

FCC Test Report

Report No.: AGC01559220304FE02

FCC ID	:	2AANZEBSK-E
APPLICATION PURPOSE	:	Original Equipment
PRODUCT DESIGNATION	:	2-IN-1 Wireless Speaker & Earbuds
BRAND NAME	:	EDGEWOOD
MODEL NAME	:	NOR-EBSK-GRN, NOR-EBSK, NOR-EBSK-XXX, EW-EBSK-GRN, EW-EBSK, EW-EBSK-XXX
APPLICANT	:	DGL Group LTD.
DATE OF ISSUE	:	Mar. 14, 2022
STANDARD(S)	:	FCC Part 15.247
REPORT VERSION	:	V1.0
<u>Attestation of (</u>	<u> </u>	bootal Compliance (Shenzhen) Co., Ltd



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.

Attestation of Global Compliance(Shenzhen)Co., Ltd Attestation of Global Compliance(Shenzhen)Std & Tech Co., Ltd Tel: +86-755 2523 4088 E-mail: agc@agccert.com Web: http://www.agccert.com/



REPORT REVISE RECORD

Report Version	Revise Time	Issued Date	Valid Version	Notes
V1.0	/	Mar. 14, 2022	Valid	Initial Release



TABLE OF CONTENTS

1. VERIFICATION OF COMPLIANCE	5
2. GENERAL INFORMATION	6
2.1. PRODUCT DESCRIPTION	6
2.2. TABLE OF CARRIER FREQUENCYS	6
2.3. RELATED SUBMITTAL(S)/GRANT(S)	7
2.4. TEST METHODOLOGY	7
2.5. SPECIAL ACCESSORIES	7
2.6. EQUIPMENT MODIFICATIONS	7
2.7. ANTENNA REQUIREMENT	7
3. MEASUREMENT UNCERTAINTY	
4. DESCRIPTION OF TEST MODES	9
5. SYSTEM TEST CONFIGURATION	
5.1. CONFIGURATION OF TESTED SYSTEM	
5.2. EQUIPMENT USED IN TESTED SYSTEM	
5.3. SUMMARY OF TEST RESULTS	
6. TEST FACILITY	11
7. PEAK OUTPUT POWER	
7.1. MEASUREMENT PROCEDURE	
7.2. TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION)	
7.3. LIMITS AND MEASUREMENT RESULT	
8. BANDWIDTH	
8.1. MEASUREMENT PROCEDURE	
8.2. TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION)	
8.3. LIMITS AND MEASUREMENT RESULTS	
9. CONDUCTED SPURIOUS EMISSION	
9.1. MEASUREMENT PROCEDURE	
9.2. TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION)	
9.3. MEASUREMENT EQUIPMENT USED	
9.4. LIMITS AND MEASUREMENT RESULT	



10.1. MEASUREMENT PROCEDURE	
10.2. TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION)	
10.3. MEASUREMENT EQUIPMENT USED	
10.4. LIMITS AND MEASUREMENT RESULT	
11. RADIATED EMISSION	
11.1. MEASUREMENT PROCEDURE	
11.2. TEST SETUP	
11.3. LIMITS AND MEASUREMENT RESULT	30
11.4. TEST RESULT	30
12. LINE CONDUCTED EMISSION TEST	40
	40
12.1. LIMITS OF LINE CONDUCTED EMISSION TEST	40
12.1. LIMITS OF LINE CONDUCTED EMISSION TEST 12.2. BLOCK DIAGRAM OF LINE CONDUCTED EMISSION TEST	
	40
12.2. BLOCK DIAGRAM OF LINE CONDUCTED EMISSION TEST	40 41
12.2. BLOCK DIAGRAM OF LINE CONDUCTED EMISSION TEST 12.3. PRELIMINARY PROCEDURE OF LINE CONDUCTED EMISSION TEST	40 41 41
12.2. BLOCK DIAGRAM OF LINE CONDUCTED EMISSION TEST 12.3. PRELIMINARY PROCEDURE OF LINE CONDUCTED EMISSION TEST 12.4. FINAL PROCEDURE OF LINE CONDUCTED EMISSION TEST	40 41 41 42



1. VERIFICATION OF COMPLIANCE

Applicant	DGL Group LTD.		
Address	195 Raritan Center Parkway, Edison, NJ 08837, United States		
Manufacturer	DGL Group LTD.		
Address	195 Raritan Center Parkway, Edison, NJ 08837, United States		
Product Designation	2-IN-1 Wireless Speaker & Earbuds		
Brand Name	EDGEWOOD		
Test Model	NOR-EBSK-GRN		
Series Model	NOR-EBSK, NOR-EBSK-XXX, EW-EBSK-GRN, EW-EBSK, EW-EBSK-XXX		
Declaration of Difference	(Only the appearance of the color is different, everything else is completely the same. X is just a letter.)		
Date of test	Mar. 03, 2022 to Mar. 14, 2022		
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.

Bibo zho Prepared By Bibo Zhang Mar. 14, 2022 (Project Engineer) **Reviewed By** Calvin Liu Mar. 14, 2022 (Reviewer) Approved By Max Zhang Mar. 14, 2022 (Authorized Officer)



2. GENERAL INFORMATION

2.1. PRODUCT DESCRIPTION

The EUT is designed as a "2-IN-1 Wireless Speaker & Earbuds". 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	-4.862dBm (Max)		
Bluetooth Version	V5.3		
Modulation	BR □GFSK, EDR □π /4-DQPSK, □8DPSK BLE ⊠GFSK 1Mbps □GFSK 2Mbps		
Number of channels	40 Channel		
Antenna Designation	Ceramic antenna (Comply with requirements of the FCC part 15.203)		
Antenna Gain	2.25dBi		
Hardware Version	V1.1		
Software Version	V1.0		
Power Supply	DC 3.7V by battery or DC 5V by adapter		

2.2. TABLE OF CARRIER FREQUENCYS

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



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

This submittal(s) (test report) is intended for FCC ID: 2AANZEBSK-E 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.



3. 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	$U_c = \pm 3.1 \text{ dB}$
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 _c = ±2 %



4. DESCRIPTION OF TEST MODES

NO.	TEST MODE DESCRIPTION		
1	Low channel TX		
2	Middle channel TX		
3	High channel TX		

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	- 🗆 X
帮助(<u>H</u>)	
	— □ ×
	44840 6470



5. SYSTEM TEST CONFIGURATION

5.1. CONFIGURATION OF TESTED SYSTEM

Radiated Emission Configure:

EUT

Conducted Emission Configure:

EUT	AE

5.2. EQUIPMENT USED IN TESTED SYSTEM

Item	Equipment	Model No.	ID or Specification	Remark
1	2-IN-1 Wireless Speaker & Earbuds	NOR-EBSK-GRN	2AANZEBSK-E	EUT
2	2-IN-1 Wireless Speaker & Earbuds	NOR-EBSK-GRN	2AANZEBSK-S	EUT
3	Adapter	ZL-PCB0100020502000	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



6. TEST FACILITY

Test software

Test Site	Attestation of C	Attestation of Global Compliance (Shenzhen) Co., Ltd						
Location		19, Junfeng Indust Bao'an District, Shen:			ng Community,			
Designation Number	CN1259							
FCC Test Firm Registration Number	975832	975832						
A2LA Cert. No.	5054.02	5054.02						
Description	Attestation of C	Global Compliance (S	Shenzhen) Co., L	td is accredited t	by A2LA			
TEST EQUIPMENT OF	CONDUCTED E	MISSION TEST						
Equipment	Manufacturer	Model	S/N	Cal. Date	Cal. Due			
TEST RECEIVER	R&S	R&S ESPI 101206 May 11, 2021 May 10, 2022						
LISN	R&S	ESH2-Z5	100086	Jun. 09, 2021	Jun. 08, 2022			

ES-K1(Ver.V1.71)

N/A

N/A

N/A

TEST EQUIPMENT OF RADIATED EMISSION TEST

R&S

Equipment	Manufacturer	Model	S/N	Cal. Date	Cal. Due
TEST RECEIVER	R&S	ESCI	10096	May 15, 2021	May 14, 2022
EXA Signal Analyzer	Aglient	N9010A	MY53470504	Nov. 17, 2021	Nov. 16, 2022
2.4GHz Filter	EM Electronics	2400-2500MHz	N/A	Mar. 23, 2020	Mar. 22, 2022
Attenuator	ZHINAN	E-002	N/A	Sep. 03, 2020	Sep. 02, 2022
Horn antenna	SCHWARZBECK	BBHA 9170	#768	Oct. 31, 2021	Oct. 30, 2023
Active loop antenna (9K-30MHz)	ZHINAN	ZN30900C	18051	May 22, 2020	May 21, 2022
Double-Ridged Waveguide Horn	ETS LINDGREN	3117	00034609	Apr. 23, 2021	Apr. 22, 2022
Broadband Preamplifier	ETS LINDGREN	3117PA	00225134	Sep. 03, 2020	Sep. 02, 2022
ANTENNA	SCHWARZBECK	VULB9168	494	Jan. 08, 2021	Jan. 07, 2023
Test software	Tonscend	JS32-RE (Ver.2.5)	N/A	N/A	N/A



7. PEAK OUTPUT POWER

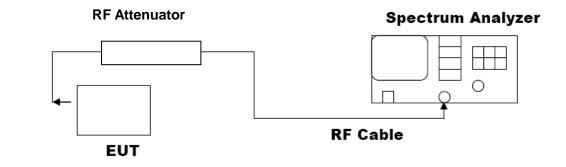
7.1. MEASUREMENT PROCEDURE

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.

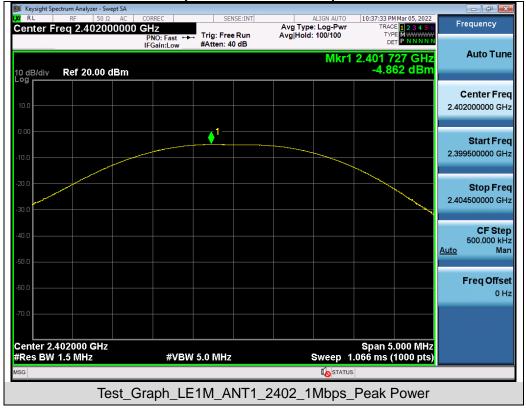
7.2. TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION) PEAK POWER TEST SETUP





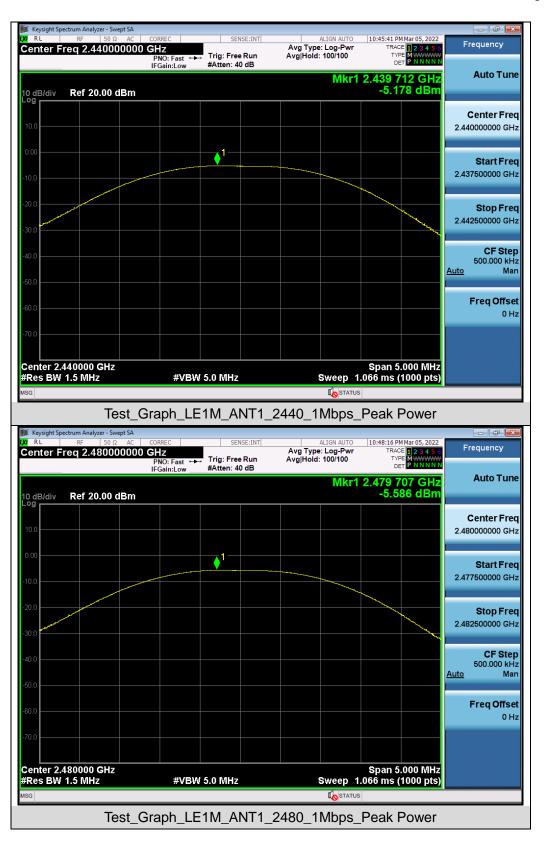
7.3. LIMITS AND MEASUREMENT RESULT

Test Data of Conducted Output Power						
Test Mode	Test Channel (MHz)	Peak Power (dBm)	Limits (dBm)	Pass or Fail		
	2402	-4.862	≪30	Pass		
GFSK 1M	2440	-5.178	≪30	Pass		
	2480	-5.586	≤30	Pass		



Test Graphs of Conducted Output Power







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.

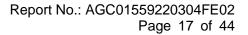
8.3. LIMITS AND MEASUREMENT RESULTS

Test Data of Occupied Bandwidth and DTS Bandwidth							
Test Mode	Test ModeTest Channel (MHz)99% Occupied Bandwidth (MHz)-6dB Bandwidth (MHz)Limits (MHz)P						
	2402	1.027	0.665	≥0.5	Pass		
GFSK 1M	2440	1.028	0.670	≥0.5	Pass		
	2480	1.028	0.667	≥0.5	Pass		





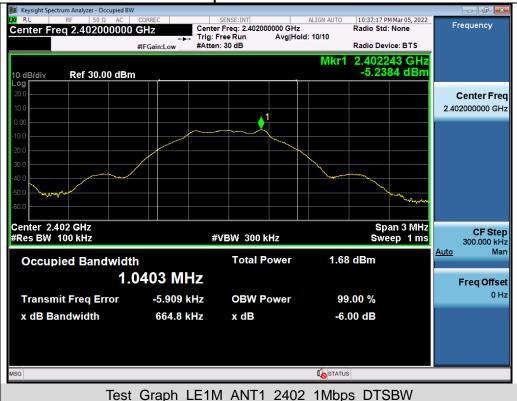
Test Graphs of Occupied Bandwidth







Test_Graph_LE1M_ANT1_2480_1Mbps_OBW



Test Graphs of DTS Bandwidth







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

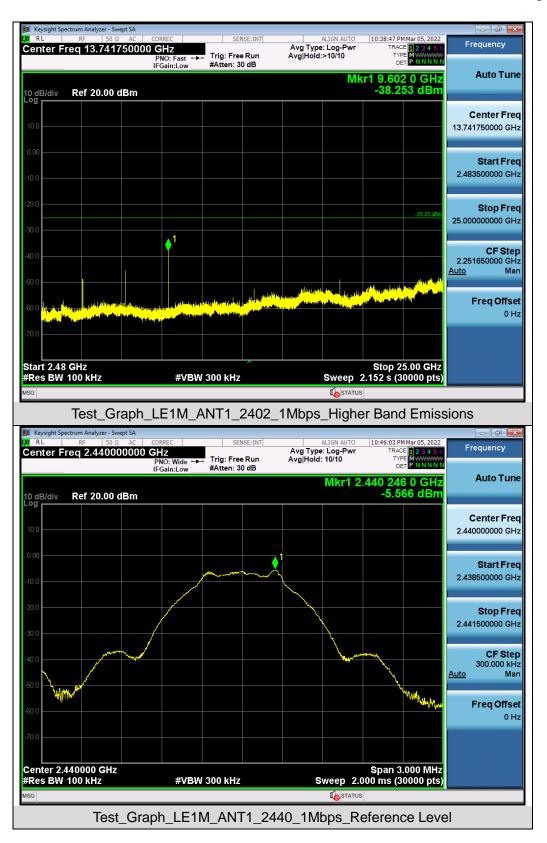
LIMITS AND MEASUREMENT RESULT					
Angliaghta Limita	Measurement Result				
Applicable Limits	Test Data	Criteria			
In any 100 kHz Bandwidth Outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produce by the intentional radiator 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			



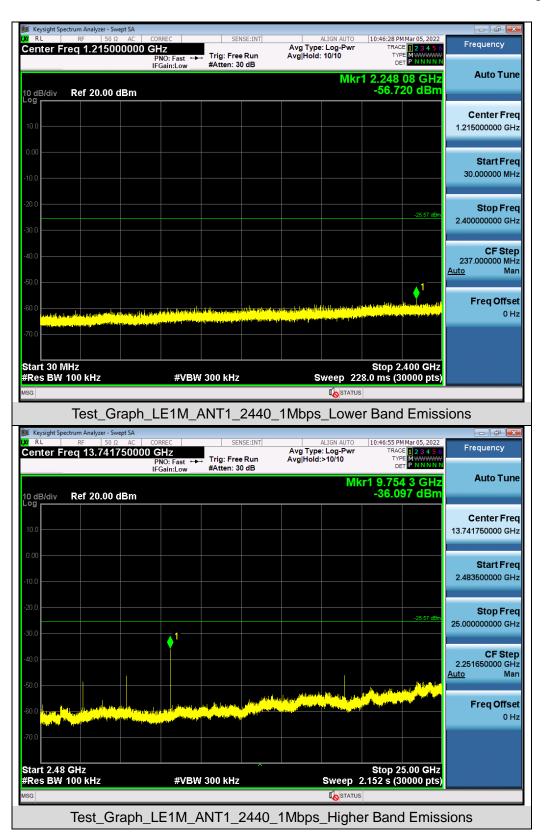


Test Graphs of Spurious Emissions in Non-Restricted Frequency Bands





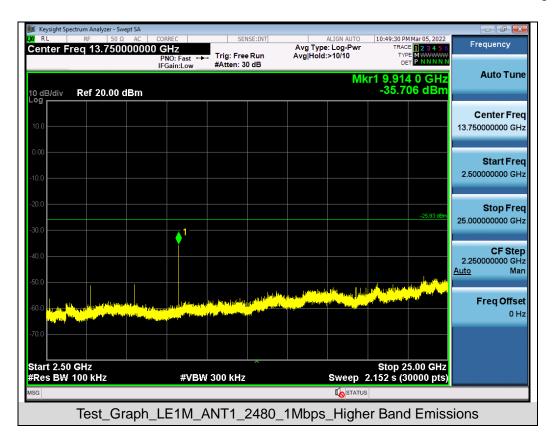
















Test Graphs of Band Edge Emissions in Non-Restricted Frequency Bands



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.

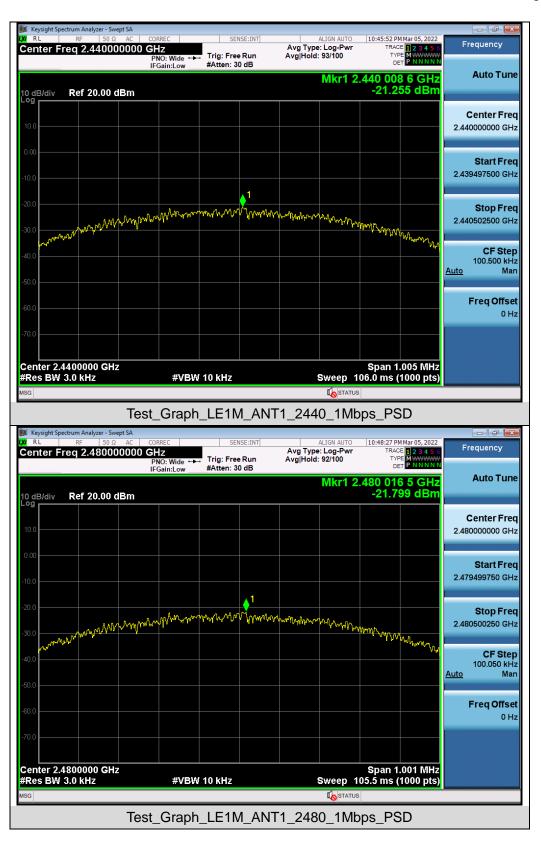
10.4. LIMITS AND MEASUREMENT RESULT

Test Data of Conducted Output Power Spectral Density							
Test Mode	Test ModeTest Channel (MHz)Power density (dBm/3kHz)Limit (dBm/3kHz)						
	2402	-21.039	≤8	Pass			
GFSK 1M	2440	-21.255	≪8	Pass			
	2480	-21.799	≪8	Pass			

Test Graphs of Conducted Output Power Spectral Density









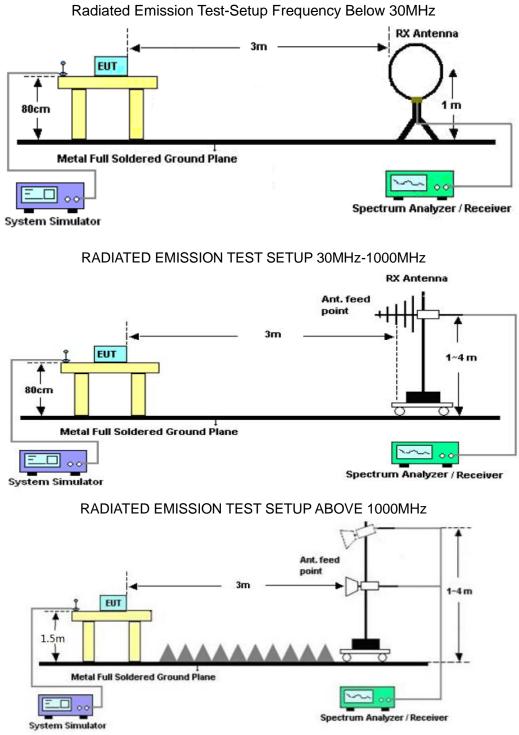
11. RADIATED EMISSION

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





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.



EUT	2-IN-1 Wireless Spe Earbuds	aker &	Model Name	NOR-EBSK-GRN
Temperature	25° C		Relative Humidity	55%
Pressure	960hPa		Test Voltage	Normal Voltage
Test Mode	Mode 1		Antenna	Horizontal
80.0 dBu∀/m				Limit: —
				Margin: —
				Г
		1		
40				e Å
	\$	3	maning	und and and and and and and and and and a
	man man	manning	monorm	
0.0 30.000 40	50 60 70 80	(MHz)	300 400 50	0 600 700 1000.000
No. Mk	Reading	-	Measure-	Over
No. Mk.	Freq. Level	Factor	mont	
	MHz dBuV	dB	dBuV/m dBuV/m	dB Detector
1	39.9474 13.58	10.06	23.64 40.00	-16.36 peak
2	67.1833 14.37	11.93	26.30 40.00	-13.70 peak
3 1	49.6333 15.09	11.94	27.03 43.50	-16.47 peak
4 3	82.4333 14.94	18.29	33.23 46.00	-12.77 peak
5 6	39.4833 15.71	17.42	33.13 46.00	-12.87 peak
6 * 8	93.3000 15.39	22.64	38.03 46.00	-7.97 peak

Radiated emission from 30MHz to 1000MHz

2-IN-1 Wireless Speaker &

RESULT: PASS



EUT	2-IN-1 Wireless Spea Earbuds	ker & Moo	lel Name	NOR-EB	SK-GRN
Temperature	25° C	Rela	ative Humidity	e Humidity 55%	
Pressure	960hPa		t Voltage	Normal \	/oltage
Test Mode	Mode 1		enna	Vertical	
80.0 dBu∀/m				Limit:	
				Margin:	_
					r
40				5	
				manter	we have
	×	manufant	muniple		
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	~~~~~	- when have			
0.0 30.000 40 50	D 60 70	(MHz)	300 400 50	0 600 700	1000.000
	Reading	Correct Meas	sure-		
No. Mk.	Freq. Level	Factor me		Over	
	MHz dBuV	dB dBu\	//m dBuV/m	dB D	etector
1 60	0.7167 13.63	11.89 25.	52 40.00	-14.48	oeak
	0.716713.631.850014.30	11.89         25.8           13.12         27.4			oeak oeak
2 131			42 43.50	-16.08	
2 131 3 272	1.8500 14.30	13.12 27.4	42 43.50 50 46.00	-16.08 -17.50	peak
2 131 3 272 4 369	1.850014.302.500014.17	13.12     27.4       14.33     28.5	4243.505046.004046.00	-16.08 -17.50 -16.60	oeak oeak

# RESULT: PASS Note:

1. Factor=Antenna Factor + Cable loss, Over=Measurement-Limit.

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



#### Radiated emission above 1GHz

EUT	2-IN-1 Wireless Speaker & Earbuds	Model Name	NOR-EBSK-GRN
Temperature	25° C	Relative Humidity	55%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 1	Antenna	Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Value Type
4804.000	43.43	0.08	43.51	74	-30.49	peak
4804.000	35.35	0.08	35.43	54	-18.57	AVG
7206.000	38.63	2.21	40.84	74	-33.16	peak
7206.000	31.27	2.21	33.48	54	-20.52	AVG
emark:						
actor = Anter	nna Factor + Cable	e Loss – Pre-	amplifier.			

EUT	2-IN-1 Wireless Speaker & Earbuds	Model Name	NOR-EBSK-GRN
Temperature	25° C	Relative Humidity	55%
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	38.26	2.21	40.47	74	-33.53	peak
7206.000	30.63	2.21	32.84	54	-21.16	AVG
Remark:						
	nna Factor + Cable	e Loss – Pre-	amplifier.			



EUT	2-IN-1 Wireless Speaker & Earbuds	Model Name	NOR-EBSK-GRN
Temperature	25° C	Relative Humidity	55%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 2	Antenna	Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Value Type
4880.000	44.66	0.14	44.8	74	-29.2	peak
4880.000	35.76	0.14	35.9	54	-18.1	AVG
7320.000	39.74	2.36	42.1	74	-31.9	peak
7320.000	31.57	2.36	33.93	54	-20.07	AVG
Domorka						
Remark:						
actor = Anter	nna Factor + Cable	Loss – Pre-	amplifier.			

EUT	2-IN-1 Wireless Speaker & Earbuds	Model Name	NOR-EBSK-GRN
Temperature	25° C	Relative Humidity	55%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 2	Antenna	Vertical

Meter Reading	Factor	Emission Level	Limits	Margin	Value Type
(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	value Type
45.14	0.14	45.28	74	-28.72	peak
38.08	0.14	38.22	54	-15.78	AVG
40.43	2.36	42.79	74	-31.21	peak
32.47	2.36	34.83	54	-19.17	AVG
na Factor + Cable	loss – Pro	amplifier			•
	(dBµV) 45.14 38.08 40.43 32.47	(dBµV)         (dB)           45.14         0.14           38.08         0.14           40.43         2.36           32.47         2.36	(dBµV)         (dB)         (dBµV/m)           45.14         0.14         45.28           38.08         0.14         38.22           40.43         2.36         42.79	(dBµV)     (dB)     (dBµV/m)     (dBµV/m)       45.14     0.14     45.28     74       38.08     0.14     38.22     54       40.43     2.36     42.79     74       32.47     2.36     34.83     54	(dBµV)         (dB)         (dBµV/m)         (dBµV/m)         (dB)           45.14         0.14         45.28         74         -28.72           38.08         0.14         38.22         54         -15.78           40.43         2.36         42.79         74         -31.21           32.47         2.36         34.83         54         -19.17



EUT	2-IN-1 Wireless Speaker & Earbuds	Model Name	NOR-EBSK-GRN
Temperature	25° C	Relative Humidity	55%
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	44.68	0.22	44.9	74	-29.1	peak
4960.000	35.45	0.22	35.67	54	-18.33	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:	1 1		1		1	1
actor = Anter	nna Factor + Cable	e Loss – Pre-	amplifier.			

EUT	2-IN-1 Wireless Speaker & Earbuds	Model Name	NOR-EBSK-GRN
Temperature	25° C	Relative Humidity	55%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 3	Antenna	Vertical

Meter Reading	Factor	Emission Level	Limits	Margin	Value Type
(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	value Type
42.97	0.22	43.19	74	-30.81	peak
34.04	0.22	34.26	54	-19.74	AVG
38.69	2.64	41.33	74	-32.67	peak
29.72	2.64	32.36	54	-21.64	AVG
	(dBµV) 42.97 34.04 38.69	(dBµV)         (dB)           42.97         0.22           34.04         0.22           38.69         2.64	(dBµV)         (dB)         (dBµV/m)           42.97         0.22         43.19           34.04         0.22         34.26           38.69         2.64         41.33	(dBµV)         (dB)         (dBµV/m)         (dBµV/m)           42.97         0.22         43.19         74           34.04         0.22         34.26         54           38.69         2.64         41.33         74	(dBµV)         (dB)         (dBµV/m)         (dBµV/m)         (dB)           42.97         0.22         43.19         74         -30.81           34.04         0.22         34.26         54         -19.74           38.69         2.64         41.33         74         -32.67

#### **RESULT: PASS**

#### Note:

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					
EUT	2-IN-1 Wireless Speaker & Earbuds	Model Name	NOR-EBSK-GRN		
Temperature	25° C	Relative Humidity	55%		
Pressure	960hPa	Test Voltage	Normal Voltage		
Test Mode	Mode 1	Antenna	Horizontal		

#### and a law of vestilate

Test Graph for Peak Measurement



Test Graph for Average Measurement



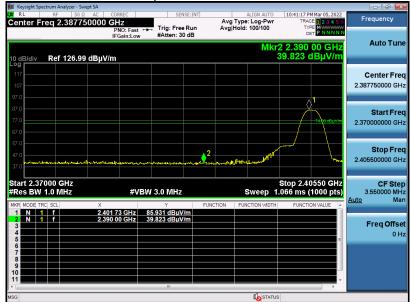
# **RESULT: PASS**



#### Report No.: AGC01559220304FE02 Page 37 of 44

EUT	2-IN-1 Wireless Speaker & Earbuds	Model Name	NOR-EBSK-GRN
Temperature	25° C	Relative Humidity	55%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 1	Antenna	Vertical

Test Graph for Peak Measurement



Test Graph for Average Measurement



**RESULT: PASS** 

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.

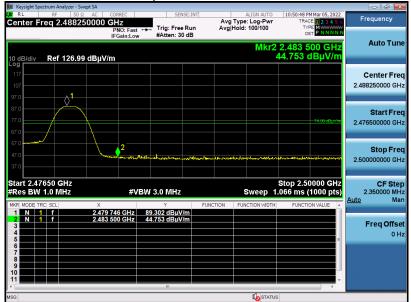
Attestation of Global Compliance(Shenzhen)Co., Ltd



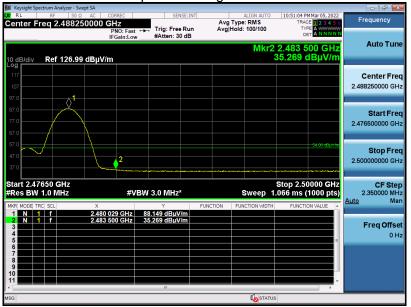
#### Report No.: AGC01559220304FE02 Page 38 of 44

EUT	2-IN-1 Wireless Speaker & Earbuds	Model Name	NOR-EBSK-GRN
Temperature	25° C	Relative Humidity	55%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 3	Antenna	Horizontal

Test Graph for Peak Measurement



Test Graph for Average Measurement



**RESULT: PASS** 

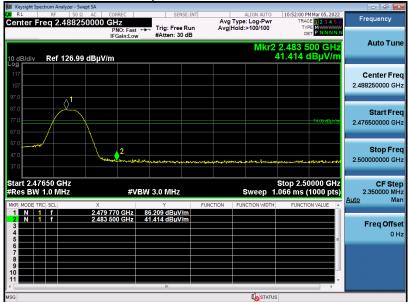
Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the "Dedicated Testing/Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the 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.

Attestation of Global Compliance(Shenzhen)Co., Ltd

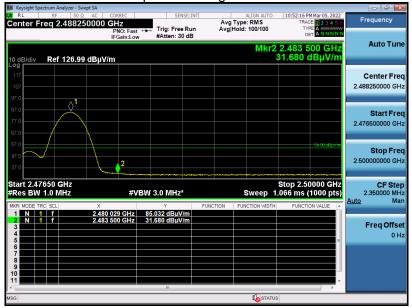


EUT	2-IN-1 Wireless Speaker & Earbuds	Model Name	NOR-EBSK-GRN
Temperature	25° C	Relative Humidity	55%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 3	Antenna	Vertical

Test Graph for Peak Measurement



Test Graph for Average Measurement



# **RESULT: PASS**

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

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.

Attestation of Global Compliance(Shenzhen)Co., Ltd Attestation of Global Compliance(Shenzhen)Std & Tech Co., Ltd



# **12. LINE CONDUCTED EMISSION TEST**

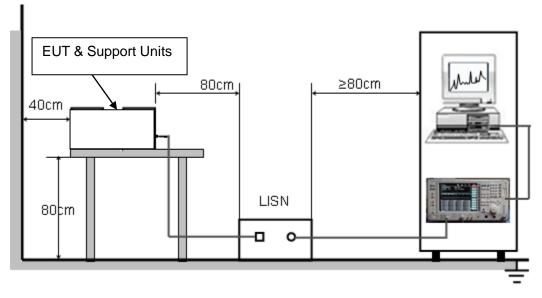
#### **12.1. LIMITS OF LINE CONDUCTED EMISSION TEST**

Frequency	Maximum RF Line Voltage				
Frequency	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





# 12.3. PRELIMINARY PROCEDURE OF LINE CONDUCTED EMISSION TEST

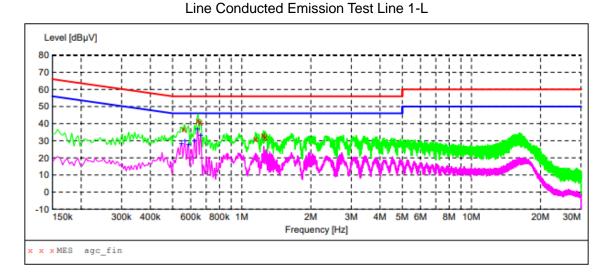
- The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. When the EUT is a tabletop system, a wooden table with a height of 0.8 meters is used and is placed on the ground plane as per ANSI C63.10 (see Test Facility for the dimensions of the ground 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. TEST RESULT OF LINE CONDUCTED EMISSION TEST

#### MEASUREMENT RESULT: "agc_fin"

2022/3/10	14:00					
Frequenc	cy Level	Transd	Limit	Margin	Detector	Line
ME	Hz dBµV	dB	dBµV	dB		
0.56200	00 36.70	5.4	56	19.3	QP	L1
0.64600	00 41.80	5.4	56	14.2	QP	L1
0.66200	40.80	5.4	56	15.2	QP	L1
1.15000	00 31.00	5.6	56	25.0	QP	L1
1.24600	33.20	5.8	56	22.8	QP	L1
1.27000	32.10	5.8	56	23.9	QP	L1

#### MEASUREMENT RESULT: "agc fin2"

2022/3/10 14:00							
Frequen	cy 1	Level 1	ransd	Limit	Margin	Detector	Line
M	Hz	dBµV	dB	dBµV	dB		
0.5460	00 2	28.50	5.4	46	17.5	AV	L1
0.5660	00 2	29.70	5.4	46	16.3	AV	L1
0.5860	00 2	27.80	5.4	46	18.2	AV	L1
0.6220	00 2	29.90	5.4	46	16.1	AV	L1
0.6420	00 3	36.60	5.4	46	9.4	AV	L1
0.6620	00 3	33.20	5.4	46	12.8	AV	L1

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.

Attestation of Global Compliance(Shenzhen)Co., Ltd

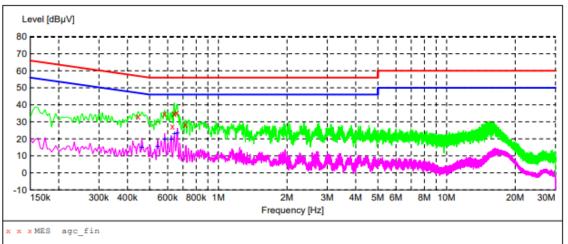
 Attestation of Global Compliance(Shenzhen)Std & Tech Co., Ltd

 Tel: +86-755 2523 4088
 E-mail: agc@agccert.com

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







#### MEASUREMENT RESULT: "agc fin"

2022/3/10 13:57								
Frequency	Level	Transd	Limit	Margin	Detector	Line		
MHz	dBµV	dB	dBµV	dB				
0.446000	33.10		57	22.0	0.0			
		5.5	57	23.8	QP	N		
0.582000	34.70	5.4	56	21.3	QP	N		
0.630000	27.30	5.4	56	28.7	QP	N		
0.642000	34.90	5.4	56	21.1	QP	N		
0.658000	35.30	5.4	56	20.7	QP	N		
0.718000	28.10	5.4	56	27.9	QP	N		

#### MEASUREMENT RESULT: "agc fin2"

2022/3/10 13 Frequency MHz	:57 Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line
0.462000 0.542000 0.582000 0.622000 0.642000 0.662000	14.90 15.30 19.60 19.50 22.90 23.60	5.5 5.4 5.4 5.4 5.4 5.4 5.4	47 46 46 46 46	31.8 30.7 26.4 26.5 23.1 22.4	AV AV AV AV AV AV	N N N N N

#### **RESULT: PASS**

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



# **APPENDIX A: PHOTOGRAPHS OF TEST SETUP**

Refer to the Report No.: AGC01559220304AP01

# APPENDIX B: PHOTOGRAPHS OF EUT

Refer to the Report No.: AGC01559220304AP02

----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.