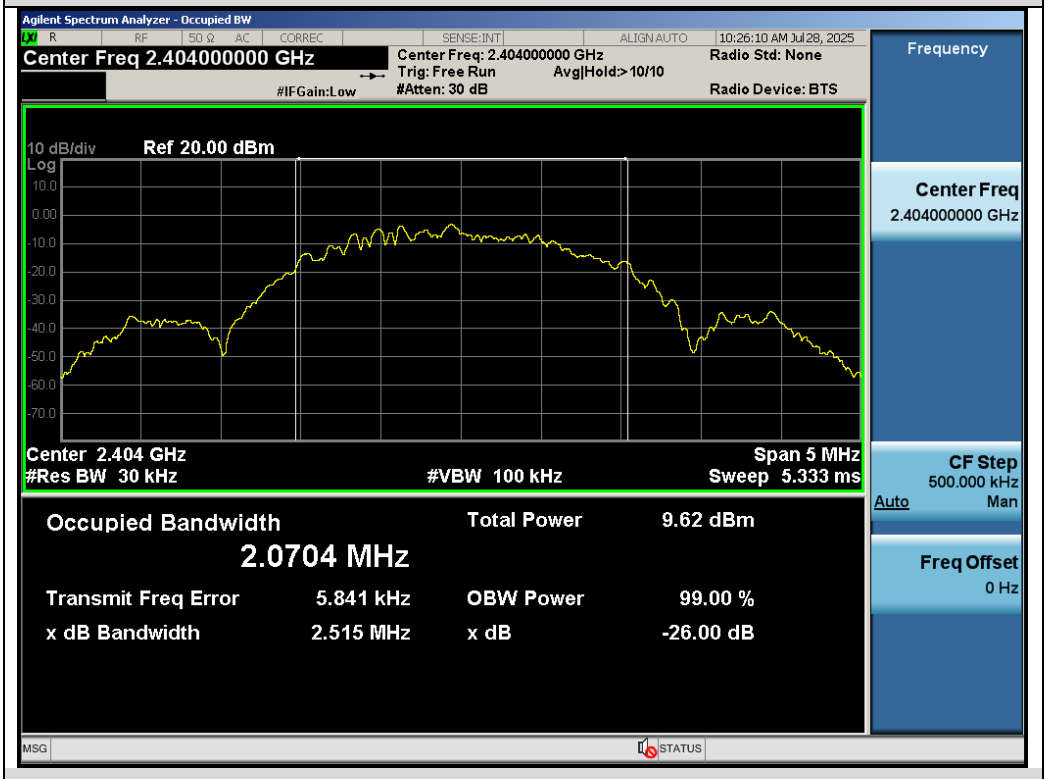
Test_Graph_LE1M_ANT1_2402_1Mbps_OBW



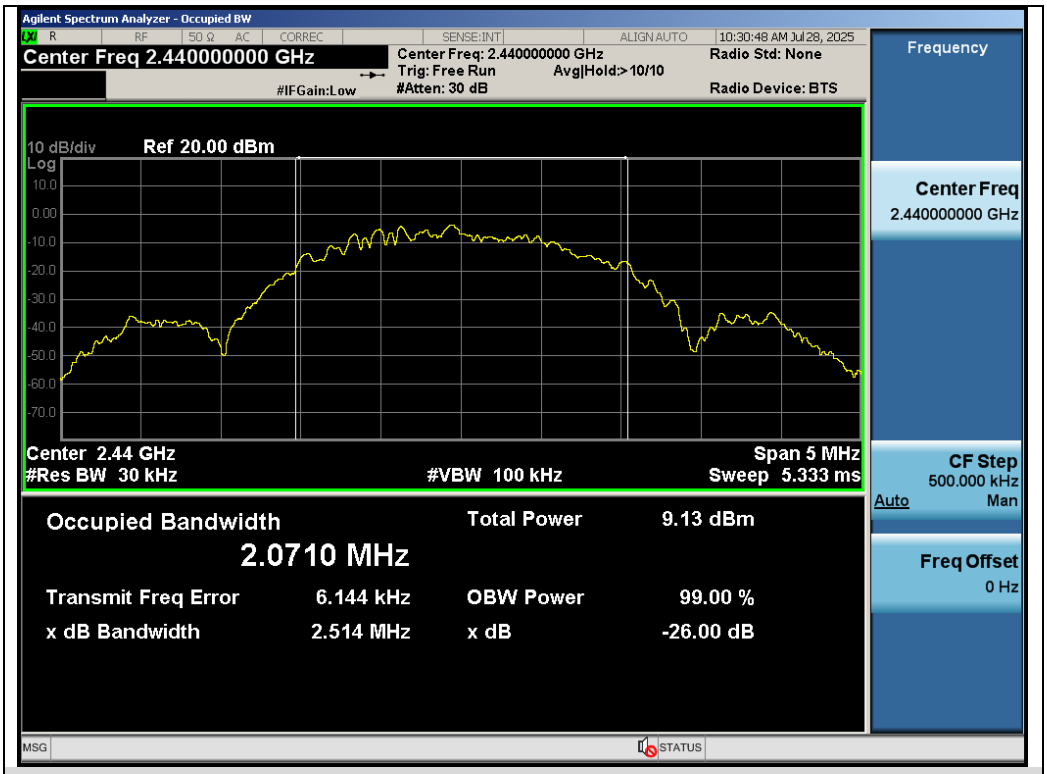
Test_Graph_LE1M_ANT1_2440_1Mbps_OBW



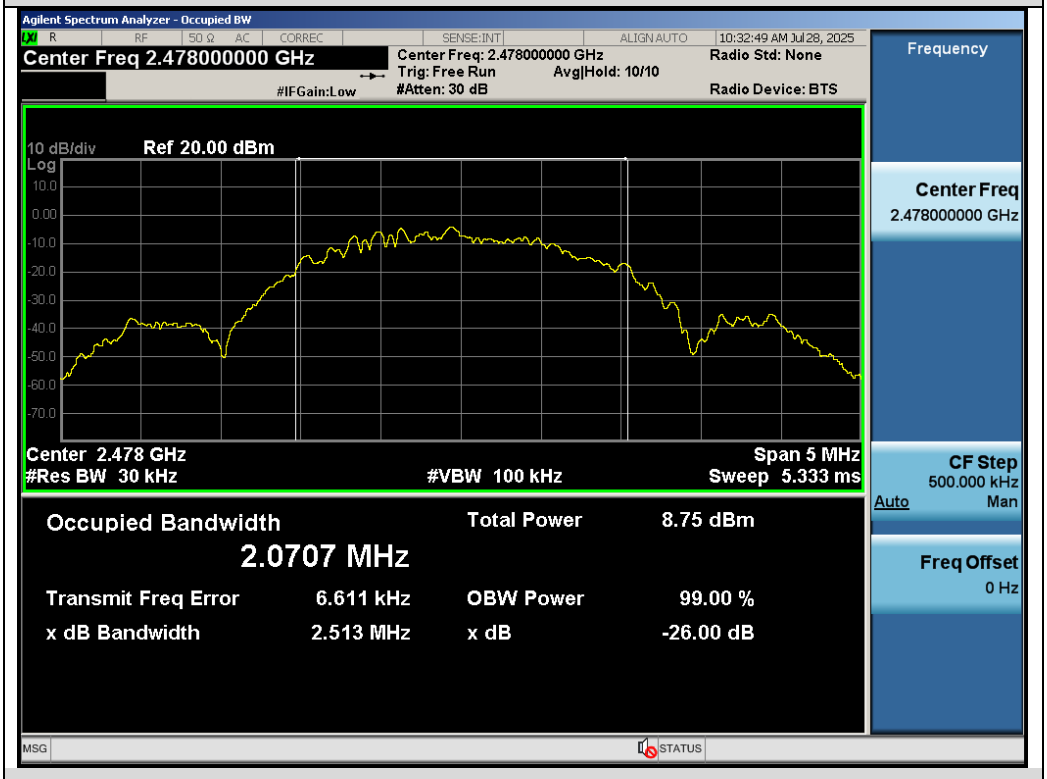
Test_Graph_LE1M_ANT1_2480_1Mbps_OBW



Test_Graph_LE2M_ANT1_2404_2Mbps_OBW

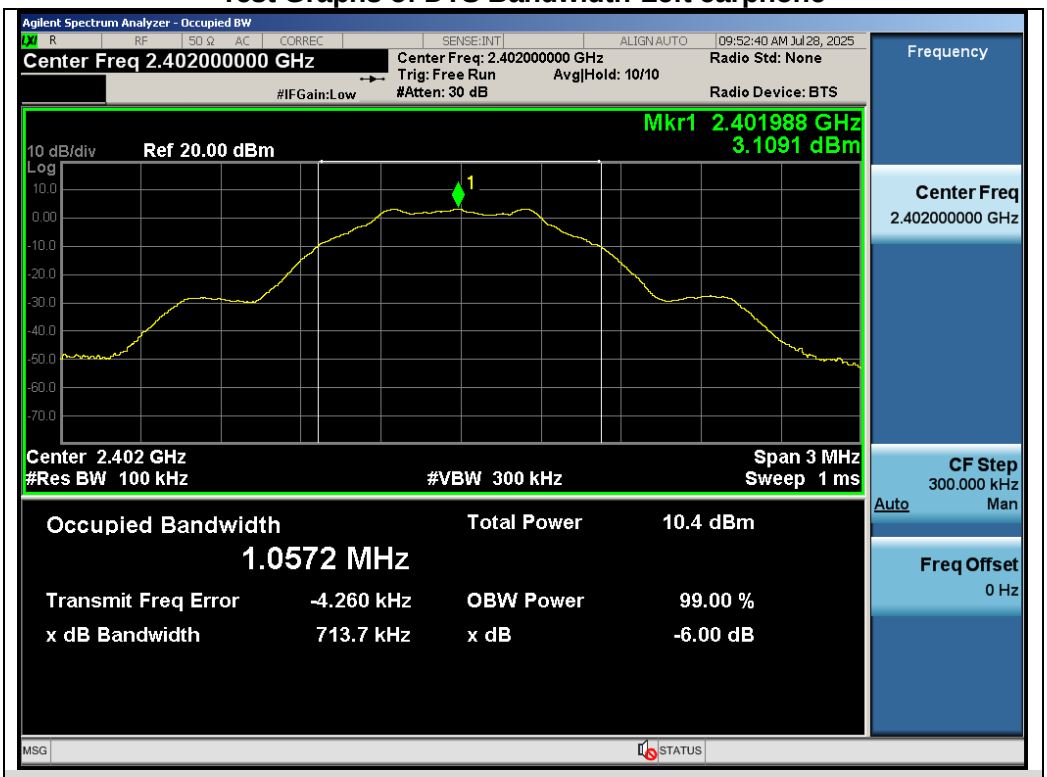


Test_Graph_LE2M_ANT1_2440_2Mbps_OBW

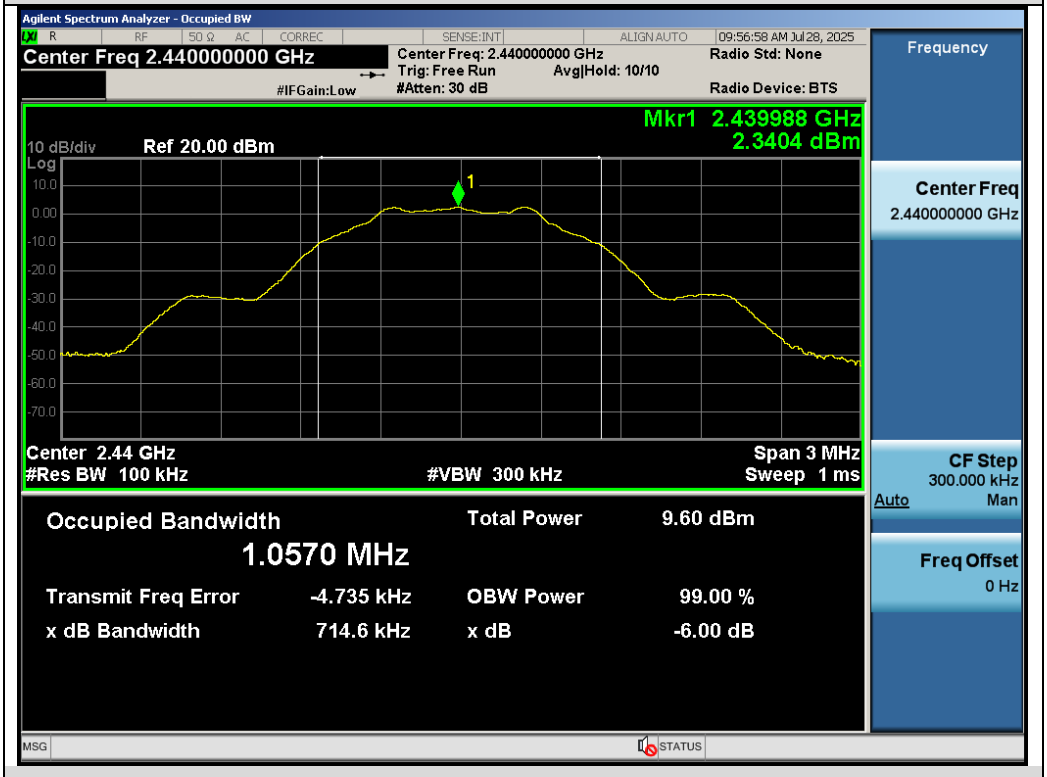


Test_Graph_LE2M_ANT1_2478_2Mbps_OBW

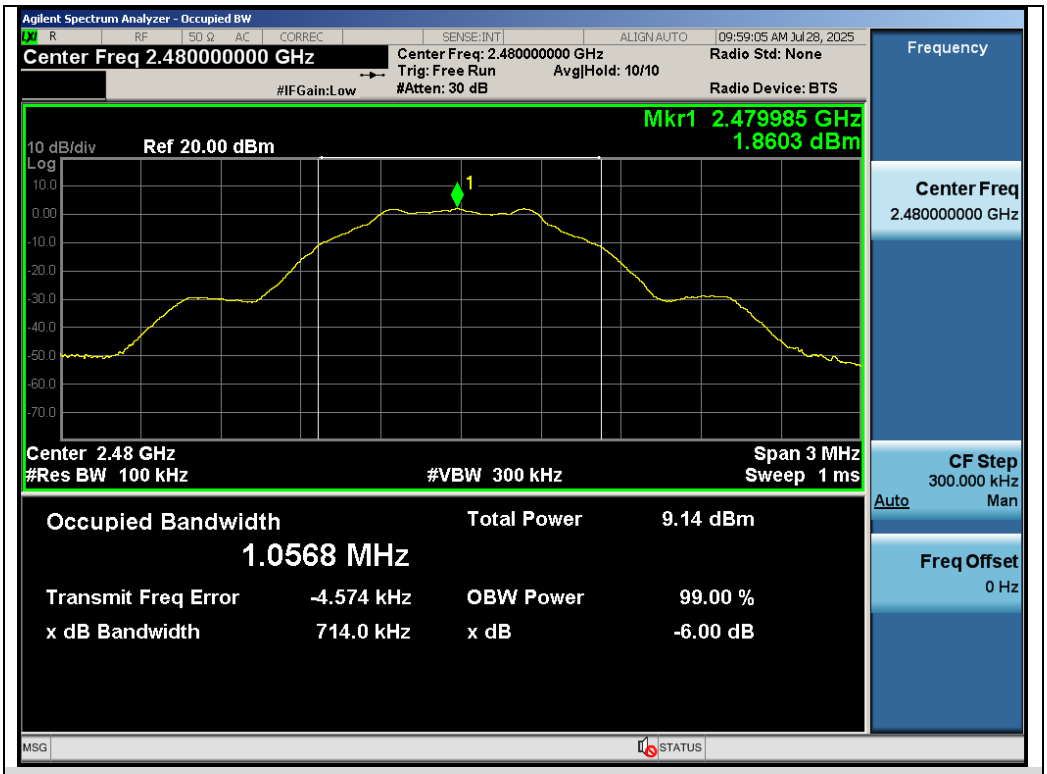
Test Graphs of DTS Bandwidth-Left earphone



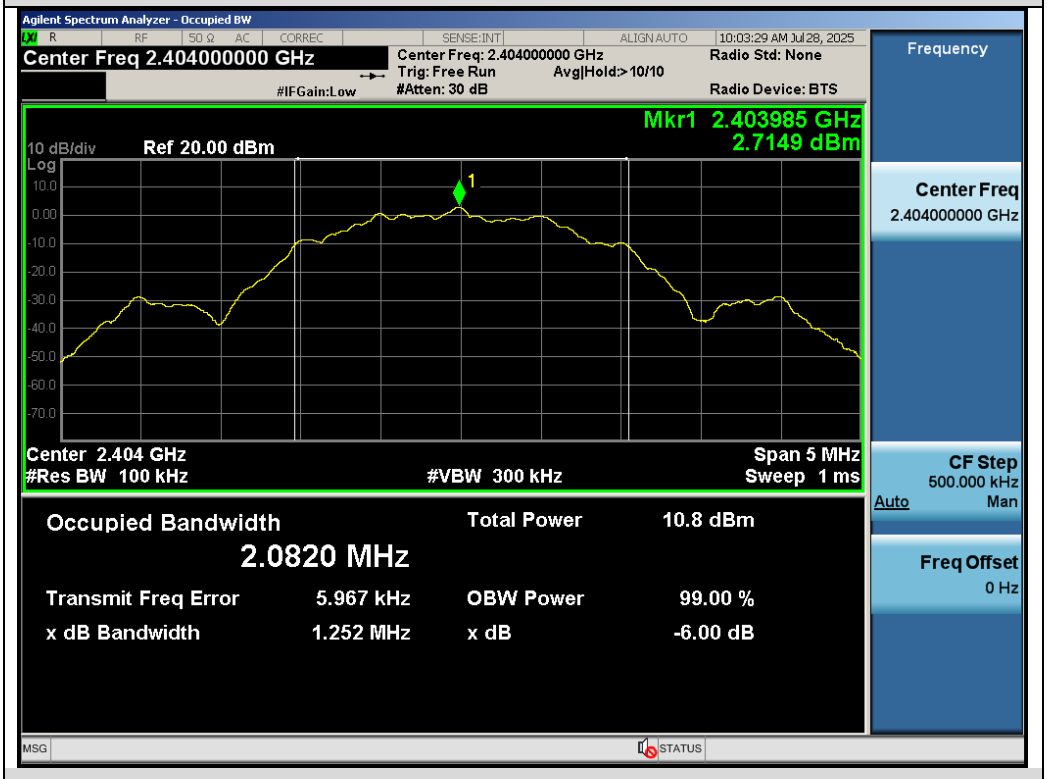
Test_Graph_LE1M_ANT1_2402_1Mbps_DTSBW



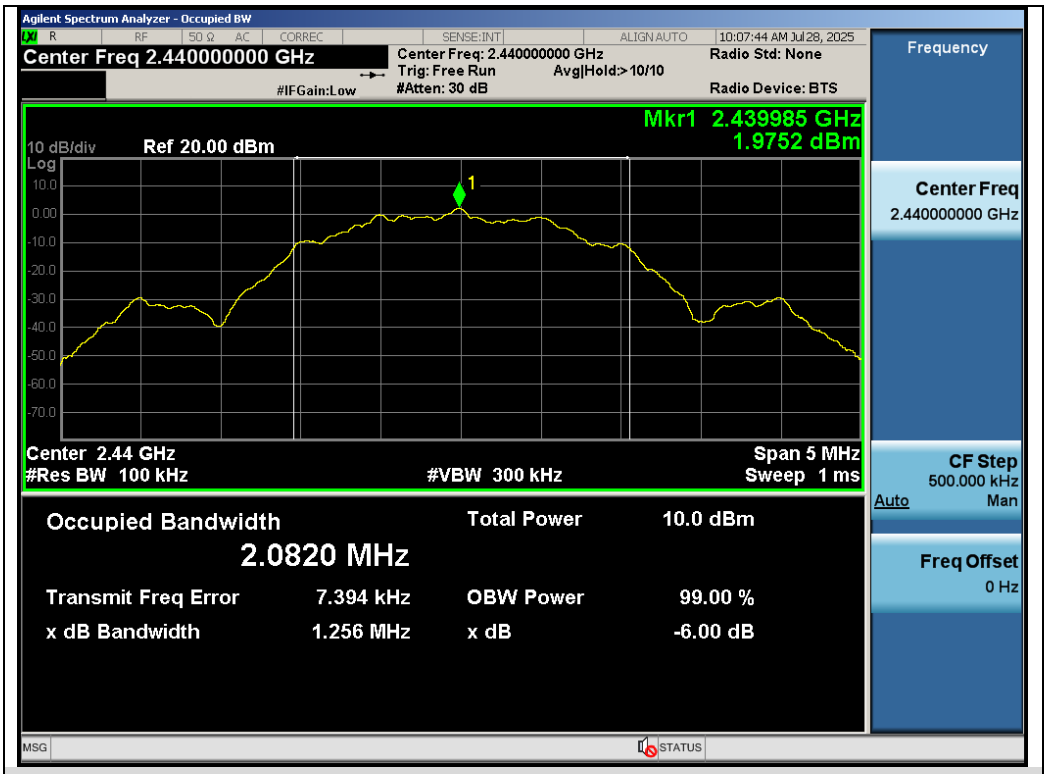
Test_Graph_LE1M_ANT1_2440_1Mbps_DTSBW



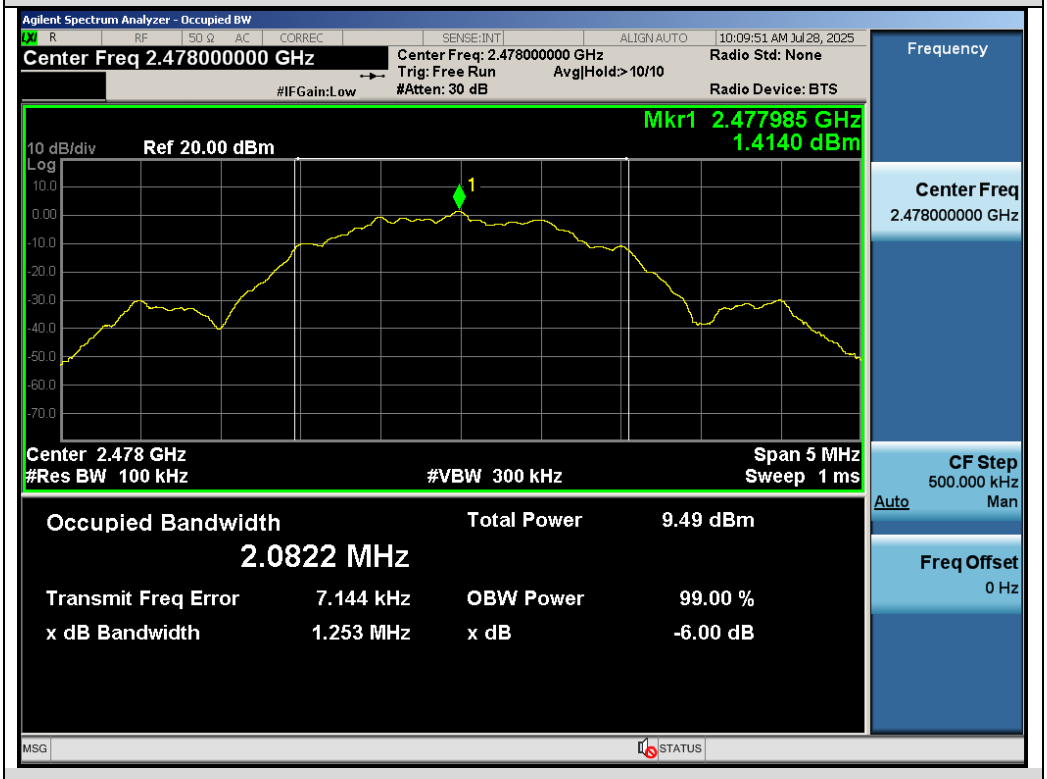
Test_Graph_LE1M_ANT1_2480_1Mbps_DTSBW



Test_Graph_LE2M_ANT1_2404_2Mbps_DTSBW

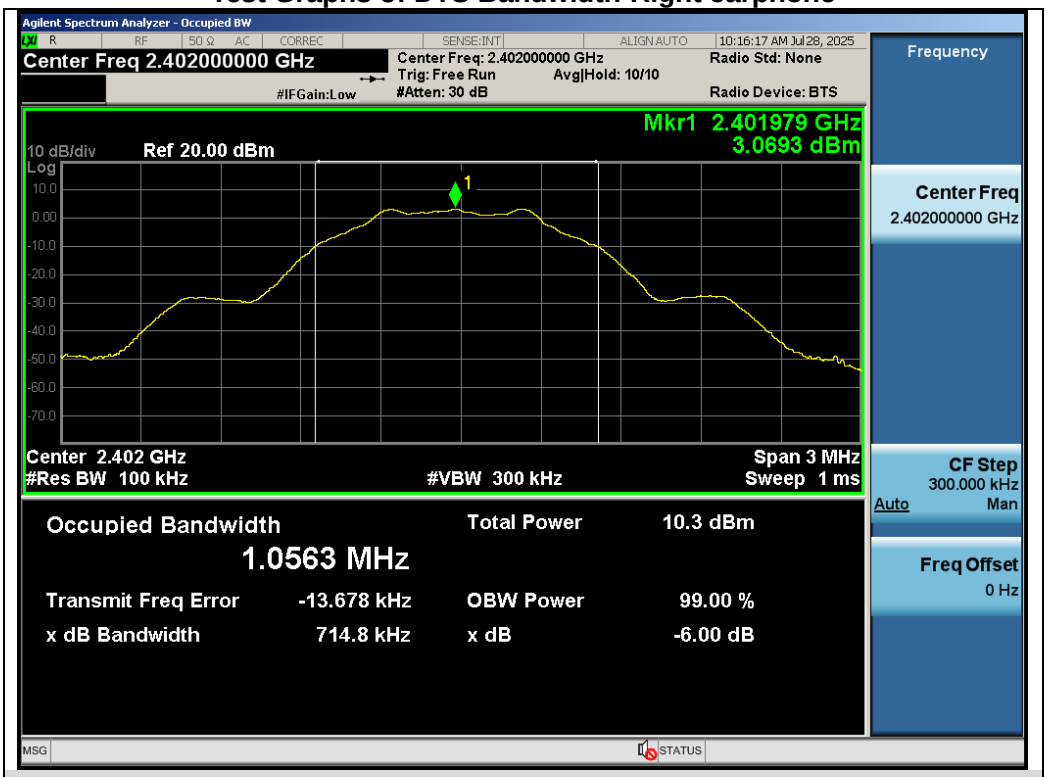


Test_Graph_LE2M_ANT1_2440_2Mbps_DTSBW

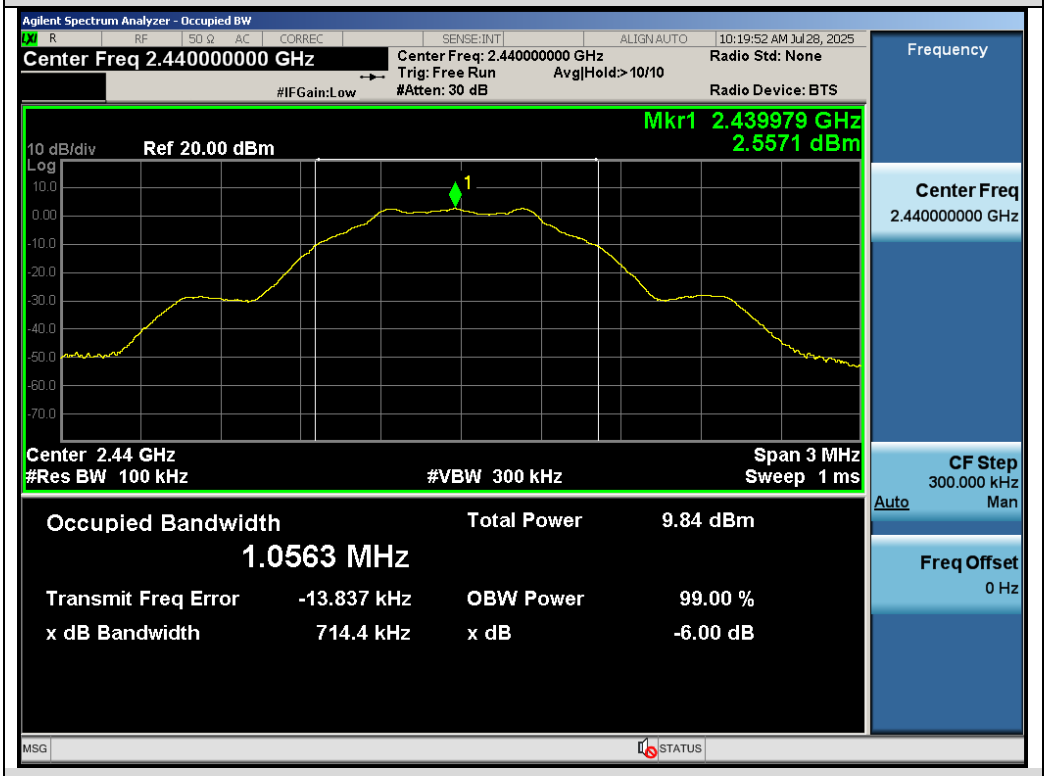


Test_Graph_LE2M_ANT1_2478_2Mbps_DTSBW

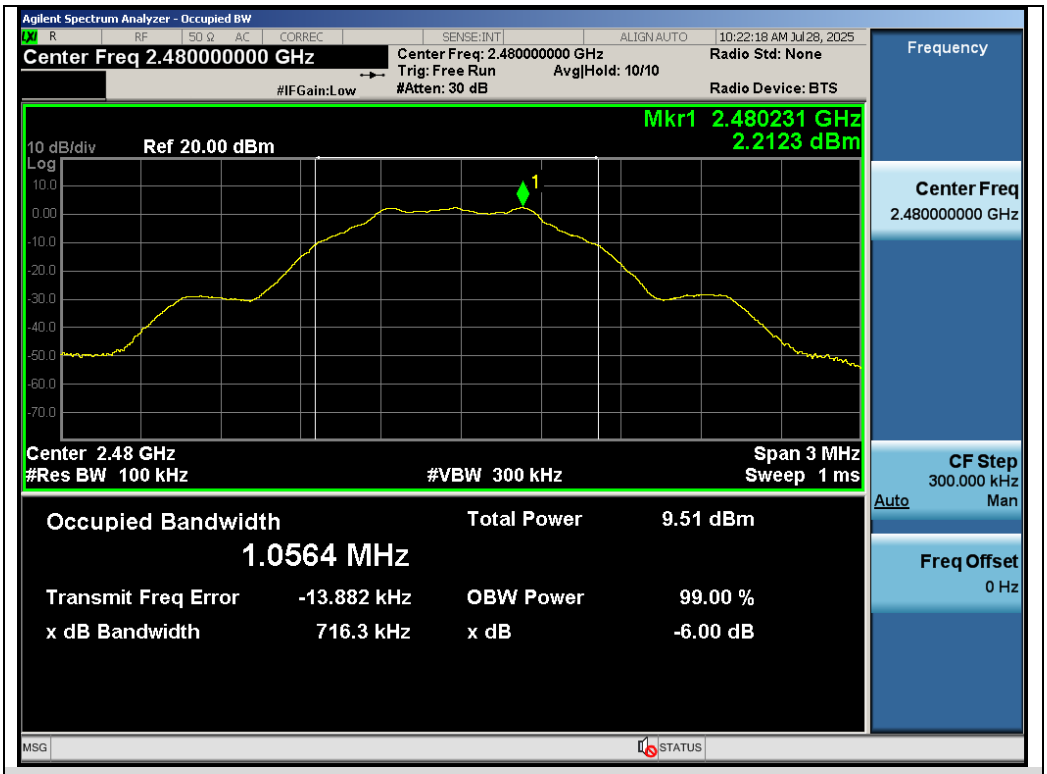
Test Graphs of DTS Bandwidth-Right earphone



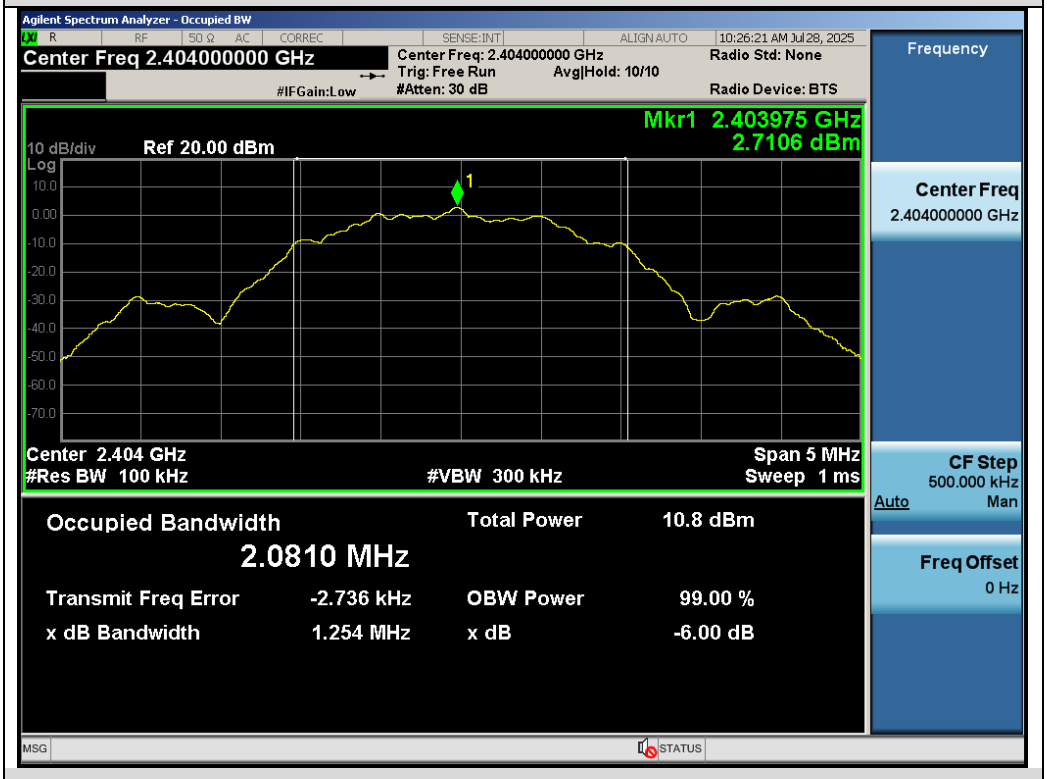
Test_Graph_LE1M_ANT1_2402_1Mbps_DTSBW



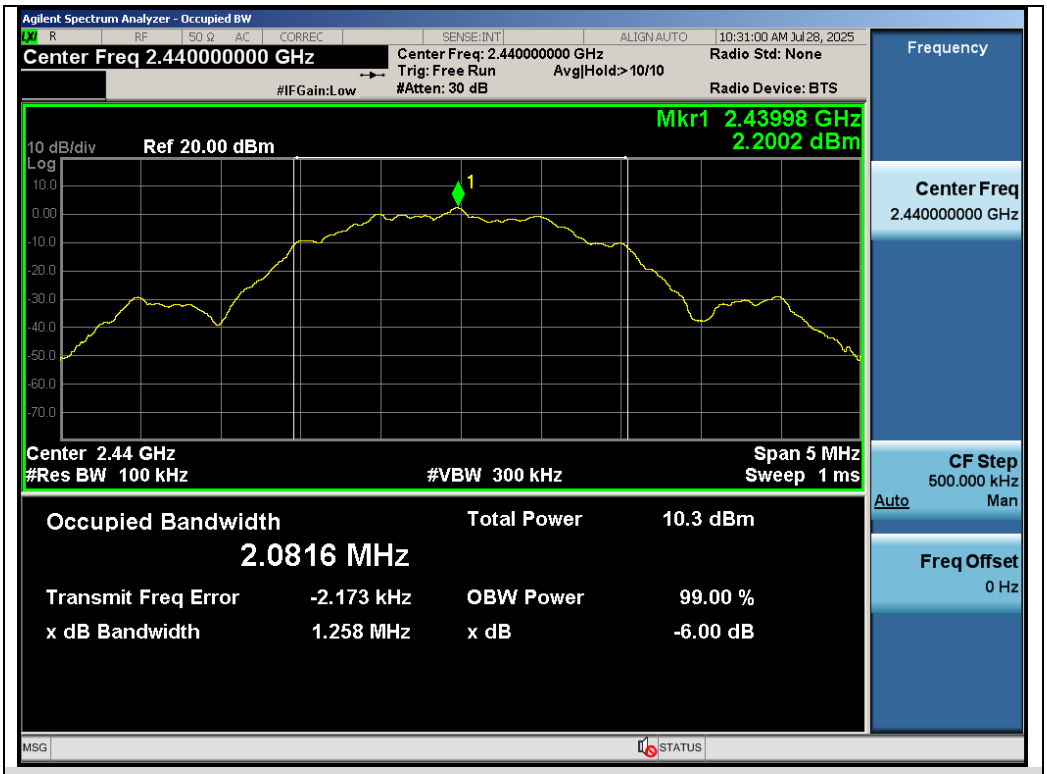
Test_Graph_LE1M_ANT1_2440_1Mbps_DTSBW



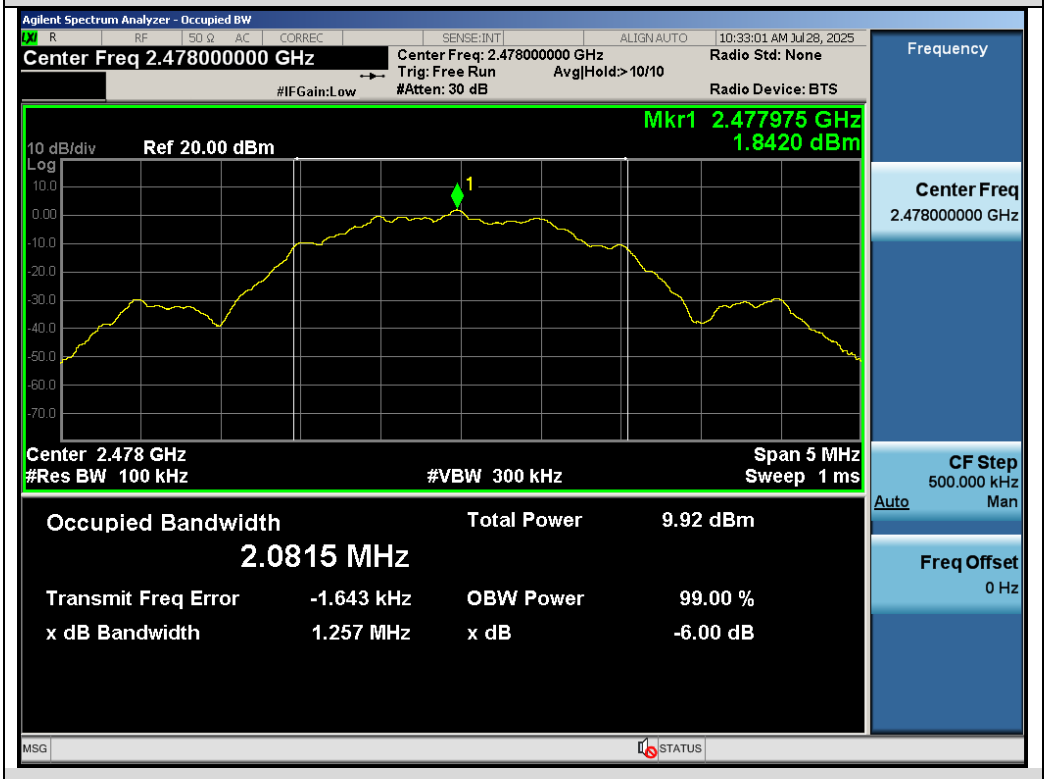
Test_Graph_LE1M_ANT1_2480_1Mbps_DTSBW



Test_Graph_LE2M_ANT1_2404_2Mbps_DTSBW



Test_Graph_LE2M_ANT1_2440_2Mbps_DTSBW



Test_Graph_LE2M_ANT1_2478_2Mbps_DTSBW

9. Power Spectral Density Measurement

9.1 Provisions Applicable

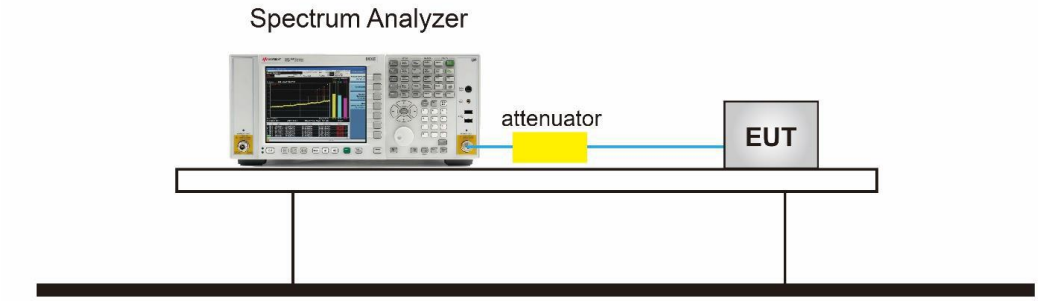
The transmitter power spectral density conducted from the transmitter to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

9.2 Measurement Procedure

■ The testing follows the ANSI C63.10 Section 11.10.2 Method PKPSD.

1. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
2. Set to the maximum power setting and enable the EUT transmit continuously.
3. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 3 kHz. Video bandwidth VBW = 10 kHz in order to make an accurate measurement, set the span to 1.5 times DTS Channel Bandwidth. (6dB BW)
4. Detector = peak, Sweep time = auto couple, Trace mode = max hold, Allow trace to fully stabilize. Use the peak marker function to determine the maximum power level.
5. Measure and record the results in the test report.
6. The Measured power density (dBm)/ 100kHz is a reference level and used as 20dBc down limit line for Conducted Band Edges and Conducted Spurious Emission.

9.3 Measurement Setup (Block Diagram of Configuration)

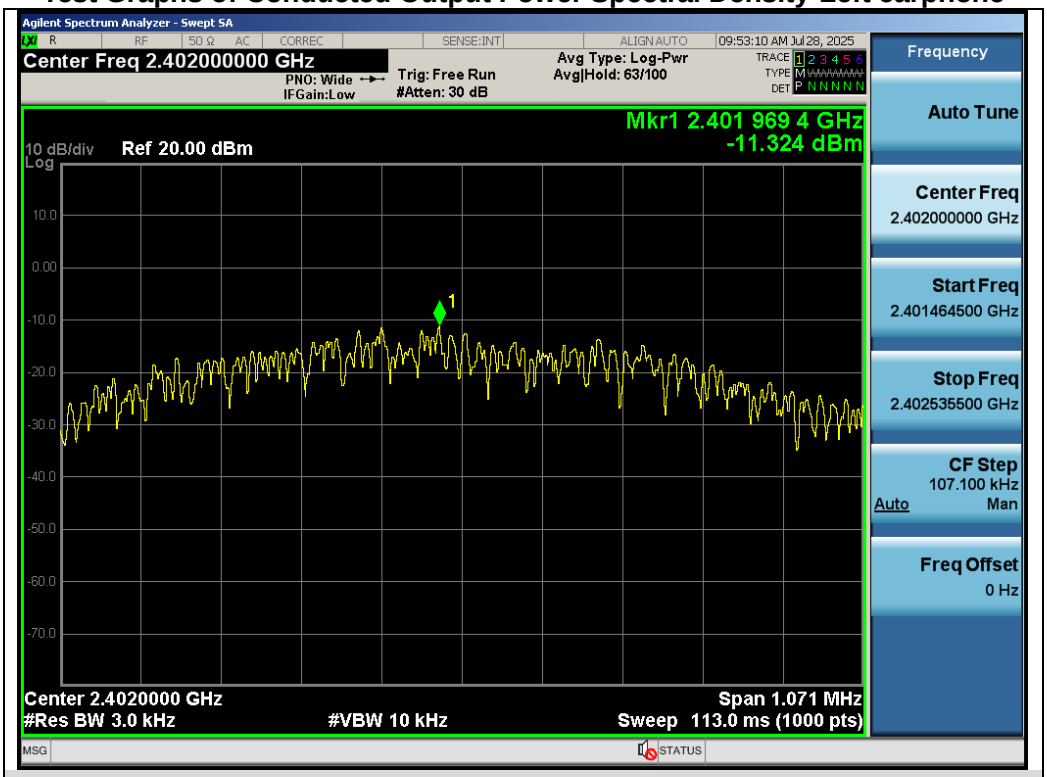


9.4 Measurement Results

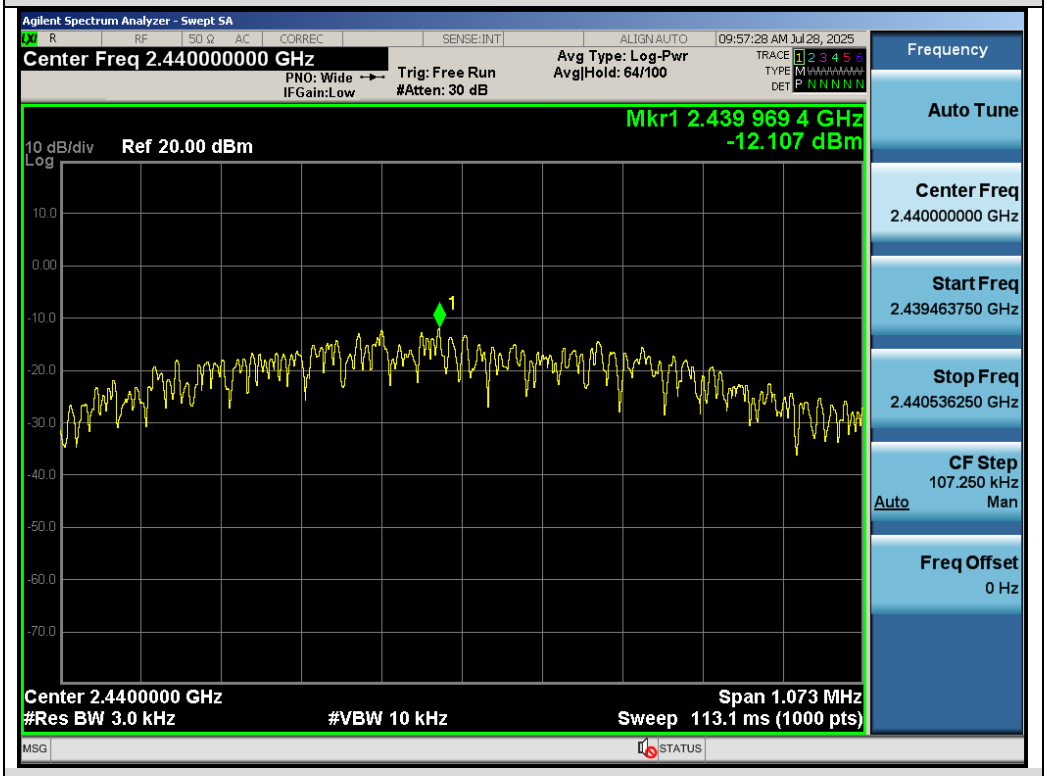
Test Data of Conducted Output Power Spectral Density-Left earphone				
Test Mode	Test Frequency (MHz)	Power density (dBm/3kHz)	Limit (dBm/3kHz)	Pass or Fail
GFSK_1Mbps	2402	-11.324	≤8	Pass
	2440	-12.107	≤8	Pass
	2480	-12.612	≤8	Pass
GFSK_2Mbps	2404	-13.571	≤8	Pass
	2440	-14.401	≤8	Pass
	2478	-14.890	≤8	Pass

Test Data of Conducted Output Power Spectral Density-Right earphone				
Test Mode	Test Frequency (MHz)	Power density (dBm/3kHz)	Limit (dBm/3kHz)	Pass or Fail
GFSK_1Mbps	2402	-11.369	≤8	Pass
	2440	-11.906	≤8	Pass
	2480	-12.223	≤8	Pass
GFSK_2Mbps	2404	-13.535	≤8	Pass
	2440	-14.137	≤8	Pass
	2478	-14.506	≤8	Pass

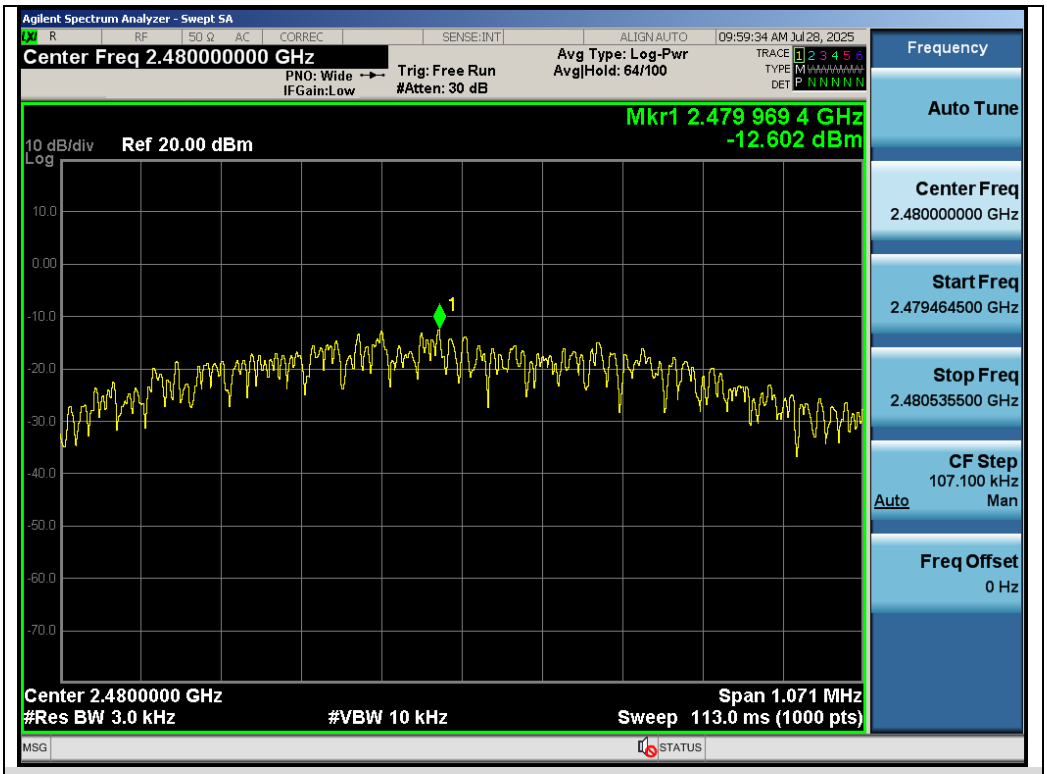
Test Graphs of Conducted Output Power Spectral Density-Left earphone



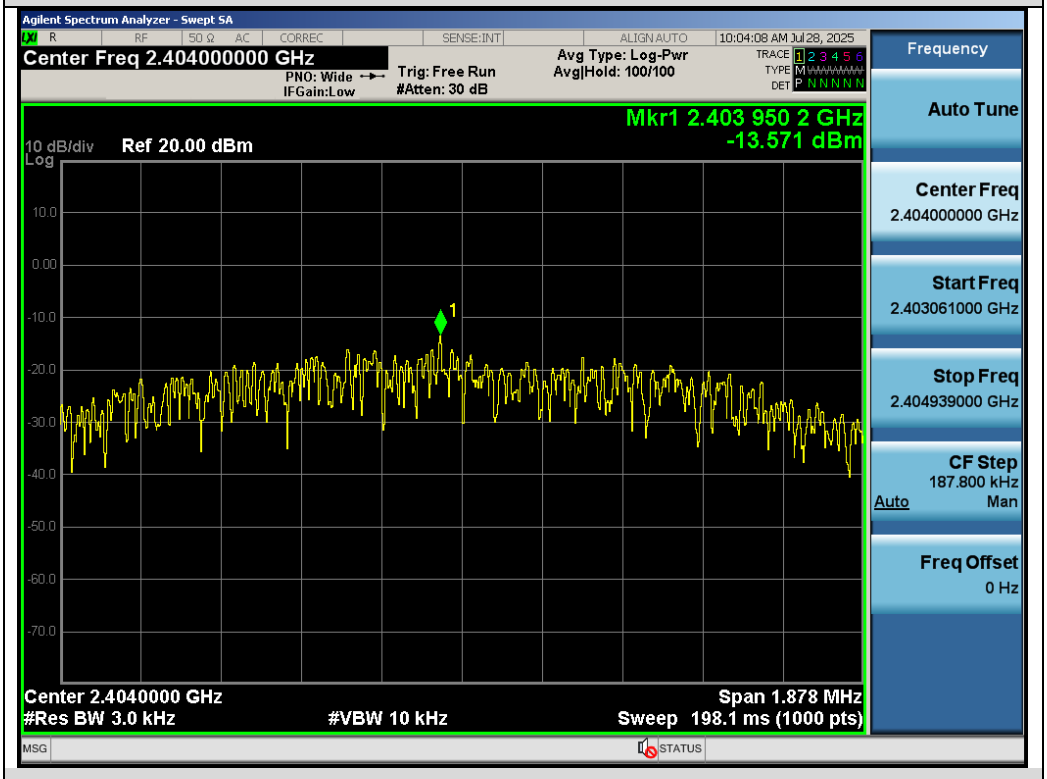
Test_Graph_LE1M_ANT1_2402_1Mbps_PSD



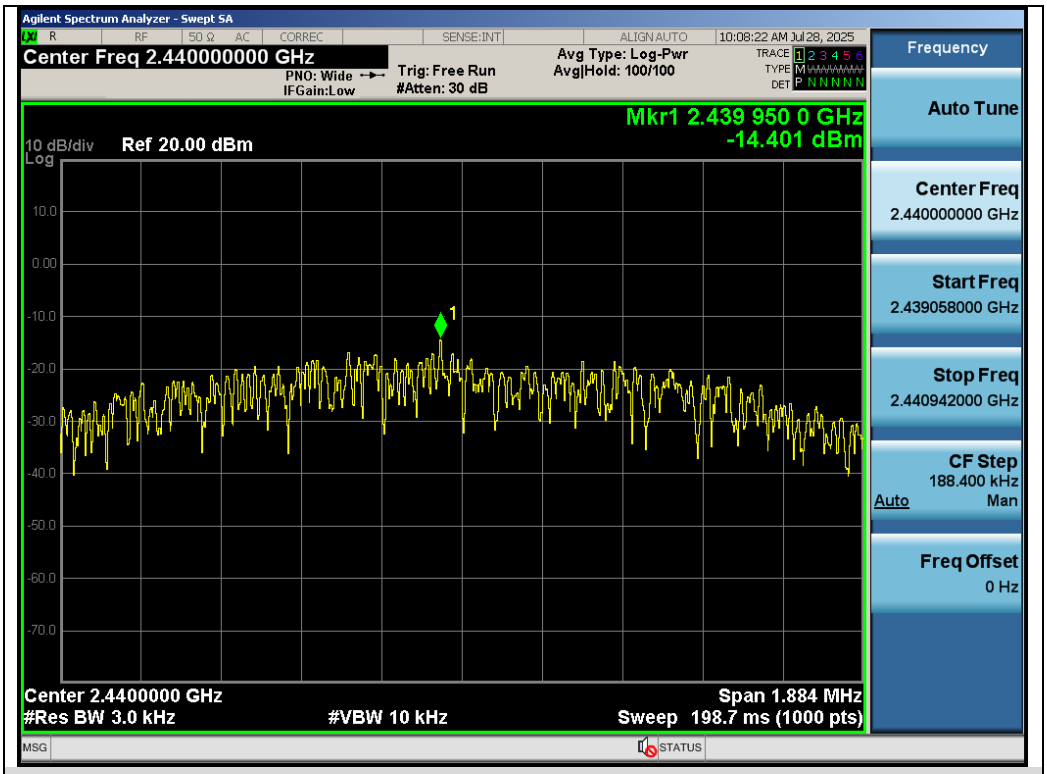
Test_Graph_LE1M_ANT1_2440_1Mbps_PSD



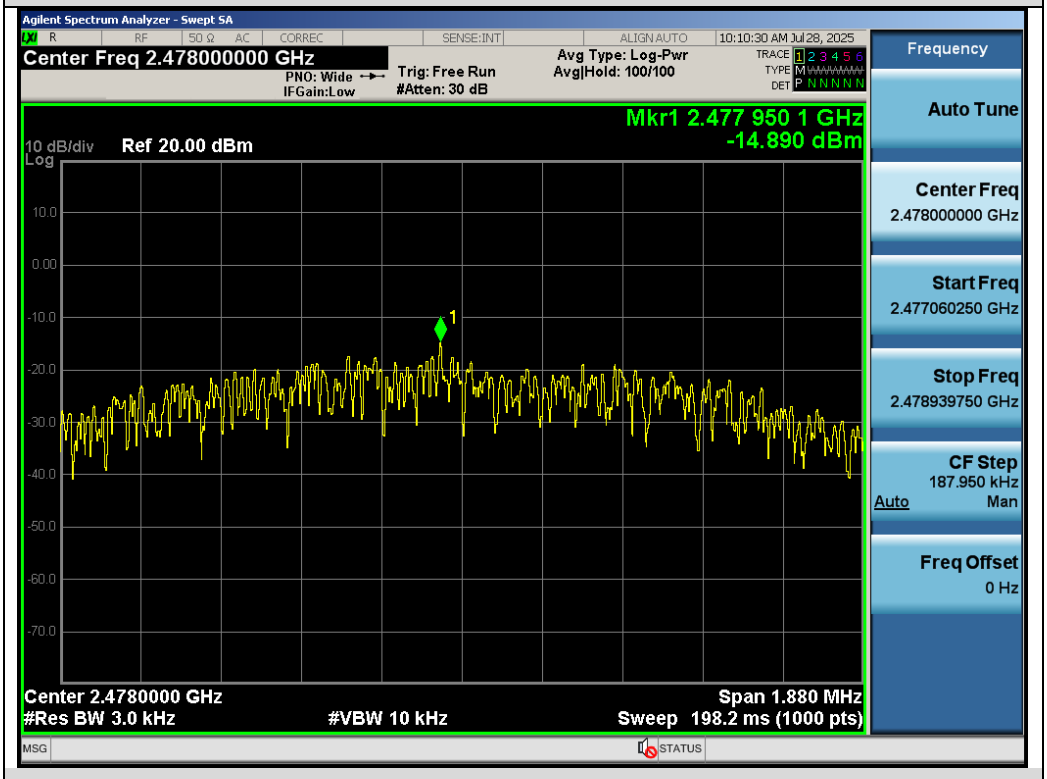
Test_Graph_LE1M_ANT1_2480_1Mbps_PSD



Test_Graph_LE2M_ANT1_2404_2Mbps_PSD

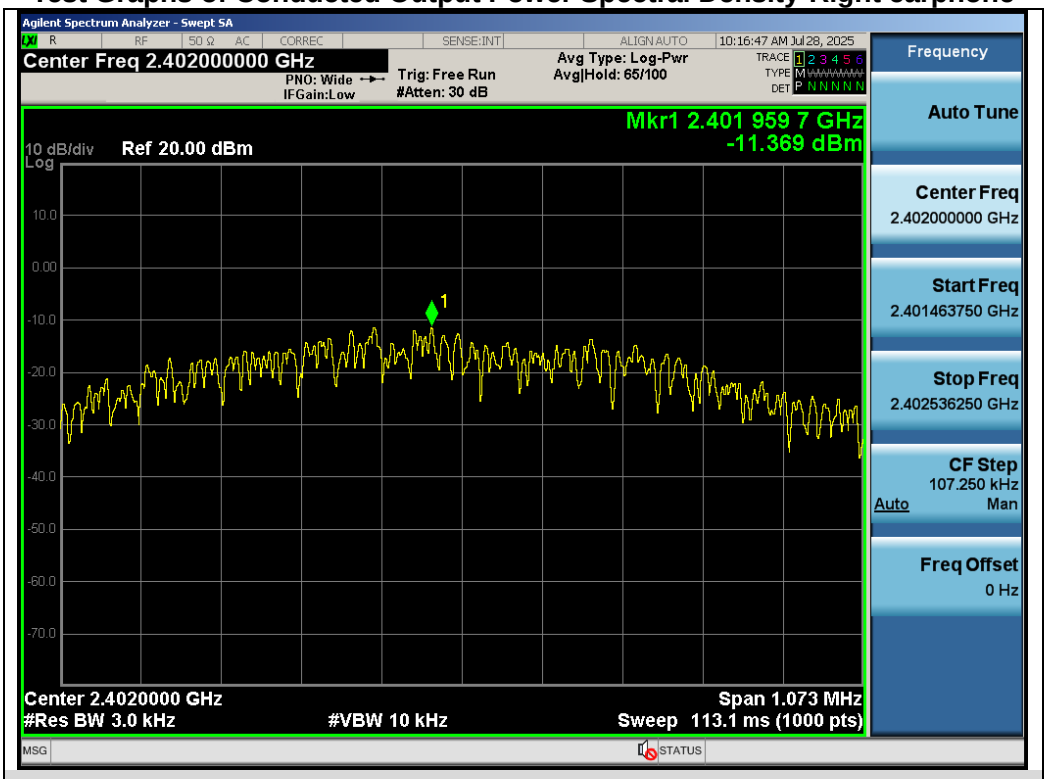


Test_Graph_LE2M_ANT1_2440_2Mbps_PSD

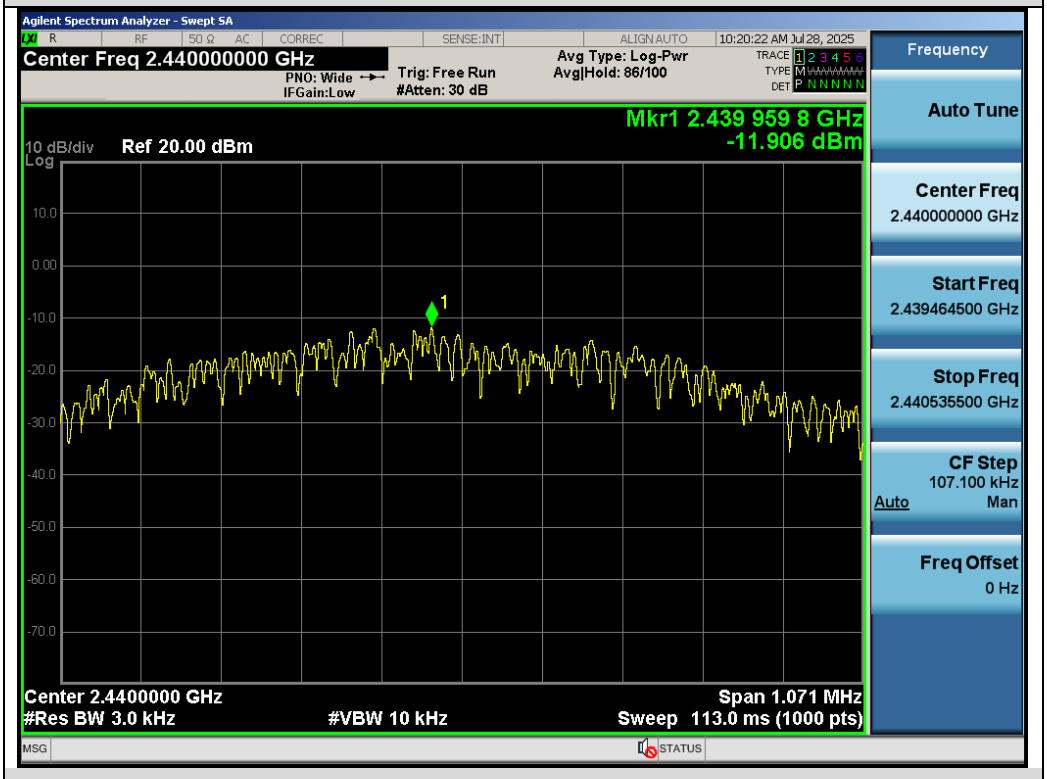


Test_Graph_LE2M_ANT1_2478_2Mbps_PSD

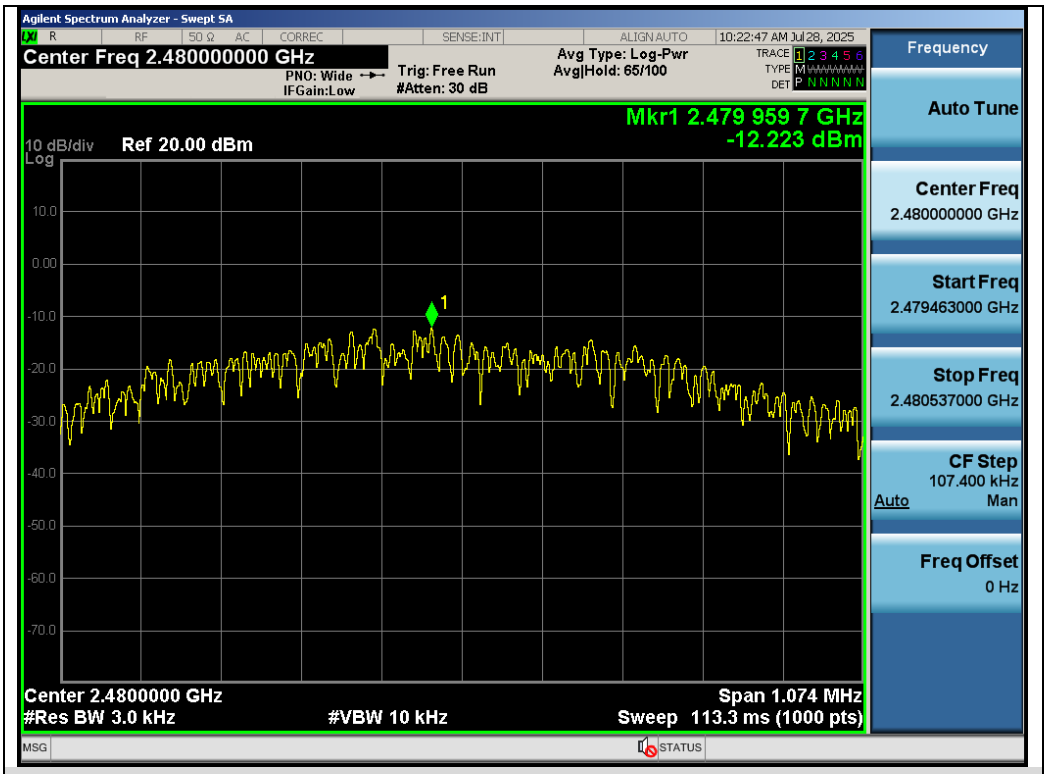
Test Graphs of Conducted Output Power Spectral Density-Right earphone



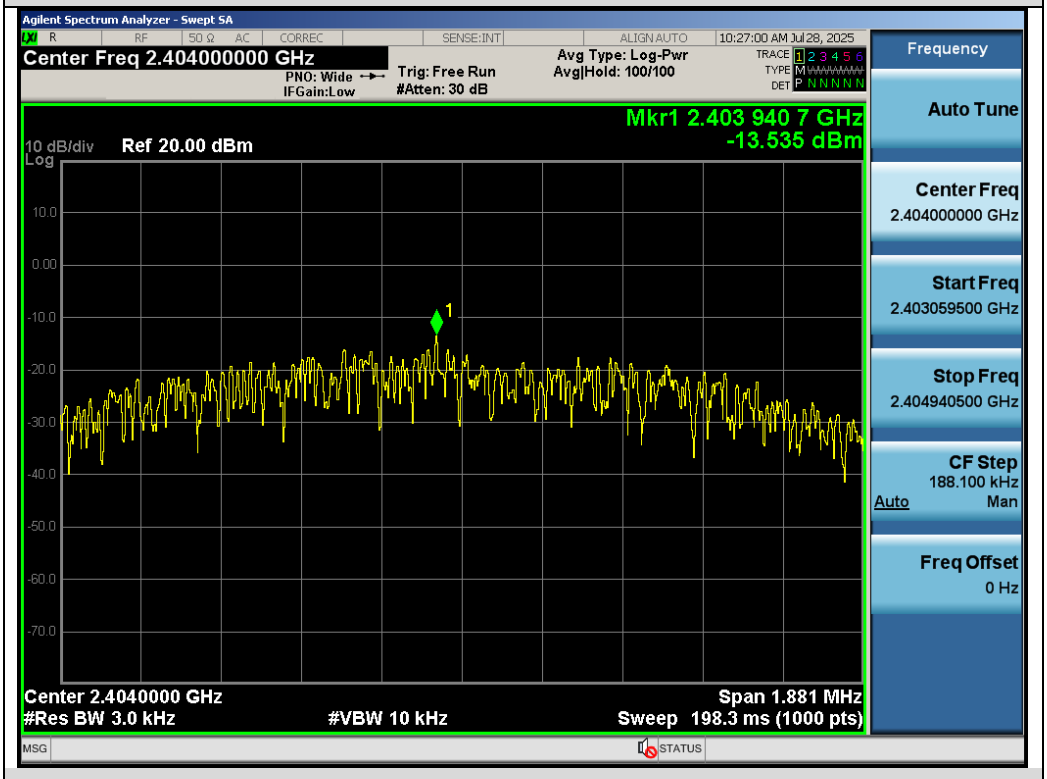
Test_Graph_LE1M_ANT1_2402_1Mbps_PSD



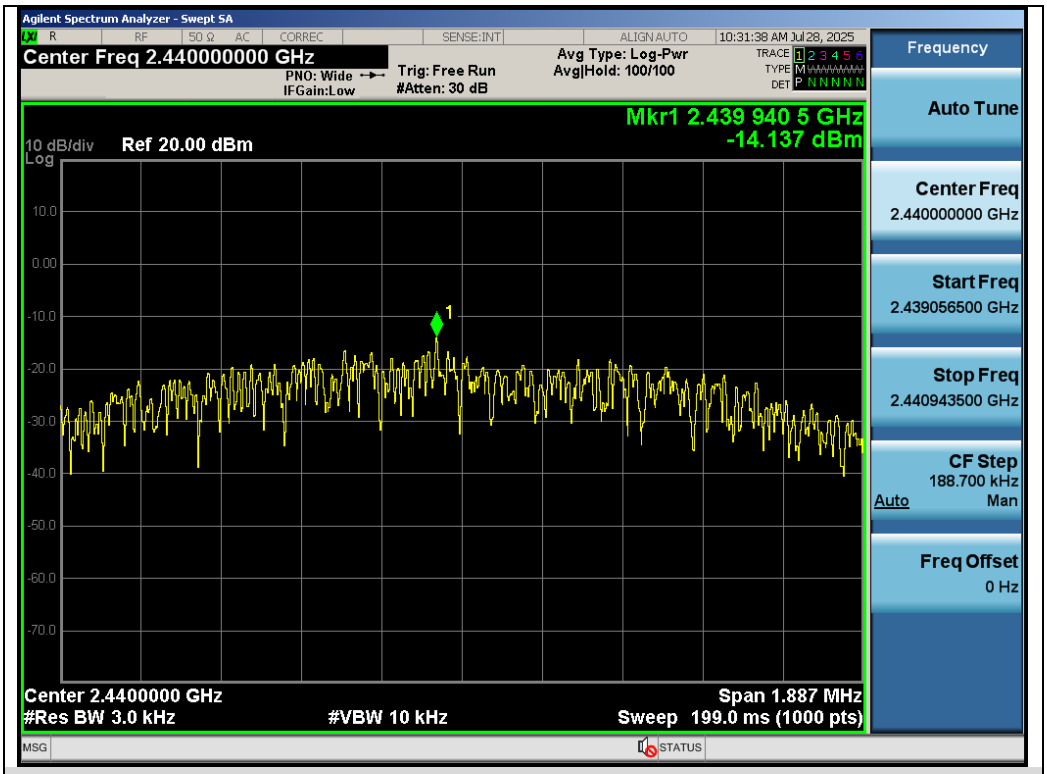
Test_Graph_LE1M_ANT1_2440_1Mbps_PSD



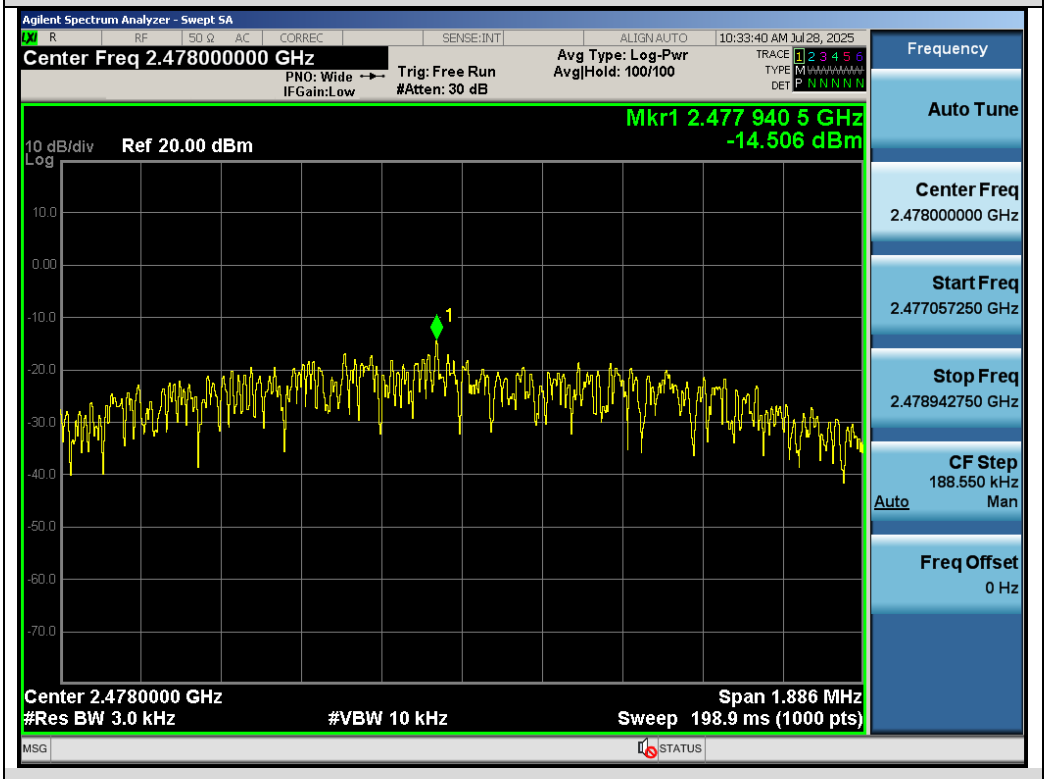
Test_Graph_LE1M_ANT1_2480_1Mbps_PSD



Test_Graph_LE2M_ANT1_2404_2Mbps_PSD



Test_Graph_LE2M_ANT1_2440_2Mbps_PSD



Test_Graph_LE2M_ANT1_2478_2Mbps_PSD

10. Conducted Band Edge and Out-of-Band Emissions

10.1 Provisions Applicable

The limit for out-of-band spurious emissions at the band edge is 20dB below the fundamental emission level, as determined from the in-band power measurement of the DTS channel performed in a 100kHz bandwidth per the PSD procedure.

10.2 Measurement Procedure

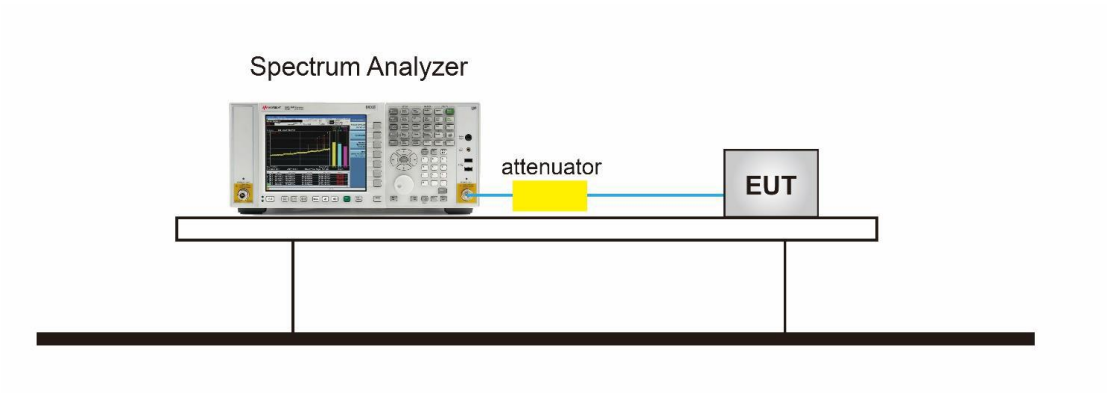
- Reference level measurement

1. Set instrument center frequency to DTS channel center frequency
2. Set the span to ≥ 1.5 times the DTS bandwidth
3. Set the RBW = 100 kHz
4. Set the VBW ≥ 3 x RBW
5. Detector = peak
6. Sweep time = auto couple
7. Trace mode = max hold
8. Allow trace to fully stabilize
9. Input compensation coefficient (dB) = Cable Loss (dB) + Attenuator attenuation value (dB)

- Emission level measurement

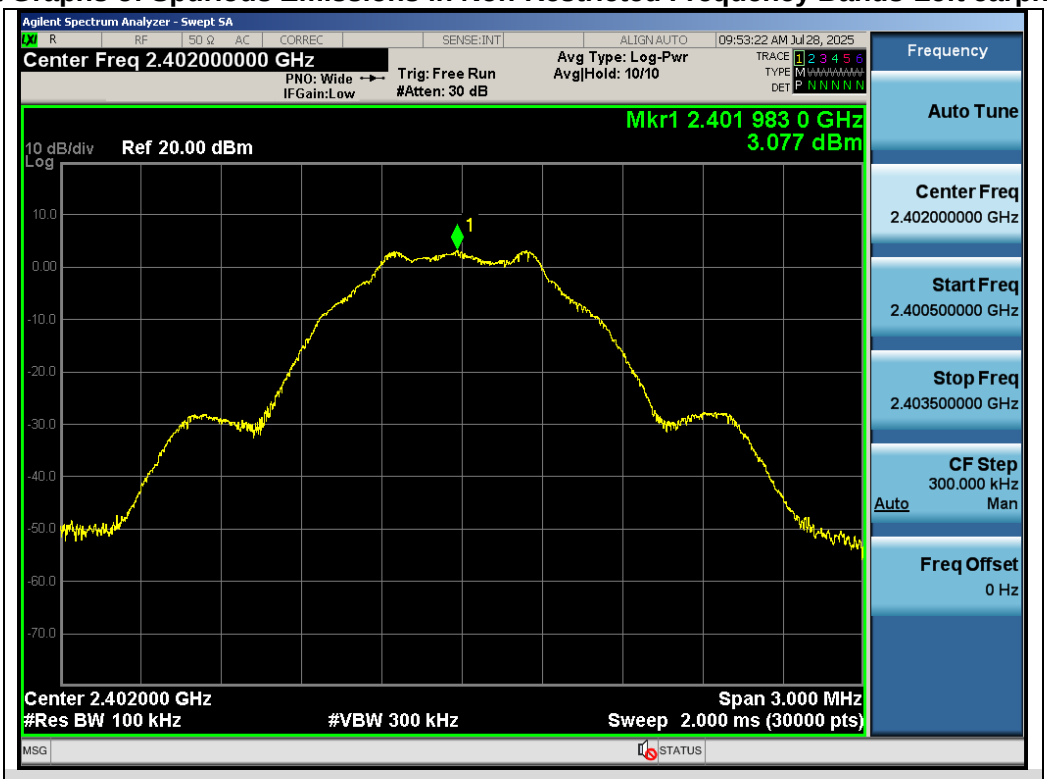
1. Set the center frequency and span to encompass frequency range to be measured
2. RBW = 100kHz
3. VBW = 300kHz
4. Detector = Peak
5. Trace mode = max hold
6. Sweep time = auto couple
7. The trace was allowed to stabilize
8. Input compensation coefficient (dB) = Cable Loss (dB) + Attenuator attenuation value (dB)

10.3 Measurement Setup (Block Diagram of Configuration)

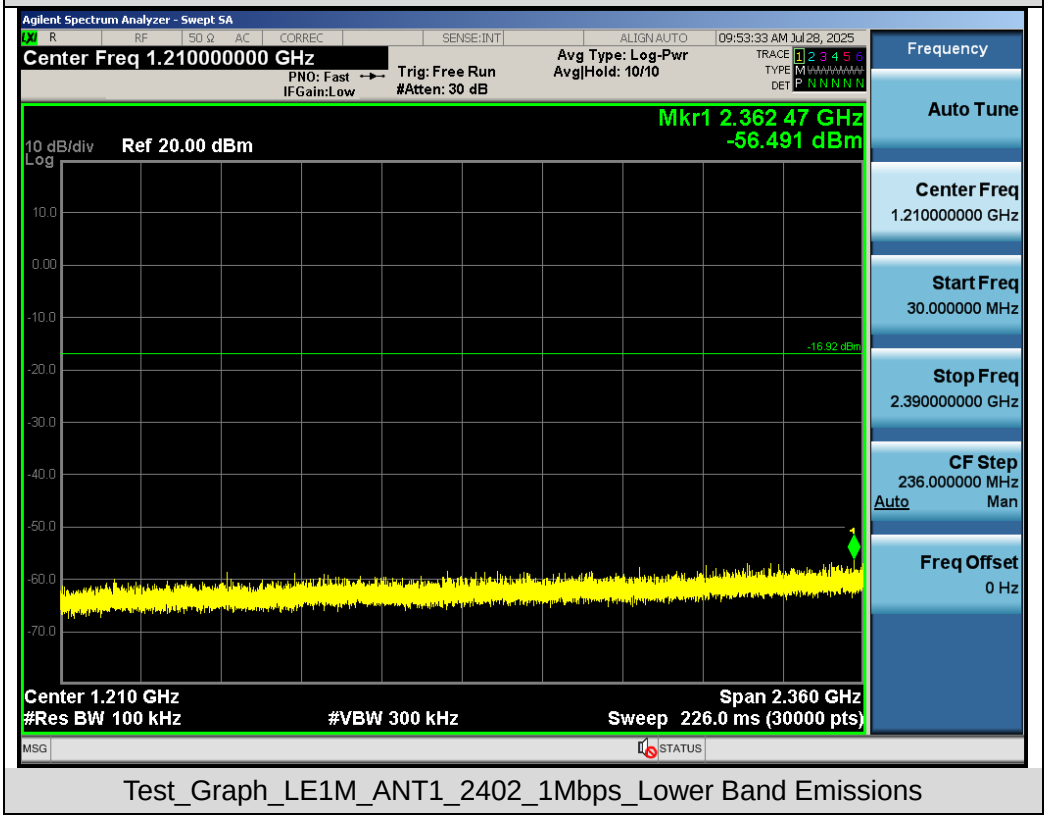


10.4 Measurement Results

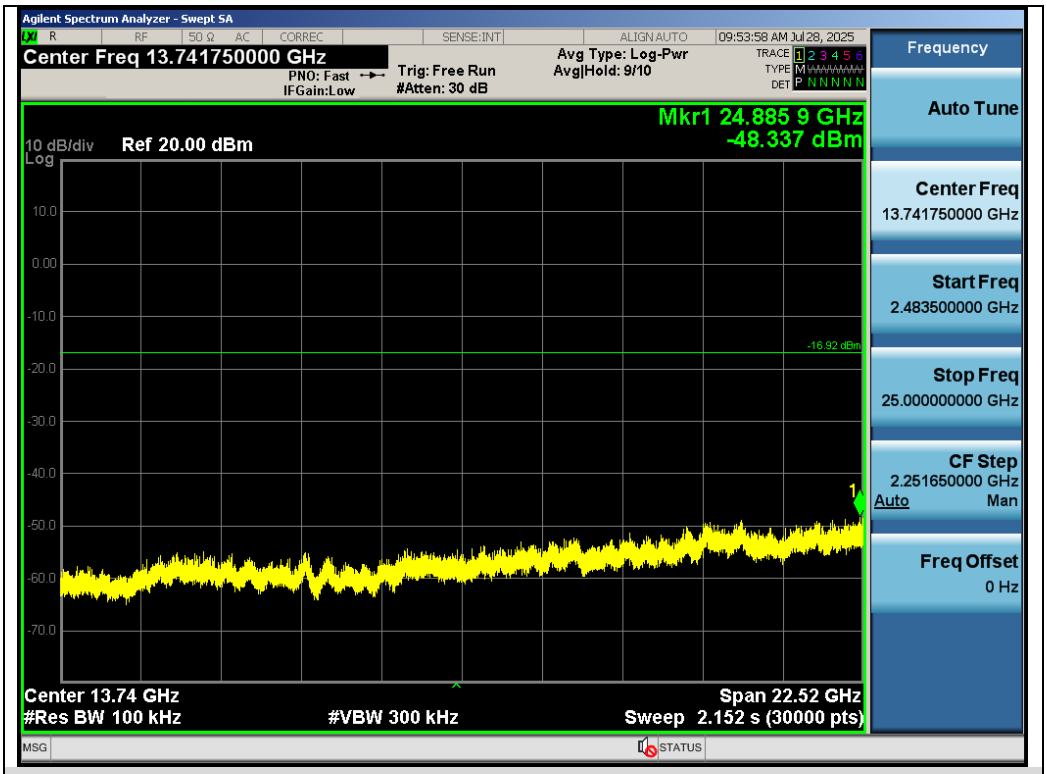
Test Graphs of Spurious Emissions in Non-Restricted Frequency Bands-Left earphone



Test_Graph_LE1M_ANT1_2402_1Mbps_Reference Level

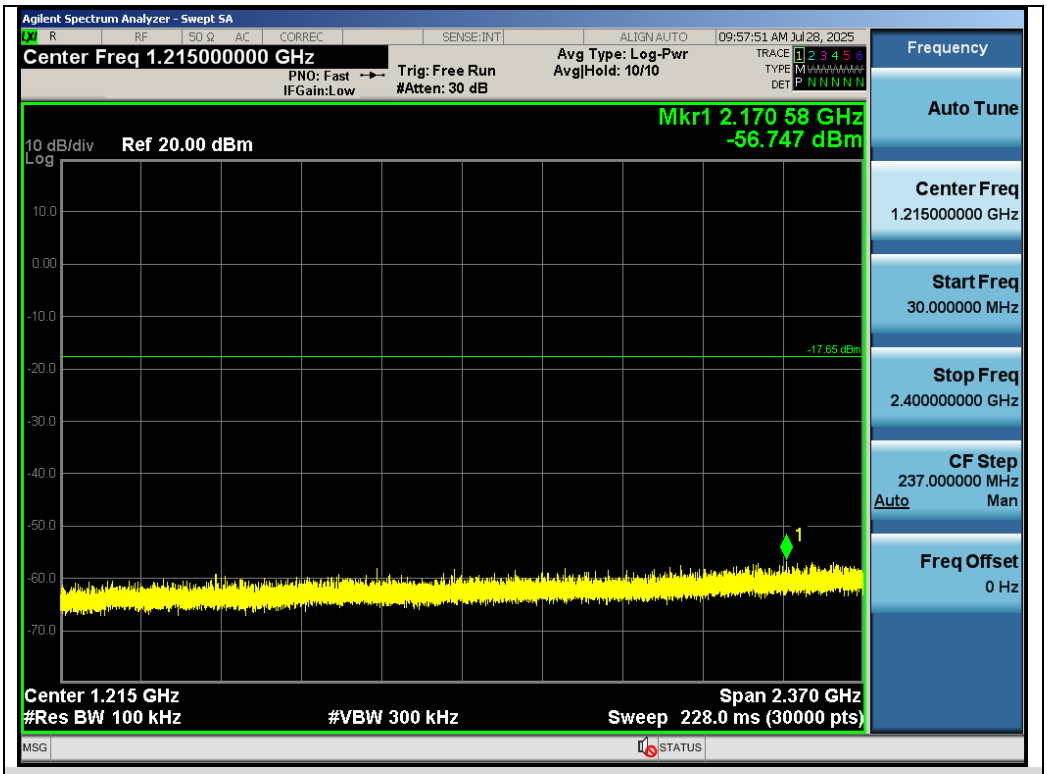


Test_Graph_LE1M_ANT1_2402_1Mbps_Lower Band Emissions

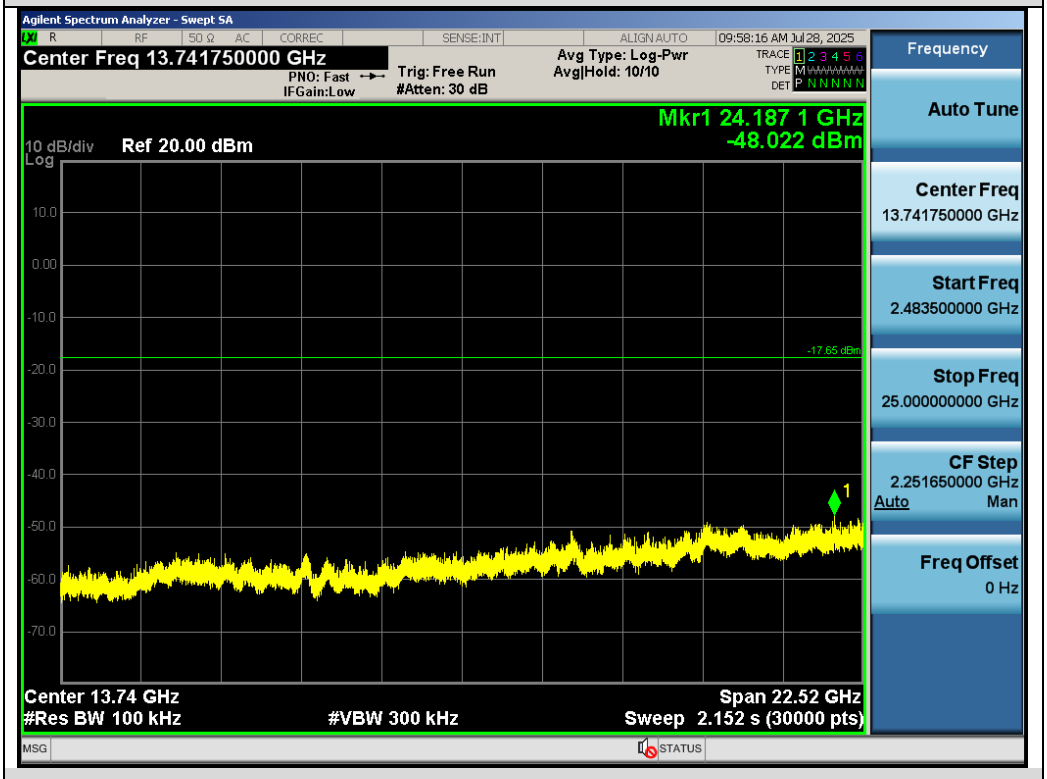


Test_Graph_LE1M_ANT1_2402_1Mbps_Higher Band Emissions

Test_Graph_LE1M_ANT1_2440_1Mbps_Reference Level

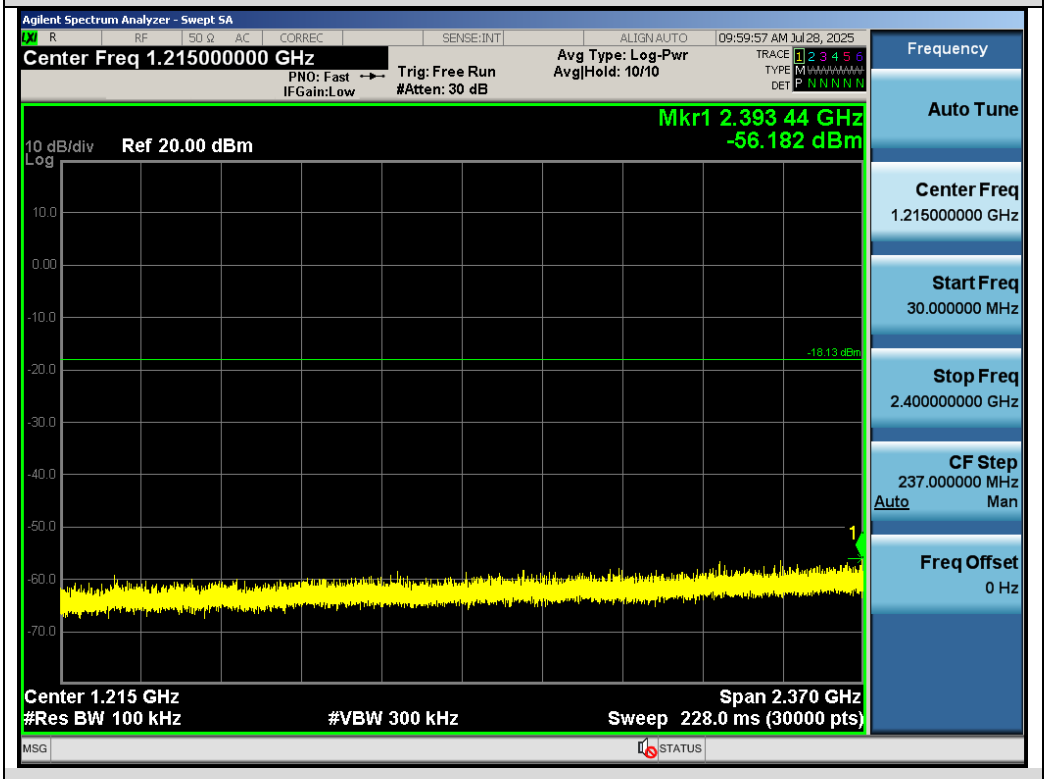


Test_Graph_LE1M_ANT1_2440_1Mbps_Lower Band Emissions

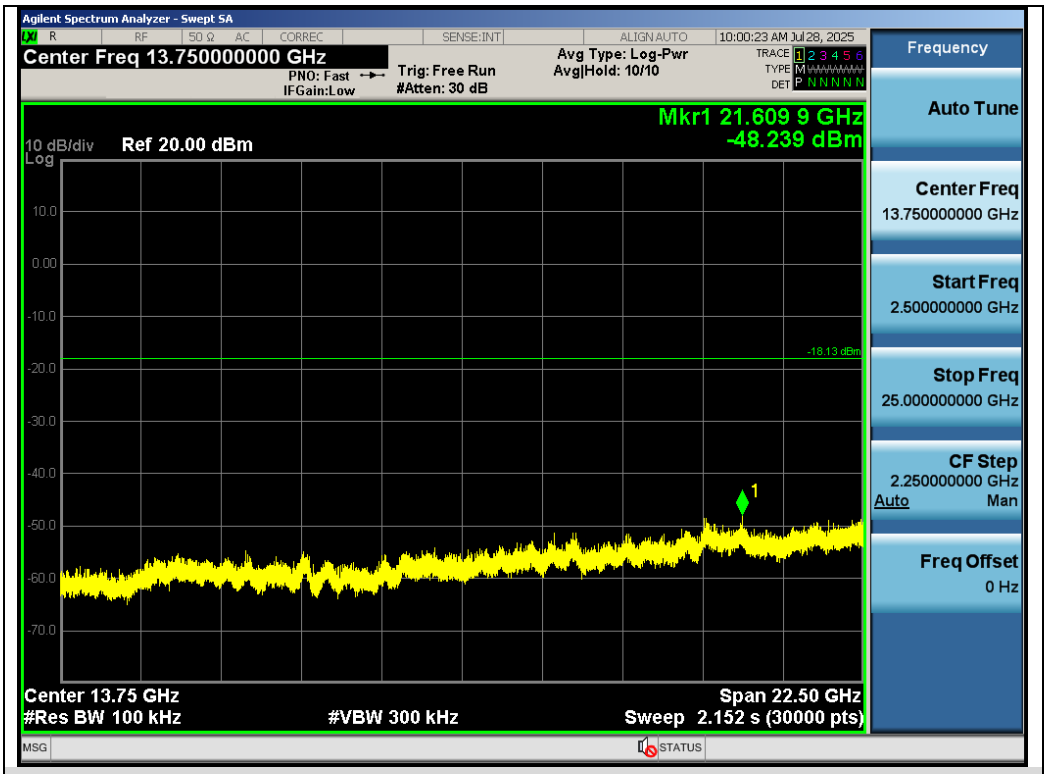


Test_Graph_LE1M_ANT1_2440_1Mbps_Higher Band Emissions

Test_Graph_LE1M_ANT1_2480_1Mbps_Reference Level

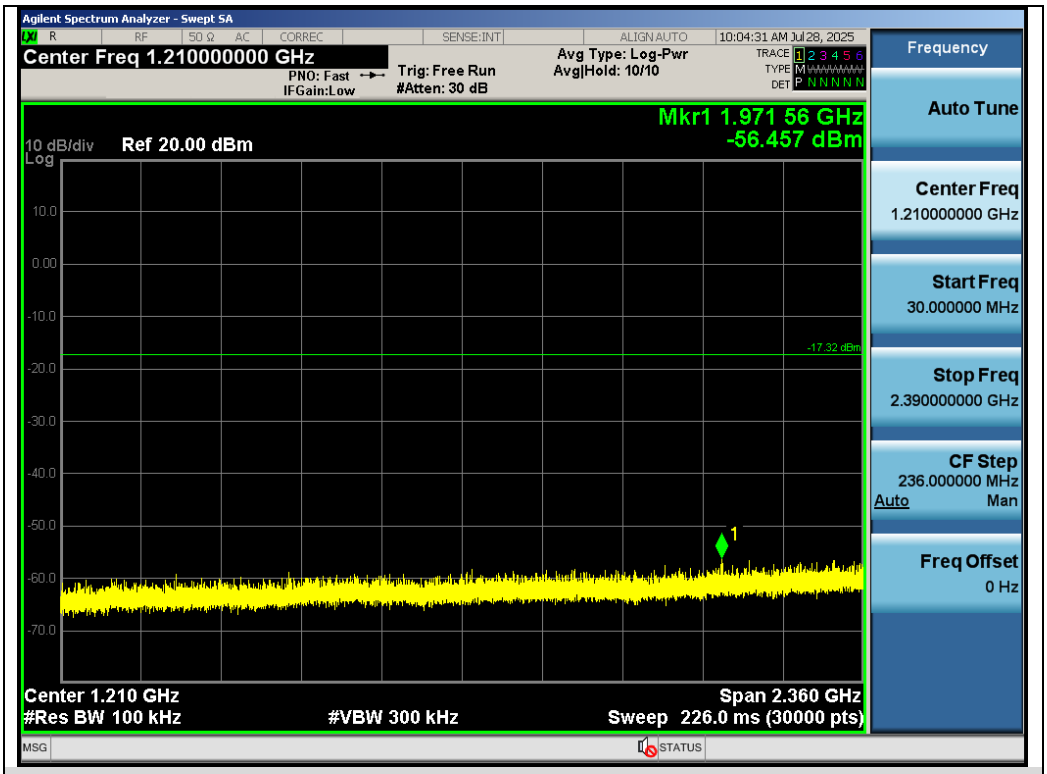


Test_Graph_LE1M_ANT1_2480_1Mbps_Lower Band Emissions

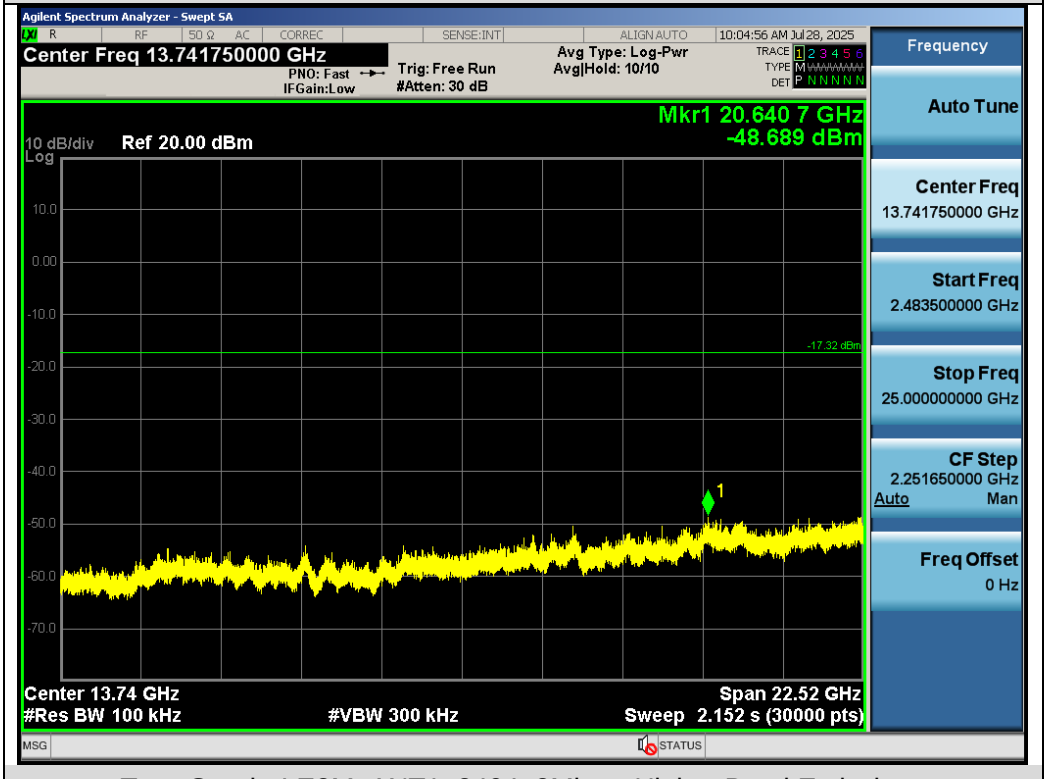


Test_Graph_LE1M_ANT1_2480_1Mbps_Higher Band Emissions

Test_Graph_LE2M_ANT1_2404_2Mbps_Reference Level

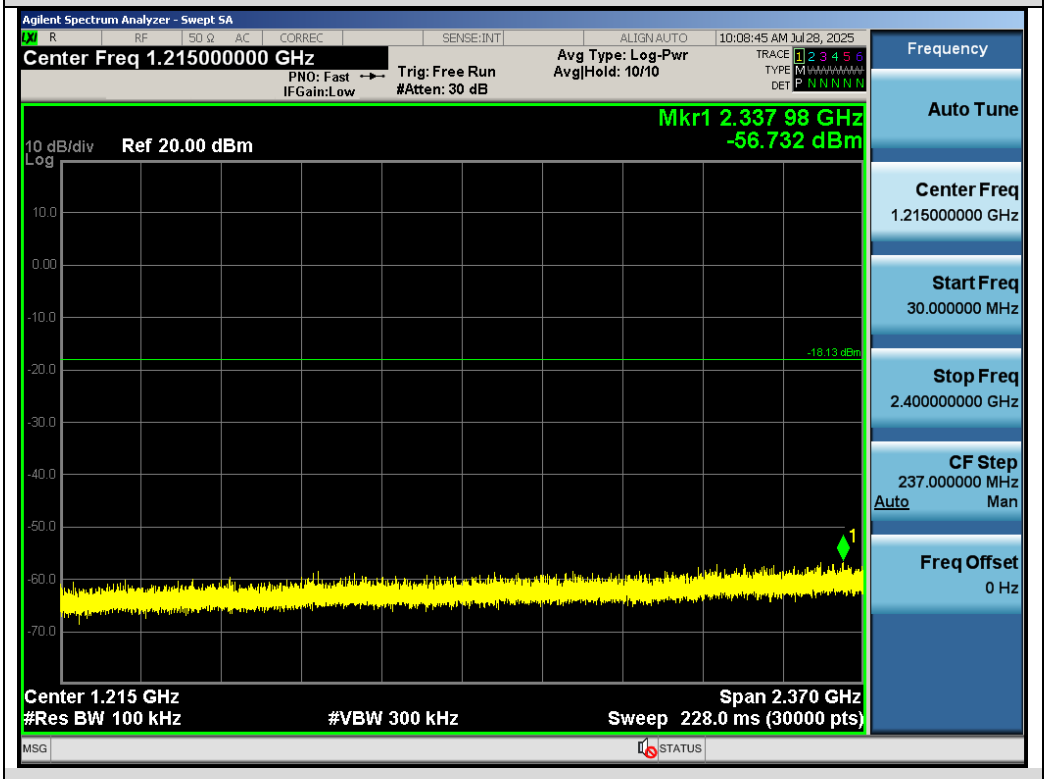


Test_Graph_LE2M_ANT1_2404_2Mbps_Lower Band Emissions

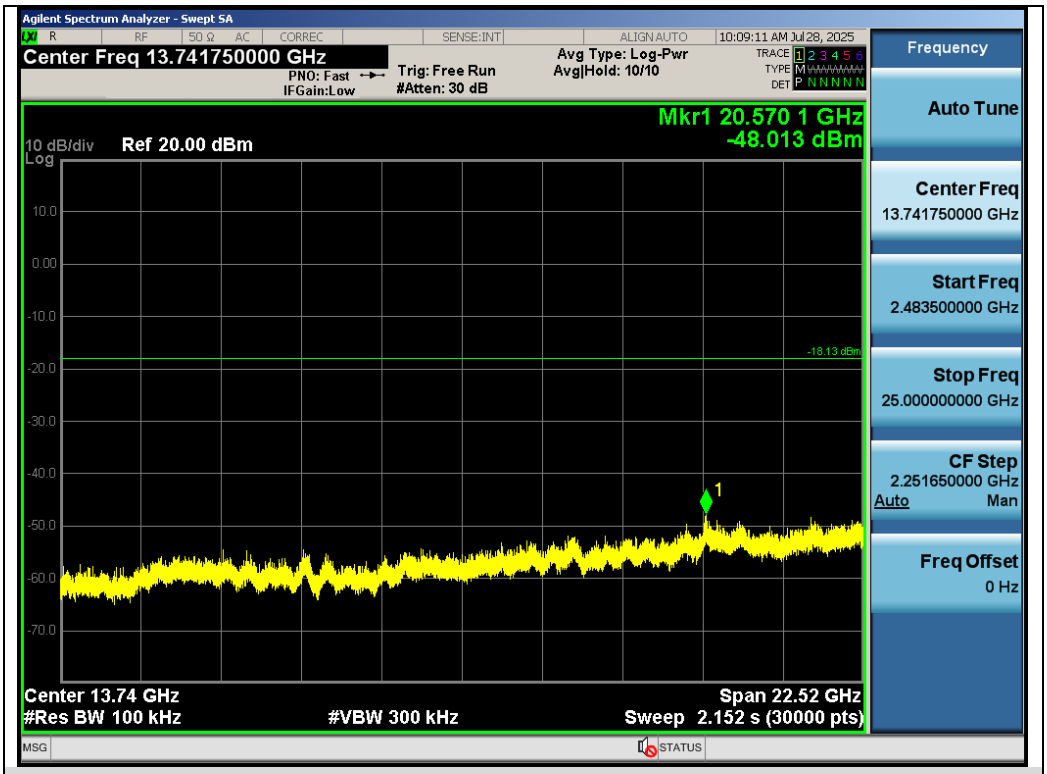


Test_Graph_LE2M_ANT1_2404_2Mbps_Higher Band Emissions

Test_Graph_LE2M_ANT1_2440_2Mbps_Reference Level

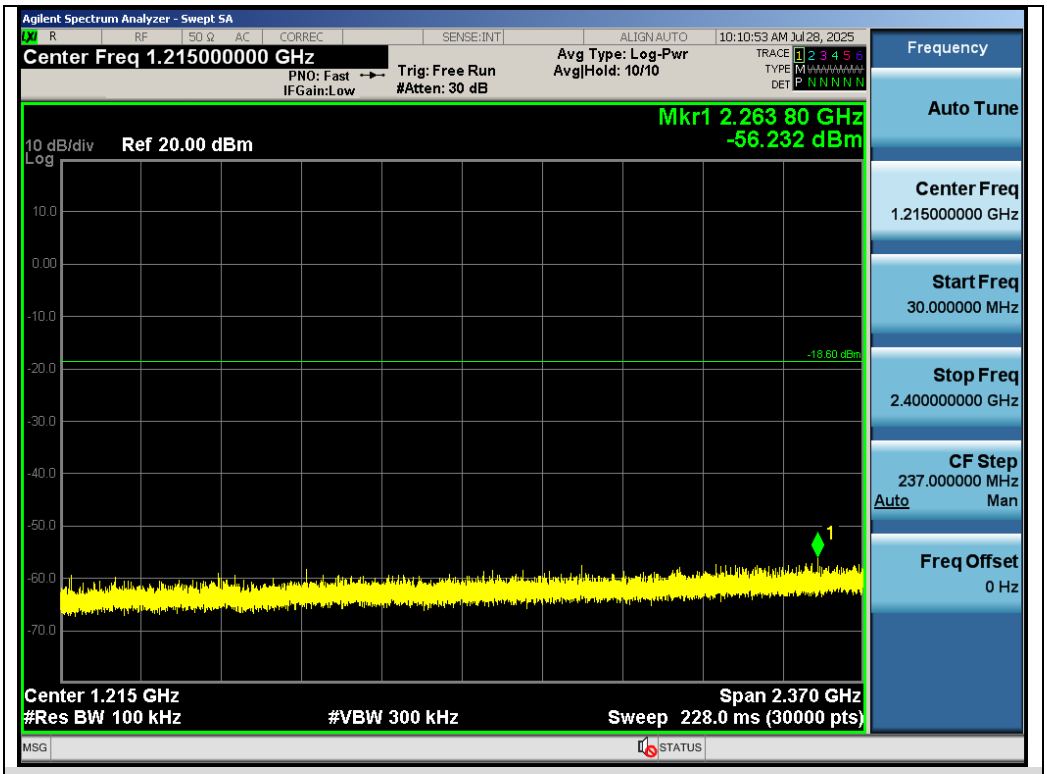


Test_Graph_LE2M_ANT1_2440_2Mbps_Lower Band Emissions

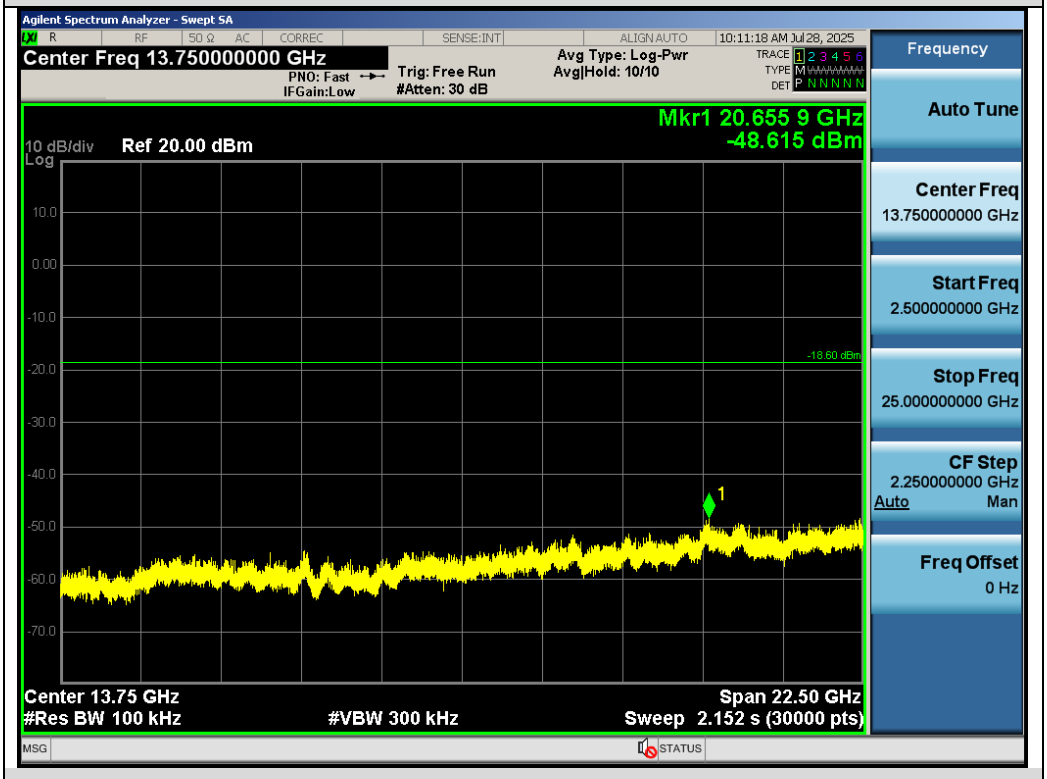


Test_Graph_LE2M_ANT1_2440_2Mbps_Higher Band Emissions

Test_Graph_LE2M_ANT1_2478_2Mbps_Reference Level

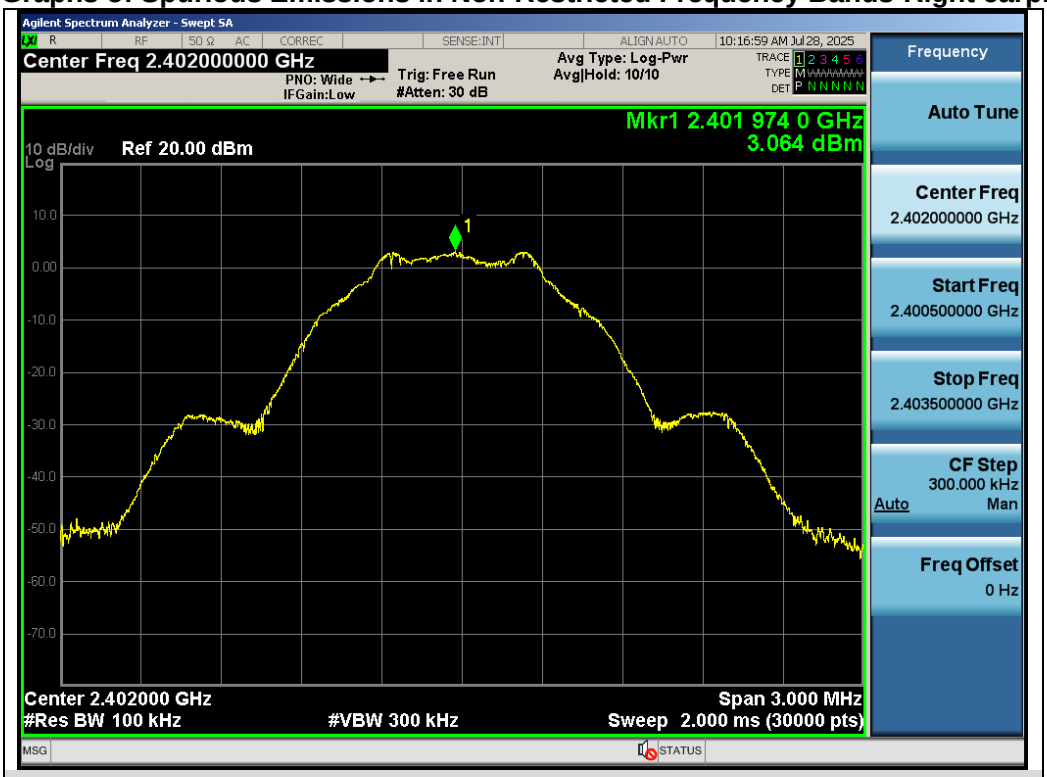


Test_Graph_LE2M_ANT1_2478_2Mbps_Lower Band Emissions

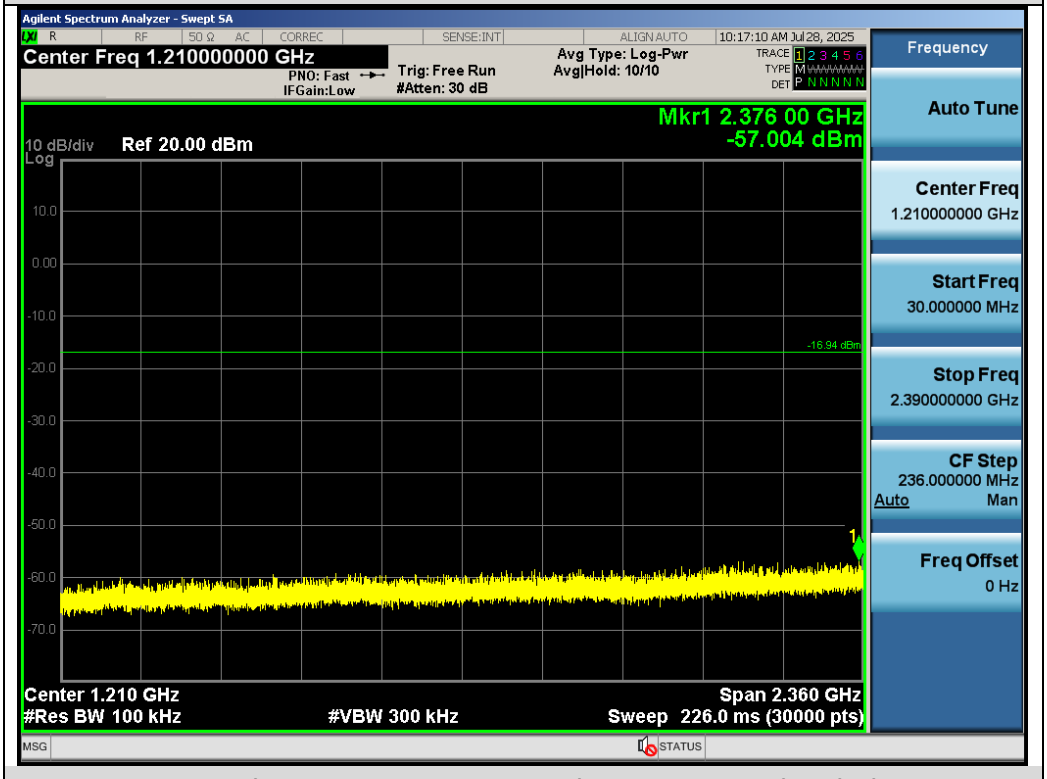


Test_Graph_LE2M_ANT1_2478_2Mbps_Higher Band Emissions

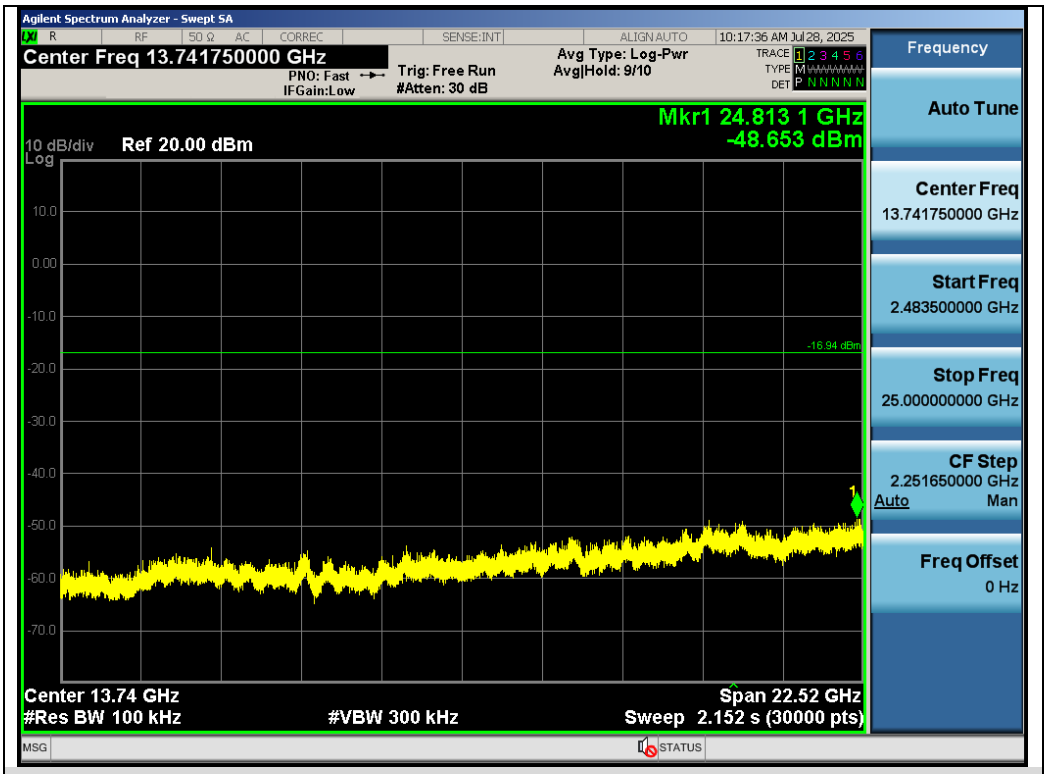
Test Graphs of Spurious Emissions in Non-Restricted Frequency Bands-Right earphone



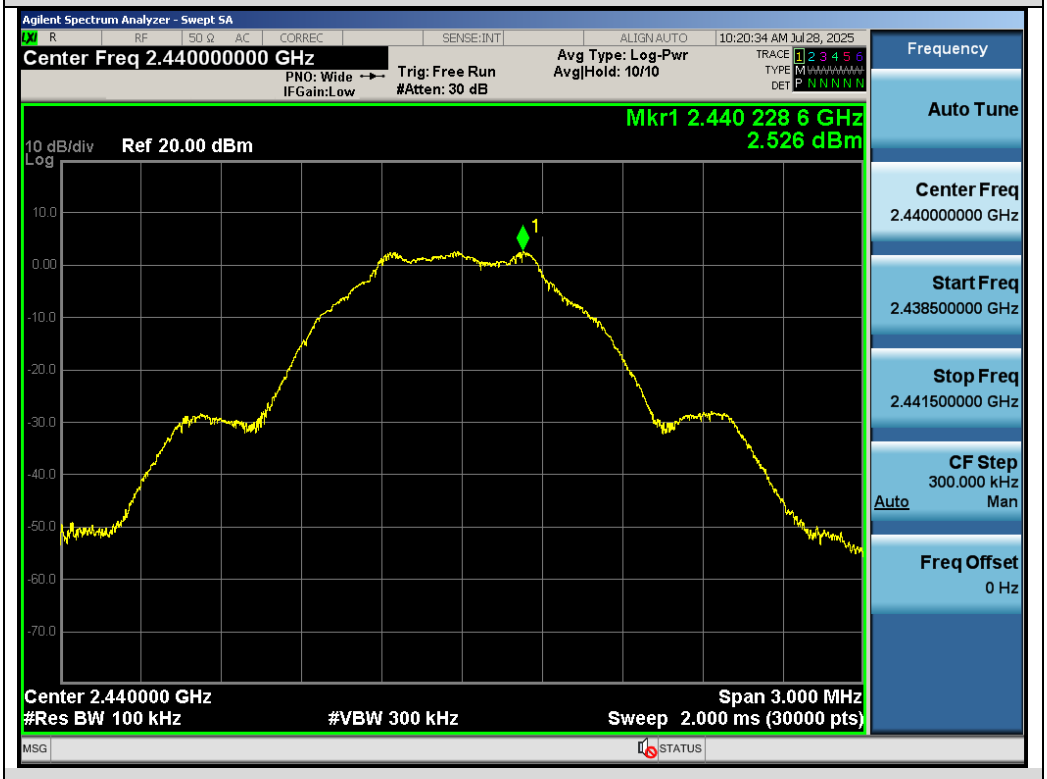
Test_Graph_LE1M_ANT1_2402_1Mbps_Reference Level



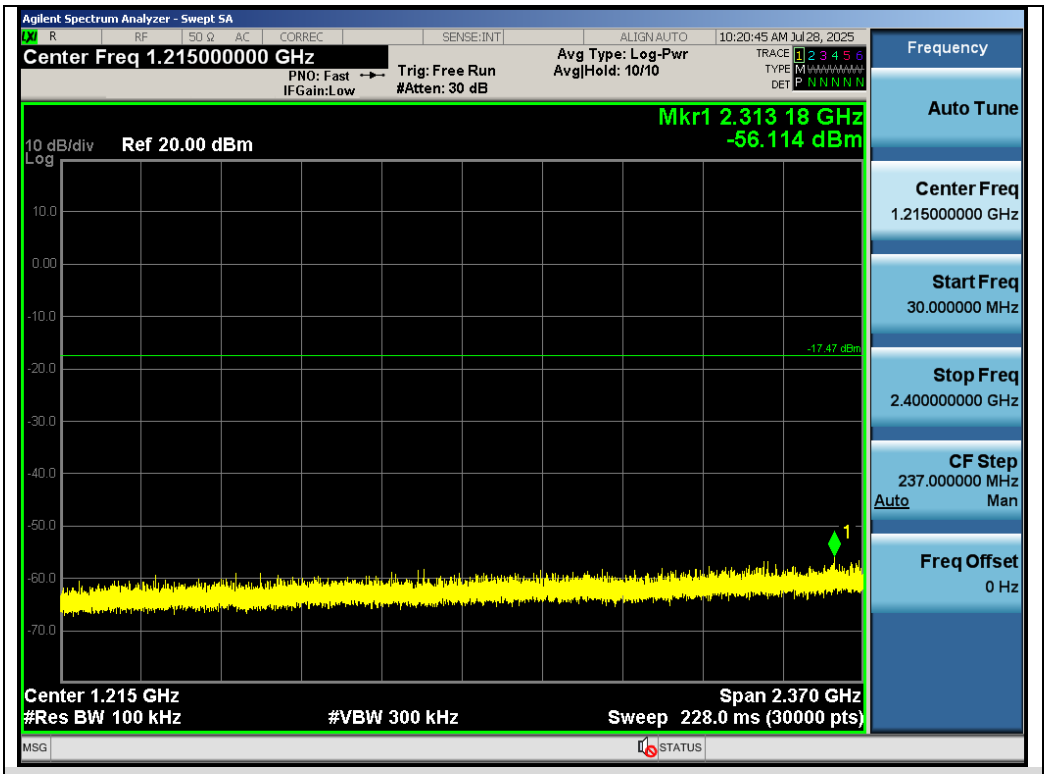
Test_Graph_LE1M_ANT1_2402_1Mbps_Lower Band Emissions



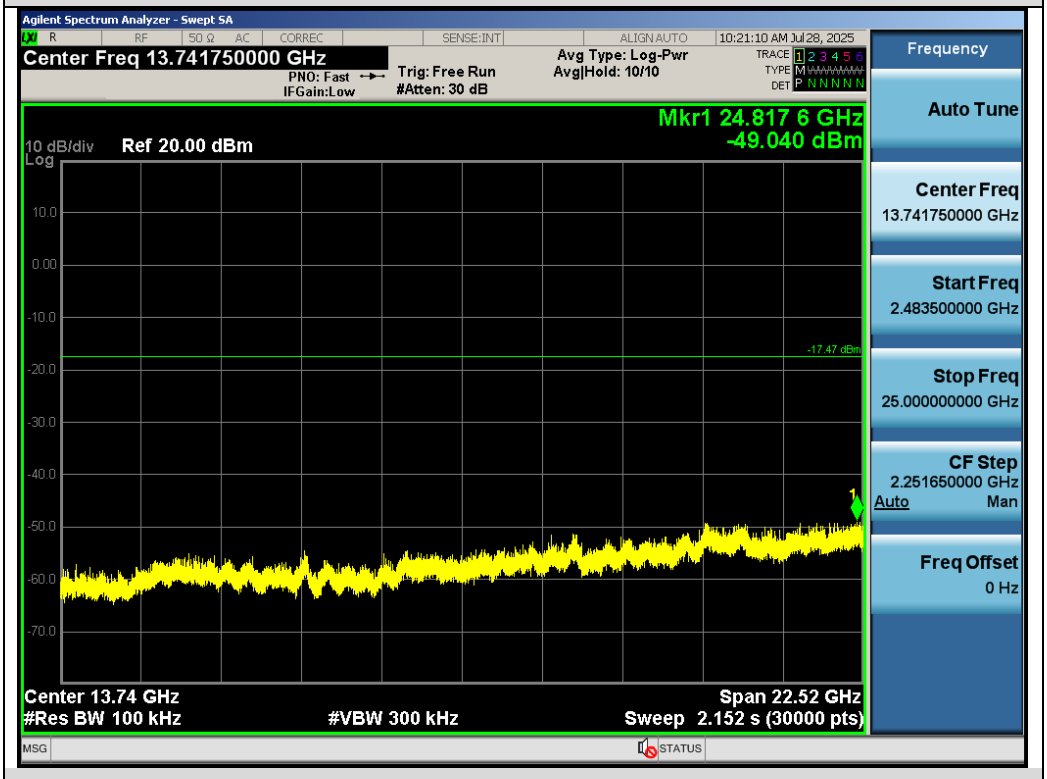
Test_Graph_LE1M_ANT1_2402_1Mbps_Higher Band Emissions



Test_Graph_LE1M_ANT1_2440_1Mbps_Reference Level

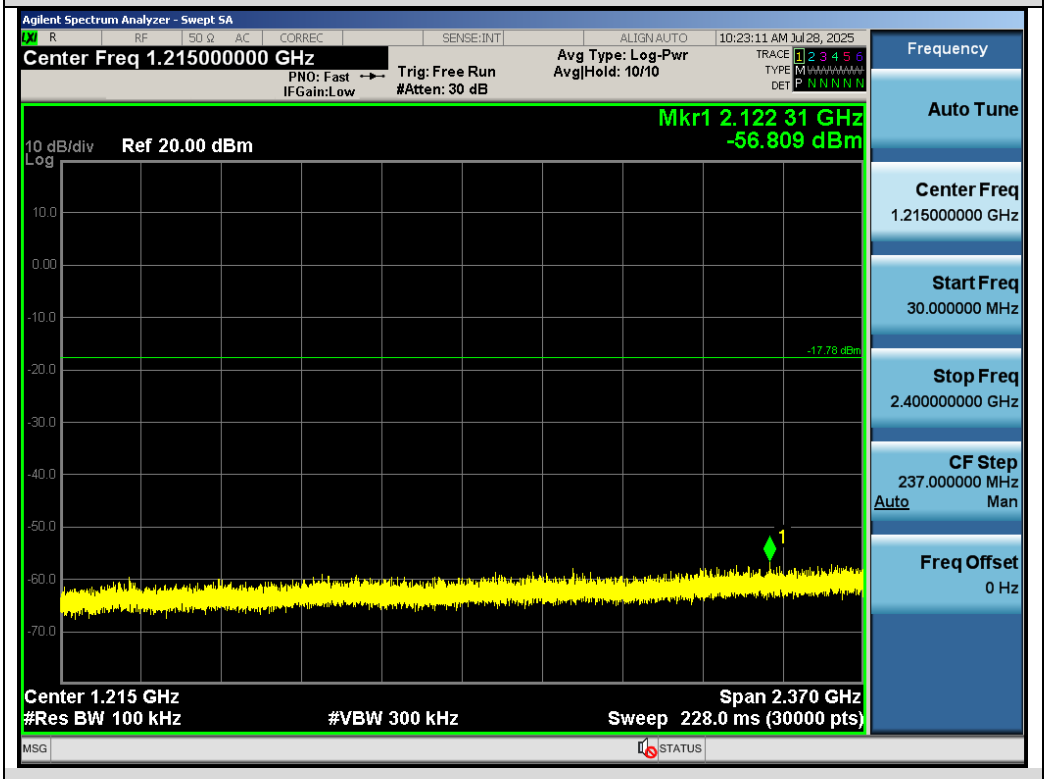


Test_Graph_LE1M_ANT1_2440_1Mbps_Lower Band Emissions

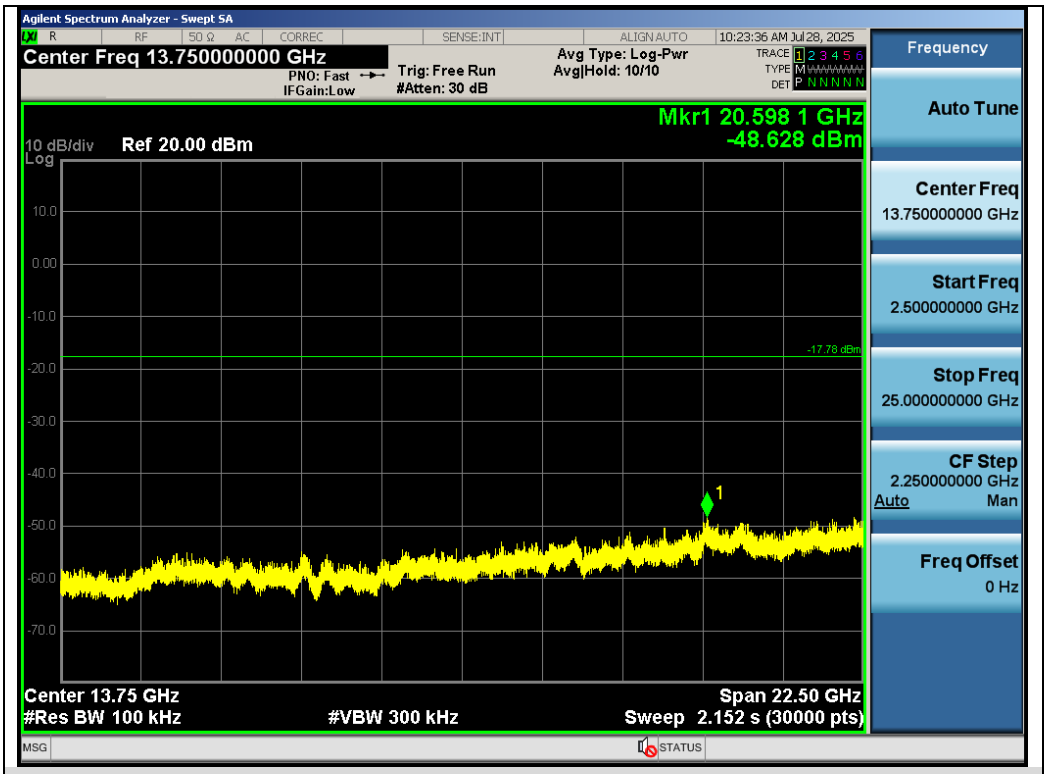


Test_Graph_LE1M_ANT1_2440_1Mbps_Higher Band Emissions

Test_Graph_LE1M_ANT1_2480_1Mbps_Reference Level

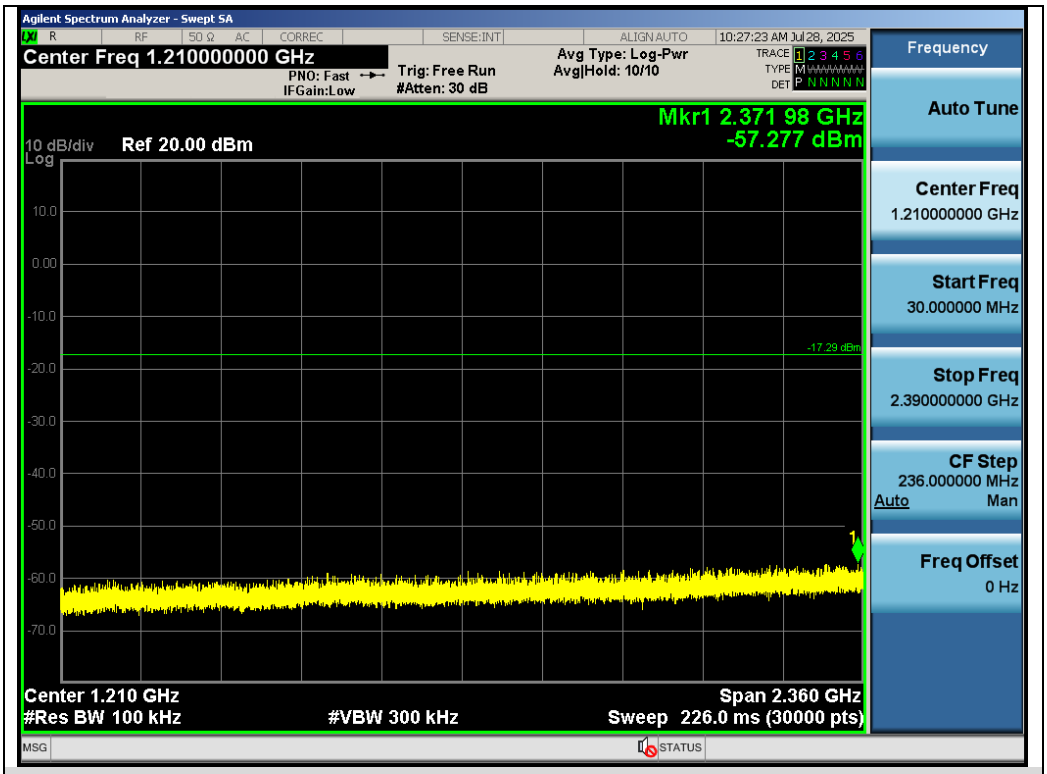


Test_Graph_LE1M_ANT1_2480_1Mbps_Lower Band Emissions

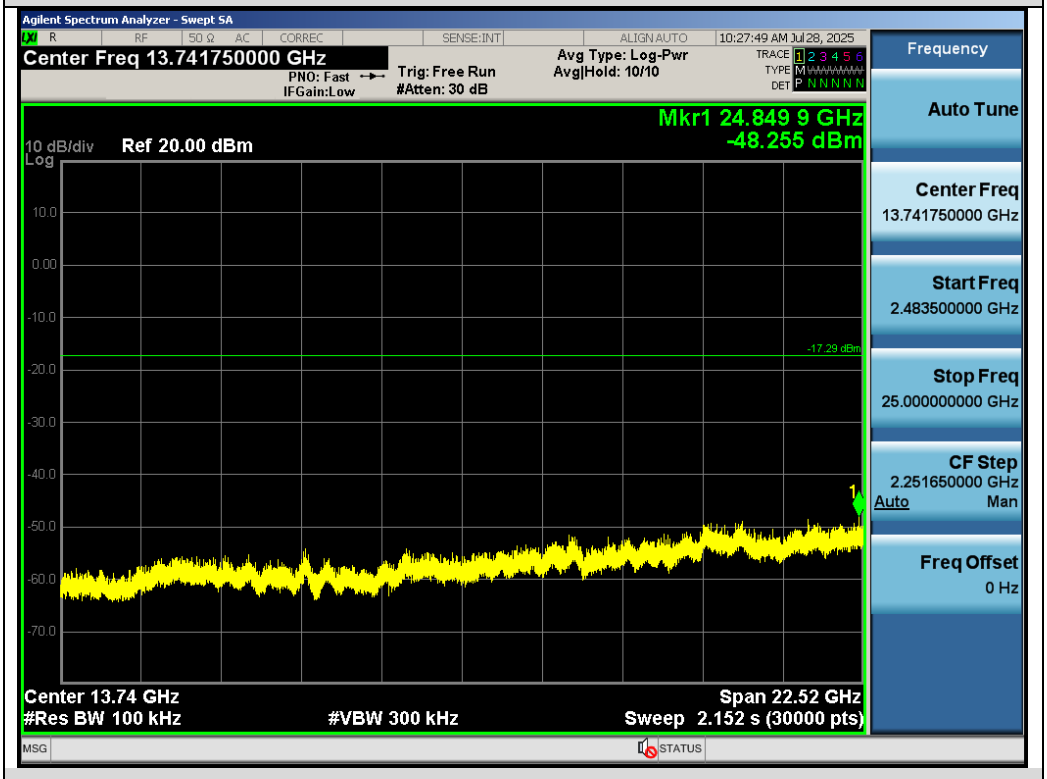


Test_Graph_LE1M_ANT1_2480_1Mbps_Higher Band Emissions

Test_Graph_LE2M_ANT1_2404_2Mbps_Reference Level

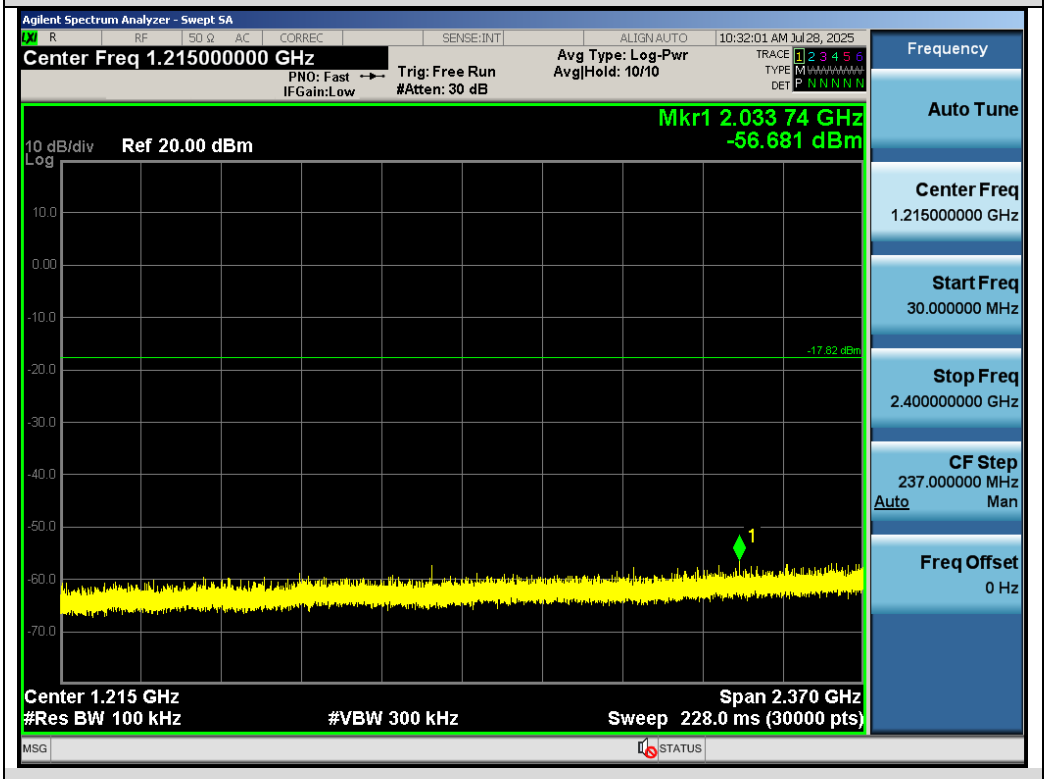


Test_Graph_LE2M_ANT1_2404_2Mbps_Lower Band Emissions

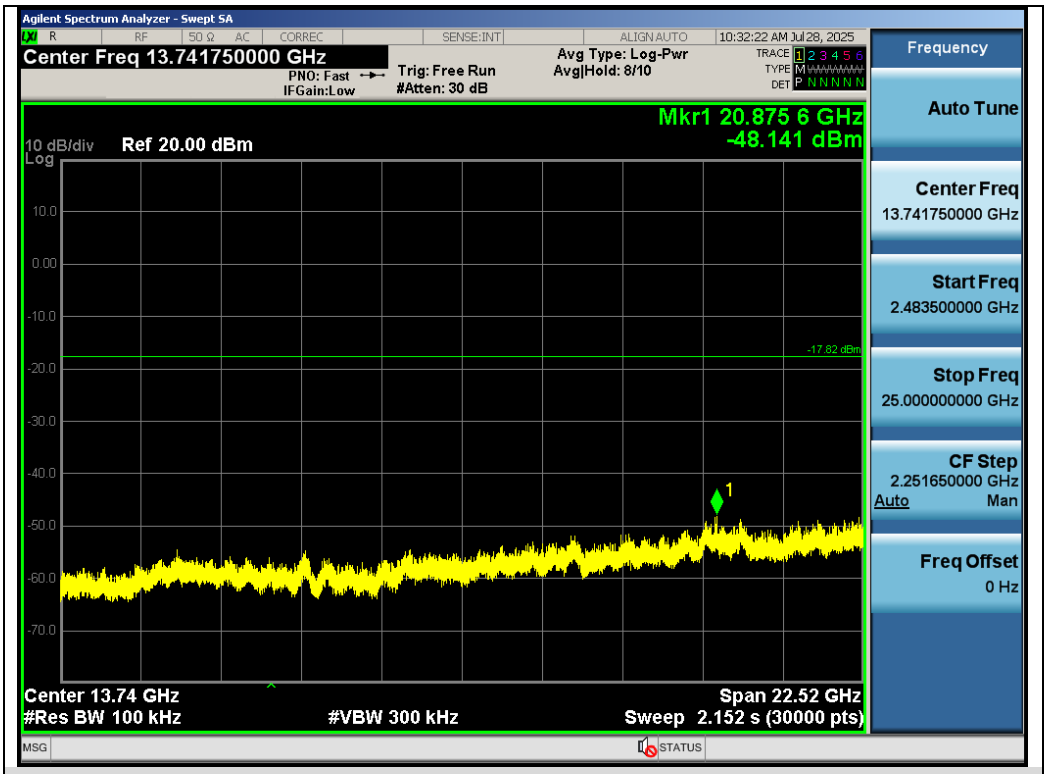


Test_Graph_LE2M_ANT1_2404_2Mbps_Higher Band Emissions

Test_Graph_LE2M_ANT1_2440_2Mbps_Reference Level

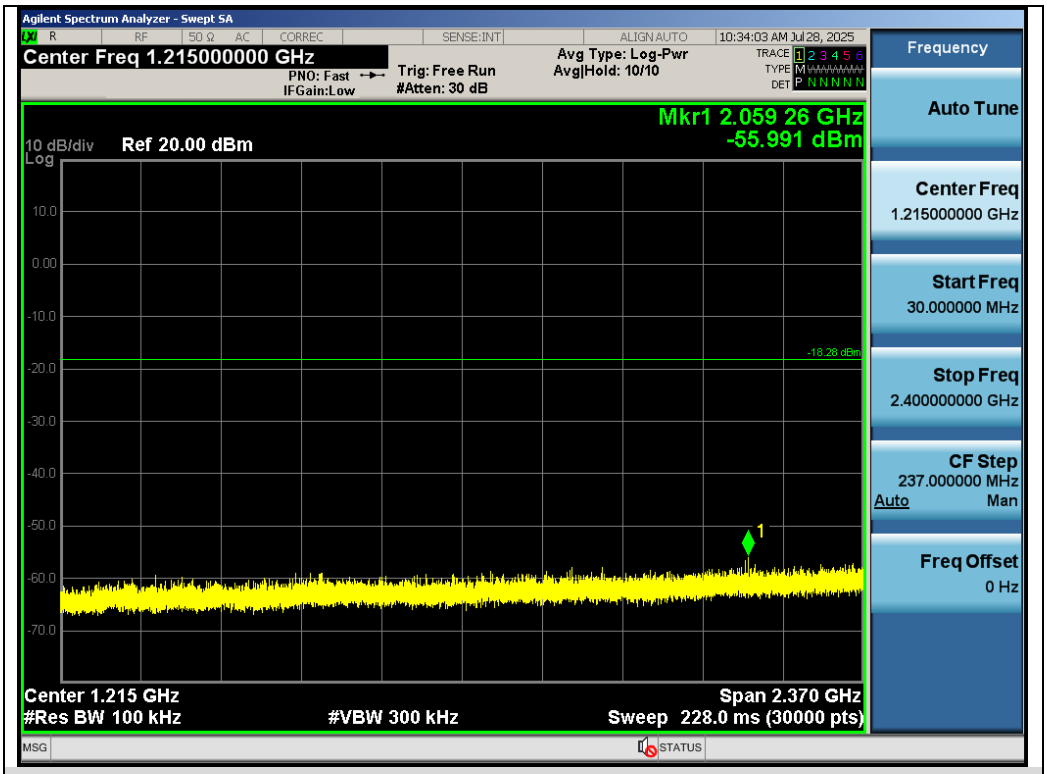


Test_Graph_LE2M_ANT1_2440_2Mbps_Lower Band Emissions

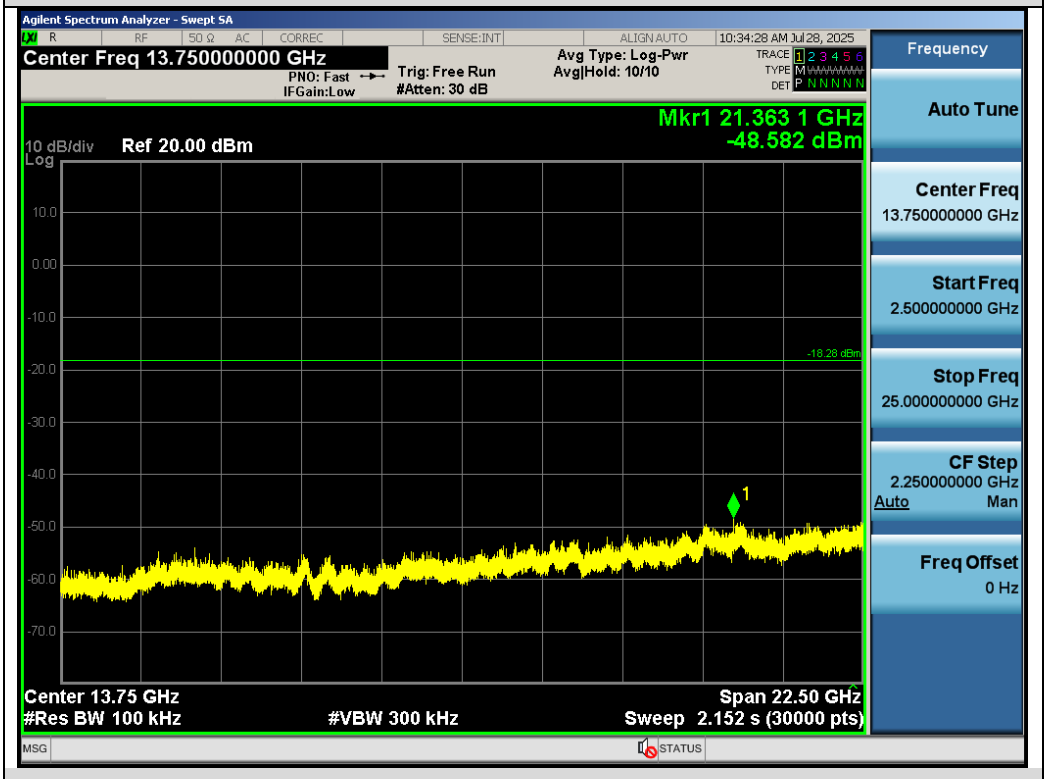


Test_Graph_LE2M_ANT1_2440_2Mbps_Higher Band Emissions

Test_Graph_LE2M_ANT1_2478_2Mbps_Reference Level

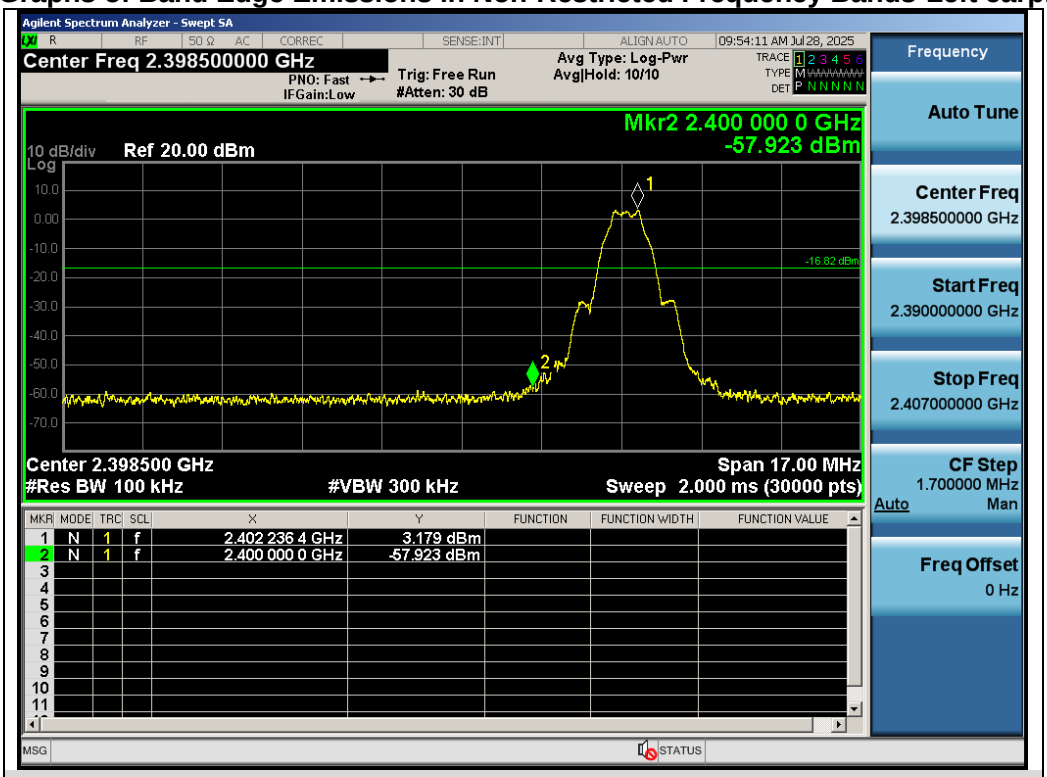


Test_Graph_LE2M_ANT1_2478_2Mbps_Lower Band Emissions

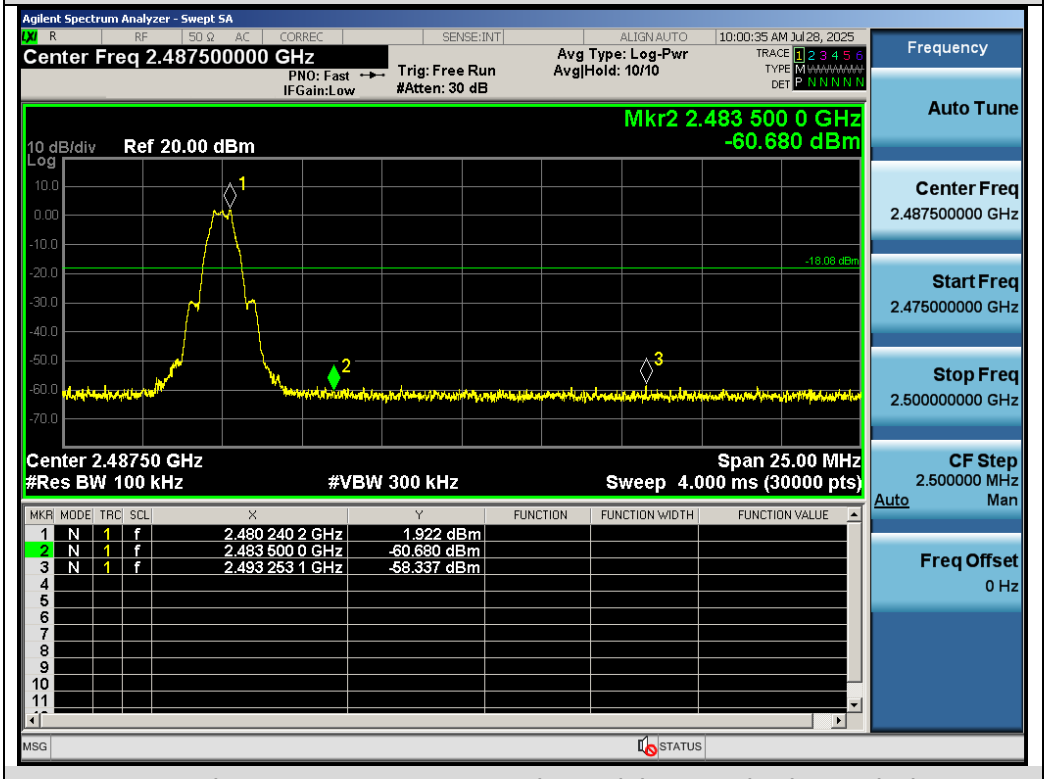


Test_Graph_LE2M_ANT1_2478_2Mbps_Higher Band Emissions

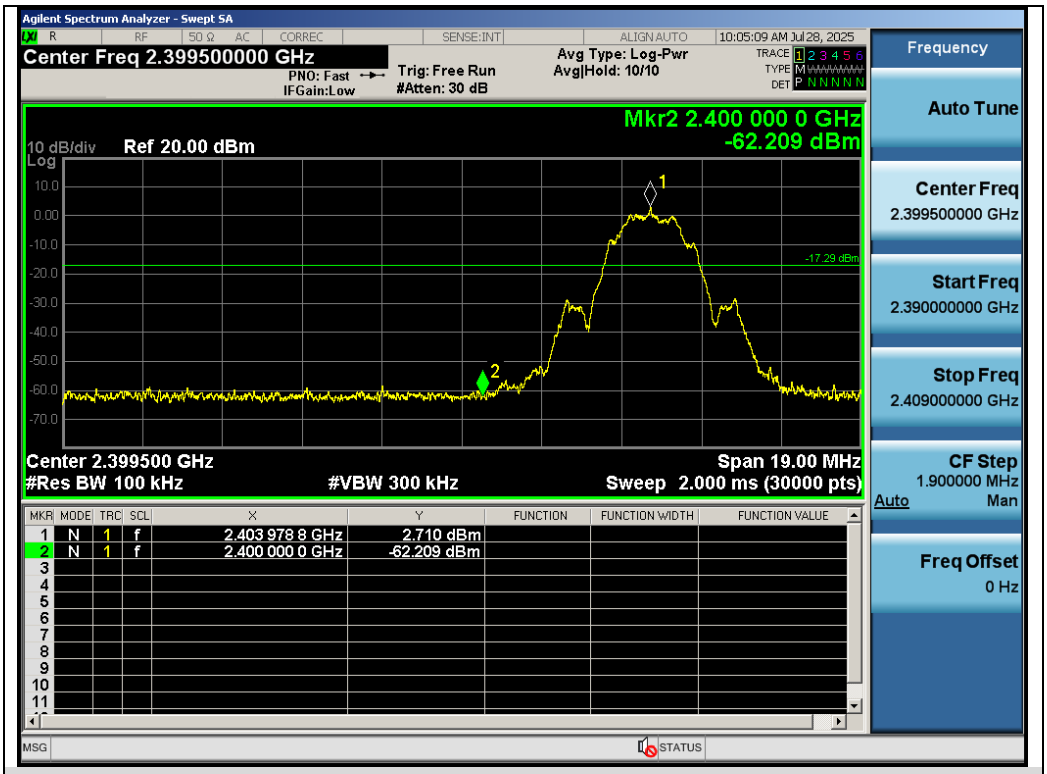
Test Graphs of Band Edge Emissions in Non-Restricted Frequency Bands-Left earphone



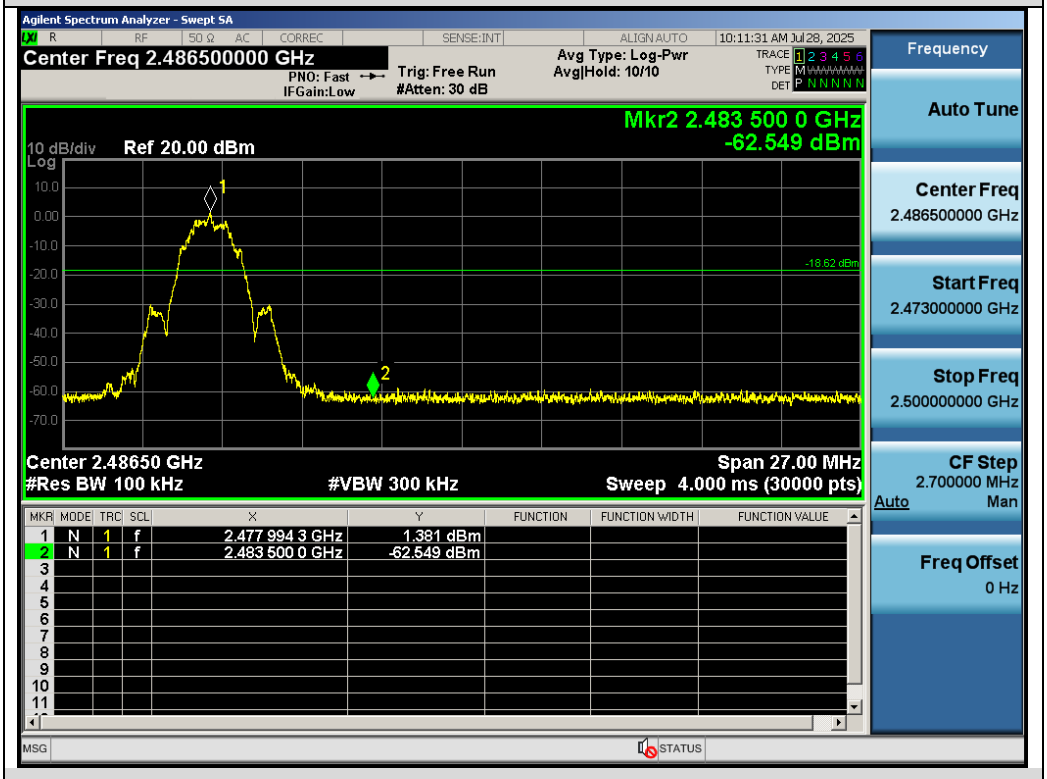
Test_Graph_LE1M_ANT1_2402_1Mbps_Lower Band Edge Emissions



Test_Graph_LE1M_ANT1_2480_1Mbps_Higher Band Edge Emissions

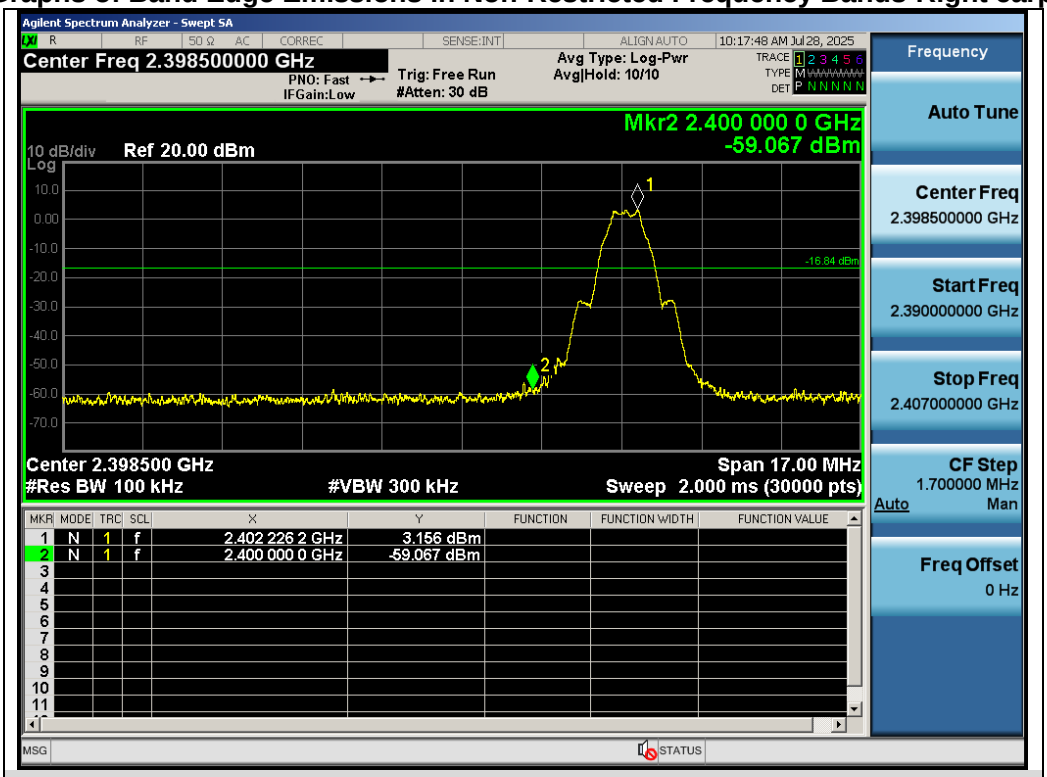


Test_Graph_LE2M_ANT1_2404_2Mbps_Lower Band Edge Emissions

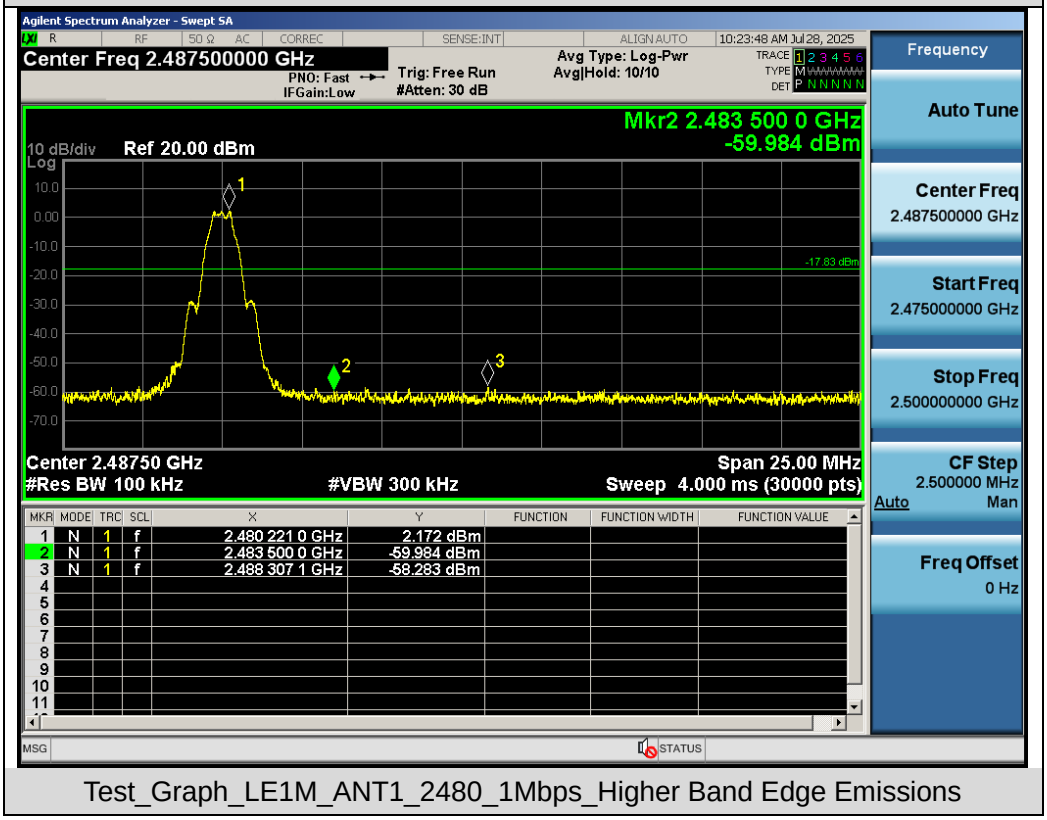


Test_Graph_LE2M_ANT1_2478_2Mbps_Higher Band Edge Emissions

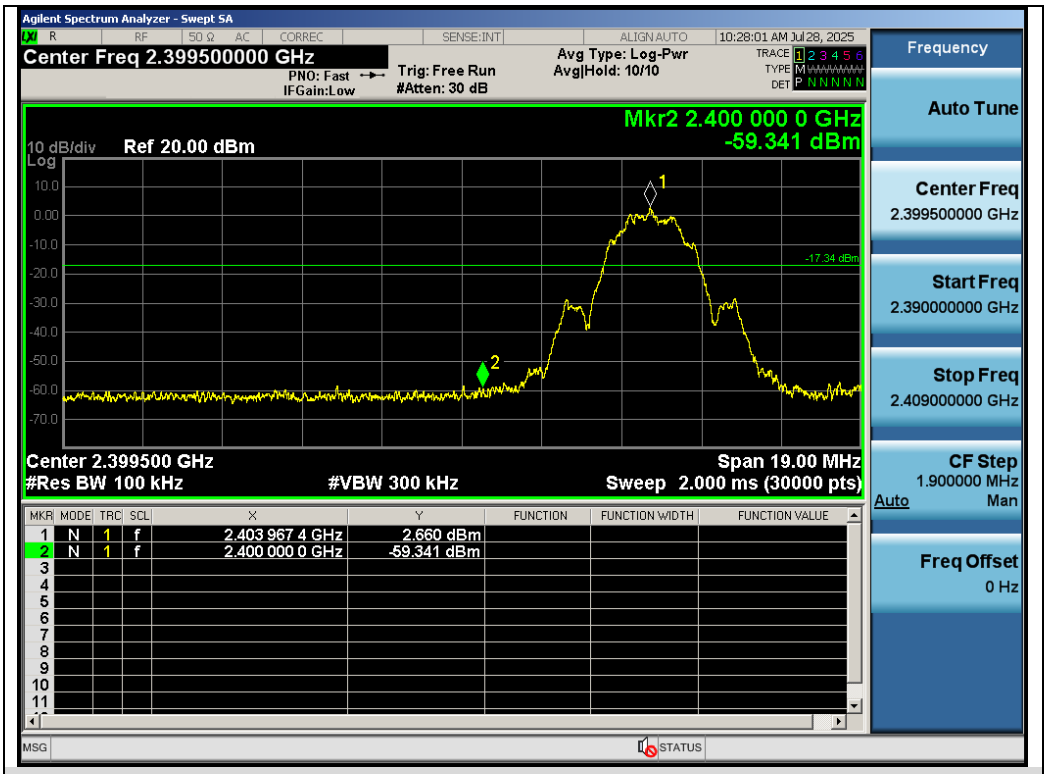
Test Graphs of Band Edge Emissions in Non-Restricted Frequency Bands-Right earphone



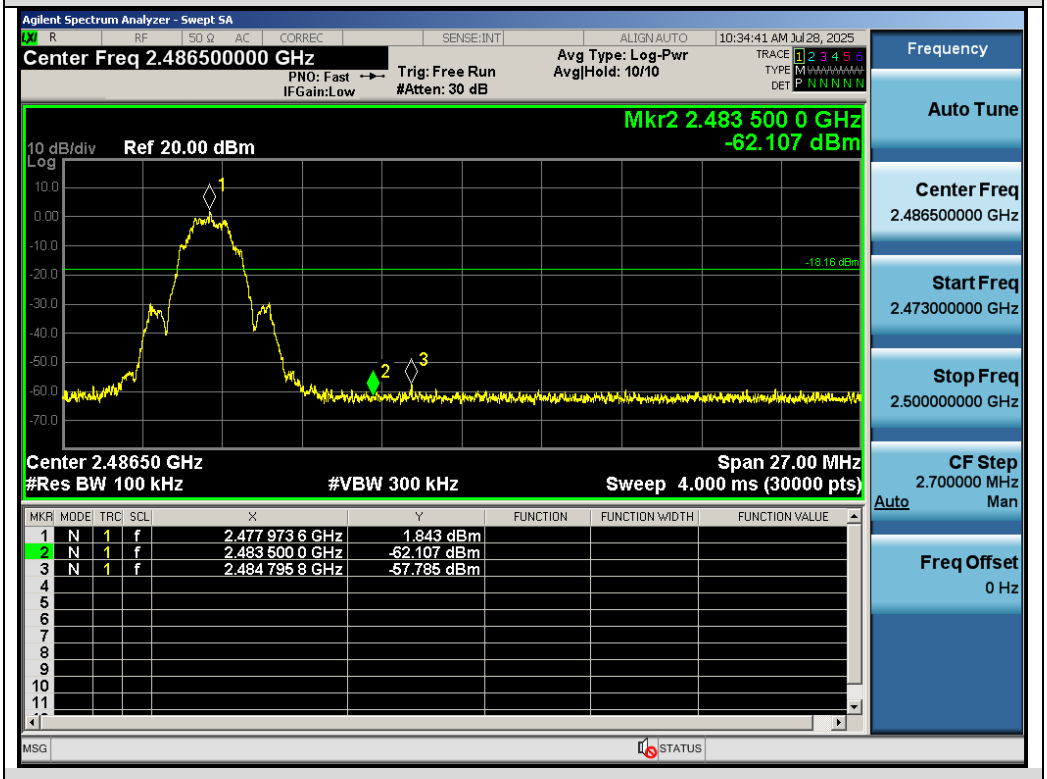
Test_Graph_LE1M_ANT1_2402_1Mbps_Lower Band Edge Emissions



Test_Graph_LE1M_ANT1_2480_1Mbps_Higher Band Edge Emissions



Test_Graph_LE2M_ANT1_2404_2Mbps_Lower Band Edge Emissions



Test_Graph_LE2M_ANT1_2478_2Mbps_Higher Band Edge Emissions

11. Radiated Spurious Emission

11.1 Measurement Limit

- FCC Part 15.209 Limit in the below table to be followed

Frequencies (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009~0.490	2400/F(kHz)	300
0.490~1.705	24000/F(kHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
Above 960	500	3

Note: All modes were tested for restricted band radiated emission, the test records reported below are the worst result compared to other modes.

11.2 Measurement Procedure

1. The EUT was placed on the top of the turntable 0.8 or 1.5 meter above ground. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turntable.
2. Power on the EUT and all the supporting units. The turntable was rotated by 360 degrees to determine the position of the highest radiation.
3. The height of the broadband receiving antenna was varied between one meter and four meters above ground to find the maximum emissions field strength of both horizontal and vertical polarization.
4. For each suspected emission, the antenna tower was scan (from 1 M to 4 M) and then the turntable was rotated (from 0 degree to 360 degrees) to find the maximum reading.
5. Set the test-receiver system to Peak or CISPR quasi-peak Detect Function with specified bandwidth under Maximum Hold Mode.
6. For emissions above 1GHz, use 1MHz RBW and 3MHz VBW for peak reading. Place the measurement antenna away from each area of the EUT determined to be a source of emissions at the specified measurement distance, while keeping the measurement antenna aimed at the source of emissions at each frequency of significant emissions, with polarization oriented for maximum response. The measurement antenna may have to be higher or lower than the EUT, depending on the radiation pattern of the emission and staying aimed at the emission source for receiving the maximum signal. The final measurement antenna elevation shall be that which maximizes the emissions. The measurement antenna elevation for maximum emissions shall be restricted to a range of heights of from 1 m to 4 m above the ground or reference ground plane.
7. When the radiated emissions limits are expressed in terms of the average value of the emissions, and pulsed operation is employed, the measurement field strength shall be determined by averaging over one complete pulse train, including blanking intervals, as long as the pulse train does not exceed 0.1 seconds.

8. As an alternative (provided the transmitter operates for longer than 0.1 seconds) or in cases where the pulse train exceeds 0.1 seconds, the measured field strength shall be determined from the average absolute voltage during a 0.1 second interval during which the field strength is at its maximum values.
9. If the emissions level of the EUT in peak mode was 3 dB lower than the average limit specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions which do not have 3 dB margin will be repeated one by one using the quasi-peak method for below 1GHz.
10. For testing above 1GHz, the emissions level of the EUT in peak mode was lower than average limit (that means the emissions level in peak mode also complies with the limit in average mode), then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.
11. In case the emission is lower than 30MHz, loop antenna has to be used for measurement and the recorded data should be QP measured by receiver. High - Low scan is not required in this case.

The following table is the setting of spectrum analyzer and receiver.

Spectrum Parameter	Setting
Start ~Stop Frequency	9kHz~150kHz/RB 200Hz for QP
Start ~Stop Frequency	150kHz~30MHz/RB 9kHz for QP
Start ~Stop Frequency	30MHz~1000MHz/RB 120kHz for QP
Start ~Stop Frequency	1GHz~26.5GHz 1MHz/3MHz for Peak, 1MHz/3MHz for Average

Receiver Parameter	Setting
Start ~Stop Frequency	9kHz~150kHz/RB 200Hz for QP
Start ~Stop Frequency	150kHz~30MHz/RB 9kHz for QP
Start ~Stop Frequency	30MHz~1000MHz/RB 120kHz for QP

- **Quasi-Peak Measurements below 1GHz**

1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. Span was set greater than 1MHz
3. RBW = as shown in the table above
4. Detector = CISPR quasi-peak
5. Sweep time = auto couple
6. Trace was allowed to stabilize

- **Peak Measurements above 1GHz**

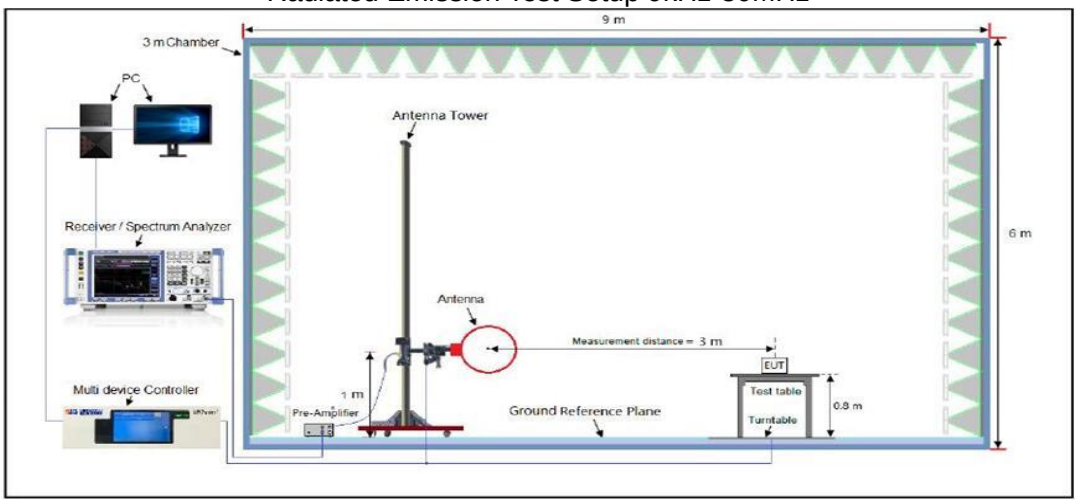
1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW = 3MHz
4. Detector = peak
5. Sweep time = auto couple
6. Trace mode = max hold
7. Trace was allowed to stabilize

- **Average Measurements above 1GHz**

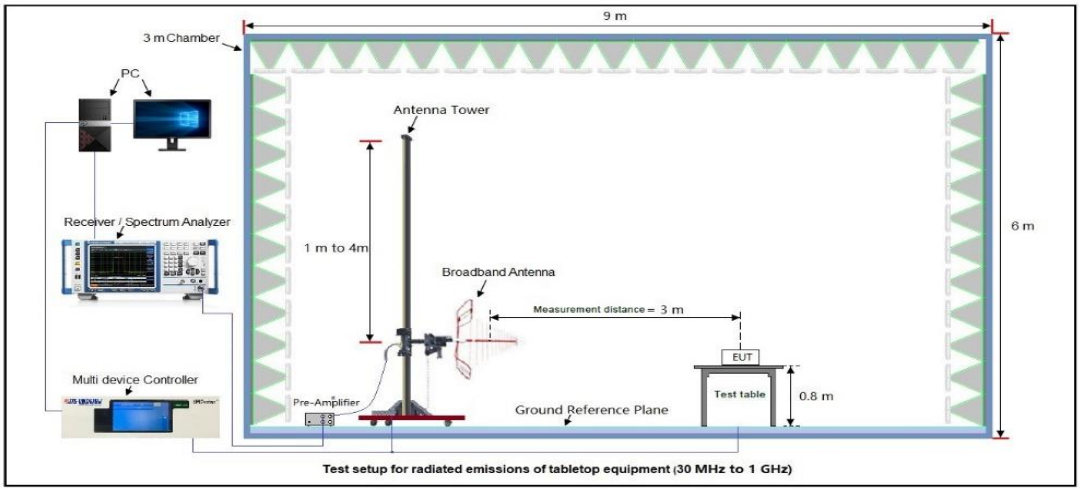
1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW ≥ [3 × RBW]
4. Detector = Power averaging (rms)
5. Averaging type = power (i.e., rms)
6. Sweep time = auto
7. Perform a trace average of at least 100 traces.
8. The applicable correction factor is [10*log (1 / D)], where D is the duty cycle. The factor had been edited in the “Input Correction” of the Spectrum Analyzer.

11.3 Measurement Setup (Block Diagram of Configuration)

Radiated Emission Test Setup 9kHz-30MHz

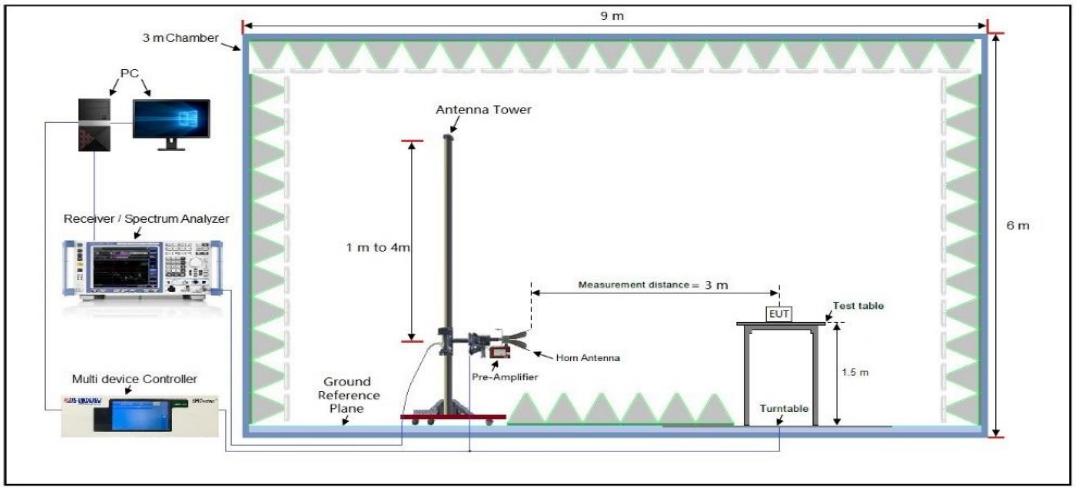


Radiated Emission Test Setup 30MHz-1000MHz



Test setup for radiated emissions of tabletop equipment (30 MHz to 1 GHz)

Radiated Emission Test Setup Above 1000MHz

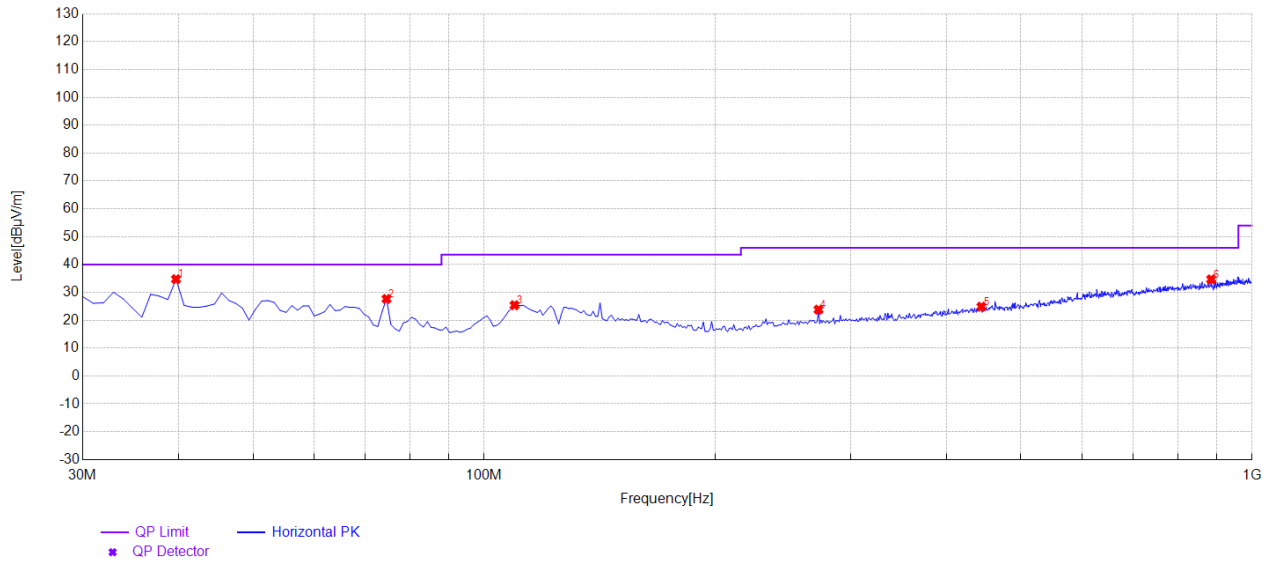


11.4 Measurement Result

Radiated Emission Below 30MHz

The amplitude of spurious emissions from 9kHz to 30MHz which are attenuated more than 20 dB below the permissible value need not be reported.

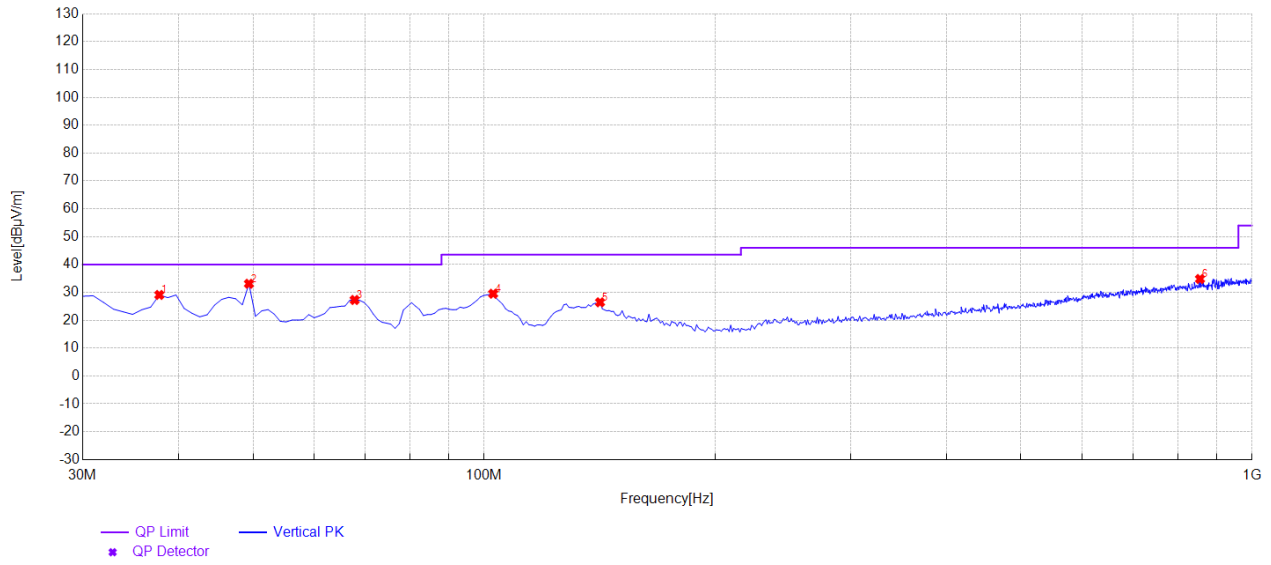
Radiated Emission Test Results at 30MHz-1GHz			
EUT Name	TWS Bluetooth Earphone	**Model Name**	FI-TODPLTW
Temperature	22.4℃	**Relative Humidity**	56.3%
Pressure	960hPa	**Test Voltage**	DC 3.85V by battery
Test Mode	Mode 1	**Antenna Polarity**	Horizontal



Final Data List

NO.	Freq. [MHz]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	39.7	34.72	14.52	40.00	5.28	100	160	Horizontal
2	74.62	27.64	11.28	40.00	12.36	100	170	Horizontal
3	109.54	25.38	12.62	43.50	18.12	100	90	Horizontal
4	272.5	23.79	14.97	46.00	22.21	100	220	Horizontal
5	444.19	24.86	19.86	46.00	21.14	100	160	Horizontal
6	884.57	34.68	28.14	46.00	11.32	100	140	Horizontal

Radiated Emission Test Results at 30MHz-1GHz			
EUT Name	TWS Bluetooth Earphone	**Model Name**	FI-TODPLTW
Temperature	22.4℃	**Relative Humidity**	56.3%
Pressure	960hPa	**Test Voltage**	DC 3.85V by battery
Test Mode	Mode 1	**Antenna Polarity**	Vertical



Final Data List

NO.	Freq. [MHz]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	37.76	29.08	14.39	40.00	10.92	100	150	Vertical
2	49.4	33.09	14.31	40.00	6.91	100	100	Vertical
3	67.83	27.27	12.30	40.00	12.73	100	90	Vertical
4	102.75	29.51	12.00	43.50	13.99	100	200	Vertical
5	141.55	26.43	15.11	43.50	17.07	100	110	Vertical
6	855.47	34.80	27.66	46.00	11.20	100	120	Vertical

RESULT: PASS

Note: 1. Factor=Antenna Factor + Cable loss - Pre-amplifier, Margin=Measurement-Limit.

2. All test modes had been pre-tested. The mode 1 is the worst case and recorded in the report.

Radiated Emissions Test Results for Above 1GHz-Left earphone

EUT Name	TWS Bluetooth Earphone	**Model Name**	FI-TODPLTW
Temperature	22.4℃	**Relative Humidity**	56.3%
Pressure	960hPa	**Test Voltage**	DC 3.85V by battery
Test Mode	Mode 1	**Antenna Polarity**	Horizontal

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Value Type
4804.000	46.84	0.08	46.92	74	-27.08	peak
4804.000	37.04	0.08	37.12	54	-16.88	AVG
7206.000	41.32	2.21	43.53	74	-30.47	peak
7206.000	32.13	2.21	34.34	54	-19.66	AVG

Remark:
Factor = Antenna Factor + Cable Loss – Pre-amplifier.

EUT Name	TWS Bluetooth Earphone	**Model Name**	FI-TODPLTW
Temperature	22.4℃	**Relative Humidity**	56.3%
Pressure	960hPa	**Test Voltage**	DC 3.85V by battery
Test Mode	Mode 1	**Antenna Polarity**	Vertical

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Value Type
4804.000	46.69	0.08	46.77	74	-27.23	peak
4804.000	37.95	0.08	38.03	54	-15.97	AVG
7206.000	41.71	2.21	43.92	74	-30.08	peak
7206.000	32.76	2.21	34.97	54	-19.03	AVG

Remark:
Factor = Antenna Factor + Cable Loss – Pre-amplifier.

RESULT: PASS

Radiated Emissions Test Results for Above 1GHz-Left earphone

EUT Name	TWS Bluetooth Earphone	**Model Name**	FI-TODPLTW
Temperature	22.4℃	**Relative Humidity**	56.3%
Pressure	960hPa	**Test Voltage**	DC 3.85V by battery
Test Mode	Mode 2	**Antenna Polarity**	Horizontal

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Value Type
4880.000	46.22	0.08	46.30	74	-27.70	peak
4880.000	37.58	0.08	37.66	54	-16.34	AVG
7320.000	41.94	2.21	44.15	74	-29.85	peak
7320.000	32.34	2.21	34.55	54	-19.45	AVG

Remark:
Factor = Antenna Factor + Cable Loss – Pre-amplifier.

EUT Name	TWS Bluetooth Earphone	**Model Name**	FI-TODPLTW
Temperature	22.4℃	**Relative Humidity**	56.3%
Pressure	960hPa	**Test Voltage**	DC 3.85V by battery
Test Mode	Mode 2	**Antenna Polarity**	Vertical

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Value Type
4880.000	46.30	0.08	46.38	74	-27.62	peak
4880.000	37.46	0.08	37.54	54	-16.46	AVG
7320.000	41.79	2.21	44.00	74	-30.00	peak
7320.000	32.62	2.21	34.83	54	-19.17	AVG

Remark:
Factor = Antenna Factor + Cable Loss – Pre-amplifier.

RESULT: Pass

Radiated Emissions Test Results for Above 1GHz-Left earphone

EUT Name	TWS Bluetooth Earphone	**Model Name**	FI-TODPLTW
Temperature	22.4℃	**Relative Humidity**	56.3%
Pressure	960hPa	**Test Voltage**	DC 3.85V by battery
Test Mode	Mode 3	**Antenna Polarity**	Horizontal

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Value Type
4960.000	46.17	0.08	46.25	74	-27.75	peak
4960.000	37.41	0.08	37.49	54	-16.51	AVG
7440.000	41.60	2.21	43.81	74	-30.19	peak
7440.000	32.91	2.21	35.12	54	-18.88	AVG

Remark:
Factor = Antenna Factor + Cable Loss – Pre-amplifier.

EUT Name	TWS Bluetooth Earphone	**Model Name**	FI-TODPLTW
Temperature	22.4℃	**Relative Humidity**	56.3%
Pressure	960hPa	**Test Voltage**	DC 3.85V by battery
Test Mode	Mode 3	**Antenna Polarity**	Vertical

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Value Type
4960.000	46.44	0.08	46.52	74	-27.48	peak
4960.000	37.90	0.08	37.98	54	-16.02	AVG
7440.000	41.64	2.21	43.85	74	-30.15	peak
7440.000	32.07	2.21	34.28	54	-19.72	AVG

Remark:
Factor = Antenna Factor + Cable Loss – Pre-amplifier.

RESULT: Pass

Radiated Emissions Test Results for Above 1GHz-Left earphone

EUT Name	TWS Bluetooth Earphone	**Model Name**	FI-TODPLTW
Temperature	22.4℃	**Relative Humidity**	56.3%
Pressure	960hPa	**Test Voltage**	DC 3.85V by battery
Test Mode	Mode 4	**Antenna Polarity**	Horizontal

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Value Type
4808.000	46.38	0.08	46.46	74	-27.54	peak
4808.000	37.33	0.08	37.41	54	-16.59	AVG
7212.000	41.52	2.21	43.73	74	-30.27	peak
7212.000	32.74	2.21	34.95	54	-19.05	AVG

Remark:
Factor = Antenna Factor + Cable Loss – Pre-amplifier.

EUT Name	TWS Bluetooth Earphone	**Model Name**	FI-TODPLTW
Temperature	22.4℃	**Relative Humidity**	56.3%
Pressure	960hPa	**Test Voltage**	DC 3.85V by battery
Test Mode	Mode 4	**Antenna Polarity**	Vertical

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Value Type
4808.000	46.02	0.08	46.10	74	-27.90	peak
4808.000	37.18	0.08	37.26	54	-16.74	AVG
7212.000	41.72	2.21	43.93	74	-30.07	peak
7212.000	32.89	2.21	35.10	54	-18.90	AVG

Remark:
Factor = Antenna Factor + Cable Loss – Pre-amplifier.

RESULT: Pass

Radiated Emissions Test Results for Above 1GHz-Left earphone

EUT Name	TWS Bluetooth Earphone	**Model Name**	FI-TODPLTW
Temperature	22.4℃	**Relative Humidity**	56.3%
Pressure	960hPa	**Test Voltage**	DC 3.85V by battery
Test Mode	Mode 5	**Antenna Polarity**	Horizontal

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Value Type
4880.000	46.95	0.08	47.03	74	-26.97	peak
4880.000	37.91	0.08	37.99	54	-16.01	AVG
7320.000	41.12	2.21	43.33	74	-30.67	peak
7320.000	32.20	2.21	34.41	54	-19.59	AVG

Remark:
Factor = Antenna Factor + Cable Loss – Pre-amplifier.

EUT Name	TWS Bluetooth Earphone	**Model Name**	FI-TODPLTW
Temperature	22.4℃	**Relative Humidity**	56.3%
Pressure	960hPa	**Test Voltage**	DC 3.85V by battery
Test Mode	Mode 5	**Antenna Polarity**	Vertical

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Value Type
4880.000	46.22	0.08	46.30	74	-27.70	peak
4880.000	37.56	0.08	37.64	54	-16.36	AVG
7320.000	41.12	2.21	43.33	74	-30.67	peak
7320.000	32.41	2.21	34.62	54	-19.38	AVG

Remark:
Factor = Antenna Factor + Cable Loss – Pre-amplifier.

RESULT: Pass

Radiated Emissions Test Results for Above 1GHz-Left earphone

EUT Name	TWS Bluetooth Earphone	**Model Name**	FI-TODPLTW
Temperature	22.4℃	**Relative Humidity**	56.3%
Pressure	960hPa	**Test Voltage**	DC 3.85V by battery
Test Mode	Mode 6	**Antenna Polarity**	Horizontal

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Value Type
4956.000	46.76	0.08	46.84	74	-27.16	peak
4956.000	37.26	0.08	37.34	54	-16.66	AVG
7434.000	41.21	2.21	43.42	74	-30.58	peak
7434.000	32.49	2.21	34.70	54	-19.30	AVG

Remark:
Factor = Antenna Factor + Cable Loss – Pre-amplifier.

EUT Name	TWS Bluetooth Earphone	**Model Name**	FI-TODPLTW
Temperature	22.4℃	**Relative Humidity**	56.3%
Pressure	960hPa	**Test Voltage**	DC 3.85V by battery
Test Mode	Mode 6	**Antenna Polarity**	Vertical

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Value Type
4956.000	46.14	0.08	46.22	74	-27.78	peak
4956.000	37.88	0.08	37.96	54	-16.04	AVG
7434.000	41.45	2.21	43.66	74	-30.34	peak
7434.000	32.87	2.21	35.08	54	-18.92	AVG

Remark:
Factor = Antenna Factor + Cable Loss – Pre-amplifier.

RESULT: PASS

Note:

1. The amplitude of other spurious emissions from 1G to 25 GHz which are attenuated more than 20 dB below the permissible value need not be reported.
2. Factor = Antenna Factor + Cable loss – Pre-amplifier gain, Margin =Emission Level-Limit.
3. The “Factor” value can be calculated automatically by software of measurement system.

Radiated Emissions Test Results for Above 1GHz-Right earphone

EUT Name	TWS Bluetooth Earphone	**Model Name**	FI-TODPLTW
Temperature	22.4℃	**Relative Humidity**	56.3%
Pressure	960hPa	**Test Voltage**	DC 3.85V by battery
Test Mode	Mode 1	**Antenna Polarity**	Horizontal

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Value Type
4804.000	46.12	0.08	46.20	74	-27.80	peak
4804.000	37.06	0.08	37.14	54	-16.86	AVG
7206.000	41.87	2.21	44.08	74	-29.92	peak
7206.000	33.00	2.21	35.21	54	-18.79	AVG

Remark:
Factor = Antenna Factor + Cable Loss – Pre-amplifier.

EUT Name	TWS Bluetooth Earphone	**Model Name**	FI-TODPLTW
Temperature	22.4℃	**Relative Humidity**	56.3%
Pressure	960hPa	**Test Voltage**	DC 3.85V by battery
Test Mode	Mode 1	**Antenna Polarity**	Vertical

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Value Type
4804.000	46.06	0.08	46.14	74	-27.86	peak
4804.000	37.71	0.08	37.79	54	-16.21	AVG
7206.000	41.36	2.21	43.57	74	-30.43	peak
7206.000	32.17	2.21	34.38	54	-19.62	AVG

Remark:
Factor = Antenna Factor + Cable Loss – Pre-amplifier.

RESULT: PASS