

EMC Test Report

Client Information:

Applicant: DOKE COMMUNICATION (HK) LIMITED
Applicant add.: RM 1902 EASEY COMM BLDG 253-261 HENNESSY ROAD WANCHAI HK CHINA

Product Information:

Product Name: Wireless Earphone
Model No.: AirBuds 4
Serial Model: N/A
Brand Name: Blackview
Standards: ETSI EN 301 489-1 V2.2.3 (2019-11)
ETSI EN 301 489-17 V3.2.4 (2020-09)
EN 55032:2015+A11:2020; EN 55035:2017+A11:2020

Prepared By:

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Dongguan, Guangdong, China

Date of Receipt: Mar. 31,2023

Date of Test: Mar. 31,2023~Apr. 13,2023

Date of Issue: Apr. 14,2023

Test Result: Pass

This device has been tested and found to comply with the stated standard(s), which is (are) required by the council directive of 2014/53/EU and indicated in the test report and are applicable only to the tested sample identified in the report.

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Reviewed by: _____



Simba Huang

Approved by: _____



Seal.chen

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Revision Record			
Version	Date	Modifier	Remark
00	Apr. 14,2023	--	Original

2 Test Summary

Emission Measurement		
Radiated Emission	ETSI EN 301 489-1 V2.2.3 (2019-11) ETSI EN 301 489-17 V3.2.4 (2020-09) EN 55032:2015+A11:2020	PASS
Conducted Emission(AC Mains)	ETSI EN 301 489-1 V2.2.3 (2019-11) ETSI EN 301 489-17 V3.2.4 (2020-09) EN 55032:2015+A11:2020	N/A
Conducted Emission(Wired network ports)	ETSI EN 301 489-1 V2.2.3 (2019-11) ETSI EN 301 489-17 V3.2.4 (2020-09) EN 55032:2015+A11:2020	N/A
Harmonic Current Emissions	ETSI EN 301 489-1 V2.2.3 (2019-11) ETSI EN 301 489-17 V3.2.4 (2020-09) EN IEC 61000-3-2:2019	N/A
Voltage Fluctuations and Flicker	ETSI EN 301 489-1 V2.2.3 (2019-11) ETSI EN 301 489-17 V3.2.4 (2020-09) EN 61000-3-3:2013+A1:2019	N/A
Immunity Measurement		
Electrostatic Discharge	ETSI EN 301 489-1 V2.2.3 (2019-11) ETSI EN 301 489-17 V3.2.4 (2020-09) EN 55035:2017+A11:2020	PASS
RF Electromagnetic Field	ETSI EN 301 489-1 V2.2.3 (2019-11) ETSI EN 301 489-17 V3.2.4 (2020-09) EN 55035:2017+A11:2020	PASS
Fast Transients Common Mode	ETSI EN 301 489-1 V2.2.3 (2019-11) ETSI EN 301 489-17 V3.2.4 (2020-09) EN 55035:2017+A11:2020	N/A
RF Common Mode 0,15 MHz to 80 MHz	ETSI EN 301 489-1 V2.2.3 (2019-11) ETSI EN 301 489-17 V3.2.4 (2020-09) EN 55035:2017+A11:2020	N/A
Voltage Dips and Interruptions	ETSI EN 301 489-1 V2.2.3 (2019-11) ETSI EN 301 489-17 V3.2.4 (2020-09) EN 55035:2017+A11:2020	N/A
Surges	ETSI EN 301 489-1 V2.2.3 (2019-11) ETSI EN 301 489-17 V3.2.4 (2020-09) EN 55035:2017+A11:2020	N/A

Remark: The measurement uncertainty is not included in the test result.

2.1 Performance criteria

■ ETSI EN301489-3

General performance criteria

- performance criterion A applies for immunity tests with phenomena of a continuous nature;
- performance criterion B applies for immunity tests with phenomena of a transient nature.
- The equipment shall meet the minimum performance criteria as specified in the following.

Criteria	During test	After test
A	Operate as intended No loss of function No unintentional responses	Operate as intended No loss of function No degradation of performance No loss of stored data or user programmable functions
B	May show loss of function No unintentional responses	Operate as intended Lost function(s) shall be self-recoverable No degradation of performance No loss of stored data or user programmable functions
NOTE: Where "operate as intended" or "no loss of function" is specified, the EUT shall demonstrate correct functioning as described in clause 5.		

■ ETSI EN301489-17

General performance criteria

- Performance criteria A for immunity tests with phenomena of a continuous nature;
- Performance criteria B for immunity tests with phenomena of a transient nature;
- Performance criteria C for immunity tests with power interruptions exceeding a certain time.

The equipment shall meet the minimum performance criteria as specified in the following.

Criteria	During test	After test
A	Shall operate as intended. (See note). Shall be no loss of function. Shall be no unintentional transmissions.	Shall operate as intended. Shall be no degradation of performance. Shall be no loss of function. Shall be no loss of critical stored data.
B	May be loss of function.	Functions shall be self-recoverable.

		<p>Shall operate as intended after recovering.</p> <p>Shall be no loss of critical stored data.</p>
C	May be loss of function.	<p>Functions shall be recoverable by the operator. Shall operate as intended after recovering.</p> <p>Shall be no loss of critical stored data.</p>
<p>NOTE: Operate as intended during the test allows a level of degradation in accordance with clause 6.2.2.</p>		

Performance criteria for Continuous phenomena

For equipment that supports a PER or FER, the minimum performance level shall be a PER or FER less than or equal to 10 %.

For equipment that does not support a PER or a FER, the minimum performance level shall be no loss of the wireless transmission function needed for the intended use of the equipment.

Performance criteria for Continuous phenomena

The performance criteria A shall apply.

Where the EUT is a transmitter in standby mode, unintentional transmission shall not occur during the test.

Where the EUT is a transceiver in receive mode, unintentional transmission shall not occur during the test.

Performance criteria for Transient phenomena

The performance criteria B shall apply, except for voltage dips greater than or equal to 100 ms and voltage interruptions of 5 000 ms duration, for which performance criteria C shall apply.

Where the EUT is a transmitter in standby mode, unintentional transmission shall not occur as a result of the application of the test.

Where the EUT is a transceiver in receive mode, unintentional transmission shall not occur as a result of the application of the test.

■ Performance Criterion of EN55035

Criterion A: The equipment shall continue to operate as intended without operator intervention. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer when the equipment is used as intended.

Criterion B: After the test, the equipment shall continue to operate as intended without operator intervention. No degradation of performance or loss of function is allowed, after the application of the phenomena below a performance level specified by the manufacturer, when the equipment is used as intended.

Criterion C: Loss of function is allowed, provided the function is self-recoverable, or can be restored by the operation of the controls by the user in accordance with the manufacturer’s instructions.

2.2 Monitoring EUT in Immunity Test

2.2.1 Monitoring for Continuous Phenomena Applied to the EUT

■ BT Mode

At the start of the test, establish a wireless link between the EUT and CMW500(integrate BT protocol Analyzer);
During the test, observe whether the EUT operate as intended, no loss of function and no unintentional transmissions. Monitoring PER and shall exceed 10%

After the test, Check the function and critical stored data of the EUT with no degradation.

In addition, when EUT working in Idle /Receiver mode, monitor whether the transmitter unintentionally operates.

■ 2.4G/5G WIFI Mode

At the start of the test, establish a wireless link between the EUT and CMW500(integrate WIFI protocol Analyzer);

During the test, observe whether the EUT operate as intended, no loss of function and no unintentional transmissions. Monitoring PER and shall exceed 10%

After the test, Check the function and critical stored data of the EUT with no degradation.

In addition, when EUT working in Idle /Receiver mode, monitor whether the transmitter unintentionally operates.

■ other Mode

During and after the test, observe the Screen status by eyes or monitor to see whether there is degradation of performance

2.2.2 Monitoring for Transient Phenomena Applied to the EUT

■ BT Mode

At the start of the test, establish a wireless link between the EUT and CMW500(integrate BT protocol Analyzer);
After the test, Check the function and critical stored data of the EUT with no degradation.

In addition, when EUT working in Idle /Receiver mode, monitor whether the transmitter unintentionally operates.

■ 2.4G/5G WIFI Mode

At the start of the test, establish a wireless link between the EUT and CMW500(integrate WIFI protocol Analyzer);

After the test, Check the function and critical stored data of the EUT with no degradation.

In addition, when EUT working in Idle /Receiver mode, monitor whether the transmitter unintentionally operates.

■ other Mode

After the test, observe the Screen status by eyes or monitor to see whether there is degradation of performance

2.3 Measurement Uncertainty

The report uncertainty of measurement $y \pm U$, where expanded uncertainty U is based on a standard uncertainty Multiplied by a coverage factor of $k=2$, providing a level of confidence of approximately 95% .

No.	Item	Frequency Range	U , Value
1	Power Line Conducted Emission	150KHz~30MHz	1.20 dB
2	Disturbance Power Emission	30MHz~300MHz	2.96 dB
3	Radiated Emission Test	30MHz~1GHz	3.75 dB
4	Radiated Emission Test	1GHz~18GHz	3.88 dB

3 Test Facility

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

.CNAS- Registration No: L6177

Dongguan Yaxu (AiT) technology Limited is accredited to ISO/IEC 17025:2017 general Requirements for the competence of testing and calibration laboratories (CNAS-CL01 Accreditation Criteria for the competence of testing and calibration laboratories) on April 18, 2022

FCC-Registration No.: 703111 Designation Number: CN1313

Dongguan Yaxu (AiT) technology Limited has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files.

IC —Registration No.: 6819A CAB identifier: CN0122

The 3m Semi-anechoic chamber of Dongguan Yaxu (AiT) technology Limited has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 6819A

A2LA-Lab Cert. No.: 6317.01

Dongguan Yaxu (AiT) technology Limited has been accredited by A2LA for technical competence in the field of electrical testing, and proved to be in compliance with ISO/IEC 17025: 2017 General Requirements for the Competence of Testing and Calibration Laboratories and any additional program requirements in the identified field of testing.

3.1 Deviation from Standard

None

3.2 Abnormalities from Standard Conditions

None

4 General Information

4.1 General Description of EUT

Manufacturer:	Shenzhen DOKE Electronic Co., Ltd
Manufacturer Address:	801, Building3, 7th Industrial Zone, Yulv Community, Yutang Road, Guanaming District, Shenzhen, China
EUT Name:	Wireless Earphone
Model No:	AirBuds 4
Serial Model:	N/A
Brand Name:	Blackview
Model difference:	N/A
Frequency Range:	BT Classic/BLE: 2402-2480MHz
Modulation Mode:	BT(1Mbps)/BLE(1Mbps): GFSK BT EDR(2Mbps): $\pi/4$ -DQPSK
H/W No.:	N/A
S/W No.:	N/A
Adapter:	N/A
Battery:	DC3.7V

4.2 EUT Test Mode

Test mode	BT	CHARGE +WORK				-	-
1	■						
2		■					

Note:

1) ■ is operation mode.

2) Pre-scan above all test mode, found below test mode which it was worse case mode. Test results reported represents the worst case simultaneous transmission condition.


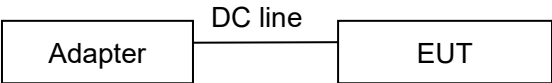
Pre-test conducted emission and radiated emission at both voltage AC 120V/60Hz and AC 230V/50Hz, recorded worst case.

Pre-test radiated emission with the EUT position at X-axis,Y-axis and Z-axis, recorded worst case.

Test item	Test mode (Worse case mode)
Conducted emission	Mode 2
Radiated emission	Mode 2
EMS	All Mode

4.3 Description of Test Setup

EUT was tested in normal configuration (Please See following Block diagrams)

1. Block diagram of EUT configuration-EMI
Mode1:  Mode2: 
2. Block diagram of EUT configuration-EMS
The same as above.

4.4 Test Peripheral List

No.	Equipment	Manufacturer	EMC Compliance	Model No.	Serial No.	Power cord	Remark
1	Adapter	NOKIA	CE	AD-10WU	N/A	N/A	N/A

4.5 EUT Peripheral List

No.	Equipment	Manufacturer	Model No.	Serial No.	signal cable	Remark
1	N/A	N/A	N/A	N/A	N/A	N/A

5 Equipments List for All Test Items

<input checked="" type="checkbox"/> Radiation Test Equipment						
No	Test Equipment	Manufacturer	Model No	Serial No	Cal. Date	Cal. Due Date
1	EMI Measuring Receiver	R&S	ESR	101160	2022.09.02	2023.09.01
2	Low Noise Pre Amplifier	HP	HP8447E	1205323	2022.09.02	2023.09.01
3	TRILOG Super Broadband test Antenna	SCHWARZBECK	VULB9160	9160-3207	2021.08.28	2024.08.27
4	50Ω Coaxial Switch	Anritsu	MP59B	6200264416	2022.09.02	2023.09.01
5	Spectrum Analyzer	R&S	FSV40	101470	2022.09.02	2023.09.01
6	Low Noise Pre Amplifier	Tsj	MLA-0120-A02-34	2648A04738	2022.09.02	2023.09.01
7	Broadband Horn Antenna	Schwarzbeck	BBHA 9120D	452	2021.08.28	2024.08.27
8	Filter	MICRO-TRONICS	BRM50702-02	16	2022.09.02	2023.09.01
9	Filter	MICRO-TRONICS	BRC50703-02	17	2022.09.02	2023.09.01
10	Filter	MICRO-TRONICS	BRC50705-02	18	2022.09.02	2023.09.01

<input type="checkbox"/> Conduction Test equipment						
No	Test Equipment	Manufacturer	Model No	Serial No	Cal. Date	Cal. Due Date
1	EMI Test Receiver	R&S	ESCI	100124	2022.09.02	2023.09.01
2	LISN	Kyoritsu	KNW-242	8-837-4	2022.09.02	2023.09.01
3	LISN	R&S	ESH3-Z2	0357.8810.54-101161-S2	2022.09.02	2023.09.01
4	50Ω Coaxial Switch	Anritsu	MP59B	6200264417	2022.09.02	2023.09.01

<input type="checkbox"/> H/F Test Equipment						
No	Test Equipment	Manufacturer	Model No	Serial No	Cal. Date	Cal. Due Date
1	Signal Conditioning Unit	Schaffner	CCN1000-1	72472	2022.09.02	2023.09.01
2	5KV AC Power Source	Schaffner	NSG1007-5-208-413	57227	2022.09.02	2023.09.01

<input checked="" type="checkbox"/> ESD Test Equipment						
No	Test Equipment	Manufacturer	Model No	Serial No	Cal. Date	Cal. Due Date
1	ESD Simulator	Schaffner	NSG435	5866	2022.09.02	2023.09.01

<input checked="" type="checkbox"/> R/S Test Equipment						
No	Test Equipment	Manufacturer	Model No	Serial No	Cal. Date	Cal. Due Date
1	MXG analog signal generator	Agilent	N5181A	MY46240859	2022.09.02	2023.09.01
2	Power Amplifier	Schaffner	CBA9433	T43574	2022.09.02	2023.09.01
3	Power Amplifier	Schaffner	CBA9409	T43605	2022.09.02	2023.09.01
4	Power Amplifier	Micotop	MPA-3000-6000-50	MPA03724	2022.09.02	2023.09.01
5	Logarithmic-periodic Antenna	Schwarzbeck	VULP9118E	820	2022.09.02	2023.09.01
6	Broadband Horn Antenna	Schwarzbeck	BBHA 9120LF	255	2022.09.02	2023.09.01
7	Power meter	Agilent	E4419B	MY45102079	2022.09.02	2023.09.01
8	Power sensor	Agilent	8481A	MY41097696	2022.09.02	2023.09.01
9	Power sensor	Agilent	8481A	MY41097697	2022.09.02	2023.09.01
10	RF Relay matrix	tsj	RFM-S621	04261	2022.09.02	2023.09.01

<input type="checkbox"/> EFT/B Test equipment						
No	Test Equipment	Manufacturer	Model No	Serial No	Cal. Date	Cal. Due Date
1	INS6501 Step-transformer	Schaffner	INA 6501	136	2022.09.02	2023.09.01
2	MODULA GENERATOR	Schaffner	MODULA 6150	34475	2022.09.02	2023.09.01
3	Capacitive Coupling Clamp	Schaffner	CDN8014	22519	2022.09.02	2023.09.01

<input type="checkbox"/> Surge Test Equipment						
No	Test Equipment	Manufacturer	Model No	Serial No	Cal. Date	Cal. Due Date
1	INS6501 step-transformer	Schaffner	INA 6501	136	2022.09.02	2023.09.01
2	MODULA GENERATOR	Schaffner	MODULA 6150	34475	2022.09.02	2023.09.01

<input type="checkbox"/> C/S Test Equipment						
No	Test Equipment	Manufacturer	Model No	Serial No	Cal. Date	Cal. Due Date
1	SML01 Signal Generator	R&S	SML01	104531	2022.09.02	2023.09.01
2	Power Amplifier	Schaffner	CBA9437	T43660	2022.09.02	2023.09.01
3	Attenuator	Aeroflex / Weinschel	40-6-33	PA130	2022.09.02	2023.09.01
4	Power Line CDN	tsj	TSCDN-M1-16A	07010	2022.09.02	2023.09.01
5	Power Line CDN	tsj	TSCDN-M2-16A	07024	2022.09.02	2023.09.01
6	Power Line CDN	tsj	TSCDN-M3-16A	07032	2022.09.02	2023.09.01

<input type="checkbox"/> PFMF Test Equipment						
No	Test Equipment	Manufacturer	Model No	Serial No	Cal. Date	Cal. Due Date
1	Magnetic field generator	Schaffner	MFO6501	34299	2022.09.02	2023.09.01
2	Magnetic Field Loop Antenna	Schaffner	INA 702	148	2022.09.02	2023.09.01

<input type="checkbox"/> Dips Test Equipment						
No	Test Equipment	Manufacturer	Model No	Serial No	Cal. Date	Cal. Due Date
1	INS6501 Step-transformer	Schaffner	INA 6501	136	2022.09.02	2023.09.01
2	MODULA GENERATOR	Schaffner	MODULA 6150	34475	2022.09.02	2023.09.01

<input checked="" type="checkbox"/> Others Test Equipment						
No	Test Equipment	Manufacturer	Model No	Serial No	Cal. Date	Cal. Due Date
1	Wideband communication tester	R&S	CMW500	1201.0002K50	2022.09.02	2023.09.01

Note:

1. is not applicable in this Test Report. is applicable in this Test Report.

6 Emission Test Results

6.1 Conducted Emission(AC Mains) Measurement

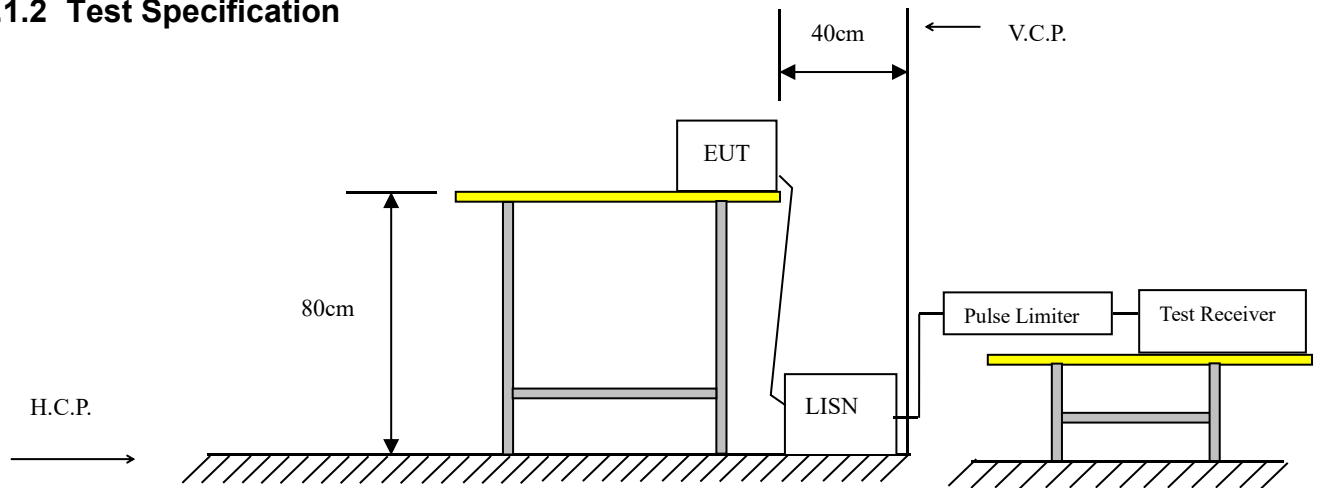
Frequency (MHz)	☐ Class A (dBμV)		☒ Class B (dBμV)	
	Q.P. (Quasi-Peak)	A.V. (Average)	Q.P. (Quasi-Peak)	A.V. (Average)
0.15 ~ 0.50	79	66	66 to 56	56 to 46
0.50 ~ 5.0	73	60	56	46
5.0 ~ 30	73	60	60	50

Detector: Peak for pre-scan (9kHz Resolution Bandwidth)
 Quasi-Peak & Average if maximized peak within 6dB of Average Limit

6.1.1 E.U.T. Operation

Temperature:	23°C	Humidity:	55% RH	Atmospheric Pressure:	101	Kpa
Test Mode:	N/A		The Worst Mode reported:		N/A	

6.1.2 Test Specification



EUT was placed upon a wooden test table 0.8m above the horizontal metal reference plane and 0.4m from the vertical ground plane, and it was connected to an AMN. The closest distance between the boundary of the EUT and the surface of the AMN is 0.8m. All peripherals were connected to another AMN, and placed at a distance of 10cm from each other. A spectrum and receiver was connected to the RF output port of the AMN. Both average and quasi-peak value were detected.

6.1.3 Measurement Data

N/A

The EUT is powered by DC power.

6.2 Radiated Emission Measurement

Limits of Radiated Emission Measurement (Below 1GHz)

Frequency (MHz)	<input type="checkbox"/> Class A (10m)	<input checked="" type="checkbox"/> Class B (3m)
	Quasi-Peak dB(μ V/m)	Quasi-Peak dB(μ V/m)
30 ~ 230	40.0	40.0
230 ~ 1000	47.0	47.0

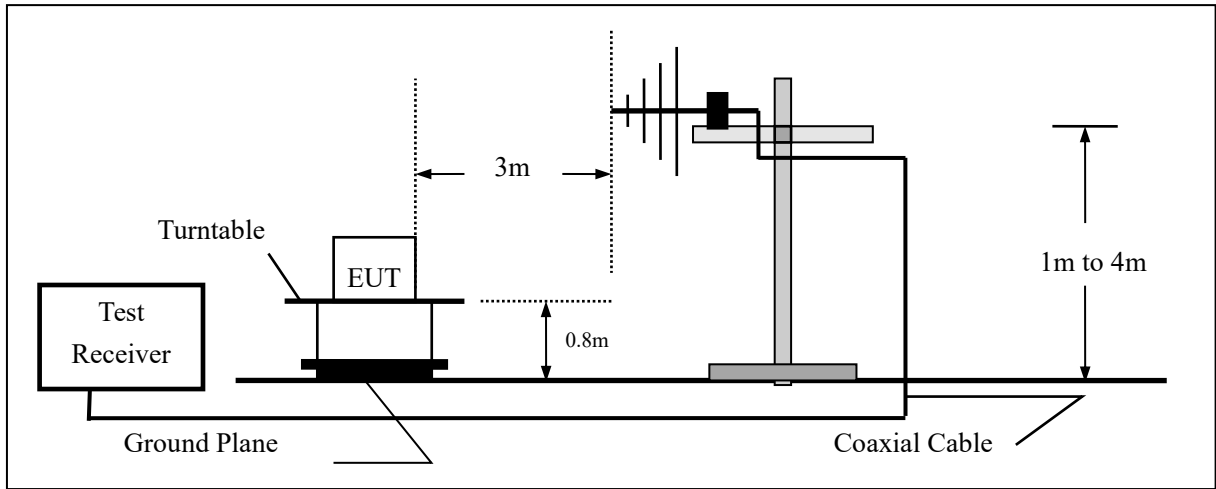
Limits of Radiated Emission Measurement (Above 1GHz)

Frequency (MHz)	<input type="checkbox"/> Class A (3m)		<input checked="" type="checkbox"/> Class B (3m)	
	Quasi-Peak dB(μ V/m)	Average dB(μ V/m)	Quasi-Peak dB(μ V/m)	Average dB(μ V/m)
1000~3000	76.0	56.0	70.0	50.0
3000 ~ 6000	80.0	60.0	74.0	54.0

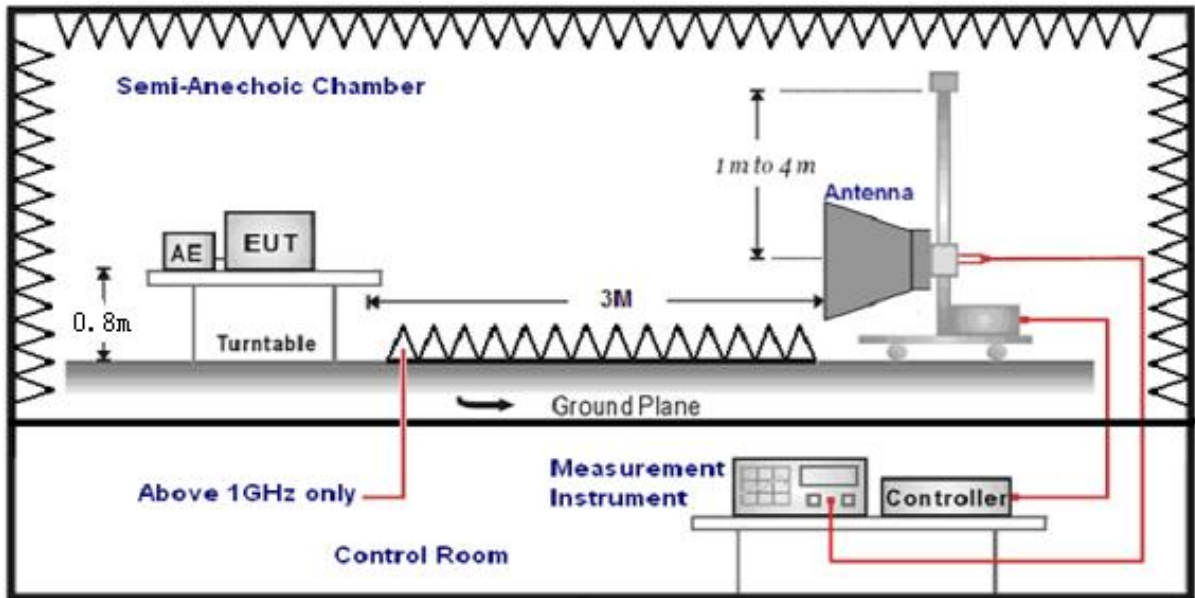
6.2.1 E.U.T. Operation

Temperature:	24°C	Humidity:	52% RH	Atmospheric Pressure:	101	Kpa
Test Mode:	All Modes			The Worst Mode reported:	Mode 2	

6.2.2 Test Specification



Radiated emission test set-up, frequency below 1000MHz:

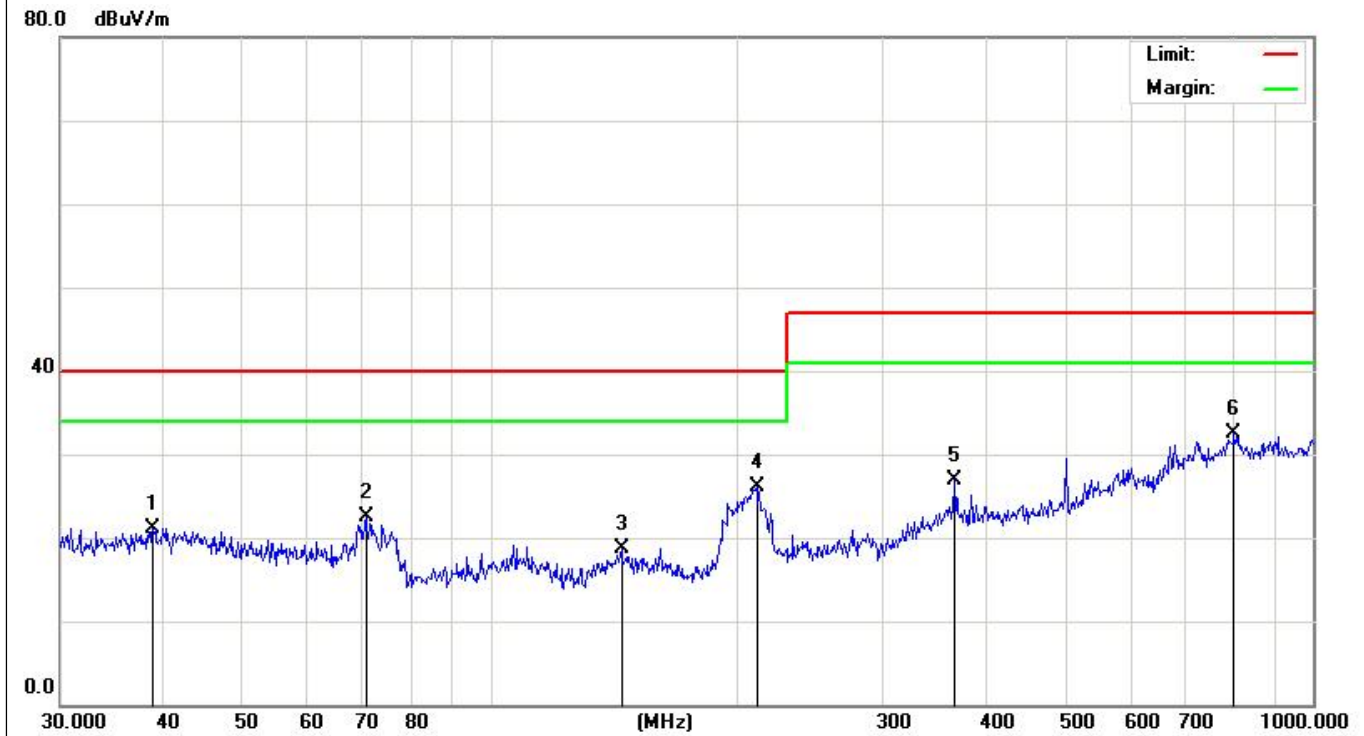


Radiated emission test set-up, frequency above 1000MHz

EUT was placed upon a wooden test table which was placed on the turn table 0.8m above the horizontal metal ground plane, and operating in the mode as mentioned above. A receiving antenna was placed 3m away from the EUT. During testing, turn around the turn table and move the antenna from 1m to 4m to find the maximum field-strength reading. All peripherals were placed at a distance of 10cm between each other. Both horizontal and vertical antenna polarities were tested.

6.2.3 Measurement Data

Model name:	AirBuds 4	Test Date :	2023-04-07
Test Mode:	Mode 2	Phase :	Vertical
Test Voltage:	AC 230V/50Hz	Test Result:	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail



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

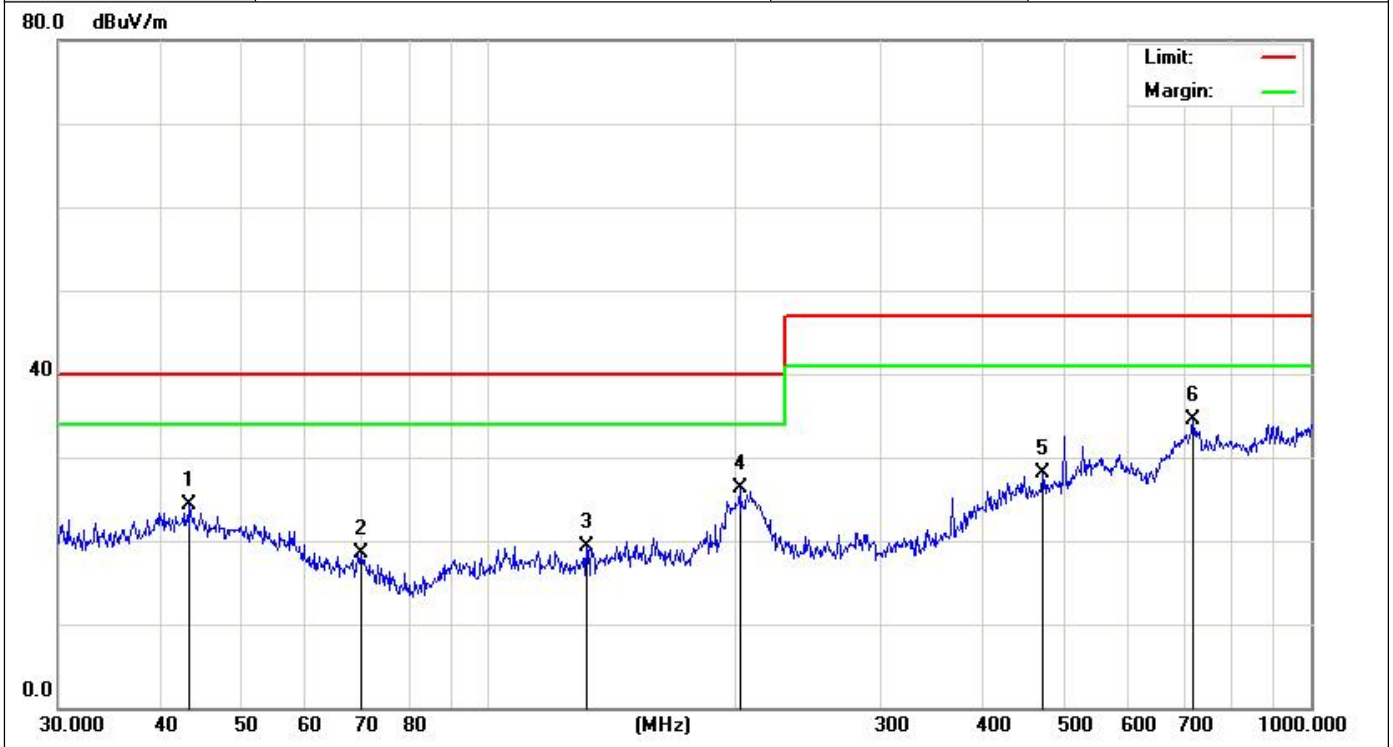
Measurement Result=Reading Level +Correct Factor;

Over Limit= Measurement Result- Limit;

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector
1		38.8878	25.58	-4.38	21.20	40.00	-18.80	QP
2		70.5836	33.02	-10.47	22.55	40.00	-17.45	QP
3		144.3348	25.99	-7.33	18.66	40.00	-21.34	QP
4	*	210.7860	30.33	-4.16	26.17	40.00	-13.83	QP
5		366.8231	27.40	-0.57	26.83	47.00	-20.17	QP
6		801.7862	25.66	6.82	32.48	47.00	-14.52	QP

Note: While performing the testing, the notch filter is used for avoiding test instrument overload.

Model name:	AirBuds 4	Test Date :	2023-04-07
Test Mode:	Mode 2	Polarization :	Horizontal
Test Voltage:	AC 230V/50Hz	Test Result:	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail



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

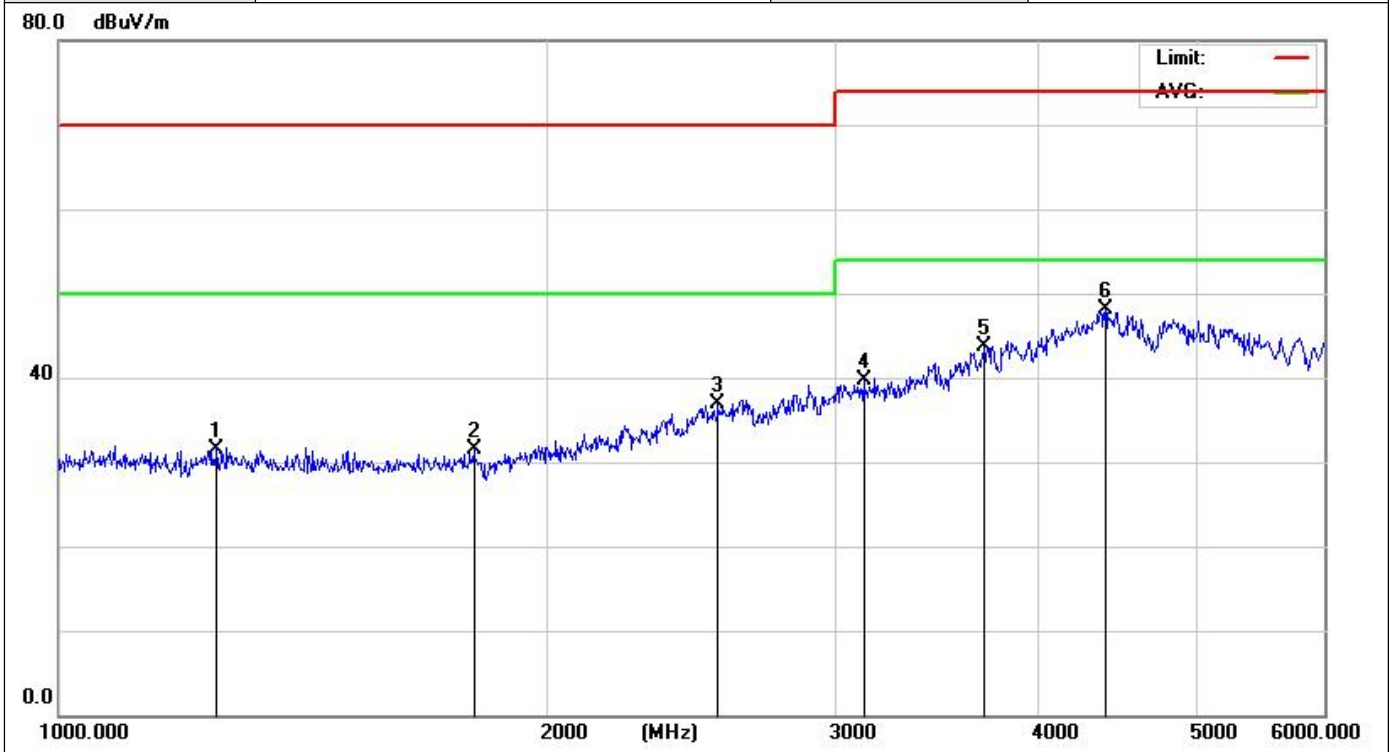
Measurement Result=Reading Level +Correct Factor;

Over Limit= Measurement Result- Limit;

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector
1		43.3534	26.36	-2.08	24.28	40.00	-15.72	QP
2		70.0902	27.18	-8.62	18.56	40.00	-21.44	QP
3		131.7576	27.21	-7.87	19.34	40.00	-20.66	QP
4		202.1005	33.73	-7.41	26.32	40.00	-13.68	QP
5		472.1759	25.92	2.26	28.18	47.00	-18.82	QP
6	*	719.1994	27.99	6.53	34.52	47.00	-12.48	QP

Note: While performing the testing, the notch filter is used for avoiding test instrument overload.

Model name:	AirBuds 4	Test Date :	2023-04-07
Test Mode:	Mode 2	Phase :	Vertical
Test Voltage:	AC 230V/50Hz	Test Result:	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail

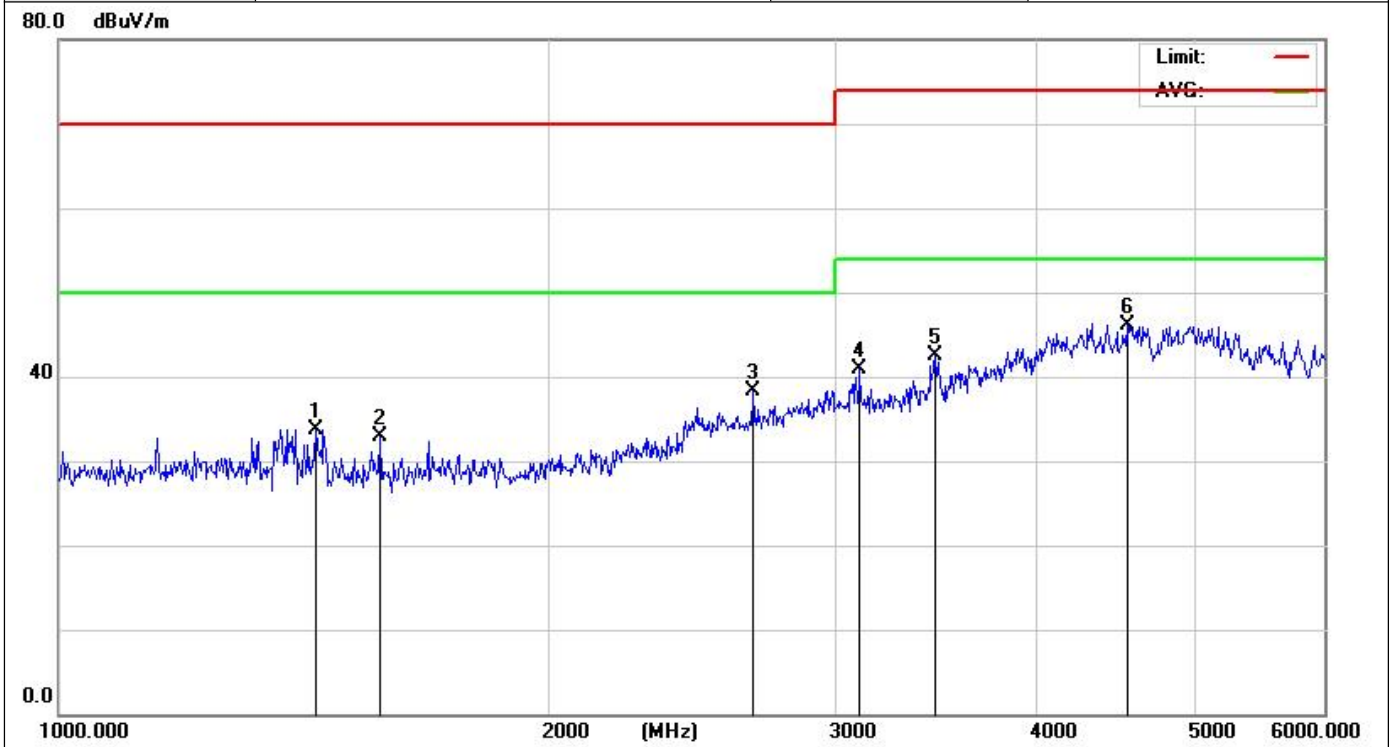


Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.
 Measurement Result=Reading Level +Correct Factor;
 Over Limit= Measurement Result- Limit;

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector
1		1251.033	42.06	-10.46	31.60	70.00	-38.40	peak
2		1799.839	40.79	-9.34	31.45	70.00	-38.55	peak
3		2543.412	41.56	-4.56	37.00	70.00	-33.00	peak
4		3125.390	41.12	-1.38	39.74	74.00	-34.26	peak
5		3705.344	42.32	1.48	43.80	74.00	-30.20	peak
6	*	4400.794	43.57	4.53	48.10	74.00	-25.90	peak

Note: While performing the testing, the notch filter is used for avoiding test instrument overload.

Model name:	AirBuds 4	Test Date :	2023-04-07
Test Mode:	Mode 2	Polarization :	Horizontal
Test Voltage:	AC 230V/50Hz	Test Result:	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail



Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.
 Measurement Result=Reading Level +Correct Factor;
 Over Limit= Measurement Result- Limit;

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector
1		1438.681	43.94	-10.14	33.80	70.00	-36.20	peak
2		1576.341	42.78	-9.88	32.90	70.00	-37.10	peak
3		2674.269	42.04	-3.74	38.30	70.00	-31.70	peak
4		3108.635	42.42	-1.42	41.00	74.00	-33.00	peak
5		3455.260	43.29	-0.69	42.60	74.00	-31.40	peak
6	*	4536.905	41.26	4.93	46.19	74.00	-27.81	peak

Note: While performing the testing, the notch filter is used for avoiding test instrument overload.

7 Immunity Test Results

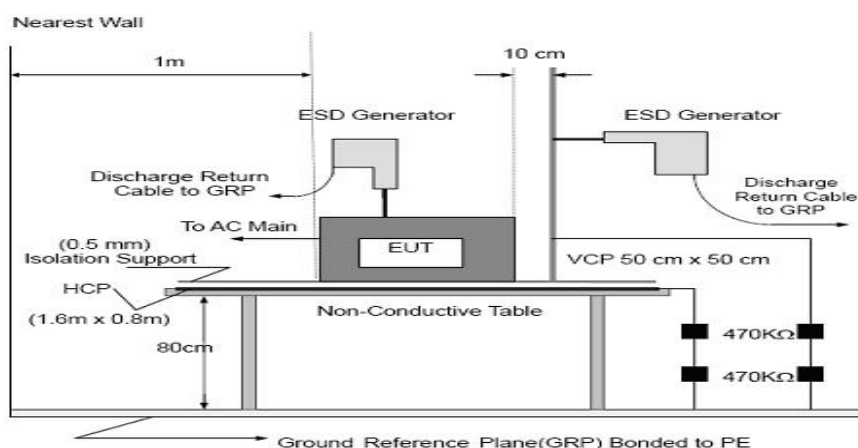
7.1 Electrostatic discharge immunity test

Acceptable Performance Criterion:	B
Discharge Impedance:	330 Ω / 150 pF
Discharge Voltage:	Air Discharge: ±4 kV, ±8 kV
	Contact Discharge: ±2 kV, ±4 kV
	VCP, HCP: ±2 kV, ±4 kV
Polarity:	Positive & Negative
Minimum discharge Interval:	1 second

7.1.1 E.U.T. Operation

Temperature:	25°C	Humidity:	50% RH	Atmospheric Pressure:	101	Kpa
Test Mode:	All Modes					

7.1.2 Test Specification



EUT was operated in the mode as mentioned above. Both contact and air discharge was executed. Contact discharge to the conductive surfaces and to coupling planes; air discharge at insulating surfaces. Each test point shall be subjected to 10 discharges at least (For each voltage and polarity).

7.1.3 Measurement Data

Test Record

Electrostatic Discharge Test Results																		
M/N:	AirBuds 4								Test Result: <input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail									
Test Voltage:	AC 230V/50Hz								Test date: 2023-04-07									
Discharge times	Contact discharge: minimum <u>10</u> times (+/-respectively) at each point, Air discharge: minimum <u>10</u> times (+/- respectively) at each point.																	
Discharge Mode	Air Discharge								Contact Discharge								Performance Criterion	Result
	4		8		10		15		2		4		6		8			
Test Location	+	-	+	-	+	-	+	-	+	-	+	-	+	-	+	-		
HCP	/	/	/	/	/	/	/	/	A	A	A	A	/	/	/	/	B	Pass
VCP	/	/	/	/	/	/	/	/	A	A	A	A	/	/	/	/		Pass
A1	B	B	B	B	/	/	/	/	/	/	/	/	/	/	/	/		Pass
A2	B	B	B	B	/	/	/	/	/	/	/	/	/	/	/	/		Pass
A3	B	B	B	B	/	/	/	/	/	/	/	/	/	/	/	/		Pass
A4	B	B	B	B	/	/	/	/	/	/	/	/	/	/	/	/		Pass
<p>Note 1): Horizontal Coupling Plane (HCP) and Vertical Coupling plane (VCP).</p> <p>Note 2): “Cx” means Contact Point ,x=1~N,“Ax” means Air Point, x=1~N.</p> <p>Note 3): “A” stand for, No degradation in performance of the EUT was observed.</p> <p>“B” stand for, Degradation in performance of the EUT occurred during the application of the disturbance, after the test, EUT can self-recovered and operate as intended.</p>																		

7.2 RF Field Strength Immunity Test						
Acceptable Performance Criterion:	A					
Test Level	3 V/m					
Test Distance	3 m					
Frequency Range	80MHz~6000MHz					
Polarity:	Horizontal & Vertical					
7.2.1 E.U.T. Operation						
Temperature:	26°C	Humidity:	54% RH	Atmospheric Pressure:	101	Kpa
Test Mode:	All Modes					
7.2.2 TEST PROCEDURE						
<p>The EUT and support equipment, which are placed on a table that is 0.8 meter above ground and the testing was performed in a fully-anechoic chamber.</p> <p>The testing distance from antenna to the EUT was 3 meters.</p> <p>The other condition as following manner:</p> <ol style="list-style-type: none"> The field strength level was 3V/m. The frequency range is swept from 80 MHz to 1000 MHz, & 1000MHz - 6000MHz with the signal 80%amplitude modulated with a 1kHz sine wave. The rate of sweep did not exceed 1.5x 10⁻³ decade/s. Where the frequency range is swept incrementally, the step size was 1% of fundamental. Sweep Frequency 900 MHz, with the Duty Cycle:1/8 and Modulation: Pulse 217 Hz(if applicable) The dwell time at each frequency shall be not less than the time necessary for the EUT to be able to respond. The test was performed with the EUT exposed to both vertically and horizontally polarized fields on each of the four sides. For the actual test configuration, please refer to the related Item –EUT Test Photos. 						

7.2.3 Test Specification

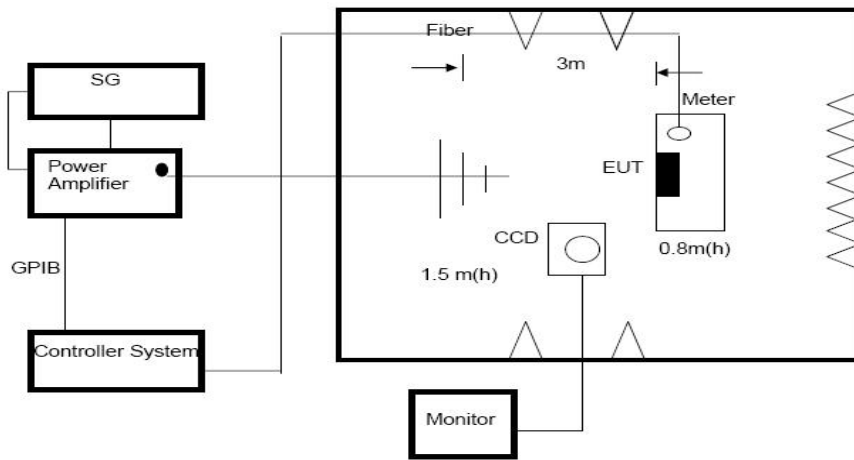


TABLE-TOP EQUIPMENT

The EUT installed in a representative system as described in section 7 of IEC/EN 61000-4-3 was placed on a non-conductive table 0.8 meters in height. The system under test was connected to the power and signal wire according to relevant installation instructions.

FLOOR-STANDING EQUIPMENT

The EUT installed in a representative system as described in section 7 of IEC/EN 61000-4-3 was placed on a non-conductive wood support 0.1 meters in height. The system under test was connected to the power and signal wire according to relevant installation instructions.

7.2.4 Measurement Data

Radiated Frequency Field Strength Susceptibility Results		
M/N:	AirBuds 4	Test Result: <input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
Test Voltage:	AC 230V/50Hz	Test date: 2023-04-07
Test Port	Enclosure	

Frequency	Level	Modulation	Antenna Polarization	EUT Face	Observations (Performance Criterion)	Result
80 MHz-6 GHz	3 V/m	1 kHz, 80 % Amp. Mod, 1 % increment, dwell time=3seconds	V	Front	A	Pass
			H		A	Pass
			V	Rear	A	Pass
			H		A	Pass
			V	Left	A	Pass
			H		A	Pass
			V	Right	A	Pass
			H		A	Pass
			V	Top	A	Pass
			H		A	Pass
			V	Bottom	A	Pass
			H		A	Pass

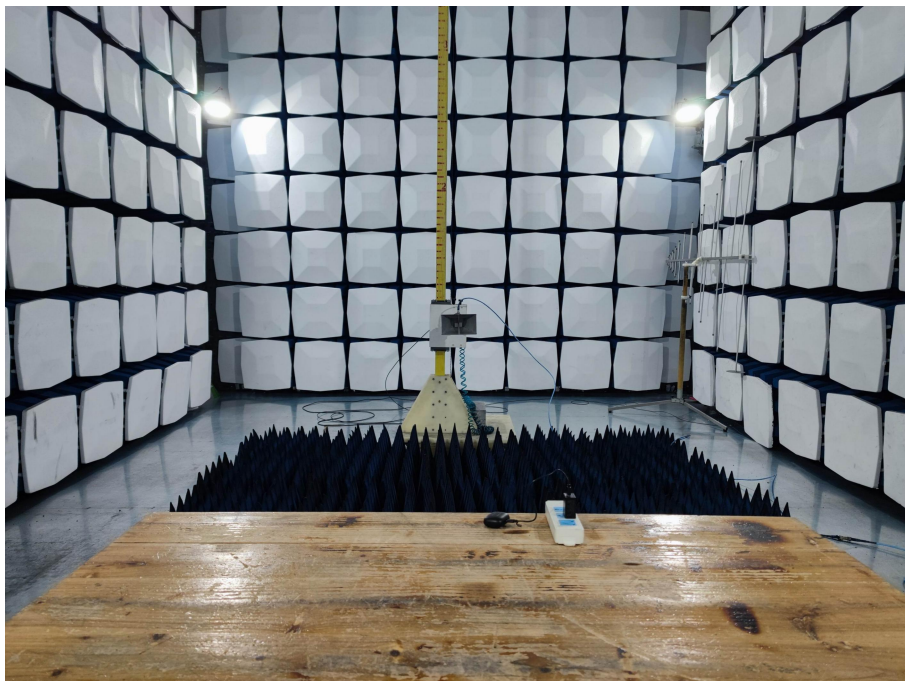
Note: "A" stand for, during test, operate as intended no loss of function, no degradation of performance, no unintentional transmissions and after test, no degradation of performance, no loss of function, no loss of stored data or user programmable functions.

Special conditions for EMC immunity tests

EUT operating Mode	PER during test(Worst)	PER Limit	Result
BT	4.3%	10%	Pass

8 Test Setup Photos of The EUT

Radiated Emission



Electrostatic Discharge



RF Electromagnetic Field



9 External And Internal Photos of The EUT

Please refer to the appendix for details

****End of the report****