

# **FCC Test Report**

Report No.: AGC09865230201FE02

**FCC ID** : 2AIIF-10262PG

**APPLICATION PURPOSE**: Original Equipment

**PRODUCT DESIGNATION**: PureBoom Speaker

**BRAND NAME** : PureBoom

MODEL NAME : 10262PG

**APPLICANT**: Superior Communications DBA Puregear

**DATE OF ISSUE** : Mar. 16, 2023

**STANDARD(S)** : FCC Part 15.247

**REPORT VERSION**: V1.0

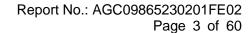
Attestation of Global Compliance (Shenzhen) Co., Ltd



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# **REPORT REVISE RECORD**

Report Version	Revise Time	Issued Date	Valid Version	Notes
V1.0	/	Mar. 16, 2023	Valid	Initial Release





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#### 1. VERIFICATION OF COMPLIANCE

Applicant	Superior Communications DBA Puregear		
Address	5082 4th Street, Irwindale, California. 91706 USA		
Manufacturer	Superior Communications DBA Puregear		
Address	5082 4th Street, Irwindale, California. 91706 USA		
Factory	Superior Communications DBA Puregear		
Address	5082 4th Street, Irwindale, California. 91706 USA		
Product Designation	PureBoom Speaker		
Brand Name	PureBoom		
Test Model	10262PG		
Date of receipt of test item	Feb. 28, 2023		
Date of test	Feb. 28, 2023 to Mar. 16, 2023		
Deviation	No any deviation from the test method		
Condition of Test Sample	Normal		
Test Result	Pass		
Report Template	AGCRT-US-BLE/RF		

We hereby certify that:

The above equipment was tested by Attestation of Global Compliance (Shenzhen) Co., Ltd. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.10 (2013) and the energy emitted by the sample EUT tested as described in this report is in compliance with radiated emission limits of FCC part 15.247.

Alan Duan
(Project Engineer)

Reviewed By

Calvin Liu
(Reviewer)

Mar. 16, 2023



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#### 2. GENERAL INFORMATION

# 2.1. PRODUCT DESCRIPTION

The EUT is designed as a "PureBoom Speaker". It is designed by way of utilizing the GFSK technology to achieve the system operation.

A major technical description of EUT is described as following

Operation Frequency	2.402 GHz to 2.480GHz	
RF Output Power	1M: -1.033dBm (Max) 2M: -1.556dBm (Max)	
Bluetooth Version	V5.0	
Modulation	BR □GFSK, EDR □π /4-DQPSK, □8DPSK BLE □GFSK 1Mbps □GFSK 2Mbps	
Number of channels	40 Channels	
Antenna Designation	PCB Antenna (Comply with requirements of the FCC part 15.203)	
Antenna Gain	-0.58dBi	
Hardware Version	V2.0	
Software Version	V5.0	
Power Supply	DC 3.7V by battery or DC 5V by adapter	

#### 2.2. TABLE OF CARRIER FREQUENCYS

Frequency Band Channel Number		Frequency		
	0	2402 MHz		
	1	2404 MHz		
2400~2483.5MHz	:	:		
	38	2478 MHz		
	39	2480 MHz		



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# 2.3. RELATED SUBMITTAL(S)/GRANT(S)

This submittal(s) (test report) is intended for **FCC ID: 2AIIF-10262PG** filing to comply with the FCC Part 15.247 requirements.

#### 2.4. TEST METHODOLOGY

Both conducted and radiated testing was performed according to the procedures in ANSI C63.10 (2013). Radiated testing was performed at an antenna to EUT distance 3 meters.

#### 2.5. SPECIAL ACCESSORIES

Refer to section 5.2.

#### 2.6. EQUIPMENT MODIFICATIONS

Not available for this EUT intended for grant.

#### 2.7. ANTENNA REQUIREMENT

This intentional radiator is designed with a permanently attached antenna of an antenna to ensure that no antenna other than that furnished by the responsible party shall be used with the device. For more information of the antenna, please refer to the APPENDIX B: PHOTOGRAPHS OF EUT.



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#### 3. 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	$U_c = \pm 3.1 \text{ dB}$		
Uncertainty of Radiated Emission below 1GHz	$U_c = \pm 4.0 \text{ dB}$		
Uncertainty of Radiated Emission above 1GHz	$U_c = \pm 4.8 \text{ dB}$		
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	$U_c = \pm 2 \%$		
Uncertainty of Occupied Channel Bandwidth	U <sub>c</sub> = ±2 %		



#### 4. DESCRIPTION OF TEST MODES

NO.	TEST MODE DESCRIPTION	
1	Low channel TX_2402MHz_GFSK_1Mbps	
2	Middle channel TX_2440MHz_GFSK_1Mbps	
3	High channel TX_2480MHz_GFSK_1Mbps	
4	Low channel TX_2402MHz_GFSK_2Mbps	
5	Middle channel TX_2440MHz_GFSK_2Mbps  High channel TX_2480MHz_GFSK_2Mbps	
6		

#### Note:

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

Software Setting FCC Assist 1.0.2.2 帮助(H) 串口设置 Command\_Type: EN\_TX\_TEST\_CMD 出口 COM11(USB-SERIAL CH340) ch index: (0 - 2402) len\_of\_test\_data: 0xff Package\_Payload: PRBS9 波特率 115200 数据位 8 PHY: LE 2M PHY reply data: 04 0E 04 01 34 20 00 校验位 None return status: 0x0 停止位 1 流 控 NoFlow 周三 3月 15 13:51:23 2023 TEST BLE 关闭 Command\_Type: EN\_TX\_TEST\_CMD ch\_index: (0 - 2402) BR/EDR BLE len\_of\_test\_data: 0xff Command\_Type EN\_TX\_TEST\_CMD Package Payload: PRBS9 PHY: LE 2M PHY reply data: 04 0E 04 01 34 20 00 ch index (0 - 2402) ▼ len\_of\_test\_data Oxff return status: 0x0 发送成功! Package\_Payload PRBS9 周三 3月 15 13:51:24 2023 PHY LE 2M PHY Modulation\_Index standard Command Type: EN TX TEST CMD ch\_index: (0 - 2402) len\_of\_test\_data: 0xff Send configuration Package\_Payload: PRBS9 PHY: LE 2M PHY reply data: 04 0E 04 01 34 20 00 return status: 0x0 发送成功! 清除日志

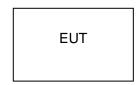


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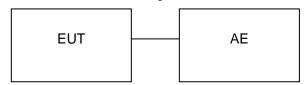
# 5. SYSTEM TEST CONFIGURATION

#### **5.1. CONFIGURATION OF TESTED SYSTEM**

Radiated Emission Configure:



Conducted Emission Configure:



# 5.2. EQUIPMENT USED IN TESTED SYSTEM

Item	Equipment	Model No. ID or Specification		Remark
1	1 PureBoom Speaker 10262PG 2 Control Box USB-TTL		2AIIF-10262PG	EUT
2			N/A	AE
3	U Disc	DT100G3	N/A	AE
4	TF Card SDSQUNC-032G-ZN6MA		N/A	AE
5	5 Xiaomi phone Mi 10		N/A	AE
6	Adapter	K-T10E0502000E	N/A	AE

#### 5.3. SUMMARY OF TEST RESULTS

FCC RULES	DESCRIPTION OF TEST	RESULT
15.247 (b)(3)	Peak Output Power	Compliant
15.247 (a)(2)	6 dB Bandwidth	Compliant
15.247 (d)	Conducted Spurious Emission	Compliant
15.247 (e)	Maximum Conducted Output Power Density	Compliant
15.209	Radiated Emission	Compliant
15.207	Conducted Emission	Compliant



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# **6. TEST FACILITY**

Test Site	Attestation of Global Compliance (Shenzhen) Co., Ltd		
Location  1-2/F, Building 19, Junfeng Industrial Park, Chongqing Road, Heping Com Fuhai Street, Bao'an District, Shenzhen, Guangdong, China			
Designation Number CN1259			
FCC Test Firm Registration Number	975832		
A2LA Cert. No.	5054.02		
Description	Attestation of Global Compliance (Shenzhen) Co., Ltd is accredited by A2LA		

# TEST EQUIPMENT OF CONDUCTED EMISSION TEST

Equipment	Manufacturer	Model	S/N	Cal. Date	Cal. Due
TEST RECEIVER	R&S	ESPI	101206	Mar.28, 2022	Mar.27, 2023
LISN	R&S	ESH2-Z5	100086	Jun. 09, 2022	Jun. 08, 2023
Test software	FARA	EZ-EMC	Ver. AGC-CON03A1	N/A	N/A

# **TEST EQUIPMENT OF RADIATED EMISSION TEST**

Equipment	Manufacturer	Model	S/N	Cal. Date	Cal. Due
TEST RECEIVER	R&S	ESCI	10096	Mar. 28, 2022	Mar. 27, 2023
EXA Signal Analyzer	Aglient	N9010A	MY53470504	Aug. 04, 2022	Aug. 03, 2023
Signal Analyzer	Aglient	N9020A	MY52090123	Aug. 04, 2022	Aug. 03, 2023
2.4GHz Filter	EM Electronics	2400-2500MHz	N/A	Mar. 22, 2022	Mar. 21, 2024
Attenuator	ZHINAN	E-002	N/A	Aug. 03, 2022	Aug. 02, 2024
Horn antenna	SCHWARZBECK	BBHA 9170	#768	Oct. 31, 2021	Oct. 30, 2023
Active loop antenna (9K-30MHz)	ZHINAN	ZN30900C	18051	Mar. 12, 2022	Mar. 21, 2024
Double-Ridged Waveguide Horn	ETS LINDGREN	3117	00034609	Apr. 23, 2021	Apr. 22, 2023
Broadband Preamplifier	ETS LINDGREN	3117PA	00225134	Aug. 03, 2022	Aug. 02, 2024
ANTENNA	SCHWARZBECK	VULB9168	494	Apr. 28, 2021	Apr. 27, 2023
Test software	FARA	EZ-EMC	Ver RA-03A	N/A	N/A



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#### 7. PEAK OUTPUT POWER

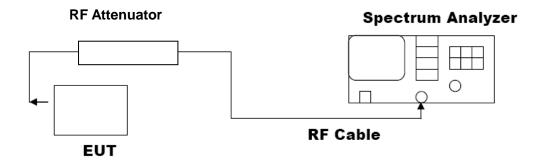
#### 7.1. MEASUREMENT PROCEDURE

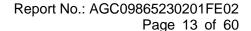
For peak power test:

- 1. Connect EUT RF output port to the Spectrum Analyzer through an RF attenuator
- 2. RBW ≥ DTS bandwidth
- 3. VBW≥3\*RBW.
- 4. SPAN≥VBW.
- 5. Sweep: Auto.
- 6. Detector function: Peak.
- 7. Trace: Max hold.

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.

# 7.2. TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION) PEAK POWER TEST SETUP





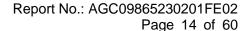


#### 7.3. LIMITS AND MEASUREMENT RESULT

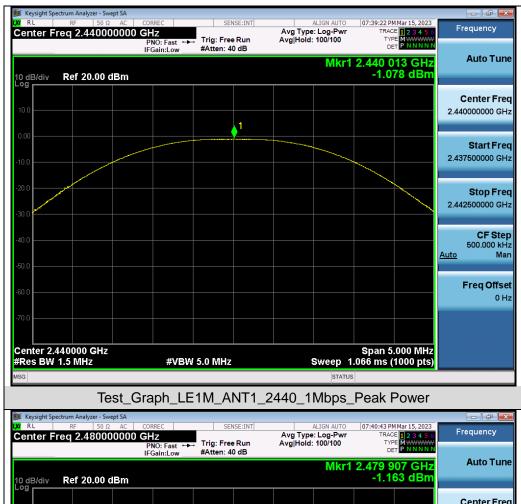
	MEAGOREMENT REGO	<u></u>			
Test Data of Conducted Output Power					
Test Mode	Test Channel (MHz)	Peak Power (dBm)	Limits (dBm)	Pass or Fail	
GFSK 1M	2402	-1.033	≤30	Pass	
	2440	-1.078	≤30	Pass	
	2480	-1.163	≤30	Pass	
GFSK 2M	2402	-1.556	≤30	Pass	
	2440	-1.635	≤30	Pass	
	2480	-1.692	≤30	Pass	

**Test Graphs of Conducted Output Power** 

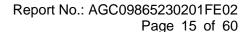








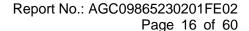




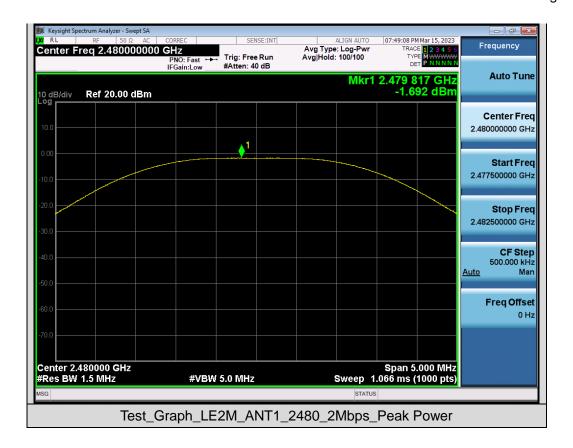














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#### 8. BANDWIDTH

#### **8.1. MEASUREMENT PROCEDURE**

#### 6dB bandwidth:

- 1. Connect EUT RF output port to the Spectrum Analyzer through an RF attenuator
- 2. Set the EUT Work on the top, the middle and the bottom operation frequency individually.
- 3. Set SPA Centre Frequency = Operation Frequency, RBW= 100 kHz, VBW ≥ 3×RBW.
- 4. Set SPA Trace 1 Max hold, then View.

#### Occupied bandwidth:

- 1. Connect EUT RF output port to the Spectrum Analyzer through an RF attenuator
- 2, Set the EUT Work on the top, the middle and the bottom operation frequency individually.
- 3. Set Span = approximately 2 to 5 times the 20 dB bandwidth, centered on a hoping channel
  The nominal IF filter bandwidth (3 dB RBW) shall be in the range of 1% to 5% of the OBW and video
  bandwidth (VBW) shall be approximately three times RBW; Sweep = auto; Detector function = peak
- 4. Set SPA Trace 1 Max hold, then View.

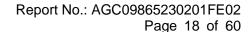
**Note:** The EUT was tested according to ANSI C63.10 for compliance to FCC PART 15.247 requirements.

#### 8.2. TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION)

The same as described in section 7.2.

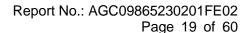
#### **8.3. LIMITS AND MEASUREMENT RESULTS**

Test Data of Occupied Bandwidth and DTS Bandwidth						
Test Mode	Test Channel (MHz)	99% Occupied Bandwidth (MHz)	-6dB Bandwidth (MHz)	Limits (MHz)	Pass or Fail	
GFSK 1M	2402	1.061	0.702	≥0.5	Pass	
	2440	1.061	0.710	≥0.5	Pass	
	2480	1.060	0.710	≥0.5	Pass	
GFSK 2M	2402	2.064	1.182	≥0.5	Pass	
	2440	2.064	1.180	≥0.5	Pass	
	2480	2.062	1.180	≥0.5	Pass	

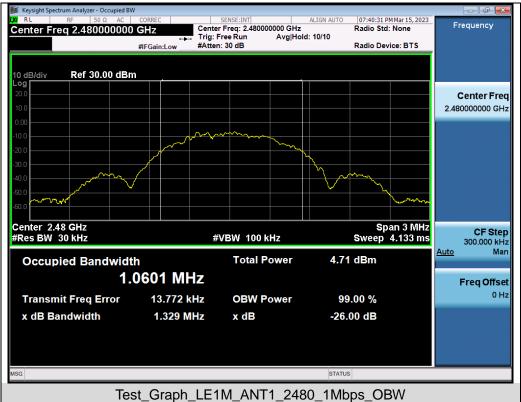




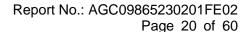








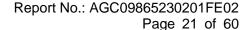














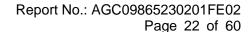
Test Graphs of DTS Bandwidth



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Test\_Graph\_LE1M\_ANT1\_2440\_1Mbps\_DTSBW

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

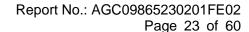






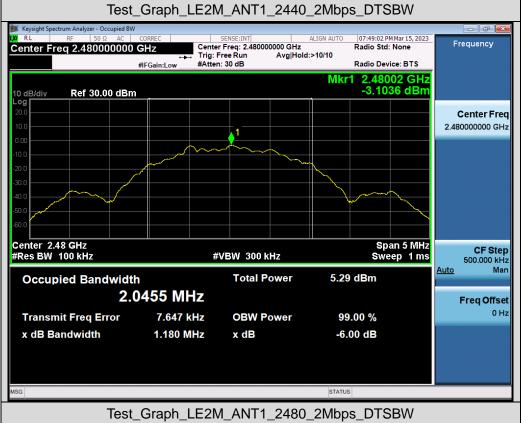


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Tel: +86-755 2523 4088 E-mail: agc@agccert.com Web: http://www.agccert.com/



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#### 9. CONDUCTED SPURIOUS EMISSION

#### 9.1. MEASUREMENT PROCEDURE

- 1. Connect EUT RF output port to the Spectrum Analyzer through an RF attenuator
- 2, Set the EUT Work on the top, the middle and the bottom operation frequency individually.
- 3. Set SPA Trace 1 Max hold, then View.

Note: The EUT was tested according to ANSI C63.10 for compliance to FCC PART 15.247 requirements.

# 9.2. TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION)

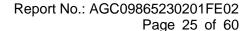
The same as described in section 7.2.

#### 9.3. MEASUREMENT EQUIPMENT USED

The same as described in section 6.

#### 9.4. LIMITS AND MEASUREMENT RESULT

LIMITS AND MEASUREMENT RESULT					
Annii abla I inii	Measurement Result				
Applicable Limits	Test Data	Criteria			
In any 100 kHz Bandwidth Outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produce by the intentional radiator shall be at least 20 dB below that in 100KHz bandwidth within the band that contains the highest level of the desired power.	At least -20dBc than the reference level	PASS			



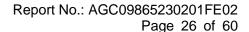


Test Graphs of Spurious Emissions in Non-Restricted Frequency Bands



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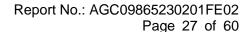
Test\_Graph\_LE1M\_ANT1\_2402\_1Mbps\_Lower Band Emissions







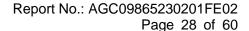








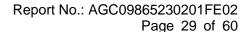








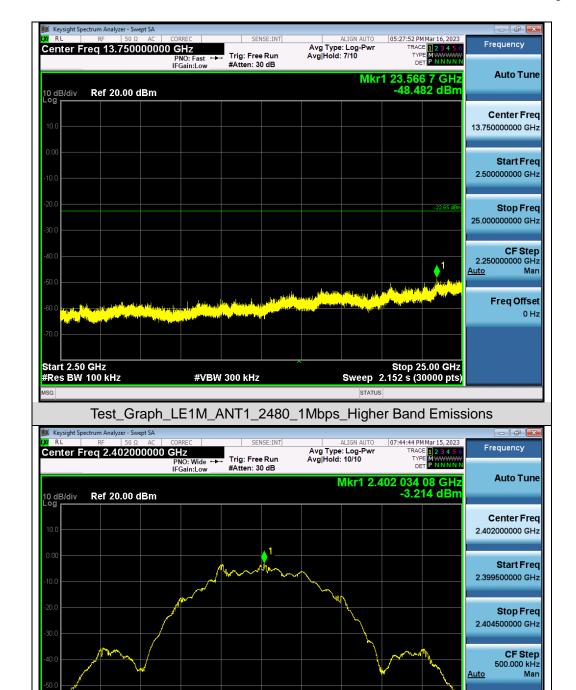




Freq Offset

Span 5.000 MHz Sweep 2.000 ms (30000 pts)



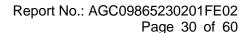


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Test\_Graph\_LE2M\_ANT1\_2402\_2Mbps\_Reference Level

#VBW 300 kHz

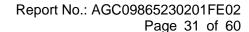
Center 2.402000 GHz #Res BW 100 kHz











Freq Offset

Stop 2.400 GHz Sweep 228.0 ms (30000 pts)



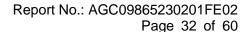


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Test\_Graph\_LE2M\_ANT1\_2440\_2Mbps\_Lower Band Emissions

#VBW 300 kHz

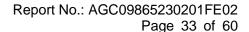
Start 30 MHz #Res BW 100 kHz







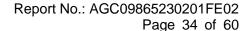






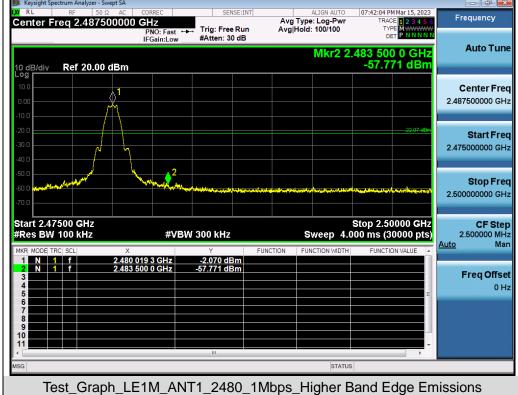


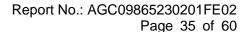






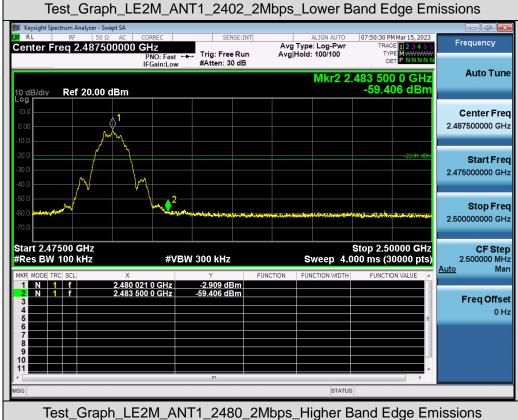
Test Graphs of Band Edge Emissions in Non-Restricted Frequency Bands Avg Type: Log-Pwr Avg|Hold: 100/100 Frequency Center Freq 2.398500000 GHz Trig: Free Run #Atten: 30 dB TYPE **Auto Tune** Mkr2 2.400 000 0 GHz -56.092 dBm Ref 20.00 dBm Center Freq 2.398500000 GHz Start Freq 2.390000000 GHz Stop Freq 2.407000000 GHz Stop 2.407000 GHz 2.000 ms (30000 pts) Start 2.390000 GHz #Res BW 100 kHz CF Step 1.700000 MHz **#VBW** 300 kHz Auto Man Freq Offset 0 Hz Test\_Graph\_LE1M\_ANT1\_2402\_1Mbps\_Lower Band Edge Emissions Avg Type: Log-Pwr Avg|Hold: 100/100 Frequency Center Freq 2.487500000 GHz PNO: Fast ---IFGain:Low Trig: Free Run #Atten: 30 dB **Auto Tune** Mkr2 2.483 500 0 GHz -57.771 dBm Ref 20.00 dBm













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#### 10. MAXIMUM CONDUCTED OUTPUT POWER SPECTRAL DENSITY

#### 10.1. MEASUREMENT PROCEDURE

- (1). Connect EUT RF output port to the Spectrum Analyzer through an RF attenuator
- (2). Set the EUT Work on the top, the middle and the bottom operation frequency individually.
- (3). Set the SPA Trace 1 Max hold, then View.

Note: The method of PKPSD in the KDB 558074 item 8.4 was used in this testing.

# 10.2. TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION)

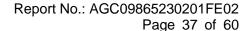
Refer to Section 7.2.

#### 10.3. MEASUREMENT EQUIPMENT USED

Refer to Section 6.

#### 10.4. LIMITS AND MEASUREMENT RESULT

Test Data of Conducted Output Power Spectral Density					
Test Mode	Test Channel (MHz)	Power density (dBm/3kHz)	Limit (dBm/3kHz)	Pass or Fail	
	2402	-17.052	<b>≤8</b>	Pass	
GFSK 1M	2440	-17.137	≪8	Pass	
	2480	-17.071	<b>≤8</b>	Pass	
GFSK 2M	2402	-20.595	≪8	Pass	
	2440	-20.716	<b>≤8</b>	Pass	
	2480	-20.701	<b>≤8</b>	Pass	

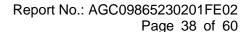




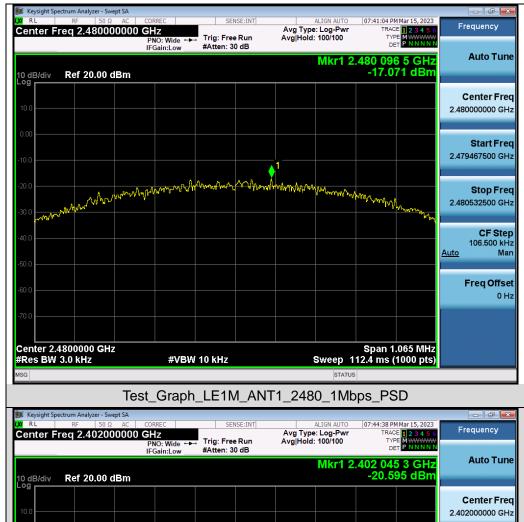
**Test Graphs of Conducted Output Power Spectral Density** Avg Type: Log-Pwr Avg|Hold: 100/100 Frequency RACE 1 2 3 4
TYPE MWWW Center Freq 2.402000000 GHz Trig: Free Run #Atten: 30 dB PNO: Wide IFGain:Low **Auto Tune** Mkr1 2.402 095 4 GHz -17.052 dBm Ref 20.00 dBm 10 dB/div Center Freq 2.402000000 GHz Start Freq 2.401473500 GHz Stop Freq Myramon May 2.402526500 GHz CF Step 105.300 kHz Auto Man **Freq Offset** 0 Hz Span 1.053 MHz Sweep 111.1 ms (1000 pts) Center 2.4020000 GHz #Res BW 3.0 kHz #VBW 10 kHz Test\_Graph\_LE1M\_ANT1\_2402\_1Mbps\_PSD Center Freq 2.440000000 GHz Avg Type: Log-Pwr Avg|Hold: 100/100 Frequency Trig: Free Run #Atten: 30 dB PNO: Wide ↔ IFGain:Low **Auto Tune** Mkr1 2.440 099 7 GHz -17.137 dBm Ref 20.00 dBm 10 dB/div Center Frea 2.440000000 GHz Start Freq 2.439467500 GHz Stop Freq 2 440532500 GHz CF Step 106.500 kHz <u>Auto</u> Freq Offset 0 Hz Center 2.4400000 GHz #Res BW 3.0 kHz Span 1.065 MHz Sweep 112.4 ms (1000 pts) **#VBW 10 kHz** 

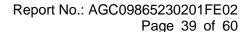
Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the "Dedicated Testing/Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of AGC. The test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15days after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc01@agccert.com.

Test\_Graph\_LE1M\_ANT1\_2440\_1Mbps\_PSD

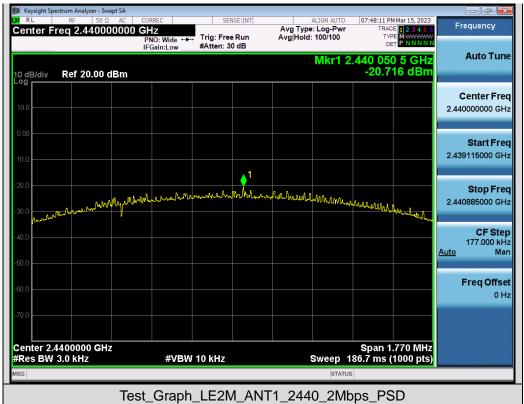


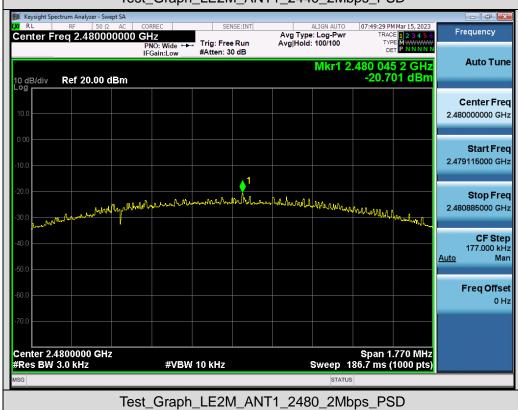












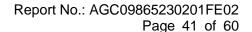


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#### 11. RADIATED EMISSION

#### 11.1. MEASUREMENT PROCEDURE

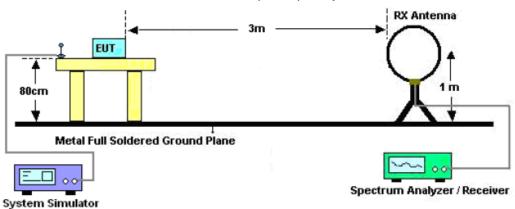
- 1. The EUT was placed on the top of the turntable 0.8 or 1.5 meter above ground. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turntable.
- 2. Power on the EUT and all the supporting units. The turntable was rotated 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. 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.
- 8.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.
- 9. 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.
- 10. 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.



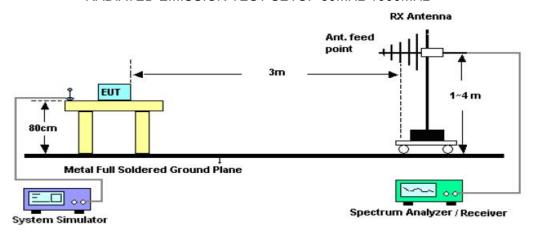


#### 11.2. TEST SETUP

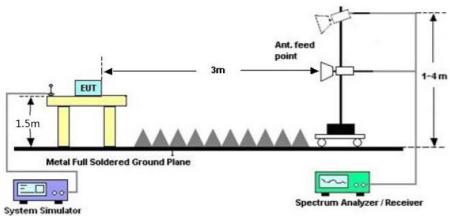
# Radiated Emission Test-Setup Frequency Below 30MHz



#### RADIATED EMISSION TEST SETUP 30MHz-1000MHz



#### RADIATED EMISSION TEST SETUP ABOVE 1000MHz





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### 11.3. LIMITS AND MEASUREMENT RESULT

15.209 Limit in the below table has to be followed

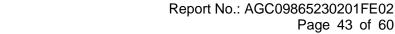
Frequencies (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009~0.490	2400/F(kHz)	300
0.490~1.705	24000/F(kHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
Above 960	500	3

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

#### 11.4. TEST RESULT

#### Radiated emission below 30MHz

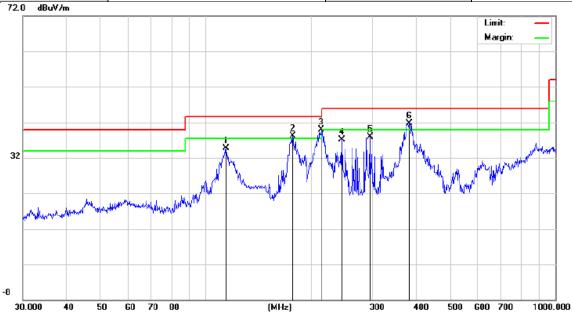
The amplitude of spurious emissions from 9kHz to 30MHz which are attenuated more than 20 dB below the permissible value need not be reported.



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Radiated emission from 30MHz to 1000MHz

EUT	PureBoom Speaker	Model Name	10262PG
Temperature	21° C	Relative Humidity	54%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 1	Antenna	Horizontal



No.	Mk	c. Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector
1		114.5146	19.39	15.34	34.73	43.50	-8.77	peak
2	İ	177.5091	22.56	15.46	38.02	43.50	-5.48	peak
3	*	214.5142	24.45	15.43	39.88	43.50	-3.62	peak
4		245.0900	19.36	17.74	37.10	46.00	-8.90	peak
5		295.1469	22.21	15.60	37.81	46.00	-8.19	peak
6	İ	382.5878	21.51	20.23	41.74	46.00	-4.26	peak

**RESULT: PASS** 



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EUT	PureBoom Speaker	Model Name	10262PG
Temperature	21° C	Relative Humidity	54%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 1	Antenna	Vertical



No.	Mk	. Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector
1	İ	31.8427	18.01	17.47	35.48	40.00	-4.52	peak
2	İ	44.4307	18.75	16.94	35.69	40.00	-4.31	peak
3	*	113.3162	21.03	18.86	39.89	43.50	-3.61	peak
4	İ	176.2685	20.20	18.44	38.64	43.50	-4.86	peak
5	İ	213.0150	22.45	16.92	39.37	43.50	-4.13	peak
6	İ	257.4221	24.05	17.68	41.73	46.00	-4.27	peak

# RESULT: PASS Note:

- 1. Factor=Antenna Factor + Cable loss, Over=Measurement-Limit.
- 2. All test modes had been tested. The 1M mode 1 is the worst case and recorded in the report.



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### Radiated emission above 1GHz

EUT	PureBoom Speaker	Model Name	10262PG
Temperature	21° C	Relative Humidity	54%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 1	Antenna	Horizontal

Meter Reading	Factor	Emission Level	Limits	Margin	Value Type
(dBµV)	(dB)	(dBµV/m)	$(dB\mu V/m)$	(dB)	value Type
43.48	0.08	43.56	74	-30.44	peak
35.32	80.0	35.4	54	-18.6	AVG
38.64	2.21	40.85	74	-33.15	peak
31.25	2.21	33.46	54	-20.54	AVG
	(dBµV) 43.48 35.32 38.64	(dBµV) (dB) 43.48 0.08 35.32 0.08 38.64 2.21	(dBμV)     (dB)     (dBμV/m)       43.48     0.08     43.56       35.32     0.08     35.4       38.64     2.21     40.85	(dBμV)     (dB)     (dBμV/m)     (dBμV/m)       43.48     0.08     43.56     74       35.32     0.08     35.4     54       38.64     2.21     40.85     74	(dBμV)     (dB)     (dBμV/m)     (dBμV/m)     (dBμV/m)       43.48     0.08     43.56     74     -30.44       35.32     0.08     35.4     54     -18.6       38.64     2.21     40.85     74     -33.15

Remark:

Factor = Antenna Factor + Cable Loss - Pre-amplifier.

EUT	PureBoom Speaker	Model Name	10262PG
Temperature	21° C	Relative Humidity	54%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 1	Antenna	Vertical

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Value Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	value Type
4804.000	44.37	0.08	44.45	74	-29.55	peak
4804.000	34.85	0.08	34.93	54	-19.07	AVG
7206.000	38.29	2.21	40.5	74	-33.5	peak
7206.000	30.62	2.21	32.83	54	-21.17	AVG

#### Remark:

Factor = Antenna Factor + Cable Loss - Pre-amplifier.



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EUT	PureBoom Speaker	Model Name	10262PG
Temperature	21° C	Relative Humidity	54%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 2	Antenna	Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Value Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	value Type
4880.000	44.63	0.14	44.77	74	-29.23	peak
4880.000	35.75	0.14	35.89	54	-18.11	AVG
7320.000	39.71	2.36	42.07	74	-31.93	peak
7320.000	31.55	2.36	33.91	54	-20.09	AVG
Remark:						
actor - Anter	na Factor + Cahl	aloss Dra	amplifier			

Factor = Antenna Factor + Cable Loss – Pre-amplitier.

EUT	PureBoom Speaker	Model Name	10262PG
Temperature	21° C	Relative Humidity	54%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 2	Antenna	Vertical

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Value Type	
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	value Type	
4880.000	45.15	0.14	45.29	74	-28.71	peak	
4880.000	38.07	0.14	38.21	54	-15.79	AVG	
7320.000	40.46	2.36	42.82	74	-31.18	peak	
7320.000	32.44	2.36	34.8	54	-19.2	AVG	

Remark:

Factor = Antenna Factor + Cable Loss - Pre-amplifier.



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EUT	PureBoom Speaker	Model Name	10262PG
Temperature	21° C	Relative Humidity	54%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 3	Antenna	Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Value Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	value Type
4960.000	44.65	0.22	44.87	74	-29.13	peak
4960.000	35.41	0.22	35.63	54	-18.37	AVG
7440.000	38.78	2.64	41.42	74	-32.58	peak
7440.000	29.43	2.64	32.07	54	-21.93	AVG
Remark:			·			•
actor = Anter	nna Factor + Cabl	e Loss – Pre-	amplifier.			

EUT	PureBoom Speaker	Model Name	10262PG
Temperature	21° C	Relative Humidity	54%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 3	Antenna	Vertical

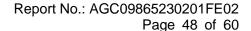
Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Value Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	value Type
4960.000	42.98	0.22	43.2	74	-30.8	peak
4960.000	34.02	0.22	34.24	54	-19.76	AVG
7440.000	38.67	2.64	41.31	74	-32.69	peak
7440.000	29.75	2.64	32.39	54	-21.61	AVG
	+					
Remark:			1		ļ.	Į.
Factor = Anter	nna Factor + Cabl	e Loss – Pre-a	mplifier.		_	

# **RESULT: PASS**

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.

Factor = Antenna Factor + Cable loss - Amplifier gain, Margin=Level-Limit.

The "Factor" value can be calculated automatically by software of measurement system.

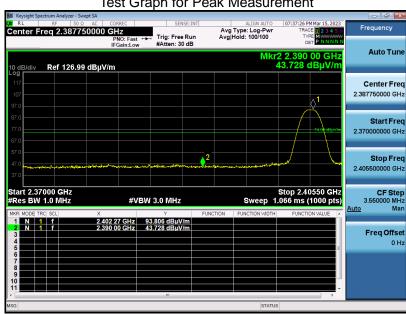


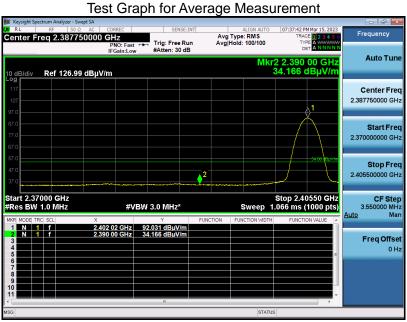


Test result for band edge emission at restricted bands-1M

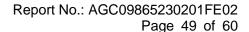
EUT	PureBoom Speaker	Model Name	10262PG
Temperature	21° C	Relative Humidity	54%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 1	Antenna	Horizontal

Test Graph for Peak Measurement





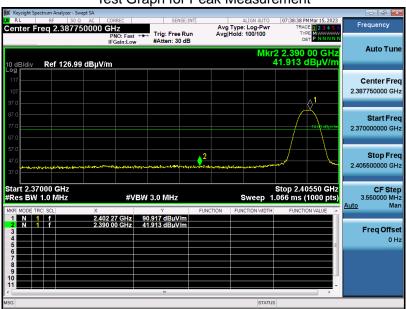
**RESULT: PASS** 

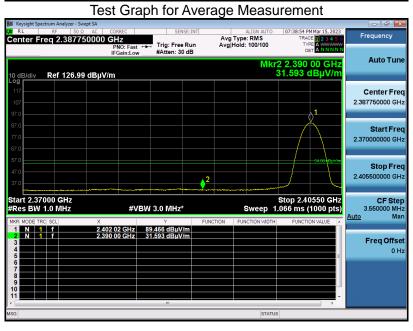




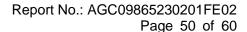
**EUT** PureBoom Speaker **Model Name** 10262PG 21° C **Temperature Relative Humidity** 54% 960hPa **Test Voltage** Normal Voltage **Pressure Test Mode** Mode 1 **Antenna** Vertical

Test Graph for Peak Measurement





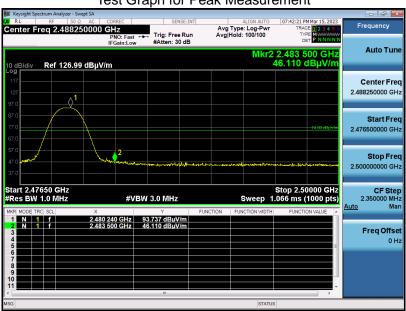
**RESULT: PASS** 

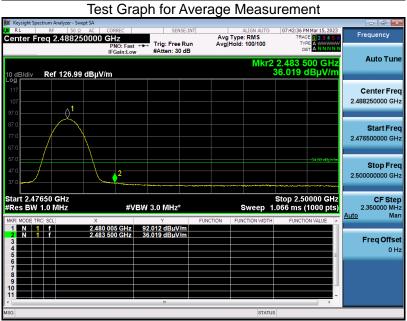




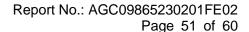
EUT	PureBoom Speaker	Model Name	10262PG
Temperature	21° C	Relative Humidity	54%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 3	Antenna	Horizontal

Test Graph for Peak Measurement





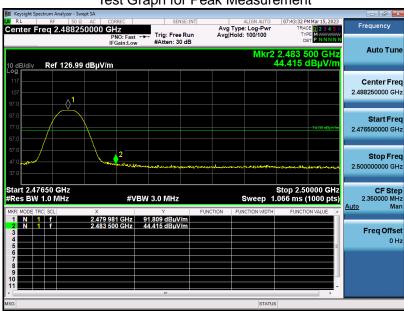
**RESULT: PASS** 

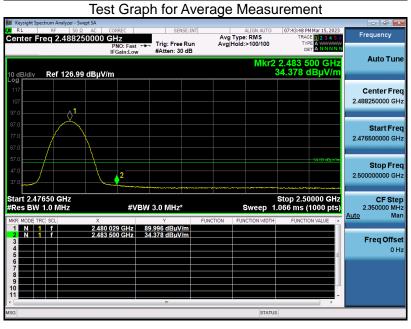




**EUT Model Name** 10262PG PureBoom Speaker 21° C **Temperature Relative Humidity** 54% 960hPa Normal Voltage **Pressure Test Voltage Test Mode** Mode 3 **Antenna** Vertical

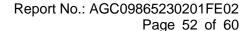
Test Graph for Peak Measurement





#### **RESULT: PASS**

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

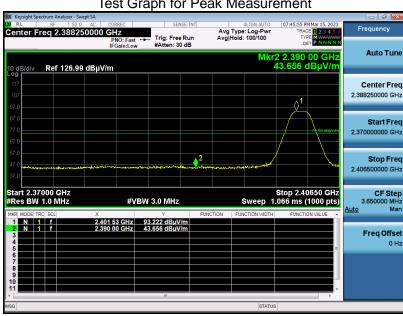


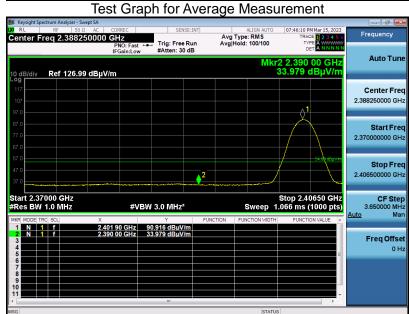


Test result for band edge emission at restricted bands-2M

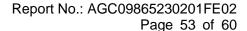
EUT	PureBoom Speaker	Model Name	10262PG
Temperature	21° C	Relative Humidity	54%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 1	Antenna	Horizontal

Test Graph for Peak Measurement





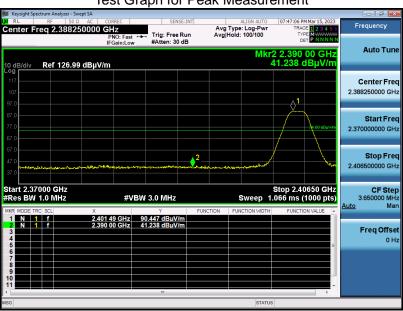
**RESULT: PASS** 

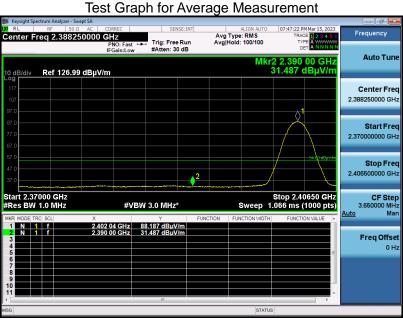




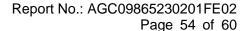
**EUT** PureBoom Speaker **Model Name** 10262PG 21° C **Temperature Relative Humidity** 54% 960hPa **Test Voltage** Normal Voltage **Pressure Test Mode** Mode 1 **Antenna** Vertical

Test Graph for Peak Measurement





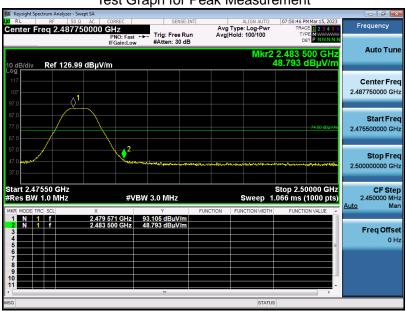
**RESULT: PASS** 

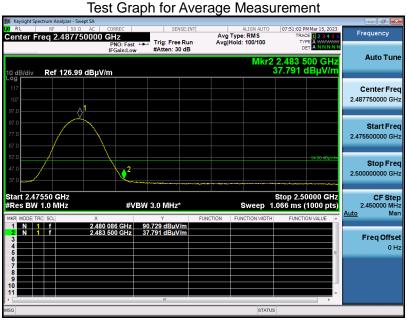




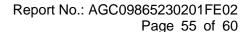
**EUT** PureBoom Speaker **Model Name** 10262PG 21° C **Temperature Relative Humidity** 54% 960hPa **Test Voltage** Normal Voltage **Pressure Test Mode** Mode 3 **Antenna** Horizontal

Test Graph for Peak Measurement





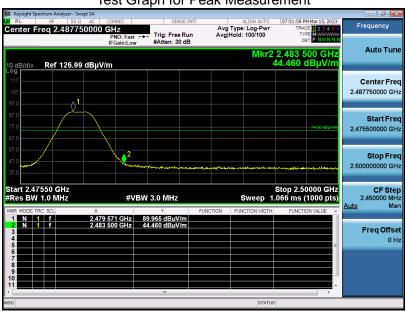
**RESULT: PASS** 

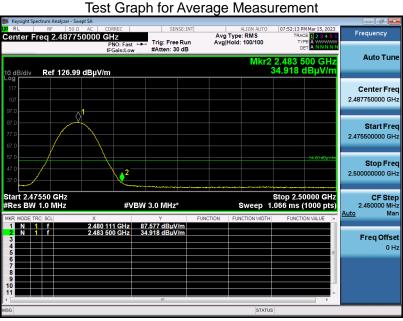




**EUT** 10262PG PureBoom Speaker **Model Name** 21° C **Temperature Relative Humidity** 54% 960hPa Normal Voltage **Pressure Test Voltage Test Mode** Mode 3 **Antenna** Vertical

Test Graph for Peak Measurement





#### **RESULT: PASS**

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



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#### 12. LINE CONDUCTED EMISSION TEST

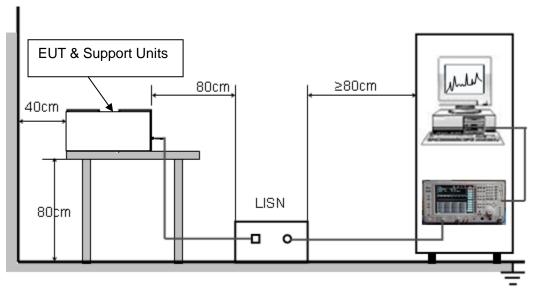
### 12.1. LIMITS OF LINE CONDUCTED EMISSION TEST

Frequency	Maximum RF Line Voltage			
	Q.P.( dBuV)	Average( dBuV)		
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. BLOCK DIAGRAM OF LINE CONDUCTED EMISSION TEST





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#### 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.

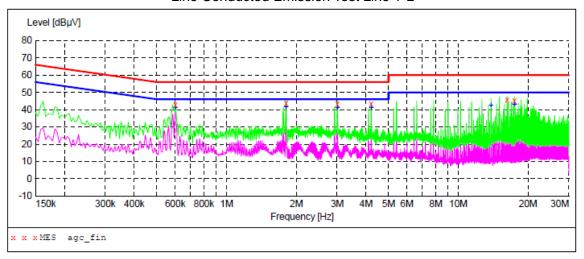
#### 12.4. FINAL PROCEDURE OF LINE CONDUCTED EMISSION TEST

- 1. EUT and support equipment was set up on the test bench as per step 2 of the preliminary test.
- 2. 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. TEST RESULT OF LINE CONDUCTED EMISSION TEST

#### Line Conducted Emission Test Line 1-L



# MEASUREMENT RESULT: "agc\_fin"

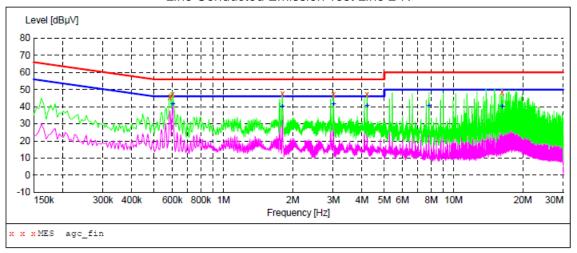
2023/3/1 23:18 Frequency MHz		Transd dB	Limit dBµV	Margin dB	Detector	Line
0.602000	42.70	5.4	56	13.3	_	L1
1.806000	43.70	6.3	56	12.3	QP	L1
3.010000	43.40	6.5	56	12.6	QP	L1
4.210000	43.40	6.5	56	12.6	QP	L1
16.246000	45.50	8.5	60	14.5	QP	L1
17.446000	45.10	8.6	60	14.9	QP	L1

# MEASUREMENT RESULT: "agc fin2"

2023/3/1 23 Frequency MHz	Level	Transd dB	Limit dBµV	Margin dB	Detector	Line
0.602000 1.806000		5.4 6.3	46 46	5.2 4.4		L1 L1
3.010000	41.10	6.5	46	4.9	AV	L1
4.210000		6.5	46	4.9		L1
13.838000		8.0	50		AV	L1
17.450000	43.00	8.6	50	7.0	AV	L1



### Line Conducted Emission Test Line 2-N



# MEASUREMENT RESULT: "agc\_fin"

2023/3/1 23:1 Frequency MHz		Transd dB	Limit dBµV	Margin dB	Detector	Line
0.586000	45.50	5.4	56	10.5	QP	N
0.602000	47.00	5.4	56	9.0		N
1.806000	47.60	6.3	56	8.4		N
3.010000	46.90	6.5	56	9.1	QP	N
4.210000	46.90	6.5	56	9.1	QP	N
16.246000	48.30	8.5	60	11.7	QP	N

# MEASUREMENT RESULT: "agc\_fin2"

2023/3/1 23:15 Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line
0.602000	41.40	5.4	46	4.6	AV	N
1.806000	40.20	6.3	46	5.8	AV	N
3.010000	41.50	6.5	46	4.5	AV	N
4.214000	40.30	6.5	46	5.7	AV	N
7.822000	40.50	6.8	50	9.5	AV	N
16.246000	39.80	8.5	50	10.2	AV	N

#### **RESULT: PASS**

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



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#### APPENDIX A: PHOTOGRAPHS OF TEST SETUP

Refer to the Report No.: AGC09865230201AP02

**APPENDIX B: PHOTOGRAPHS OF EUT** 

Refer to the Report No.: AGC09865230201AP03

----END OF REPORT----



# Conditions of Issuance of Test Reports

- 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.