

# **FCC Test Report**

# Report No.: AGC01110210909FE02

FCC ID	©.	2AOKB-A3991R
APPLICATION PURPOSE	:	Original Equipment
PRODUCT DESIGNATION	:	Wireless Headphone
BRAND NAME		Soundcore
MODEL NAME	i	A3991R, A3981R
APPLICANT	:	Anker Innovations Limited
DATE OF ISSUE	© I	Sep. 27, 2021
STANDARD(S)	:	FCC Part 15.247
REPORT VERSION	:	V1.0





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 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		Sep. 27, 2021	Valid	Initial Release

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# **1. VERIFICATION OF COMPLIANCE**

Applicant	Anker Innovations Limited	
Address	Room 1318-19, Hollywood Plaza, 610 Nathan Road, Mongkok, Kowloon, Hongkong	
Manufacturer	Anker Innovations Limited	
Address	Room 1318-19, Hollywood Plaza, 610 Nathan Road, Mongkok, Kowloon, Hongkong	
Factory	RISUNTEK INC	
Address	Jiuwei Industrial Zone, Qishi Town, 523000 Dongguan City, Guangdong Province, P.R.China	
Product Designation	Wireless Headphone	
Brand Name	Soundcore	
Test Model	A3991R	
Series Model	A3981R	
Declaration of Difference	All the same except for the model name	
Date of test	Sep. 07, 2021 to Sep. 27, 2021	
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.

Prepared By

John Fen

John Zeng (Project Engineer)

Sep. 27, 2021

**Reviewed By** 

Calvin Liu (Reviewer)

Sep. 27, 2021

Approved By

Max Zhang

Max Zhang (Authorized Officer)

Sep. 27, 2021

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# 2. GENERAL INFORMATION

# 2.1. PRODUCT DESCRIPTION

The EUT is designed as a "Wireless Headphone". 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	2.402GHz to 2.480GHz	
RF Output Power	5.117dBm (Max)	
Bluetooth Version	V5.2	
Modulation	BR□GFSK, EDR□π /4-DQPSK, □8DPSK BLE⊠GFSK 1Mbps □GFSK 2Mbps	
Number of channels	40 Channels	
Antenna Designation	monopole Antenna (Comply with requirements of the FCC part 15.203)	
Antenna Gain	0dBi	
Hardware Version	V1.2	
Software Version	V1.13	
Power Supply	DC 3.7V by battery	

# 2.2. TABLE OF CARRIER FREQUENCYS

Frequency Band	Channel Number	Frequency	
	0	2402 MHz	
	1	2404 MHz	
2400~2483.5MHz	G G A		
c.C	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: 2AOKB-A3991R 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  $\pm$ 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	$U_{c} = \pm 2 \%$	

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# 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

Non Signaling Test Tool(20210115)	
<u>File D</u> evice	
vizes ort ID Address Name Address Tyj State Role Authenticatic COM3 OxEEEEEEEEEE DUT Private IDLE UNDEFI	Encryption Version Found Payload Pattern 0:prbs9 Payload Size 37 Send
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# **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

ltem	Equipment	Model No.	ID or Specification	Remark
1	Wireless Headphone	A3991R	2AOKB-A3991R	EUT
2	Control Box	USB-TTL	N/A	AE

# 5.3. SUMMARY OF TEST RESULTS

FCC RULES	FCC RULES DESCRIPTION OF TEST				
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	Not applicable				

Note: The BT function cannot transmit when charging.

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# 6. TEST FACILITY

Test Site	Attestation of Global Compliance (Shenzhen) Co., Ltd						
Location	-2/F, Building 19, Junfeng Industrial Park, Chongqing Road, Heping Community, 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 RADIATED EMISSION TEST

Equipment	Manufacturer	Model	S/N	Cal. Date	Cal. Due
TEST RECEIVER	R&S	ESCI	10096	Apr. 14, 2021	Apr. 13, 2022
EXA Signal Analyzer	Aglient	N9010A	MY53470504	Dec. 07, 2020	Dec. 06, 2021
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	BBHA9170	768	Oct.09, 2019	Oct. 08, 2021
Active loop antenna (9K-30MHz)	ZHINAN	ZN30900C	18051	May 22, 2020	May 21, 2022
Double-Ridged Waveguide Horn	ETS	3117	00034609	Apr. 23, 2021	Apr. 22, 2023
Preamplifier Assembly	ETS LINDGREN	3117PA	00225134	Sep. 03, 2020	Sep. 02, 2022
WIDEBAND REQUENCY ANTENNA	SCHWARZBECK	VULB9168	VULB9168-49 4	Jan. 08, 2021	Jan. 07, 2023
Test Software	FARA	EZ-EMC(Ver.RA-0 3A)	N/A	N/A	N/A

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# 7. PEAK OUTPUT POWER

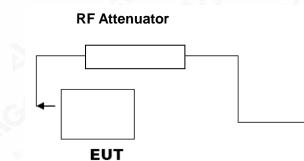
# 7.1. MEASUREMENT PROCEDURE

For peak power test:

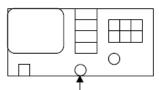
- 1. Connect EUT RF output port to the Spectrum Analyzer through an RF attenuator
- 2. RBW ≥ DTS bandwidth.
- 3. VBW≥3\*RBW.
- 4. SPAN≥VBW.
- 5. Sweep: Auto.
- 6. Detector function: Peak.
- 7. Trace: Max hold.

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



# **Spectrum Analyzer**



**RF** Cable

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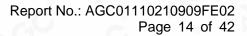
Test Data of Conducted Output Power							
Test ModeTest Channel (MHz)Peak Power (dBm)Limits (dBm)Pass or Fail							
G	2402	4.890	≤30	Pass			
GFSK 1M	2440	5.117	≤30	Pass			
	2480	5.063	≤30	Pass			

#### 7.3. LIMITS AND MEASUREMENT RESULT

#### **Test Graphs of Conducted Output Power**



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#### Test\_Graph\_LE1M\_ANT1\_2440\_1Mbps\_Peak 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 $\ge$ 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.
- 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
   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			
	2402	1.012	0.665	≥0.5	Pass			
GFSK 1M	2440	1.013	0.665	≥0.5	Pass			
©	2480	1.012	0.666	≥0.5	Pass			

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# Test Graphs of Occupied Bandwidth

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# Test\_Graph\_LE1M\_ANT1\_2480\_1Mbps\_OBW Test Graphs of DTS Bandwidth



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#### ed BV RL 06:12:19 AM Sep 26, 202 Radio Std: None Center Freq: 2.480000000 GHz Trig: Free Run Avg|Hol #Atten: 30 dB Frequency Center Freq 2.480000000 GHz Avg|Hold: 10/10 Radio Device: BTS #IFGain:Low 2.479994 GHz 4.8509 dBm Mkr1 Ref 30.00 dBm Center Freq 2.48000000 GHz Center 2.48 GHz #Res BW 100 kHz Span 3 MHz Sweep 1 ms **CF** Step #VBW 300 kHz 300.000 kHz Mar Auto **Total Power** 11.4 dBm **Occupied Bandwidth** 1.0316 MHz Freq Offset -6.281 kHz 99.00 % 0 Hz **Transmit Freq Error OBW Power** x dB Bandwidth 666.5 kHz x dB -6.00 dB

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

#### Test\_Graph\_LE1M\_ANT1\_2480\_1Mbps\_DTSBW

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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						
Applicable Limite	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				

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

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

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

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Agilent Spectrum Anal									
Center Freq 1		CORREC GHZ		INT REF	Avg Type	LIGNAUTO	TRAC	4 Sep 26, 2021 E <b>1 2 3 4 5 6</b>	Frequency
		PNO: Fast 🔸 IFGain:Low	#Atten: 3		Avg Hold:	10/10			Auto Turo
10 dB/div Ref	20.00 dBm					Mkr	1 2.387 -57.0	75 GHz 86 dBm	Auto Tune
									Center Freq
10.0									1.215000000 GHz
0.00									Start Freq
-10.0								-15.12 dBm	30.000000 MHz
-20.0									Stop Freq
-30.0									2.400000000 GHz
									CF Step
-40.0									237.000000 MHz Auto Man
-50.0								1	
-60.0	terre and the second second second second	k here it tildent die ittentionen	الإيمان القريلاتين بقرور وا	hadayahang da	lan assantin <mark>(assantin</mark>	aldra and beauting	and the second secon	en anticke de la fat	Freq Offset 0 Hz
-70.0	. <mark>The set of the set </mark>	indalitik a filozoficik atalikai a	na ang tang tang tang tang tang tang tan	alahiyan Milala as	<mark>da ya na yana da da kana</mark>	<mark>nganakat dan jirdin kal</mark>	and a state of the second s	dhaynar dan bidar a'r	
Start 30 MHz #Res BW 100 k	(H7	#VBM	/ 300 kHz			ween 22	Stop 2	.400 GHz 0000 pts)	
MSG		# V D V V	- 000 KHZ			STATUS	-	eeee proj	

#### Test\_Graph\_LE1M\_ANT1\_2440\_1Mbps\_Lower Band Emissions



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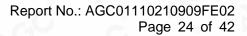




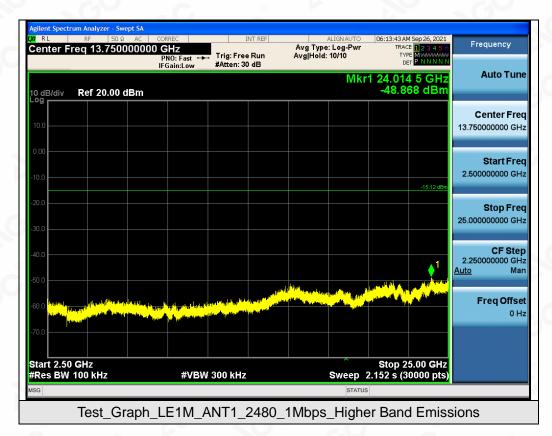
#### m Analyzer - Swept SA RL ep 26, 2021 Frequency Avg Type: Log-Pw Avg|Hold: 10/10 Center Freq 1.215000000 GHz Trig: Free Run #Atten: 30 dB PNO: Fast IFGain:Low Auto Tune Mkr1 2.144 43 GHz -57.647 dBm I0 dB/div Ref 20.00 dBm **Center Freq** 1.215000000 GHz Start Freq 30.000000 MHz Stop Freq 2.40000000 GHz CF Step 237.000000 MHz Mar Auto **Freq Offset** 0 Hz Start 30 MHz #Res BW 100 kHz Stop 2.400 GHz Sweep 228.0 ms (30000 pts) #VBW 300 kHz Test\_Graph\_LE1M\_ANT1\_2480\_1Mbps\_Lower Band Emissions

#### Test\_Graph\_LE1M\_ANT1\_2480\_1Mbps\_Reference Level

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 Attestation of Global Compliance(Shenzhen)Co., Ltd

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

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





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

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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	-10.262	≪8	Pass			
GFSK 1M	2440	-10.068	≤8	Pass			
- <b>G</b>	2480	-10.069	≤8	Pass			

# Test Graphs of Conducted Output Power Spectral Density



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



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# **11. RADIATED EMISSION**

#### **11.1. MEASUREMENT PROCEDURE**

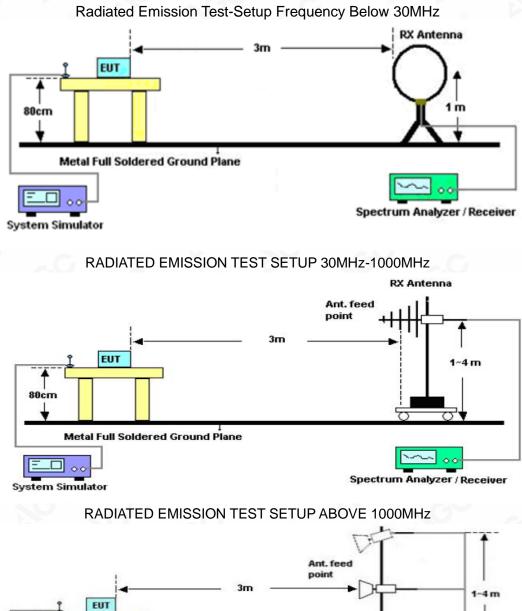
- 1. The EUT was placed on the top of the turntable 0.8 or 1.5 meter above ground. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turntable.
- 2. Power on the EUT and all the supporting units. The turntable was rotated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

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#### 11.2. TEST SETUP



3m Fur 1.5m Metal Full Soldered Ground Plane System Simulator System Simulator

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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.

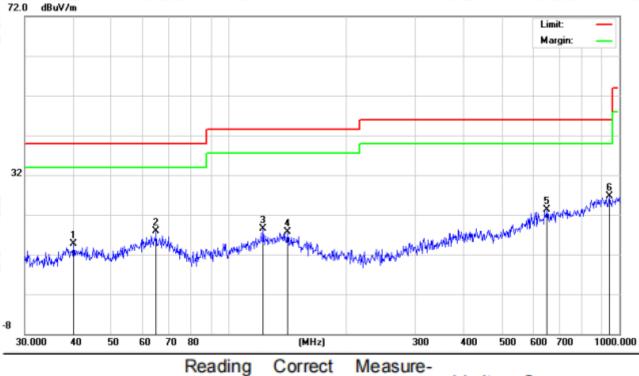
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#### Report No.: AGC01110210909FE02 Page 31 of 42

EUT	Wireless Headphone	Model Name	A3991R			
Temperature	21.8°C	Relative Humidity	58%			
Pressure	960hPa	Test Voltage	Normal Voltage			
Test Mode	Mode 2	Antenna	Horizontal			

# Radiated emission from 30MHz to 1000MHz



No	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1		39.9942	4.55	10.09	14.64	40.00	-25.36	peak
2		65.1145	6.11	11.80	17.91	40.00	-22.09	peak
3		122.4040	5.56	12.93	18.49	43.50	-25.01	peak
4		141.3298	5.15	12.54	17.69	43.50	-25.81	peak
5		651.9417	5.79	17.57	23.36	46.00	-22.64	peak
6	*	942.1305	5.14	21.65	26.79	46.00	-19.21	peak

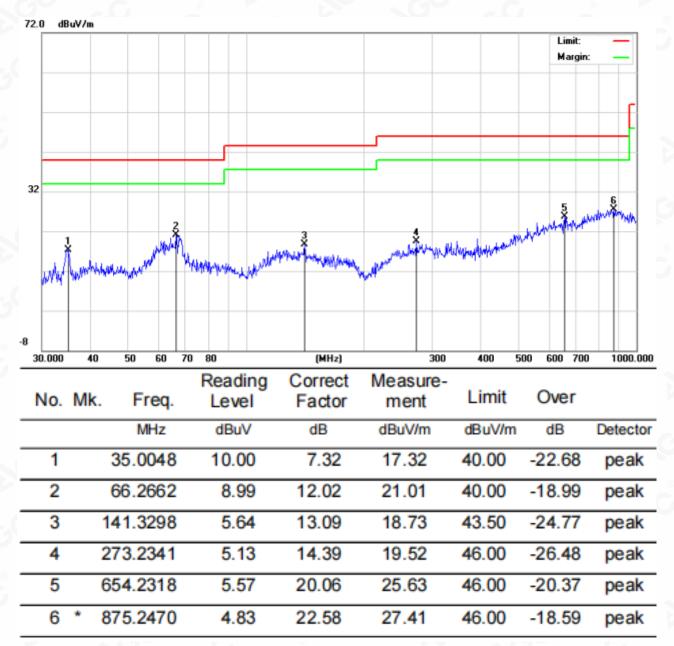
#### **RESULT: PASS**

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#### Report No.: AGC01110210909FE02 Page 32 of 42

EUT	Wireless Headphone	Model Name	A3991R
Temperature	21.8°C	Relative Humidity	58%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 2	Antenna	Vertical



# **RESULT: PASS**

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

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# Report No.: AGC01110210909FE02 Page 33 of 42

# **Radiated emission above 1GHz**

EUT	Wireless Headphone	Model Name	A3991R
Temperature	21.8°C	Relative Humidity	58%
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	46.73	0.08	46.81	74	-27.19	peak
4804.000	36.13	0.08	36.21	54	-17.79	AVG
7206.000	41.97	2.21	44.18	74	-29.82	peak
7206.000	32.97	2.21	35.18	54	-18.82	AVG
JO <sup>U</sup>	-0	®			-C	0
mark:						

EUT	Wireless Headphone	Model Name	A3991R
Temperature	21.8°C	Relative Humidity	58%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 1	Antenna	Vertical

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Value Tree
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	- Value Type
4804.000	45.57	0.08	45.65	74	-28.35	peak
4804.000	36.37	0.08	36.45	54	-17.55	AVG
7206.000	42.73	2.21	44.94	74	-29.06	peak
7206.000	33.06	2.21	35.27	54	-18.73	AVG
mark:		O.	8		2	6

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

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# Report No.: AGC01110210909FE02 Page 34 of 42

EUT	Wireless Headphone	Model Name	A3991R
Temperature	21.8°C	Relative Humidity	58%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 2	Antenna	Horizontal

(dBµV) 47.82	(dB) 0.14	(dBµV/m)	(dBµV/m)	(dB)	Value Type
47.82	0.14				
(Q)	9.1.1	47.96	74	-26.04	peak
37.91	0.14	38.05	54	-15.95	AVG
43.48	2.36	45.84	74	-28.16	peak
33.63	2.36	35.99	54	-18.01	AVG
			0		
C	0		-0-		®
	33.63	33.63 2.36		33.63 2.36 35.99 54	33.63 2.36 35.99 54 -18.01

<u>|| actor = Antenna | actor + Cable Loss - Pre-ampliner.</u>

EUT	Wireless Headphone	Model Name	A3991R
Temperature	21.8°C	Relative Humidity	58%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 2	Antenna	Vertical

Frequency	Meter Reading	Factor	Emission Level	Limits 💿	Margin	Value Tree
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Value Type
4880.000	46.89	0.14	47.03	74	-26.97	peak
4880.000	36.94	0.14	37.08	54	-16.92	AVG
7320.000	43.14	2.36	45.5	74	-28.5	peak
7320.000	33.76	2.36	36.12	54	-17.88	AVG
3	0				-	

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

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#### Report No.: AGC01110210909FE02 Page 35 of 42

EUT	Wireless Headphone	Model Name	A3991R
Temperature	21.8°C	Relative Humidity	58%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 3	Antenna	Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Value Type
4960.000	48.43	0.22	48.65	74	-25.35	peak
4960.000	38.76	0.22	38.98	54	-15.02	AVG
7440.000	44.37	2.64	47.01	74	-26.99	peak
7440.000	34.93	2.64	37.57	54	-16.43	AVG
<u> </u>	0			0	8	
mark:	- 6	6		<u> </u>	- 6	0
ctor = Anter	nna Factor + Cable	loss – Pre-	amplifier			

EUT	Wireless Headphone	Model Name	A3991R
Temperature	21.8°C	Relative Humidity	58%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 3	Antenna	Vertical

Meter Reading	Factor	Emission	Limits 🛞	Margin	
(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Value Type
47.79	0.22	48.01	74	-25.99	peak
39.46	0.22	39.68	54	-14.32	AVG
45.13	2.64	47.77	74	-26.23	peak
34.59	2.64	37.23	54	-16.77	AVG
	8			-0-	
	0.0	®		<u> </u>	
	47.79 39.46 45.13	(dBµV)         (dB)           47.79         0.22           39.46         0.22           45.13         2.64	(dBµV)         (dB)         (dBµV/m)           47.79         0.22         48.01           39.46         0.22         39.68           45.13         2.64         47.77	(dBµV)         (dB)         (dBµV/m)         (dBµV/m)           47.79         0.22         48.01         74           39.46         0.22         39.68         54           45.13         2.64         47.77         74	(dBµV)         (dB)         (dBµV/m)         (dBµV/m)         (dBµ           47.79         0.22         48.01         74         -25.99           39.46         0.22         39.68         54         -14.32           45.13         2.64         47.77         74         -26.23

Factor = Antenna Factor + Cable Loss – Pre-amplifier

# **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=Limit-Emission Level. The "Factor" value can be calculated automatically by software of measurement system.

Compliance Dedicated Fe Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written of the report is not permitten /Inspection he test results apthorization of AG presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15d 🐙 he test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc@agc-cert.com.

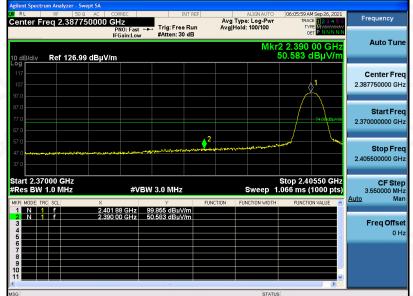


#### Report No.: AGC01110210909FE02 Page 36 of 42

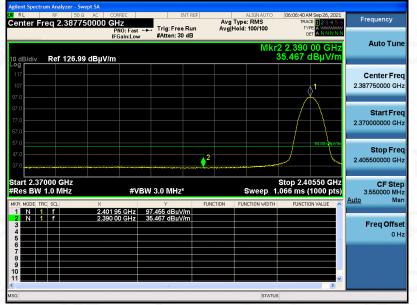
EUT	Wireless Headphone	Model Name	A3991R
Temperature	25°C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 1	Antenna	Horizontal

# Test result for band edge emission at restricted bands

Test Graph for Peak Measurement



Test Graph for Average Measurement



**RESULT: PASS** 

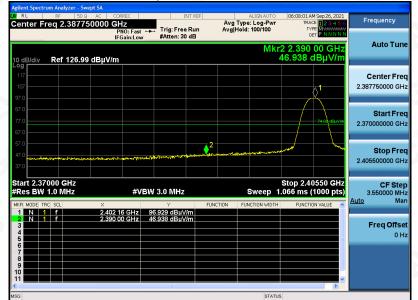
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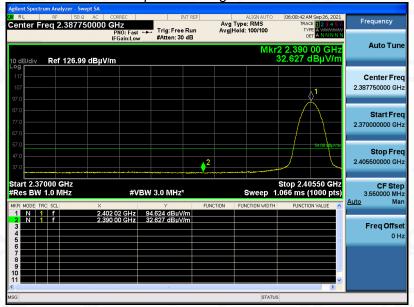
#### Report No.: AGC01110210909FE02 Page 37 of 42

V
No.

Test Graph for Peak Measurement



Test Graph for Average Measurement



**RESULT: PASS** 

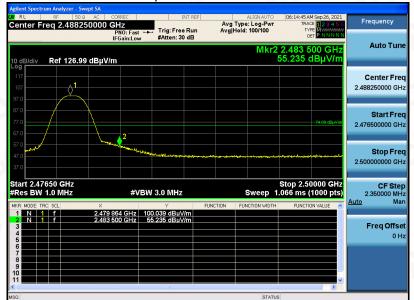
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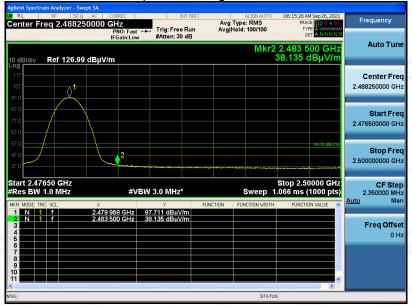
#### Report No.: AGC01110210909FE02 Page 38 of 42

EUT	Wireless Headphone	Model Name	A3991R
Temperature	25°C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 3	Antenna	Horizontal

Test Graph for Peak Measurement



#### Test Graph for Average Measurement



**RESULT: PASS** 

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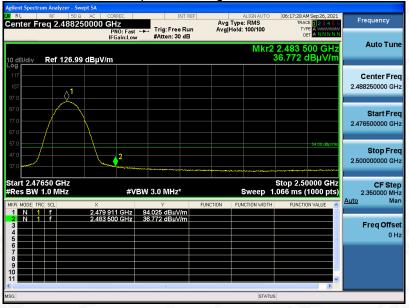
#### Report No.: AGC01110210909FE02 Page 39 of 42

EUT	Wireless Headphone	Model Name	A3991R
Temperature	25°C	Relative Humidity	55.4%
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.

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# 12. LINE CONDUCTED EMISSION TEST

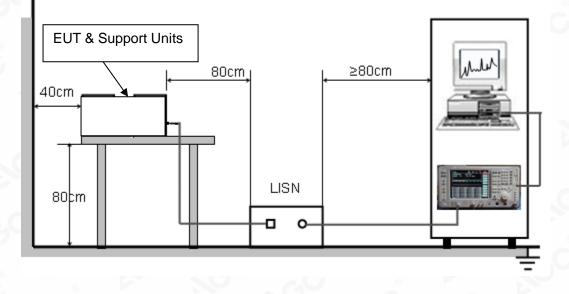
# **12.1. LIMITS OF LINE CONDUCTED EMISSION TEST**

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



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 E-mail: agc@agc-cert.com



# 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

N/A

Note: The BT function cannot transmit when charging.

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

Refer to the Report No.: AGC01110210909AP01

# **APPENDIX B: PHOTOGRAPHS OF EUT**

Refer to the Report No.: AGC01110210909AP01

----END OF REPORT----

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# 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.

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