

# FCC Test Report

Report No.: AGC09477240908FR01

FCC ID	:	2AMZY-SHOWOFF
APPLICATION PURPOSE	:	Original Equipment
PRODUCT DESIGNATION	:	ShowOff Wireless earbuds with LCD display
BRAND NAME	:	Origaudio
MODEL NAME	:	98440
APPLICANT	:	HandStandsPromo LLC
DATE OF ISSUE	:	Sep. 19, 2024
STANDARD(S)	:	FCC Part 15 Subpart C §15.247
<b>REPORT VERSION</b>	:	V1.0







# **Report Revise Record**

<b>Report Version</b>	Revise Time	Issued Date	Valid Version	Notes	
V1.0	/	Sep. 19, 2024	Valid	Initial Release	



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# **1. General Information**

Applicant	HandStandsPromo LLC
Address	1770 South 5350 West Suite 100, Salt Lake City, Utah 84104, United States
Manufacturer	Amitec Industrial Limited
Address	1706, Rongchao Building A, Haixiu Road, Bao'An, Shenzhen City, Guangdong Province, China
Factory	Amitec Industrial Limited
Address	1706, Rongchao Building A, Haixiu Road, Bao'An, Shenzhen City, Guangdong Province, China
Product Designation	ShowOff Wireless earbuds with LCD display
Brand Name	Origaudio
Test Model	98440
Series Model(s)	N/A
Difference Description	N/A
Date of receipt of test item	Sep. 11, 2024
Date of Test	Sep. 11, 2024 - Sep. 19, 2024
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

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Sep. 19, 2024

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Sep. 19, 2024

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 Attestation of Global Compliance(Shenzhen)Co., Ltd

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# 2. Product Information

## 2.1 Product Technical Description

Fraguanay Pand	2400MHz-2483.5MHz
Frequency Band	
Operation Frequency Range	2402MHz-2480MHz
Bluetooth Version	V5.4
Modulation Type	BLE GFSK 1Mbps GFSK 2Mbps
Number of channels	40
Carrier Frequency of Each Channel	40 Channels (37 Data channels + 3 advertising channels)
Channel Separation	2 MHz
Maximum Transmitter Power	Bluetooth LE (1Mbps): -0.380dBm Bluetooth LE (2Mbps): -0.465dBm
Hardware Version	V1.0
Software Version	V1.3
Antenna Designation	Chip Antenna
Antenna Gain	1.7dBi
Power Supply	DC 3.7V by battery or DC 5V by adapter
Note: The FLIT comprises left and right cha	annel headsets, both are the same and have been tested, only the test

The EUT comprises left and right channel headsets, both are the same and have been tested, only the test data of right earphone recorded in this report.

# 2.2 Test Frequency List

Frequency Band	Channel Number	Frequency		
	0	2402 MHz		
	1	2404 MHz		
	:	:		
2400~2483.5MHz	19	2440MHz		
	:	:		
	38	2478 MHz		
	39	2480 MHz		
Note: f = 2402 + 2*k MHz, k = 0,, 39 f is the operating frequency (MHz); k is the operating channel.				



# 2.3 Related Submittal(S) / Grant (S)

This submittal(s) (test report) is intended for FCC ID: 2AMZY-SHOWOFF, 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 gain of the antenna is 1.7dBi.



# 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 (°C)	15 - 35
Relative humidity range	20 % - 75 %
Pressure range (kPa)	86 - 106
Power supply	DC 3.7V by battery or DC 5V by adapter

## 3.4 Measurement Uncertainty

The reported uncertainty of measurement  $y \pm U$ , 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	$U_c = \pm 2.9 \text{ dB}$
Uncertainty of Radiated Emission below 1GHz	$U_c = \pm 3.9 \text{ dB}$
Uncertainty of Radiated Emission above 1GHz	$U_c = \pm 4.9 \text{ dB}$
Uncertainty of total RF power, conducted	$U_c = \pm 0.8 \text{ dB}$
Uncertainty of RF power density, conducted	$U_c = \pm 2.6 \text{ dB}$
Uncertainty of spurious emissions, conducted	U <sub>c</sub> = ±2 %
Uncertainty of Occupied Channel Bandwidth	U <sub>c</sub> = ±2 %



## 3.5 List of Equipment Use

• R	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)	
$\square$	AGC-ER-E036	Spectrum Analyzer	Agilent	N9020A	MY49100060	2024-05-24	2025-05-23	
$\boxtimes$	AGC-ER-E062	Power Sensor	Agilent	U2021XA	MY54110007	2024-02-01	2025-01-31	
$\boxtimes$	AGC-ER-E063	Power Sensor	Agilent	U2021XA	MY54110009	2024-02-01	2025-01-31	
$\boxtimes$	AGC-ER-A001	6dB Attenuator	Eeatsheep	LM-XX-6-5W	N/A	2023-09-21	2025-09-20	
$\boxtimes$	AGC-ER-E083	Signal Generator	Agilent	E4421B	US39340815	2024-07-24	2026-07-23	
$\boxtimes$	N/A	RF Connection Cable	N/A	1#	N/A	Each time	N/A	
$\boxtimes$	N/A	RF Connection Cable	N/A	2#	N/A	Each time	N/A	

• F	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	10096	2024-02-01	2025-01-31	
$\boxtimes$	AGC-EM-E116	EMI Test Receiver	R&S	ESCI	100034	2024-05-24	2025-05-23	
$\boxtimes$	AGC-EM-E061	Spectrum Analyzer	Agilent	N9010A	MY53470504	2024-05-28	2025-05-27	
$\boxtimes$	AGC-EM-E086	Loop Antenna	ZHINAN	ZN30900C	18051	2024-03-05	2026-03-04	
$\boxtimes$	AGC-EM-E001	Wideband Antenna	SCHWARZBECK	VULB9168	D69250	2023-05-11	2025-05-10	
	AGC-EM-E029	Broadband Ridged Horn Antenna	ETS	3117	00034609	2024-03-31	2025-03-30	
$\square$	AGC-EM-E082	Horn Antenna	SCHWARZBECK	BBHA 9170	#768	2023-09-24	2025-09-23	
$\boxtimes$	AGC-EM-E146	Pre-amplifier	ETS	3117-PA	00246148	2024-07-24	2026-07-23	
$\boxtimes$	AGC-EM-A119	2.4G Filter	SongYi	N/A	N/A	2024-05-23	2025-05-22	
$\boxtimes$	AGC-EM-A138	6dB Attenuator	Eeatsheep	LM-XX-6-5W	N/A	2023-06-09	2025-06-08	
	AGC-EM-A139	6dB Attenuator	Eeatsheep	LM-XX-6-5W	N/A	2023-06-09	2025-06-08	

• A	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)			
$\boxtimes$	AGC-EM-E045	EMI Test Receiver	R&S	ESPI	101206	2024-05-28	2025-05-27			
$\boxtimes$	AGC-EM-A130	6dB Attenuator	Eeatsheep	LM-XX-6-5W	DC-6GZ	2023-06-09	2025-06-08			
$\square$	AGC-EM-E023	AMN	R&S	100086	ESH2-Z5	2024-05-28	2025-05-27			



Test Software								
Used	Equipment No.	Test Equipment	Manufacturer	Model No.	Version Information			
	AGC-EM-S001	CE Test System	R&S	ES-K1	V1.71			
$\boxtimes$	AGC-EM-S003	RE Test System	FARA	EZ-EMC	VRA-03A			
	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

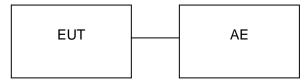
The Transmitter was operated in the normal operating mode. The TX frequency was fixed which was for the purpose of the measurements.

## 4.3 Configuration of Tested System

Radiated Emission Configure:



Conducted Emission Configure:



## 4.4 Equipment Used In Tested System

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

## I Test Accessories Come From The Laboratory

			,					
No.	Equipment	Manufacturer	Model No.	Specification Information	Cable			
1	Control Box	N/A	USB-TTL					
2	Adapter	Huawei	HW-200440C00					
	Test Accessories Come From The Manufacturer							
No	Equipment	Manufacturer	Model No	Specification Information	Cable			

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					
	Data Rate / Modulation				
Test Item	Bluetooth – LE(1Mbps/2Mbps) / GFSK				
	Mode 1: Bluetooth Tx CH00_2402 MHz_1Mbps(Battery powered or AC/DC adapter)				
	Mode 2: Bluetooth Tx CH19_2440 MHz_1Mbps(Battery powered or AC/DC adapter)				
Radiated & Conducted	Mode 3: Bluetooth Tx CH39_2480 MHz_1Mbps(Battery powered or AC/DC adapter)				
Test Cases	Mode 4: Bluetooth Tx CH00_2402 MHz_2Mbps(Battery powered or AC/DC adapter)				
	Mode 5: Bluetooth Tx CH19_2440 MHz_2Mbps(Battery powered or AC/DC adapter)				
	Mode 6: Bluetooth Tx CH39_2480 MHz_2Mbps(Battery powered or AC/DC adapter)				
AC Conducted Emission	Mode 1: Bluetooth Link + Battery + USB Cable (Charging from AC Adapter)				
Note:					

Note:

- 1. Only the result of the worst case was recorded in the report, if no other cases.
- 2. 3. 4. The battery is full-charged during the test.
- For Radiated Emission, 3axis were chosen for testing for each applicable mode.
- For Conducted Test method, a temporary antenna connector is provided by the manufacture.

#### Software Setting Diagram

~			ig Diagram	102 202	-
BT_Tool					
COMx Baudra	te				
Classic B	LE				
Test Mode					
icov mode					_
FCC Test	IE	address			
DUT Test	~ [		1	Stop	
DOI TESC			-	L	
RF Control					
	(				
RF Mode	TX TEST	•	TX Freq	2402 (37)	•
Hopping	OFF	-	RX Freg	2402 (37)	-
		_			=
TX Power	7	•	PHY Type	2M PHY	•
Payload	PRBS9 Pay	/load 🔻	Length	37	
LOG: BLE T	est				*
LOG: Test	end				
LOG: BLE T					_
LOG: Test					
LOG: BLE T LOG: Test					E
LOG: BLE T					
1001 515 1					-
COM1 is ope	n	1500	000bps		
			1997		



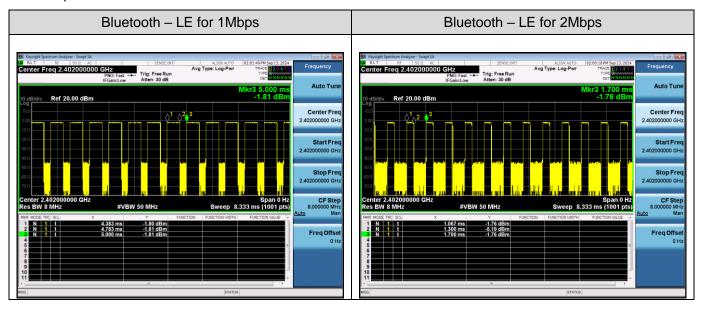
# 6. Duty Cycle Measurement

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 = Peak. 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:

Operating mode	T(µs)	Duty Cycle (%)	Duty Cycle Factor (dB)	1/ T Minimum VBW (kHz)
BLE_1Mbps	400	64.83	1.88	2.5
BLE_2Mbps	233	36.81	4.34	4.29

Remark:

2. The duty cycle of each frequency band mode reflects the determination requirements of the low channel measurement value



The test plots as follows:

<sup>1.</sup> Duty Cycle factor = 10 \* log (1/ Duty cycle)



# 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.

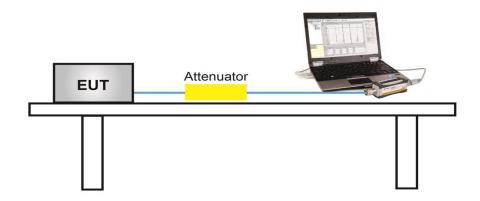
## 7.2 Measurement Procedure

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  $\geq$  [3 x RBW].
- 4. Span≥[3 x 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.

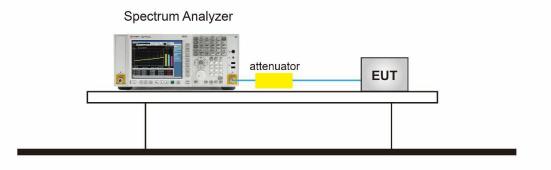
## 7.3 Measurement Setup (Block Diagram of Configuration)

For Average power test setup





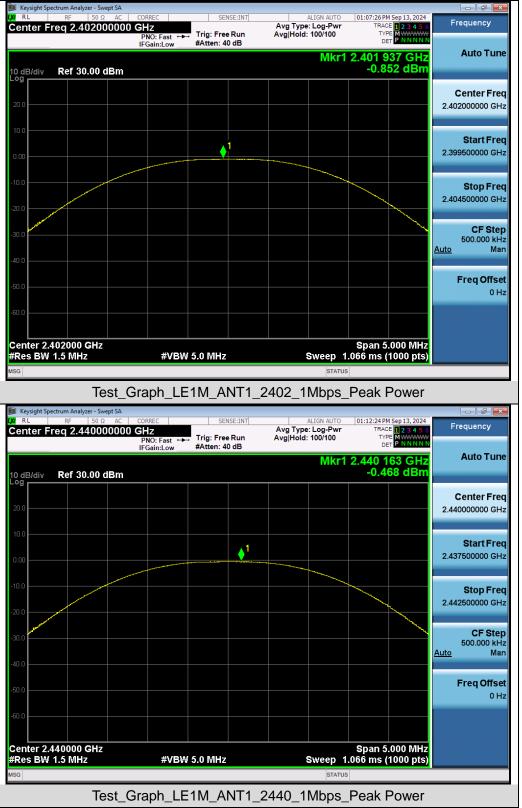
# For peak power test setup



## 7.4 Measurement Result

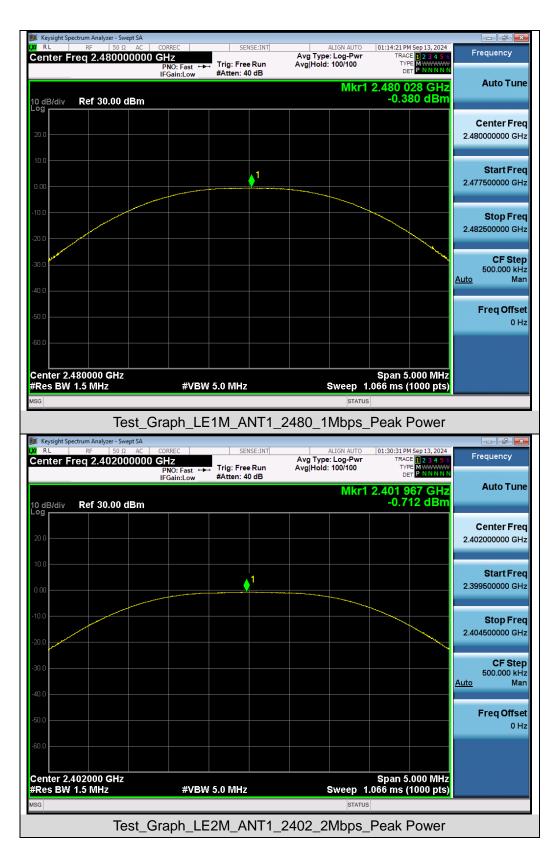
Test Data of Conducted Output Power							
Test Mode	Test Frequency (MHz)	Peak Power (dBm)	Limits (dBm)	Pass or Fail			
	2402	-0.852	≪30	Pass			
GFSK_1Mbps	2440	-0.468	≪30	Pass			
	2480	-0.380	≪30	Pass			
	2402	-0.712	≪30	Pass			
GFSK_2Mbps	2440	-0.488	≪30	Pass			
	2480	-0.465	≤30	Pass			



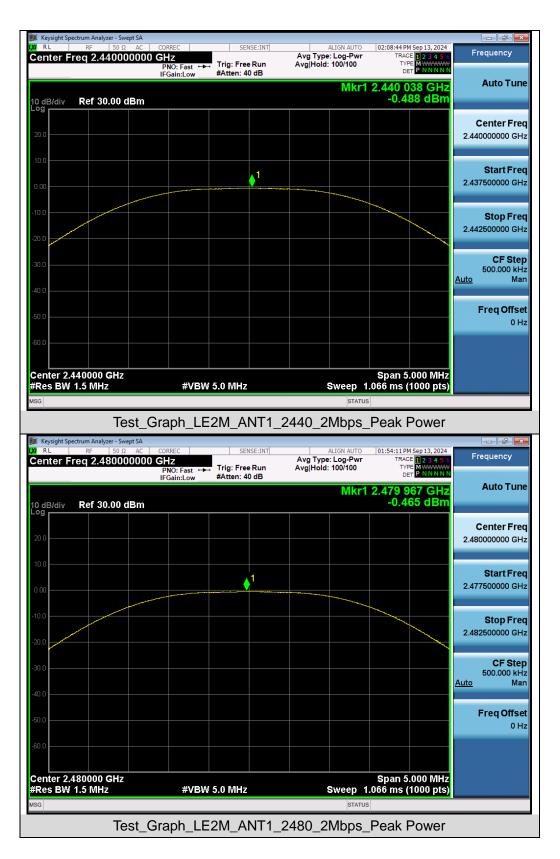


## Test Graphs of Conducted Output Power











# 8. 6dB Bandwidth Measurement

#### 8.1 Provisions Applicable

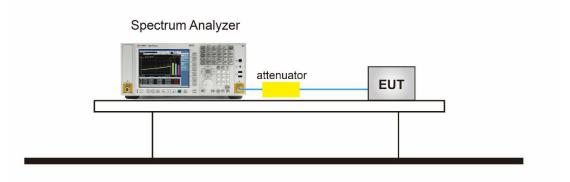
The minimum 6dB bandwidth shall be 500 kHz.

## 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.
- 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.
- 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)





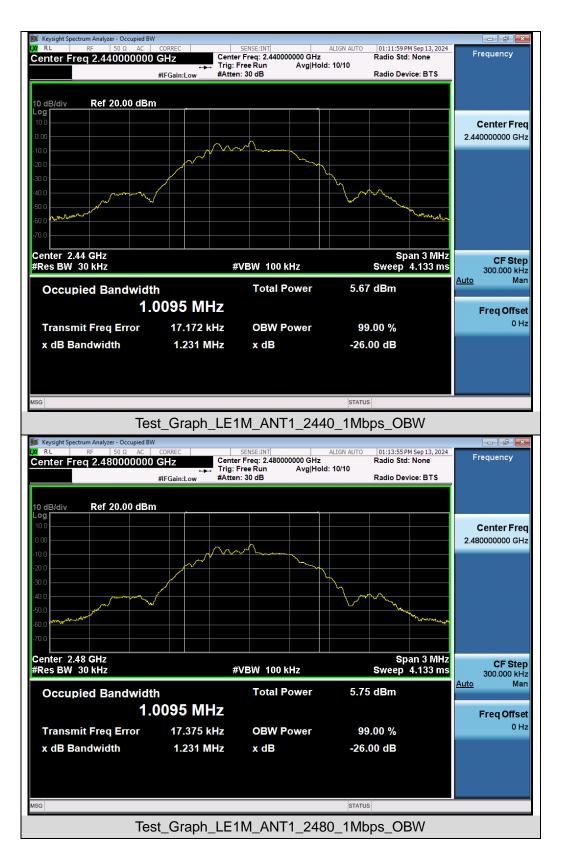
#### **8.4 Measurement Results**

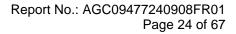
Test Data of Occupied Bandwidth and DTS Bandwidth								
Test Mode	Test Frequency (MHz)	Occupied Bandwidth (MHz)	DTS BW (MHz)	DTS BW Limits	Pass or Fail			
	2402	1.010	0.654	≥0.5	Pass			
GFSK_1Mbps	2440	1.010	0.655	≥0.5	Pass			
	2480	1.010	0.654	≥0.5	Pass			
	2402	1.964	1.136	≥0.5	Pass			
GFSK_2Mbps	2440	1.966	1.134	≥0.5	Pass			
	2480	1.965	1.131	≥0.5	Pass			

#### Test Graphs of Occupied Bandwidth











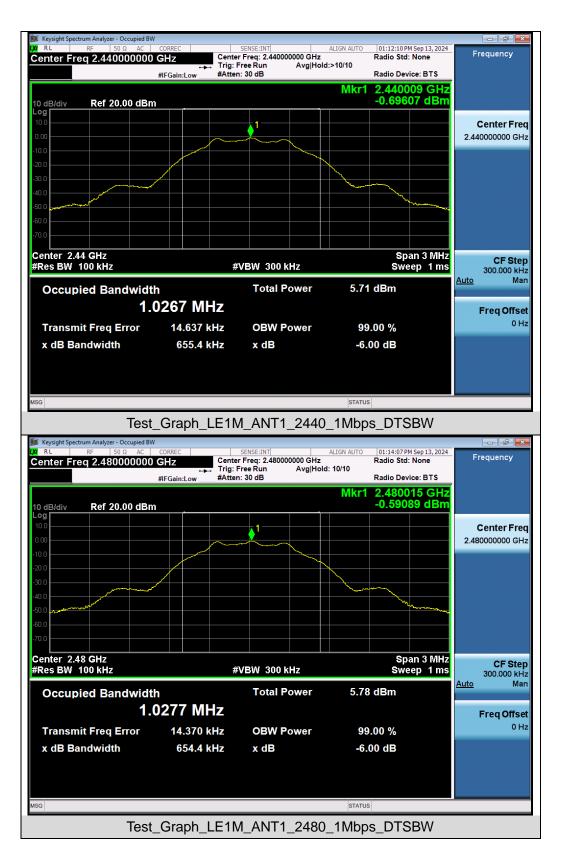




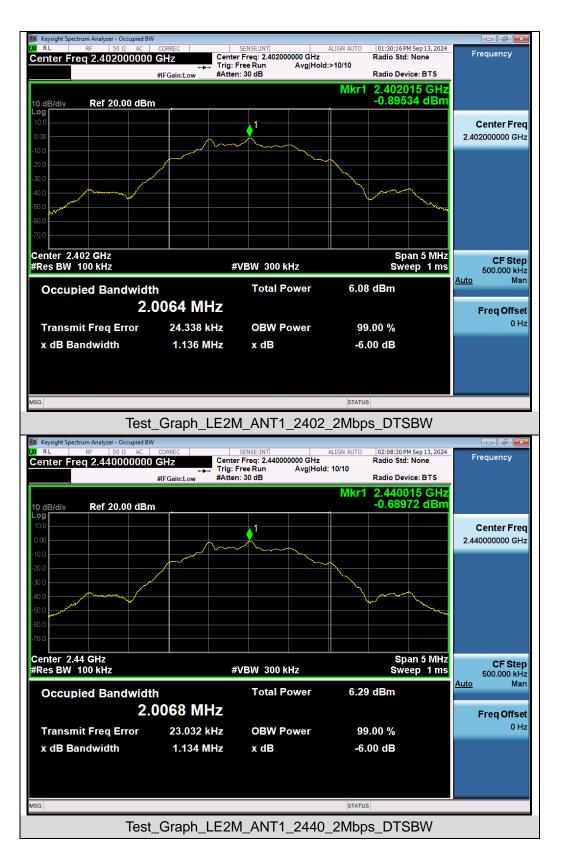


2.402000000 GHz Center 2.402 GHz Span 3 MHz **CF** Step #Res BW 100 kHz #VBW 300 kHz Sweep 1 ms 300.000 kHz Man <u>Auto</u> 5.36 dBm **Occupied Bandwidth Total Power** 1.0269 MHz Freq Offset 0 Hz **Transmit Freq Error** 14.398 kHz **OBW Power** 99.00 % x dB Bandwidth 654.1 kHz -6.00 dB x dB STATUS Test\_Graph\_LE1M\_ANT1\_2402\_1Mbps\_DTSBW











💓 Keysight Spectrum Analyzer - Occupied BW						
		SENSE:INT	ALIGN	AUTO 01:53:57	PM Sep 13, 2024	Frequency
Center Freq 2.48000000 G	· • • ·	Trig: Free Run	Avg Hold:>10/1	0		
#	FGain:Low #	#Atten: 30 dB			vice: BTS	
10 dB/div Ref 20.00 dBm			N	1kr1 2.480 -0.600	015 GHz )72 dBm	
Log						
10.0		1				Center Freq
-10.0	$ \land $	~~~~~	~			2.48000000 GHz
-20.0						
-30.0						
-40.0				) m	-	
-50.0					man and a second	
-60.0						
-70.0						
					C 1.411	
Center 2.48 GHz #Res BW 100 kHz		#VBW 300 k	Hz		oan 5 MHz eep 1 ms	CF Step
					oop i mo	500.000 kHz <u>Auto</u> Man
Occupied Bandwidth		Total P	ower	6.38 dBm		
2.0	076 MHz	Z				Freq Offset
Transmit Freq Error	23.497 kH	z OBW Po	ower	99.00 %		0 Hz
x dB Bandwidth	1.131 MH	z xdB		-6.00 dB		
MSG				STATUS		
Test_	Graph_LE	2M_ANT1_	_2480_2N	/lbps_DT	SBW	



# 9. Power Spectral Density Measurement

## 9.1 Provisions Applicable

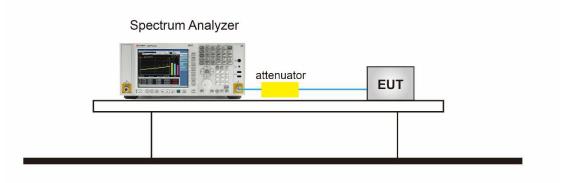
The transmitter power spectral density conducted from the transmitter to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

## 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.
- 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)

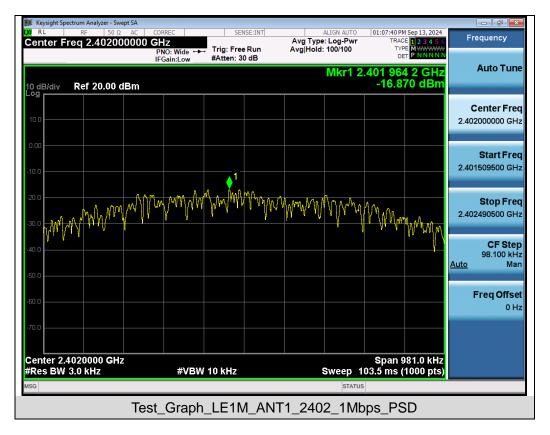




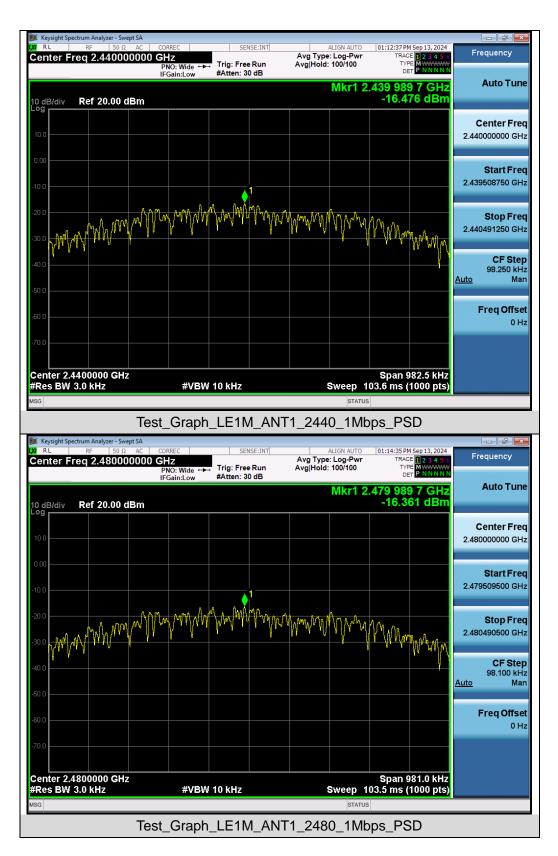
#### 9.4 Measurement Results

Test Data of Conducted Output Power Spectral Density							
Test Mode	Test Frequency (MHz)	Power density (dBm/3kHz)	Limit (dBm/3kHz)	Pass or Fail			
	2402	-16.870	≪8	Pass			
GFSK_1Mbps	2440	-16.476	≪8	Pass			
	2480	-16.361	≪8	Pass			
	2402	-18.154	≪8	Pass			
GFSK_2Mbps	2440	-18.040	≪8	Pass			
	2480	-17.854	≪8	Pass			

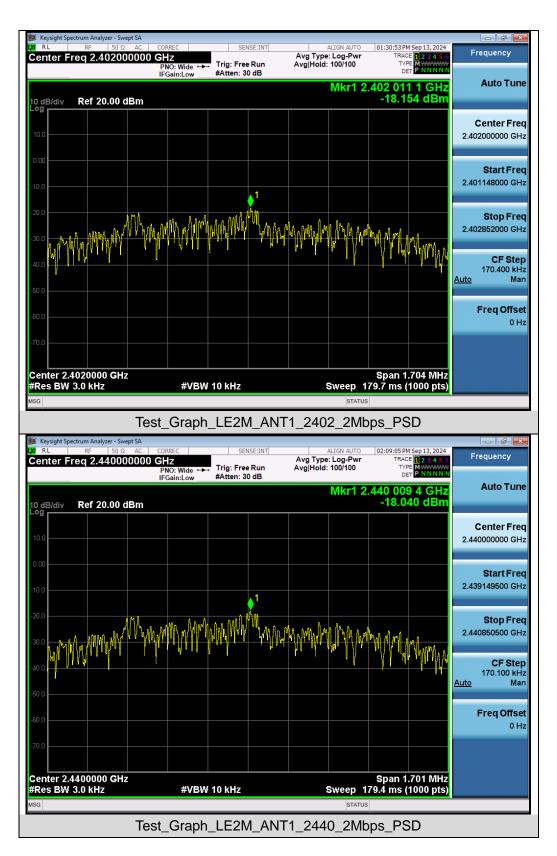
## Test Graphs of Conducted Output Power Spectral Density



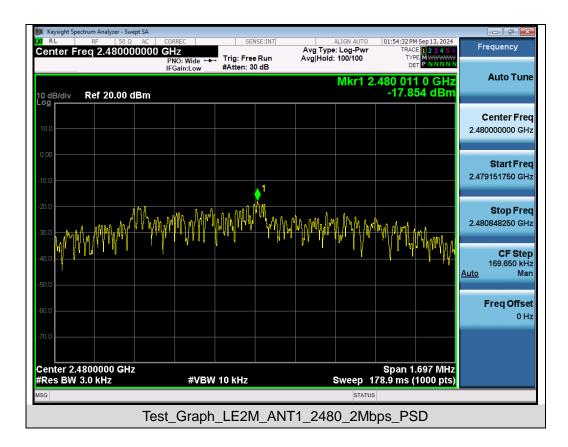














# 10. Conducted Band Edge and Out-of-Band Emissions

## **10.1 Provisions Applicable**

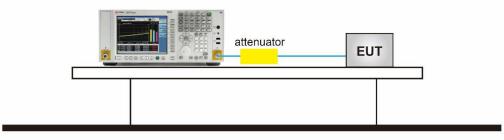
The limit for out-of-band spurious emissions at the band edge is 20dB below the fundamental emission level, as determined from the in-band power measurement of the DTS channel performed in a 100kHz bandwidth per the PSD procedure.

## **10.2 Measurement Procedure**

- Reference level measurement
- 1. Set instrument center frequency to DTS channel center frequency
- 2. Set the span to  $\geq$  1.5 times the DTS bandwidth
- 3. Set the RBW = 100 kHz
- 4. Set the VBW  $\geq$  3 x RBW
- 5. Detector = peak
- 6. Sweep time = auto couple
- 7. Trace mode = max hold
- 8. Allow trace to fully stabilize
- 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

## 10.3 Measurement Setup (Block Diagram of Configuration)

Spectrum Analyzer





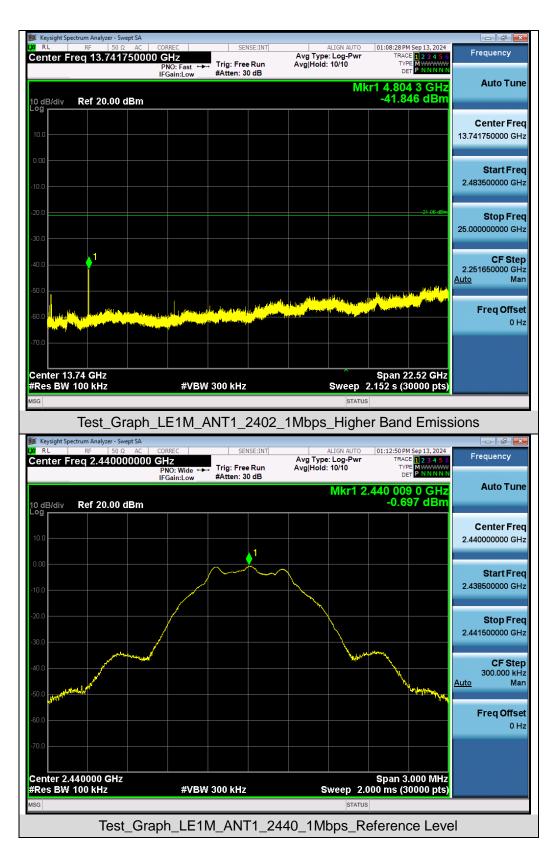
#### **10.4 Measurement Results**



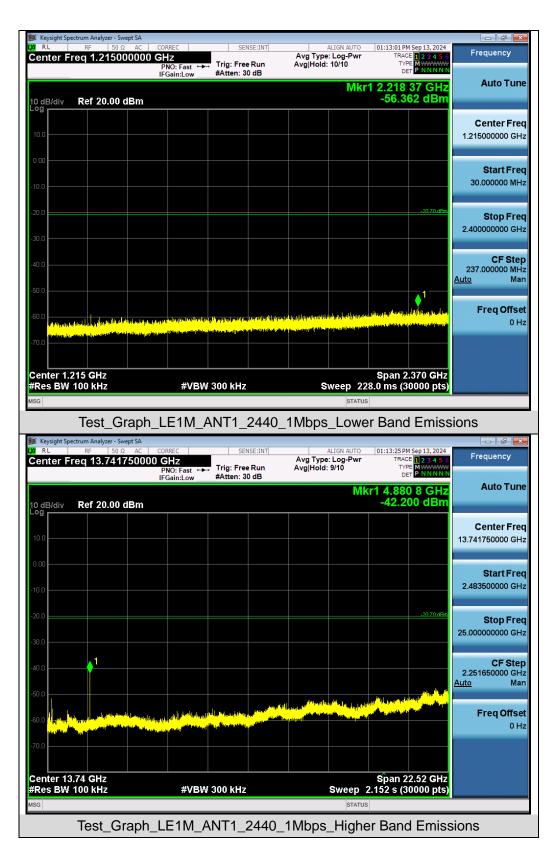
#### Test Graphs of Spurious Emissions in Non-Restricted Frequency Bands

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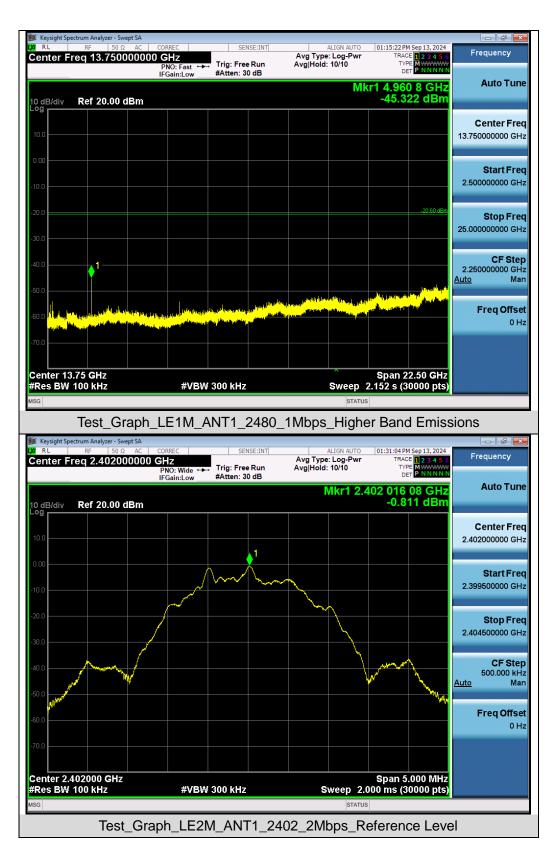




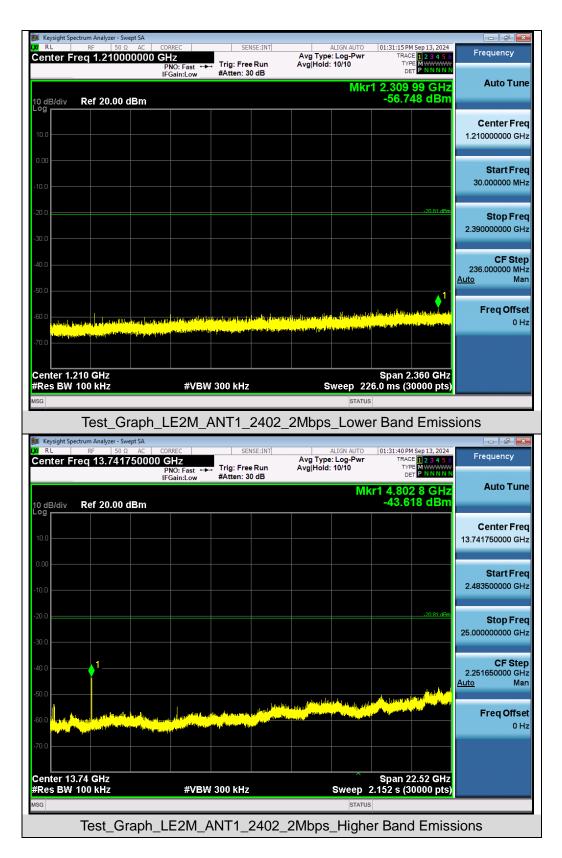








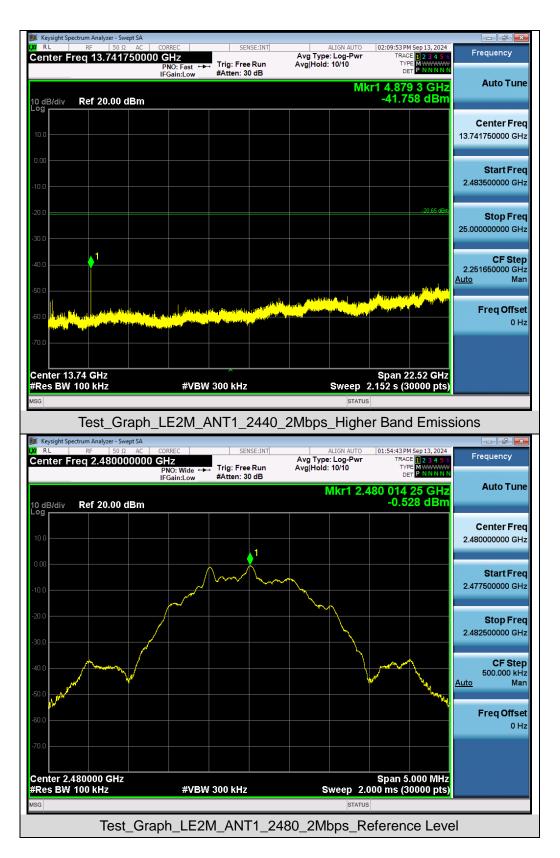




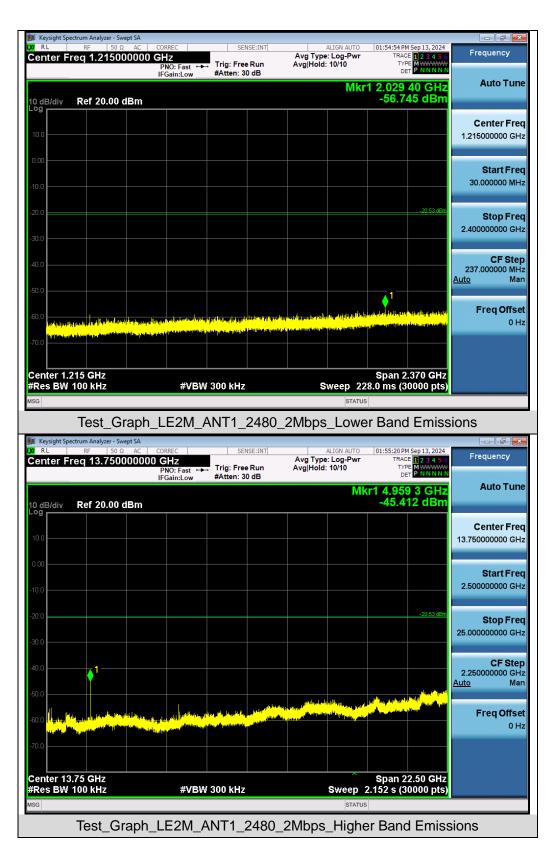




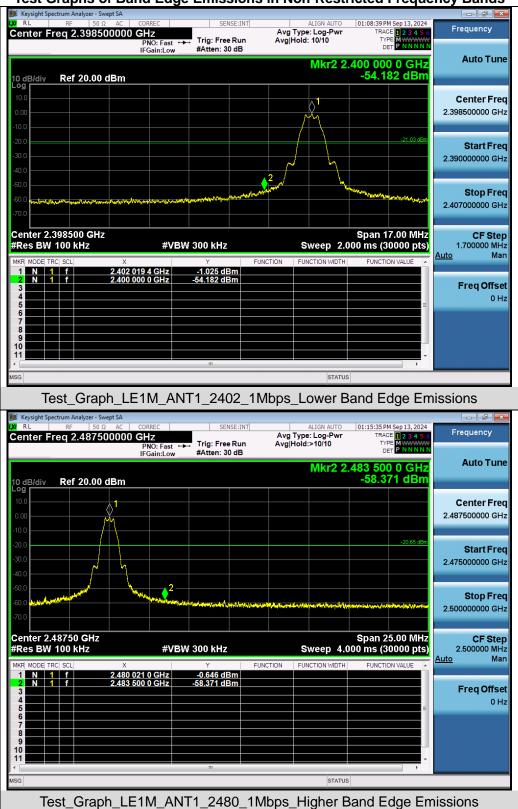






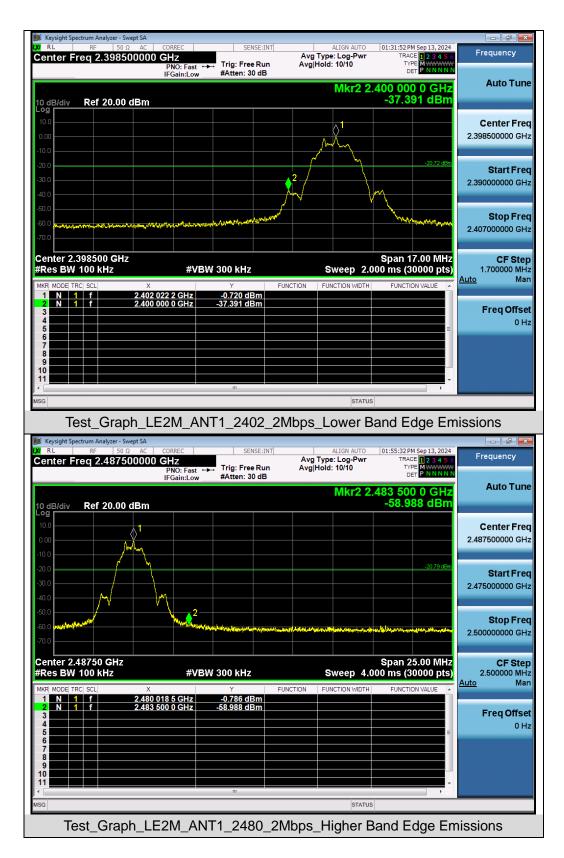






## Test Graphs of Band Edge Emissions in Non-Restricted Frequency Bands







# 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.



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.

Spectrum ParameterSettingStart ~Stop Frequency9kHz~150kHz/RB 200Hz for QPStart ~Stop Frequency150kHz~30MHz/RB 9kHz for QPStart ~Stop Frequency30MHz~1000MHz/RB 120kHz for QPStart ~Stop Frequency1GHz~26.5GHzStart ~Stop Frequency1MHz/3MHz for Peak, 1MHz/3MHz for Average

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

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

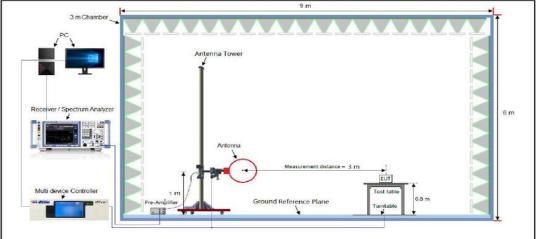
### <u>Average Measurements above 1GHz</u>

- 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.

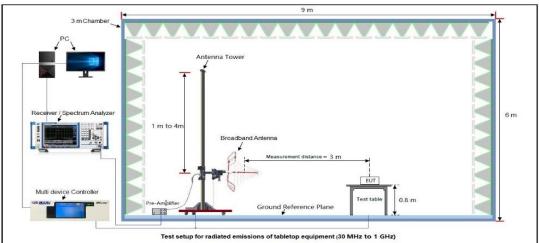


## 11.3 Measurement Setup (Block Diagram of Configuration)

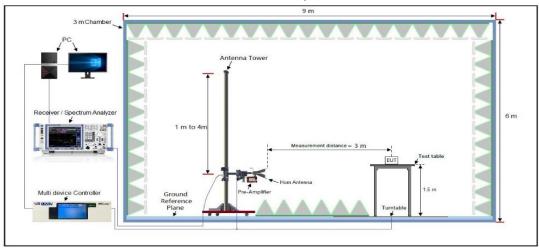




Radiated Emission Test Setup 30MHz-1000MHz



#### Radiated Emission Test Setup Above 1000MHz



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 E-mail: agc@agccert.com

 Web: http://www.agccert.com/



#### **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.

			Radia	ated En	nissi	on Test R	esults a	t 30MHz-1	GHz		
EUT Name	Show	ShowOff Wireless earbuds with LCD display				play Mo	Model Name			98440	
Temperature	22.9°	С					Re	elative Hu	midity	58.3	3%
Pressure	960h	Pa					Те	st Voltag	e	DC	5V by adapte
Test Mode	Mode	93					Ar	ntenna Po	olarity	Hor	izontal
72.0	dBuV/m										
Γ										Limit: Margin:	
_										Hargin.	
-										4 5	<del>.</del>
32									3	4 5 X 1	unte
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-	however	k here they are the	eyetundu verdetenye		2	hater Main services	ner bergenter er	and the second			
-8		Aligna deleganda			2		and for the stand of the stand				
-		50		80		(MHz)		300 40		600 700	1000.000
-8	000 40		60 70	80 Read	ding	(MHz) Correct	Measure	300 40 e-	0 500		1000.000
-8	000 40	50 Mk.	60 70 Freq.	80 Read	ding /el	(MHz) Correct Factor	Measure	300 40 e- Limit	0 500 Over	600 700	_
-8	000 40		60 70	80 Read	ding /el	(MHz) Correct	Measure	300 40 e- Limit	0 500 Over		_
-8	000 40	Mk.	60 70 Freq.	80 Read Lev dB	ding /el	(MHz) Correct Factor	Measure	300 40 e- Limit	0 500 Over	600 700	or
-8	000 40 No.	Mk.	60 70 Freq. MHz	80 Read Lev dB	ding vel uV	(MH2) Correct Factor dB	Measure ment dBuV/m	300 40 e- Limit dBuV/m	0 500 Over dB	600 700 Detecto	or
-8	000 40 No.	Mk.	60 70 Freq. MHz 42.7496	80 Read Lev dB 5 5.	ding vel uV 92	(MHz) Correct Factor dB 13.71	Measure ment dBuV/m 19.63	300 40 e- Limit dBuV/m 40.00	0 500 Over dB -20.37	600 700 Detecto	or
-8	000 40 No. 1 2	Mk.	60 70 Freq. MHz 42.7496	80 Read Lev dB 5 5. 5 5.	ding vel uV 92 86	(MHz) Correct Factor dB 13.71 15.97	Measure ment dBuV/m 19.63 21.83	300 40 e- Limit dBuV/m 40.00 43.50	0 500 Over dB -20.37 -21.67	600 700 Detecto peak peak	or
-8	000 40 No. 1 2 3	Mk.	60 70 Freq. MHz 42.7496 98.4865 14.8514	80 Read Lev dB 5 5. 5 5. 5 5. 4 5.	ding vel uV 92 86 38	(MHz) Correct Factor dB 13.71 15.97 24.93	Measure ment dBuV/m 19.63 21.83 30.31	300 40 e- Limit dBuV/m 40.00 43.50 46.00	0 500 Over dB -20.37 -21.67 -15.69	Detecto peak peak	



		Radiat	ted Emissi	on Test R	esults at	30MHz-1	GHz		
EUT Name	ShowOff Wireless earbuds with LCD display Model Name					е	9844	0	
Temperature	<b>22.9</b> ℃				Rel	ative Hu	imidity	58.39	%
Pressure	960hPa				Tes	t Voltag	е	DC 5	V by adapte
Test Mode	Mode 3				Ant	enna Po	olarity	Vertio	cal
72.0 di	Bu∀/m								
								Limit: Margin:	
32 /um	ene to nation the state of	naghtainntin <sub>scobh</sub>	and with	han method named a	Mandretonia	Windwillipations	and the second s	***	
	40 50				Martin Martin Martin		400 500	600 700	1000.000
-8		) 60 70 8		(MHz) Correct Factor	Measure- ment	300			1000.000
-8	40 50	) 60 70 8	Reading	(MHz) Correct	Measure	300	400 500 Over		1000.000
-8	40 50	0 60 70 8 . Freq.	Reading	(MHz) Correct Factor	Measure- ment	300 /	400 500 Over	600 700	1000.000
-8	40 50 No. Mk.	) 60 70 8 . Freq. MHz	80 Reading Level dBuV	(MHz) Correct Factor dB	Measure- ment dBuV/m	300 d Limit dBuV/m	400 500 Over dB	600 700	1000.000
-8	40 50 No. Mk	0 60 70 8 Freq. MHz 42.8998	Reading Level dBuV 6.30	(MHz) Correct Factor dB 16.93	Measure- ment dBuV/m 23.23	300 4 Limit dBuV/m 40.00	400 500 Over dB -16.77	600 700 Detector peak	1000.000
-8	40 50 No. Mk.	0 60 70 8 Freq. MHz 42.8998 107.8877	Reading Level dBuV 6.30 10.42	(MHz) Correct Factor dB 16.93 15.58	Measure- ment dBuV/m 23.23 26.00	300 / Limit dBuV/m 40.00 43.50	400 500 Over dB -16.77 -17.50	600 700 Detector peak	1000.000
-8	40 50 No. Mk. 1 2 3 4	0 60 70 8 . Freq. MHz 42.8998 107.8877 444.8514	80 Reading Level dBuV 6.30 10.42 5.46	(MHz) Correct Factor dB 16.93 15.58 25.88	Measure- ment dBuV/m 23.23 26.00 31.34	300 / Limit dBuV/m 40.00 43.50 46.00	400 500 Over dB -16.77 -17.50 -14.66	600 700 Detector peak peak	1000.000

## **RESULT: Pass**

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

2. All test modes had been pre-tested. The mode 3 is the worst case and recorded in the report.



UT Name	ShowOff V LCD displa	Vireless earbud ay	ds with	Mode	el Name	98440		
emperature	<b>25</b> ℃	-		Relat	ive Humidity	midity 55.4%		
Pressure	960hPa			Test	Voltage	DC 5V b	y adapter	
est Mode	Mode 1			Ante	nna Polarity	Horizont	al	
Frequency	Meter Reading	Factor	Emissio		Limits	Margin	Value Type	
(MHz)	(dBµV)	(dB)	(dBµ\	//m)	(dBµV/m)	(dB)	value Type	
4804.000	47.35	0.08	47.4		74	-26.57	peak	
4804.000	37.12	0.08	37.	2	54	-16.8	AVG	
7206.000	41.35	2.21	43.5	56	74	-30.44	peak	
7206.000	31.25	2.21	33.4	46	54	-20.54	AVG	
Remark:								
Factor = Anter	nna Factor + Cal	ole Loss – Pre-	amplifier.					
EUT Name	ShowOff V LCD displa	Vireless earbuc ay	ds with	Mode	el Name	98440		
emperature	<b>25</b> ℃			Relative Humidity		55.4%		
Pressure	960hPa			Test Voltage		DC 5V b	DC 5V by adapter	
est Mode	Mode 1			Anter	nna Polarity	Vertical		
Frequency	Meter Reading	Factor	Emissio	nlevel	Limits	Margin		
(MHz)	(dBµV)	(dB)	(dBµ\		(dBµV/m)	(dB)	Value Type	
4804.000	47.18	0.08	47.2		74	-26.74	peak	
4804.000	37.52	0.08	37.		54	-16.4	AVG	
7206.000	42.16	2.21	44.3	37	74	-29.63	peak	
1200.000	32.34	2.21	34.5	55	54	-19.45	AVG	
7206.000	02.01							
7206.000 Remark:	nna Factor + Cal							

## Radiated Emissions Test Results for Above 1GHz

## **RESULT: Pass**



EUT Name		ShowOff Wireless earbuds with LCD display			el Name	98440		
<b>Femperature</b>	<b>25</b> ℃	<b>25</b> ℃		Relative Humidity		55.4%	55.4%	
Pressure	960hPa			Test	Voltage	DC 5V b	by adapter	
lest Mode	Mode 2			Ante	nna Polarity	Horizon	tal	
	·					·		
Frequency	Meter Reading	Factor	Emissio	n Level	Limits	Margin	Value Type	
(MHz)	(dBµV)	(dB)	(dBµ\	//m)	(dBµV/m)	(dB)	value Type	
4880.000	46.35	0.14	46.4	49	74	-27.51	peak	
4880.000	37.42	0.14	37.5	56	54	-16.44	AVG	
7320.000	42.16	2.36	44.5	52	74	-29.48	peak	
7320.000	32.52	2.36	34.8	38	54	-19.12	AVG	
Remark:								
	na Factor + Cabl	e Loss – Pre-	amplifier.					
Factor = Anten		/ireless earbu		Mode	el Name	98440		
Factor = Anten	ShowOff W	/ireless earbu			el Name ive Humidity	98440 55.4%		
Factor = Anten	ShowOff W LCD displa	/ireless earbu		Relat		55.4%	by adapter	
Factor = Anten	ShowOff W LCD displa 25°C	/ireless earbu		Relat	ive Humidity	55.4%	by adapter	
Factor = Anten	ShowOff W LCD displa 25°C 960hPa Mode 2	/ireless earbu y	ids with	Relat Test	ive Humidity Voltage nna Polarity	55.4% DC 5V to Vertical	by adapter	
Factor = Anten	ShowOff W LCD displa 25°C 960hPa Mode 2 Meter Reading	/ireless earbu y Factor	Emissio	Relat	voltage	55.4% DC 5V k Vertical Margin	by adapter Value Type	
Factor = Anten	ShowOff W LCD displa 25°C 960hPa Mode 2 Meter Reading (dBµV)	/ireless earbu y Factor (dB)	Emissio	Relat	Limits (dBµV/m)	55.4% DC 5V k Vertical Margin (dB)	Value Type	
Factor = Anten         EUT Name         Temperature         Pressure         Test Mode         Frequency         (MHz)         4880.000	ShowOff W LCD displa 25°C 960hPa Mode 2 Meter Reading (dBµV) 47.63	/ireless earbu y Factor (dB) 0.14	Emission (dBµ\ 47.7	Relat Test	Limits (dBµV/m) 74	55.4% DC 5V k Vertical Margin (dB) -26.23	Value Type	
Factor = Anten         EUT Name         Temperature         Pressure         Test Mode         Frequency         (MHz)         4880.000         4880.000	ShowOff W LCD displa 25℃ 960hPa Mode 2 Meter Reading (dBµV) 47.63 37.52	/ireless earbu y Factor (dB) 0.14 0.14	Emission (dBµ\ 47.7 37.6	Relat Test Anter n Level //m) 77	Limits (dBµV/m) 74 54	55.4% DC 5V k Vertical Margin (dB) -26.23 -16.34	- Value Type peak AVG	
Factor = Anten	ShowOff W LCD displa           25°C           960hPa           Mode 2           Meter Reading           (dBµV)           47.63           37.52           42.16	/ireless earbu y Factor (dB) 0.14 0.14 2.36	Emission (dBµ\ 47.7 37.6 44.5	Relat Test Anter n Level //m) 77 56	Limits (dBµV/m) 74 54 74	55.4% DC 5V k Vertical Margin (dB) -26.23 -16.34 -29.48	Value Type peak AVG peak	
Factor = Anten         EUT Name         Temperature         Pressure         Test Mode         Frequency         (MHz)         4880.000         4880.000	ShowOff W LCD displa 25℃ 960hPa Mode 2 Meter Reading (dBµV) 47.63 37.52	/ireless earbu y Factor (dB) 0.14 0.14	Emission (dBµ\ 47.7 37.6	Relat Test Anter n Level //m) 77 56	Limits (dBµV/m) 74 54	55.4% DC 5V k Vertical Margin (dB) -26.23 -16.34	- Value Type peak AVG	
Factor = Anten         EUT Name         Femperature         Pressure         Fest Mode         Frequency         (MHz)         4880.000         7320.000	ShowOff W LCD displa           25°C           960hPa           Mode 2           Meter Reading           (dBµV)           47.63           37.52           42.16	/ireless earbu y Factor (dB) 0.14 0.14 2.36	Emission (dBµ\ 47.7 37.6 44.5	Relat Test Anter n Level //m) 77 56	Limits (dBµV/m) 74 54 74	55.4% DC 5V k Vertical Margin (dB) -26.23 -16.34 -29.48	Value Type peak AVG peak	

## **Radiated Emissions Test Results for Above 1GHz**

## **RESULT: Pass**



EUT Name	ShowOff Wi	ireless earbud /	ds with	Model	Name	98440		
Temperature	<b>25</b> ℃	<b>25</b> ℃			Relative Humidity		55.4%	
Pressure	960hPa			Test Voltage		DC 5V b	y adapter	
Test Mode	Mode 3			Anten	na Polarity	Horizonta	Horizontal	
Frequency	Meter Reading	Factor	Factor Emissio		Limits	Margin	Value Type	
(MHz)	(dBµV)	(dB)	(dBµ	ıV/m)	(dBµV/m)	(dB)	value Type	
4960.000	47.65	0.22	47.	.87	74	-26.13	peak	
4960.000	37.52	0.22	37.	.74	54	-16.26	AVG	
7440.000	42.16	2.64	44	1.8	74	-29.2	peak	
7440.000	31.25	2.64	33.	.89	54	-20.11	AVG	
Remark:								
Factor = Anter	nna Factor + Cab	e Loss – Pre-	amplifier.					
Factor = Anter	ShowOff Wi	ireless earbu		Model	Name	98440		
		ireless earbu			Name ve Humidity	98440 55.4%		
EUT Name	ShowOff Wi LCD display	ireless earbu			ve Humidity	55.4%	y adapter	
EUT Name Temperature	ShowOff Wi LCD display 25℃	ireless earbu		Relativ Test V	ve Humidity	55.4%	y adapter	
EUT Name Temperature Pressure Test Mode	ShowOff Wi LCD display 25℃ 960hPa Mode 3	ireless earbud	ds with	Relativ Test V Anten	ve Humidity oltage na Polarity	55.4% DC 5V by Vertical	y adapter	
EUT Name Temperature Pressure Test Mode	ShowOff Wi LCD display 25°C 960hPa Mode 3 Meter Reading	reless earbud / Factor	ds with	Relativ Test V Anten	ve Humidity oltage na Polarity Limits	55.4% DC 5V by Vertical	y adapter Value Type	
EUT Name Femperature Pressure Fest Mode Frequency (MHz)	ShowOff Wi LCD display 25℃ 960hPa Mode 3 Meter Reading (dBµV)	reless earbud / Factor (dB)	Emissio	Relativ Test V Anten	ve Humidity foltage na Polarity Limits (dBµV/m)	55.4% DC 5V b Vertical Margin (dB)	- Value Type	
EUT Name Temperature Pressure Test Mode Frequency (MHz) 4960.000	ShowOff Wi LCD display 25℃ 960hPa Mode 3 Meter Reading (dBµV) 48.53	Factor (dB) 0.22	Emissic (dBµ	Relativ Test V Anten on Level	ve Humidity foltage na Polarity Limits (dBµV/m) 74	55.4% DC 5V b Vertical Margin (dB) -25.25	Value Type	
EUT Name Temperature Pressure Test Mode Frequency (MHz) 4960.000 4960.000	ShowOff Wi LCD display 25℃ 960hPa Mode 3 Meter Reading (dBµV) 48.53 37.42	Factor (dB) 0.22 0.22	Emissic (dBµ 48. 37.	Relativ Test V Anten	ve Humidity oltage na Polarity Limits (dBµV/m) 74 54	55.4% DC 5V b Vertical Margin (dB) -25.25 -16.36	- Value Type peak AVG	
EUT Name Femperature Pressure Fest Mode Frequency (MHz) 4960.000 4960.000 7440.000	ShowOff Will           LCD display           25 °C           960hPa           Mode 3           Meter Reading           (dBµV)           48.53           37.42           42.53	Factor (dB) 0.22 2.64	Emissic (dBµ 48. 37. 45.	Relative Test V Anten On Level V/m) .75 .64 .17	ve Humidity foltage na Polarity Limits (dBµV/m) 74 54 74	55.4%           DC 5V b           Vertical           Margin           (dB)           -25.25           -16.36           -28.83	- Value Type peak AVG peak	
EUT Name Temperature Pressure Test Mode Frequency (MHz) 4960.000 4960.000	ShowOff Wi LCD display 25℃ 960hPa Mode 3 Meter Reading (dBµV) 48.53 37.42	Factor (dB) 0.22 0.22	Emissic (dBµ 48. 37.	Relative Test V Anten On Level V/m) .75 .64 .17	ve Humidity oltage na Polarity Limits (dBµV/m) 74 54	55.4% DC 5V b Vertical Margin (dB) -25.25 -16.36	- Value Type peak AVG	
EUT Name Femperature Pressure Fest Mode Frequency (MHz) 4960.000 4960.000 7440.000	ShowOff Will           LCD display           25 °C           960hPa           Mode 3           Meter Reading           (dBµV)           48.53           37.42           42.53	Factor (dB) 0.22 2.64	Emissic (dBµ 48. 37. 45.	Relative Test V Anten On Level V/m) .75 .64 .17	ve Humidity foltage na Polarity Limits (dBµV/m) 74 54 74	55.4%           DC 5V b           Vertical           Margin           (dB)           -25.25           -16.36           -28.83	- Value Type peak AVG peak	
EUT Name Femperature Pressure Fest Mode Frequency (MHz) 4960.000 4960.000 7440.000	ShowOff Will           LCD display           25 °C           960hPa           Mode 3           Meter Reading           (dBµV)           48.53           37.42           42.53	Factor (dB) 0.22 2.64	Emissic (dBµ 48. 37. 45.	Relative Test V Anten On Level V/m) .75 .64 .17	ve Humidity foltage na Polarity Limits (dBµV/m) 74 54 74	55.4%           DC 5V b           Vertical           Margin           (dB)           -25.25           -16.36           -28.83	- Value Type peak AVG peak	

## Radiated Emissions Test Results for Above 1GHz

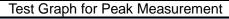
#### **RESULT: Pass**

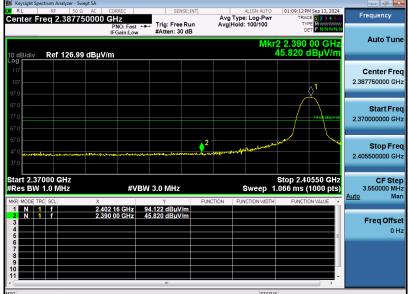
Note:

- 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.

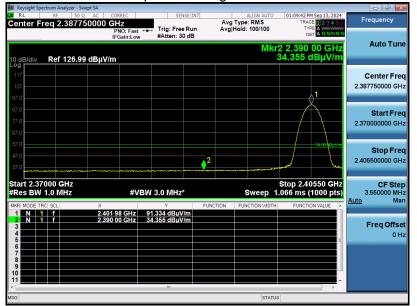


EUT Name	ShowOff Wireless earbuds with LCD display	Model Name	98440
Temperature	<b>25</b> ℃	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	DC 3.7V by battery
Test Mode	Mode 1	Antenna Polarity	Horizontal





Test Graph for Average Measurement

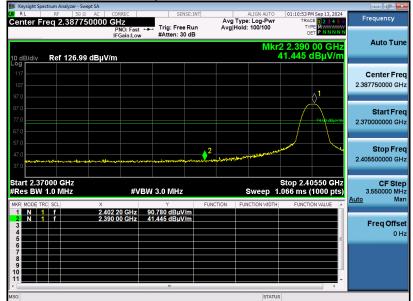


#### **RESULT: Pass**

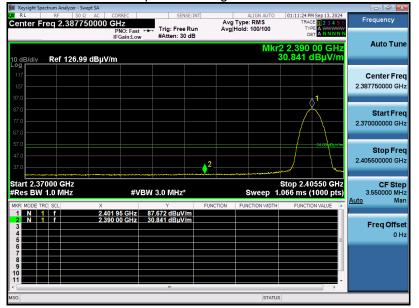


EUT Name	ShowOff Wireless earbuds with LCD display	Model Name	98440
Temperature	<b>25</b> ℃	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	DC 3.7V by battery
Test Mode	Mode 1	Antenna Polarity	Vertical

#### Test Graph for Peak Measurement



Test Graph for Average Measurement

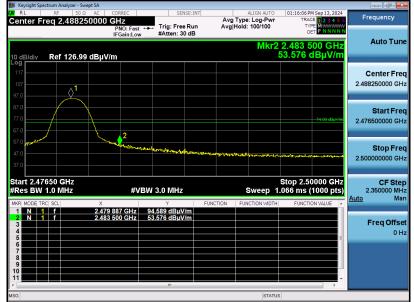


#### **RESULT: Pass**

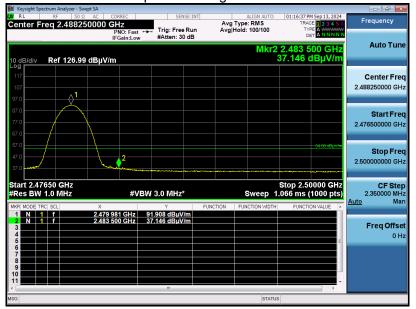


EUT Name	ShowOff Wireless earbuds with LCD display	Model Name	98440
Temperature	<b>25</b> ℃	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	DC 3.7V by battery
Test Mode	Mode 3	Antenna Polarity	Horizontal





Test Graph for Average Measurement

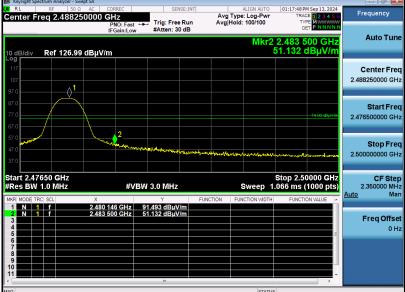


#### **RESULT: Pass**

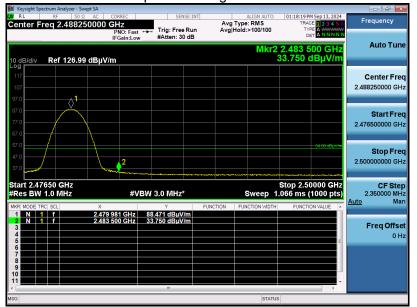


EUT Name	ShowOff Wireless earbuds with LCD display	Model Name	98440
Temperature	<b>25</b> ℃	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	DC 3.7V by battery
Test Mode	Mode 3	Antenna Polarity	Vertical





Test Graph for Average Measurement

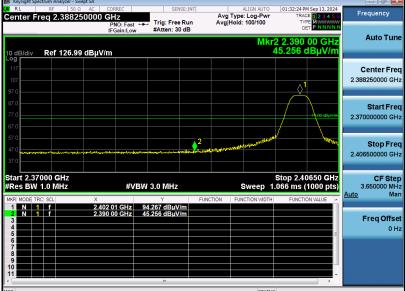


#### **RESULT: Pass**

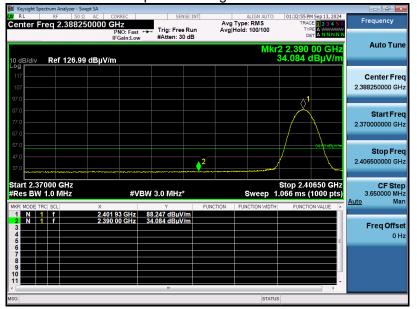


EUT Name	ShowOff Wireless earbuds with LCD display	Model Name	98440
Temperature	<b>25</b> ℃	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	DC 3.7V by battery
Test Mode	Mode 4	Antenna Polarity	Horizontal





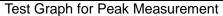
Test Graph for Average Measurement

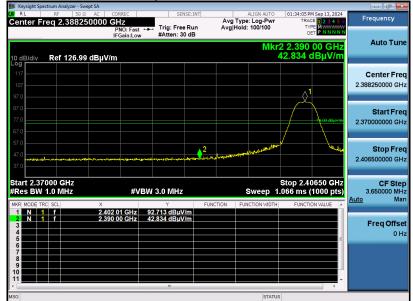


#### **RESULT: Pass**

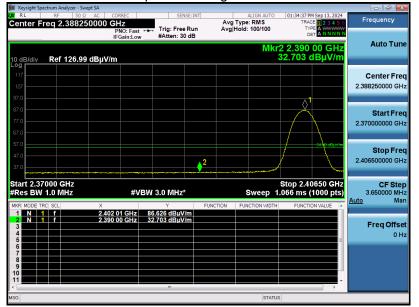


EUT Name	ShowOff Wireless earbuds with LCD display	Model Name	98440
Temperature	<b>25</b> ℃	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	DC 3.7V by battery
Test Mode	Mode 4	Antenna Polarity	Vertical





Test Graph for Average Measurement

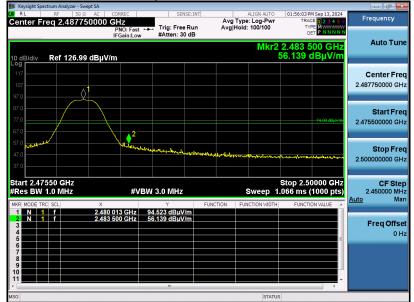


#### **RESULT: Pass**

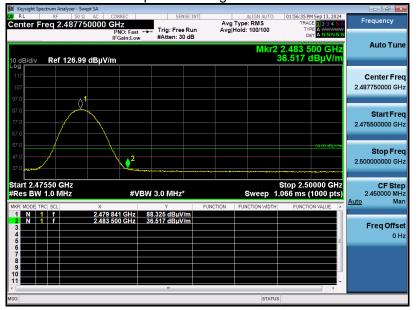


EUT Name	ShowOff Wireless earbuds with LCD display	Model Name	98440
Temperature	<b>25</b> ℃	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	DC 3.7V by battery
Test Mode	Mode 6	Antenna Polarity	Horizontal





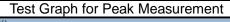
Test Graph for Average Measurement

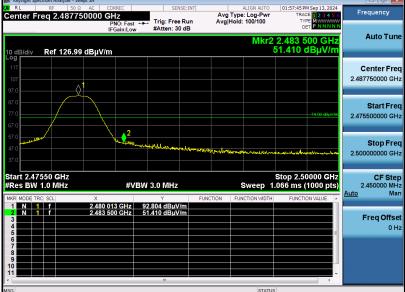


#### **RESULT: Pass**

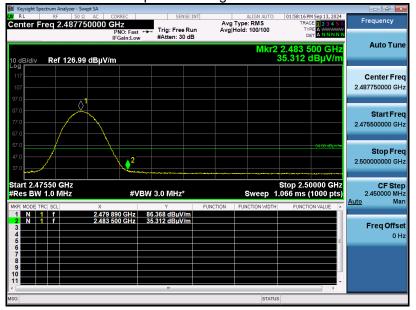


EUT Name	ShowOff Wireless earbuds with LCD display	Model Name	98440
Temperature	<b>25</b> ℃	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	DC 3.7V by battery
Test Mode	Mode 6	Antenna Polarity	Vertical





Test Graph for Average Measurement



#### **RESULT: Pass**

Note: The factor had been edited in the "Input Correction" of the Spectrum Analyzer.



# 12. AC Power Line Conducted Emission Test

## 12.1 Measurement Limit

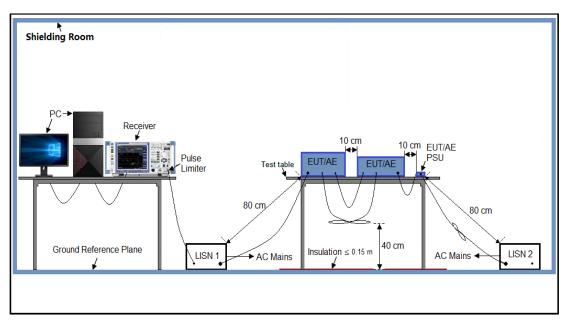
<b>Francisco</b>	Maximum RF Line Voltage				
Frequency	Q.P. (dBµV)	Average (dBµV)			
150kHz~500kHz	66-56	56-46			
500kHz~5MHz	56	46			
5MHz~30MHz	60	50			

Note:

1. The lower limit shall apply at the transition frequency.

2. The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz

## 12.2 Measurement Setup (Block Diagram of Configuration)





## 12.3 Preliminary Procedure of Line Conducted Emission Test

- 1. The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. When the EUT is a tabletop system, a wooden table with a height of 0.8 meters is used and is placed on the ground plane as per ANSI C63.10 (see Test Facility for the dimensions of the ground plane used). When the EUT is a floor-standing equipment, it is placed on the ground plane which has a 3-12 mm non-conductive covering to insulate the EUT from the ground plane.
- 2. Support equipment, if needed, was placed as per ANSI C63.10.
- 3. All I/O cables were positioned to simulate typical actual usage as per ANSI C63.10.
- 4. All support equipment received AC120V/60Hz power from a LISN, if any.
- 5. The EUT received DC 5V power from adapter which received AC120V/60Hz power from a LISN.
- 6. The test program was started. Emissions were measured on each current carrying line of the EUT using a spectrum Analyzer / Receiver connected to the LISN powering the EUT. The LISN has two monitoring points: Line 1 (Hot Side) and Line 2 (Neutral Side). Two scans were taken: one with Line 1 connected to Analyzer / Receiver and Line 2 connected to a 50 ohm load; the second scan had Line 1 connected to a 50 ohm load and Line 2 connected to the Analyzer / Receiver.
- 7. Analyzer / Receiver scanned from 150 kHz to 30MHz for emissions in each of the test modes.
- 8. During the above scans, the emissions were maximized by cable manipulation.
- 9. The test mode(s) were scanned during the preliminary test.

Then, the EUT configuration and cable configuration of the above highest emission level were recorded for reference of final testing.

## 12.4 Final Procedure of Line Conducted Emission Test

- 1. EUT and support equipment was set up on the test bench as per step 2 of the preliminary test.
- A scan was taken on both power lines, Line 1 and Line 2, recording at least the six highest emissions. Emission frequency and amplitude were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit. If EUT emission level was less – 2dB to the A.V. limit in Peak mode, then the emission signal was re-checked using Q.P and Average detector.
- 3. The test data of the worst case condition(s) was reported on the Summary Data page.

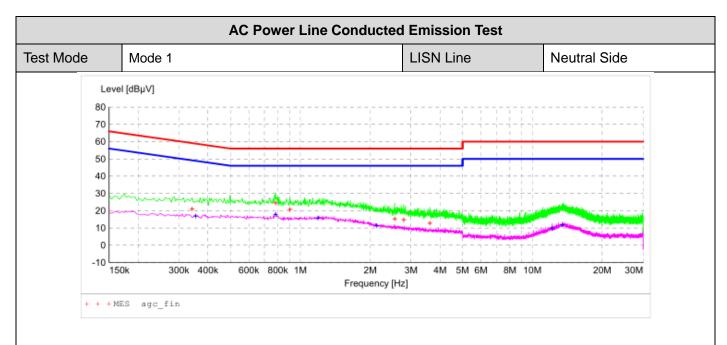
#### **12.5 Measurement Results**



			AC Power Li	ine Cond	ucted Er	mission T	est		
Test Mode	•	Mode 1			LI	SN Line		Hot Side	
	Level	[dBµV]							
	80								
	70 60								
	50								
	40								
	30 20	munner	marinewayuda	and the second of the second second					
	10			and the second sec	+				
	0						ii		
	-10 -150	0k 300k 400k	600k 800k 1M		M 3M ency (Hz)	4M 5M 6M	1 8M 10M	20M 30M	
-	+ + + ME	CS agc_fin							1
		MEASUREMEN 2024/9/14 1 Frequency MH2 0.362000 0.542000 1.022000 2.306000 3.962000 12.450000	L0:25 y Level dBµV 0 20.60 0 19.70 0 20.60 0 14.90 0 11.20	Transd dB 6.1 6.2 6.2 6.3 6.3 6.3 6.8	Limit dBµV 59 56 56 56	Margin dB 38.1 36.3 35.4 41.1 44.8 41.8	Detector QP QP QP QP QP QP QP	Ll Ll Ll Ll Ll Ll Ll Ll Ll	
		MEASUREMEN	NT RESULT:	: "agc_	fin2"				
		2024/9/14 1		man a se a al	V davida	Maxeda	Dotost	. Tine	
		Frequency MHz	/ Level z dBµV	dB	dBµV	Margin dB	Detecto	r riue	
		0.358000 0.558000 1.066000 2.130000 12.250000 13.270000	16.00 15.50 11.00 10.90	6.1 6.2 6.2 6.8 6.8	49 46 46 50 50	32.1 30.0 30.5 35.0 39.1 38.3	AV AV AV AV AV AV	L1 L1 L1 L1 L1 L1	

**RESULT: Pass** 





## MEASUREMENT RESULT: "agc\_fin"

2024/9/14 1 Frequency MHz		Transd dB	Limit dBuV	Margin dB	Detector	Line
0.342000	20.90	6.1	59	38.3	QP	N
0.782000	24.40	6.2	56	31.6	QP	N
0.902000	20.70	6.2	56	35.3	QP	N
2.550000	15.20	6.3	56	40.8	QP	N
2.786000	14.70	6.3	56	41.3	QP	N
3.610000	12.70	6.3	56	43.3	QP	Ν

#### MEASUREMENT RESULT: "agc\_fin2"

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line
0.354000	16.80	6.1	49	32.1	AV	N
0.782000	17.80	6.2	46	28.2	AV	N
1.194000	15.80	6.2	46	30.2	AV	N
2.134000	11.30	6.2	46	34.7	AV	N
12.174000	9.80	6.8	50	40.2	AV	Ν
13.446000	11.80	6.8	50	38.2	AV	N

#### **RESULT: PASS**



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# Appendix I: Photographs of Test Setup

Refer to the Report No.: AGC09477240908AP01

# Appendix II: Photographs of Test EUT

Refer to the Report No.: AGC09477240908AP02

-----End of Report-----



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1. All samples and goods are accepted by the Attestation of Global Compliance (Shenzhen) Co., Ltd (the "Company") solely for testing and reporting in accordance with the following terms and conditions. The company provides its services on the basis that such terms and conditions constitute express agreement between the company and any person, firm or company requesting its services (the "Clients").

2. Any report issued by Company as a result of this application for testing services (the "Report") shall be issued in confidence to the Clients and the Report will be strictly treated as such by the Company. It may not be reproduced either in its entirety or in part and it may not be used for advertising or other unauthorized purposes without the written consent of the Company. The Clients to whom the Report is issued may, however, show or send it, or a certified copy thereof prepared by the Company to its customer, supplier or other persons directly concerned. The Company will not, without the consent of the Clients, enter into any discussion or correspondence with any third party concerning the contents of the Report, unless required by the relevant governmental authorities, laws or court orders.

3. The Company shall not be called or be liable to be called to give evidence or testimony on the Report in a court of law without its prior written consent, unless required by the relevant governmental authorities, laws or court orders.

4. In the event of the improper use of the report as determined by the Company, the Company reserves the right to withdraw it, and to adopt any other additional remedies which may be appropriate.

5. Samples submitted for testing are accepted on the understanding that the Report issued cannot form the basis of, or be the instrument for, any legal action against the Company.

6. The Company will not be liable for or accept responsibility for any loss or damage however arising from the use of information contained in any of its Reports or in any communication whatsoever about its said tests or investigations.

7. Clients wishing to use the Report in court proceedings or arbitration shall inform the Company to that effect prior to submitting the sample for testing.

8. The Company is not responsible for recalling the electronic version of the original report when any revision is made to them. The Client assumes the responsibility to providing the revised version to any interested party who uses them.

9. Subject to the variable length of retention time for test data and report stored hereinto as otherwise specifically required by individual accreditation authorities, the Company will only keep the supporting test data and information of the test report for a period of six years. The data and information will be disposed of after the aforementioned retention period has elapsed. Under no circumstances shall we provide any data and information which has been disposed of after retention period. Under no circumstances shall we be liable for damage of any kind, including (but not limited to) compensatory damages, lost profits, lost data, or any form of special, incidental, indirect, consequential or punitive damages of any kind, whether based on breach of contract of warranty, tort (including negligence), product liability or otherwise, even if we are informed in advance of the possibility of such damages.