

Report No.:	TW2408062-01E
Applicant:	Guangdong Samzuk Development Technology Co., Ltd
Product:	Metal Ultra-thin Glass Speaker
Model No.:	DK11, DK12, DK13, DK14, DK15
Trademark:	KETELESE
Test Standards:	FCC Part 15.249
Test result:	It is herewith confirmed and found to comply with the requirements set up by ANSI C63.10 & FCC Part 15 Subpart C, Paragraph 15.249 regulations for the evaluation of electromagnetic compatibility
Approved By	

Terry long

Terry Tang

Manager

Dated:

November 09, 2024

Results appearing herein relate only to the sample tested The technical reports is issued errors and omissions exempt and is subject to withdrawal at

SHENZHEN TIMEWAY TESTING LABORATORIES

Zone C, 1st Floor, Block B, Jun Xiang Da Building, Zhongshan Park Road West, Tong Le Village, Nanshan District, Shenzhen, China Tel (755) 83448688, Fax (755) 83442996, E-Mail:info@timeway-lab.com



Special Statement:

FCC-Registration No.: 744189

The EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications commission. The acceptance letter from the FCC is maintained in our files. Registration No.: 744189.

Industry Canada (IC) — Registration No.: 5205A

The EMC Laboratory has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 5205A.

A2LA (Certification Number:5013.01)

The EMC Laboratory has been accredited by the American Association for Laboratory Accreditation (A2LA). Certification Number:5013.01

CAB identifier: CN0033

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1.0 General Details

1.1 Test Lab Details

Name:SHENZHEN TIMEWAY TESTING LABORATORIES.Address:Zone C, 1st Floor, Block B, Jun Xiang Da Building, Zhongshan Park Road West, Tong Le
Village, Nanshan District, Shenzhen, ChinaTelephone:(755) 83448688Fax:(755) 83442996Site on File With the Federal Communications Commission – United SatesRegistration Number: 744189For 3m Anechoic Chamber

1.2 Applicant Details

Applicant:	Guangdong Samzuk Development Technology Co., Ltd
Address:	High-Tech Zone Xinggong Avenue East Heyuan China

1.3 Description of EUT

Product:	Metal Ultra-thin Glass Speaker
Manufacturer:	Guangdong Samzuk Development Technology Co., Ltd
Address:	High-Tech Zone Xinggong Avenue East Heyuan China
Trademark:	KETELESE
Model Number:	DK11
Additional Model Name	DK12, DK13, DK14, DK15
Rating:	Input: DC18.5V-22V, 1.6A
Battery:	DC14.8V/3250mAh
Serial No.:	N/A
Hardware Version:	V1.0
Software Version:	V0.4.6
Operation Frequency:	2402-2480MHz
Modulation Type:	GFSK, 刀/4DQPSK, 8DPSK
Number of Channels:	79
Channel Separation:	1MHz
Antenna Designation	Integral antenna with gain 0.99dBi maximum (Get from the antenna specification)

1.4 Submitted Sample: 2 Samples

1.5 Test Duration

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2024-08-06 to 2024-11-09

1.6 Test Uncertainty

Conducted Emissions Uncertainty =3.6dB Radiated Emissions below 1GHz Uncertainty =4.7dB Radiated Emissions above 1GHz Uncertainty =6.0dB Conducted Power Uncertainty =6.0dB Occupied Channel Bandwidth Uncertainty =5% Conducted Emissions Uncertainty =3.6dB Note: The measurement uncertainty is for coverage factor of k=2 and a level of confidence of 95%.

1.7 Test Engineer

Andy -Xing

The sample tested by

Print Name: Andy Xing

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2.0 Test Equipment					
Instrument Type	Manufacturer	Model	Serial No.	Date of Cal.	Due Date
ESPI Test Receiver	R&S	ESPI 3	100379	2024-07-12	2025-07-11
LISN	R&S	EZH3-Z5	100294	2024-07-12	2025-07-11
LISN	R&S	EZH3-Z5	100253	2024-07-12	2025-07-11
Impuls-Begrenzer	R&S	ESH3-Z2	100281	2024-07-12	2025-07-11
Loop Antenna	EMCO	6507	00078608	2022-07-18	2025-07-17
Spectrum	R&S	FSIQ26	100292	2024-07-12	2025-07-11
Horn Antenna	A-INFO	LB-180400-KF	J211060660	2022-07-18	2025-07-17
Horn Antenna	R&S	BBHA 9120D	9120D-631	2022-07-18	2025-07-17
Power meter	Anritsu	ML2487A	6K00003613	2024-07-12	2025-07-11
Power sensor	Anritsu	MA2491A	32263	2024-07-12	2025-07-11
Bilog Antenna	Schwarebeck	VULB9163	9163/340	2022-07-18	2025-07-17
9*6*6 Anechoic			N/A	2022-07-26	2025-07-25
EMI Test Receiver	RS	ESVB	826156/011	2024-07-12	2025-07-11
EMI Test Receiver	RS	ESCS 30	834115/006	2024-07-12	2025-07-11
Spectrum	HP/Agilent	E4407B	MY50441392	2024-07-12	2025-07-11
Spectrum	RS	FSP	1164.4391.38	2024-07-12	2025-07-11
RF Cable	Zhengdi	ZT26-NJ-NJ-8M/FA		2024-07-12	2025-07-11
RF Cable	Zhengdi	7m		2024-07-12	2025-07-11
Pre-Amplifier	Schwarebeck	BBV9743	#218	2024-07-12	2025-07-11
Pre-Amplifier	HP/Agilent	8449B	3008A00160	2024-07-12	2025-07-11
LISN	SCHAFFNER	NNB42	00012	2024-07-12	2025-07-11
ESPI Test Receiver	R&S	ESPI 3	100379	2024-07-12	2025-07-11
LISN	R&S	EZH3-Z5	100294	2024-07-12	2025-07-11

2.2 Automation Test Software

For Conducted Emission Test

Name	Version
EZ-EMC	Ver.EMC-CON 3A1.1

For Radiated Emissions

Name	Version
EMI Test Software BL410-EV18.91	V18.905
EMI Test Software BL410-EV18.806 High Frequency	V18.06

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adopt any other remedies which may be appropriate.



The EUT has been tested according to the following specifications:

3.0 Technical Details

3.1 Summary of test results

The EOT has been tested according to u	ie ionowing speer	incations.	
Standard	Test Type	Result	Notes
FCC Part 15, Paragraph 15.203	Antenna Requirement	Pass	Complies
FCC Part 15, Paragraph 15.207	Conducted Emission Test	Pass	Complies
FCC Part 15 Subpart C Paragraph 15.249(a) & 15.249(b) Limit	Field Strength of Fundamental	Pass	Complies
FCC Part 15, Paragraph 15.209	Radiated Emission Test	Pass	Complies
FCC Part 15 Subpart C Paragraph 15.249(d) Limit	Band Edge Test	Pass	Complies
FCC Part 15.215(c)	20dB bandwidth	Pass	Complies

3.2 Test Standards

FCC Part 15 Subpart C, Paragraph 15.249, ANSI C63.4 :2014 and ANSI C63.10 :2013

4.0 EUT Modification

No modification by SHENZHEN TIMEWAY TESTING LABORATORIES

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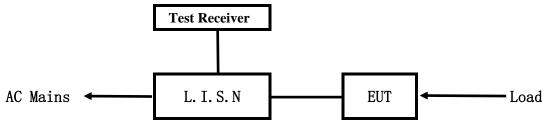
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5.0 Power Line Conducted Emission Test

5.1 Schematics of the test

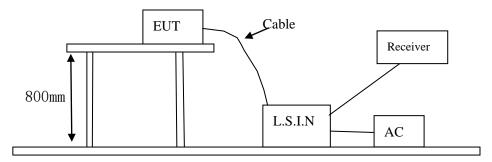


EUT: Equipment Under Test

5.2 Test Method and test Procedure

The EUT was tested according to ANSI C63.10-2013. The Frequency spectrum from 0.15MHz to 30MHz was investigated. The LISN used was 50ohm/50uH as specified by section 5.1 of ANSI C63.10–2013. Test Voltage: 120V~, 60Hz

Block diagram of Test setup



5.3 Configuration of the EUT

The EUT was configured according to ANSI C63.10-2013. All interface ports were connected to the appropriate peripherals. All peripherals and cables are listed below. 79 channels are provided to the EUT

A.	EUT

Device	Manufacturer	Model	FCC ID
Metal Ultra-thin Glass Speaker	Guangdong Samzuk Development Technology Co., Ltd	DK11, DK12, DK13, DK14, DK15	2AIOQ-DK11

B. Internal Device

	Device	Manufacturer	Model	FCC ID/DOC
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N/A

C. Peripherals

Device	Manufacturer	Model	Rating
Power Supply	Infinix	XC1165US	Input: 100-240V~, 50-60Hz, 1.5A;
			Output: DC5V/3A or DC9V, 3A or
			DC15V, 3A or DC20V, 3.25A

- 5.4 EUT Operating Condition Operating condition is according to ANSI C63.10-2013
- A Setup the EUT and simulators as shown on follow
- B Enable AF signal and confirm EUT active to normal condition
- 5.5 Power line conducted Emission Limit according to Paragraph 15.207

Frequency	Limits (dB µ V)					
(MHz)	Quasi-peak Level	Aver ge Level				
$0.15~\sim~0.50$	66.0~56.0*	56.0~46.0*				
$0.50~\sim~5.00$	56.0	46.0				
$5.00 \sim 30.00$	60.0	50.0				

Notes: 1. *Decreasing linearly with logarithm of frequency.

2. The tighter limit shall apply at the transition frequencies

5.6 Test Results:

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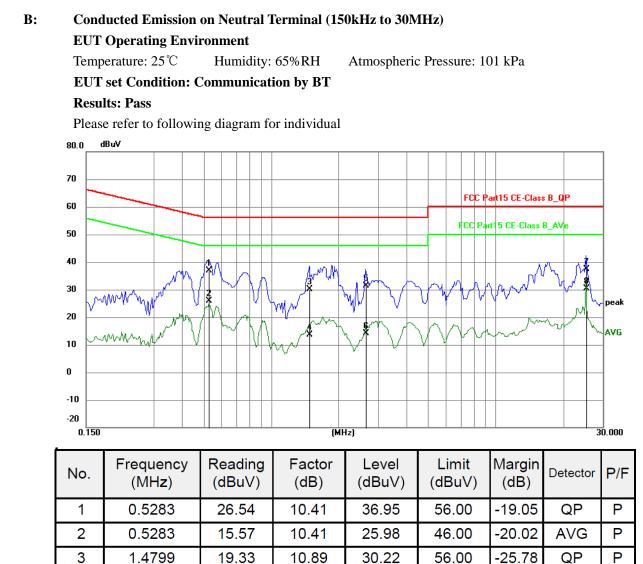
Conducted Emission on Live Terminal (150kHz to 30MHz) A: **EUT Operating Environment** Temperature: 25°C Humidity: 65%RH Atmospheric Pressure: 101 kPa EUT set Condition: Communication by BT **Results: Pass** Please refer to following diagram for individual dBu¥ 80.0 70 FCC Part15 CE-Class B_QP 60 FCC Part 15 CE-Class B AVe 50 40 30 neak 20 AVG 10 0 -10 -20 (MHz) 0.150 30.000

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.1734	34.38	10.33	44.71	64.80	-20.09	QP	Ρ
2	0.1734	2.78	10.33	13.11	54.80	-41.69	AVG	Ρ
3	0.5205	30.40	10.41	40.81	56.00	-15.19	QP	Ρ
4	0.5205	13.54	10.41	23.95	46.00	-22.05	AVG	Ρ
5	1.6983	24.19	11.07	35.26	<u>56.00</u>	-20.74	QP	Ρ
6	1.6983	7.29	11.07	18.36	46.00	-27.64	AVG	Ρ
7	16.8450	16.43	15.61	32.04	60.00	-27.96	QP	Ρ
8	16.8450	3.72	15.61	19.33	50.00	-30.67	AVG	Ρ

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10.89

11.55

11.55

15.29

15.29

13.65

31.41

14.20

37.46

30.50

-32.35

-24.59

-31.80

-22.54

-19.50

46.00

56.00

46.00

60.00

50.00

Ρ

Ρ

Ρ

Ρ

Ρ

AVG

QP

AVG

QP

AVG

The report refers only to the sample tested and does not apply to the bulk.

4

5

6

7

8

1.4799

2.6382

2.6382

25.2300

25.2300

2.76

19.86

2.65

22.17

15.21

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6 Radiated Emission Test

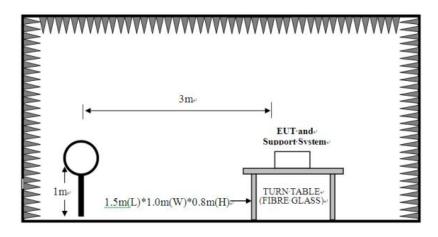
- 6.1 Test Method and test Procedure:
- The EUT was tested according to ANSI C63.10-2013. The radiated test was performed at Timeway EMC Laboratory. This site is on file with the FCC laboratory division, Registration No. 744189
- (2) The EUT, peripherals were put on the turntable which table size is 1m x 1.5 m, table high 0.8 m. All set up is according to ANSI C63.10-2013.
- (3) The frequency spectrum from 9kHz to 25 GHz was investigated. The frequency spectrum is set as follows:

Frequency	Detector	RBW	VBW	Value
9KHz-150KHz	Quasi-peak	200Hz	600Hz	Quasi-peak
150KHz-30MHz	Quasi-peak	9KHz	30KHz	Quasi-peak
30MHz-1GHz	Quasi-peak	120KHz	300KHz	Quasi-peak
Above 1GHz	Peak	1MHz	3MHz	Peak
Above IGHZ	Peak	1MHz	10Hz	Average

(Note: for Fundamental frequency radiated emission measurement, RBW=3MHz, VBW=10MHz). Measurements were made at 3 meters.

- (4) The antenna high is varied from 1 m to 4 m high to find the maximum emission for each frequency.
- (5) The antenna polarization: Vertical polarization and Horizontal polarization.Block diagram of Test setup

For radiated emissions from 9kHz to 30MHz

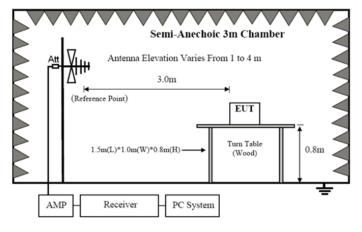


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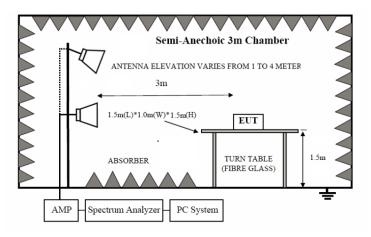
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For radiated emissions from 30MHz to1GHz



For radiated emissions above 1GHz



- 6.2 Configuration of the EUT Same as section 5.3 of this report
- 6.3 EUT Operating Condition Same as section 5.4 of this report.
- 6.4 Radiated Emission Limit

All emission from a digital device, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strength specified below:

A FCC Fart 15 Subp		agraph 13.249(a) Linnt		
Fundamental Frequency	Field Stre	ength of Fundamental (3m)	Field S	trength of Harmonics (3m)
(MHz)	mV/m	dBuV/m	uV/m	dBuV/m

A FCC Part 15 Subpart C Paragraph 15.249(a) Limit

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24	400-2483.5	50	94 (Average)	114 (Peak)	500	54 (Average)	74 (Peak)
Note:	1. RF Field Streng	gth (dBuV)	$= 20 \log \text{RF Volt}$	age (uV)			

2.Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.

3. The emission limit in this paragraph is based on measurement instrumentation employing an average detector.

B. Frequencies in restricted band are complied to limit on Paragraph 15.209.

1	1	81
Frequency Range (MHz)	Distance (m)	Field strength (dB μ V/m)
0.009-0.490	3	20log(2400/F(kHz)) +40log (300/3)
0.490-1.705	3	20log(24000/F(kHz)) +40log (30/3)
1.705-30	3	69.5
30-80	3	40.0
88-216	3	43.5
216-960	3	46.0
Above 960	3	54.0

Note:

1. RF Voltage (dBuV) = $20 \log \text{RF}$ Voltage (uV)

2. In the Above Table, the tighter limit applies at the band edges.

3. Distance refers to the distance in meters between the measuring instrument antenna and the EUT

4. All scanning using PK detector. And the final emission level was get using QP detector for frequency range from 30-1000MHz.As to 1G-25G, the final emission level got using PK. For fundamental measurement, PK detector used.

5. The three modulation modes of GFSK, Pi/4D-QPSK and 8DPSK were tested. And only the worst case was recorded in the test report. GFSK was the worst case.

6. Battery was fully charged during test

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6.5 Test result

A Fundamental & Harmonics Radiated Emission Data

Please refer to the following test plots for details: Low Channel-2402MHz

Horizontal

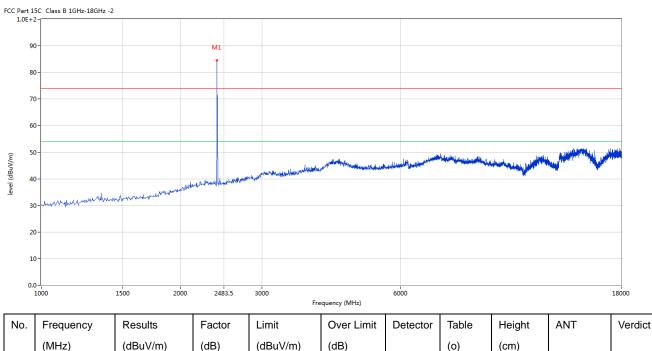
1

2402

84.53

-3.57

114.0



-29.47

Peak

232.00

100

Horizontal

Pass

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1

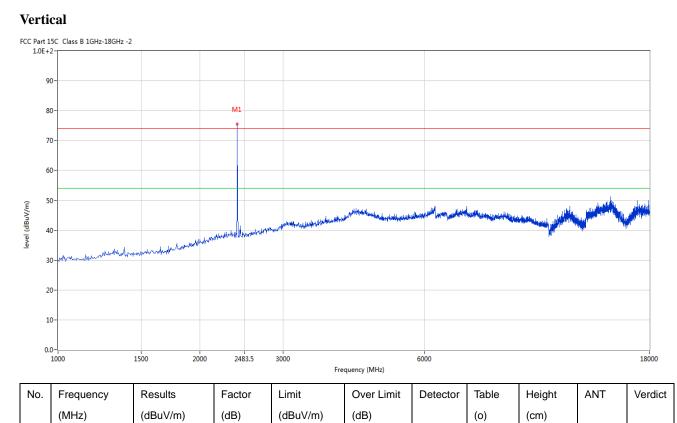
2402

75.49

-3.57

114.0





-38.51

Peak

175.00

100

Vertical

Pass

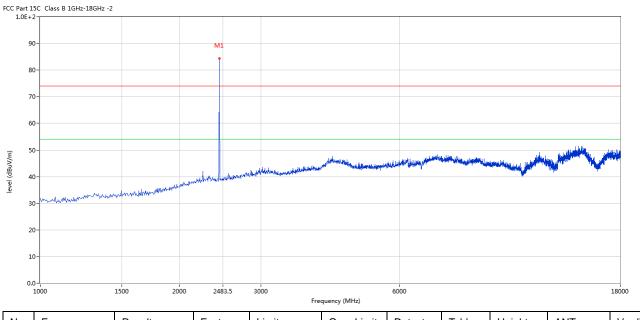
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Please refer to the following test plots for details: Middle Channel-2441MHz

Horizontal



No	о.	Frequency	Results	Factor	Limit	Over Limit	Detector	Table	Height	ANT	Verdict
		(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)		(o)	(cm)		
1		2441	84.35	-3.57	114.0	-29.65	Peak	82.00	100	Horizontal	Pass

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-38.23

203.00

100

Vertical

Pass

Peak

The report refers only to the sample tested and does not apply to the bulk.

75.77

2441

1

-3.57

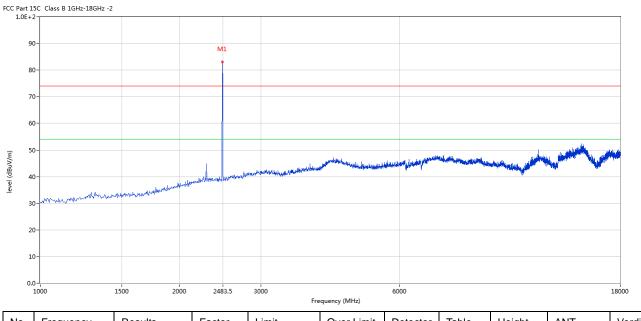
114.0

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Please refer to the following test plots for details: High Channel-2480MHz

Horizontal

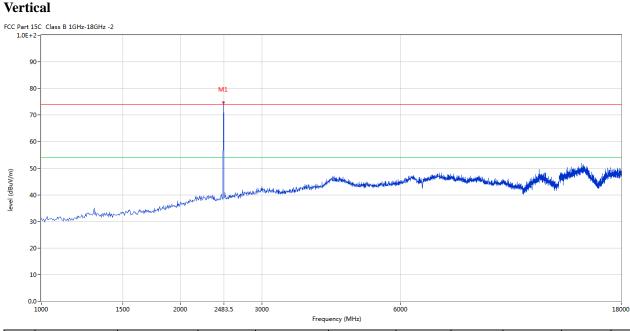


١	No.	Frequency	Results	Factor	Limit	Over Limit	Detector	Table	Height	ANT	Verdict
		(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)		(o)	(cm)		
1	1	2480	83.02	-3.57	114.0	-30.98	Peak	252.00	100	Horizontal	Pass

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No.	Frequency	Results	Factor	Limit	Over Limit	Detector	Table	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)		(o)	(cm)		
1	2480	74.72	-3.57	114.0	-39.28	Peak	285.00	100	Vertical	Pass

Note: (1) Emission Level = Reading Level + Antenna Factor + Cable Loss-Amplifier

(2) Margin=Emission-Limits

(3) According to section 15.35(b), the peak limit is 20dB higher than the average limit

(4) For test purpose, keep EUT continuous transmitting

(5) For emission above 18GHz and Below 30MHz, It is only the floor noise and less than the limit for more than 20dB. No necessary to take down.

(6) the measured PK value less than the AV limit.

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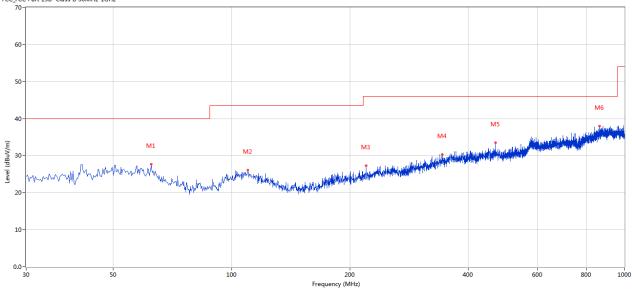
B. General Radiated Emission Data Radiated Emission In Horizontal (30MHz----1000MHz)

EUT set Condition: Keep Tx transmitting

Results: Pass

Please refer to following diagram for individual

FCC_FCC Part 15B Class B 30MHz-1GHz



No.	Frequency	Results	Factor	Limit	Margin	Detector	Table	Height	Antenna	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)		(Degree)	(cm)		
1	62.487	27.72	-5.63	40.0	12.28	Peak	44.00	100	Horizontal	Pass
2	110.005	26.13	-5.92	43.5	17.37	Peak	348.00	100	Horizontal	Pass
3	220.072	27.29	-6.06	46.0	18.71	Peak	177.00	100	Horizontal	Pass
4	343.474	30.38	-2.92	46.0	15.62	Peak	91.00	100	Horizontal	Pass
5	470.027	33.54	-0.10	46.0	12.46	Peak	270.00	100	Horizontal	Pass
6	864.476	37.94	4.85	46.0	8.06	Peak	308.00	100	Horizontal	Pass

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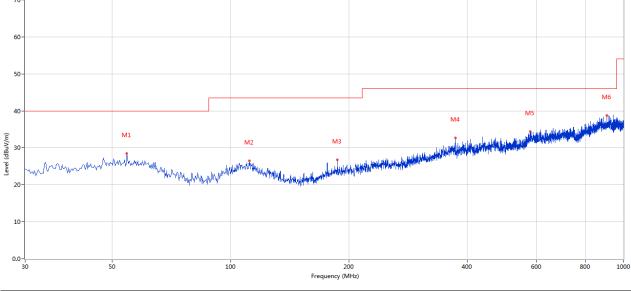
Radiated Emission In Vertical (30MHz----1000MHz)

EUT set Condition: Keep Tx transmitting

Results: Pass

Please refer to following diagram for individual

FCC_FCC Part 15B Class B 30MHz-1GHz



No.	Frequency	Results	Factor	Limit	Margin	Detector	Table	Height	Antenna	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)		(Degree)	(cm)		
1	54.486	28.51	-5.17	40.0	11.49	Peak	113.00	100	Vertical	Pass
2	111.460	26.56	-6.04	43.5	16.94	Peak	141.00	100	Vertical	Pass
3	187.101	26.74	-7.27	43.5	16.76	Peak	359.00	100	Vertical	Pass
4	373.052	32.74	-1.87	46.0	13.26	Peak	359.00	100	Vertical	Pass
5	579.125	34.44	1.84	46.0	11.56	Peak	241.00	100	Vertical	Pass
6	906.903	38.81	5.08	46.0	7.19	Peak	227.00	100	Vertical	Pass

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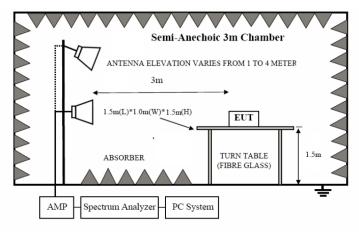


7. Band Edge

7.1 Test Method and test Procedure:

- The EUT was tested according to ANSI C63.10–2013. The radiated test was performed at Timeway EMC Laboratory. This site is on file with the FCC laboratory division, Registration No. 744189
- (2) Set Spectrum as RBW=1MHz, VBW=3MHz and Peak detector used for PK value. RBW=1MHz, VBW=10Hz and Peak detector used for AV value.
- (3) The antenna high is varied from 1 m to 4 m high to find the maximum emission for each frequency.
- (4) The antenna polarization: Vertical polarization and Horizontal polarization.

7.2 Radiated Test Setup



For the actual test configuration, please refer to the related items - Photos of Testing

7.3 Configuration of the EUT

Same as section 5.3 of this report

7.4 EUT Operating Condition

Same as section 5.4 of this report.

7.5 Band Edge Limit

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in Section 15.209, whichever is the lesser attenuation.

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7.6 Test Result

	Product:	Metal	Ultra-thin	Glass Speak	er	Polar	ity		Horizontal	
	Mode	k	Keeping Tr	ansmitting		Test Vo	ltage	DC14.8V		
Te	mperature				Humidity		56% RH			
Τe	est Result:									
FCC F	Part 15C Class B 1GHz-18 1.0E+2- 90- 80- 70- 60-	IGHz -2						M2	MI	
level (dBuV/m)	30-	oordens fordelije op de staat op de staat de st	enterritering by the solution of the	nothypertensitive-traditionetrications	berrekkerennen berenne		13 Hildlin solah Wirson	e trajementique.		unnechood
level (dBuV/m)	40- -+pr/4/14/14/14/44/44/44/44/44/44/44/44/44/4	Results (dBuV/m)	Factor (dB)	Limit	Frequency (MHz) Over Limit (dB)			Height (cm)	ANT	2410
No.	40- 	Results	Factor	Limit	Frequency (MHz)	n glan gladig al ng glan glan glan glan glan glan gl	Table	Height		2410
No.	40- 30- 20- 10- 0.0- 2350 Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Frequency (MHz) Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	2410 Verdie
	40- 	Results (dBuV/m) 83.80	Factor (dB) -3.57	Limit (dBuV/m) 74.0	Frequency (MHz) Over Limit (dB) 9.80	Detector Peak	Table (0) 249.00	Height (cm) 100	ANT Horizontal	2410 Verdia

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	Product:	Meta	l Ultra-thin	Glass Speak	ter	Detect	or		Vertical			
	Mode	I	Keeping Tr	ansmitting		Test Vol	tage	DC14.8V				
Te	Temperature 24 deg. C				Humidity				56% RH			
Test Result:		Pass										
	rt 15C Class B 1GHz-18GH E+2-	iz -2										
	90-											
	80-								M1			
	70-							ľ				
	60-							Mž				
_												
(Ê	50-							1	1.			
(m//ngb)						МЗ			h			
level (dBuV/m)	40-	પાને દુર્તિ ગુમ્લ કરે છે. તે કા કાર્યત્વે કરતા કરતાં છે કરતાં છે.	ning fatter fatter fatt de seje de fatteres	ferens den benderlorda hann er damp fik	مەمەرىغ قۇر ەر يەر تەر تەر تەر يەر يەر يەر يەر يەر يەر يەر يەر يەر ي		, while settly view of the set set	******	W	Markelon, Hologalayan		
level (dBuV/m)	40-	u, l yida yi ka girdi ka ayadi ya ayadi ya a	ningtatistasintistikasi dara	fellitekter kinskolofisterer til en fik	nisharatika darihi nisarikaran		, eshin shkorin alla na sara	interior property little	him	Marketon, bilder Jahren		
level (dBuV/m)	40-	un für förstand första för an social som stär förstande sociale sociale sociale sociale sociale sociale sociale	nan ferinderinderinder of stars	generatur kalantah ya wangi k	ndolman selden der bei an breef segmen		, rifiin oo kurilla maa dha	1999. In a classifier	Wired	Nala'ler, di Andrai Jano,		
level (dBuV/m)	40- 40- 30- 20-	u Lindon un direction and an and	nang taran dari kalan d	zeniska kadiologia karati			unhiantikunaatta	netri cire anta del la la		Nale'se, bitad at jun		
level (dBuV/m)	40- 	salafottaqiitalaasatasaatasaatasaatasaa	nan farter faster f	gemisten konkelsen konserversen fit	ىمە يېرۇچىلىدۇلاتلە ئۇلايلىنى يەلىل		, sokia pokanisti te an otra	nije na presidente	hines.	Production (history)		
level (dBuV/m)	40- 40- 30- 20-	un filogo and a second source a	our far af standard af stand	fattisten kurkteteteten ja seine			, sobie police il le ce com	nije na presidenta na presidenta da la companya da				
	40	Results		Limit	Frequency (MHz)		Table	Height	ANT	241(
	40		Factor (dB)		Frequency (MHz)	u Unied en Unied antennes bed	Table	Height (cm)		241(
No.	40- 40- 40- 40- 40- 40- 40- 40-	Results	Factor	Limit	Frequency (MHz)	u Unied en Unied antennes bed		Height (cm) 100		241(
(w/\ngp) level (W/\ngp) 2	40- 40- 40- 40- 20- 10- 20- 2350 Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Frequency (MHz) Over Limit (dB)	Detector	Table (o)	(cm)	ANT	2410 Verdic		

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	Product:	Metal Ultra-thin Glass Speaker					olarity		Horizontal		
	Mode		Keeping '	Transmitting	g Test Voltage Humidity				DC14.8V 56% RH		
Te	emperature		24 0	deg. C,							
Te	est Result:		I	Pass							
CC Part 1.0E+	15C Class B 1GHz-18GHz	-2									
	20-		N	11							
٤	30-		and a second sec	. Way							
1	70-		All a	λ							
(50 -		1	1							
_ :	50-		Ŋ	M2							
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level (dbuV/m	10- Avrougener warmen operated with the second	and a set of the constraint of the low of the	·		an a start and a start and a start and a start	aliza ta kilaan kebesi	isaninkurihasanysi-yhlika	مدينجز ليتلجار فيتقاط فالمحاف	ur in after film film to a start for the second second	der sy provident de	
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level (dBuV/m	1/11/11/11/11/11/11/11/11/11/11/11/11/1	andre site attende en	* 		n and a second second	<u>nin anta</u> ktidan dahap	a san tanàn a sa amin' a pina ami	erenzi etat autot alante	ariðuð Hindrig Hindrig var skur skur skur skur skur skur skur sku	8844, p.e. 80-14	
level (dBuV/m		sular site item, antibilities intervente			and the second se	adaan dagaa dag	steniskerkjosenski vyklek	ur song veiled, distributions	ar het der Klander klander von socialistik der		
level (dBuV/m		11.Van 319 - 199 - 199 - 199 - 199 - 199 - 199 - 199 - 199 - 199 - 199 - 199 - 199 - 199 - 199 - 199 - 199 - 19 	-	2483			sieniekonfasionsisionykleh 	ः क्षेत्र, सी.से. हेर्डाने क्षेत्रले क 	orio defini ili degene de la companya de la company 	2500	
level (dBuV/m	00	Results	Factor	2483 Limit	5	Detector	Table	Height	ANT		
level (dBuV/m	0		Factor (dB)	1	5 Frequency (MHz)					2500	
level (dbuV/m	00- 00- 2470 Frequency	Results		Limit	5 Frequency (MHz)		Table	Height		2500	

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]	Product:	Metal	Ultra-thin	Glass Speak	er	Detec	tor		Vertical		
	Mode	ŀ	Keeping Tra	ansmitting		Test Voltage		DC14.8V			
Te	mperature		24 deg	g. C,		Humidity			56% RH		
Τe	est Result:		Pas	ss							
	rt 15C Class B 1GHz-18GH E+2- 90- 80- 70- 60- 50-	tz -2	M	North Market							
level (d	40- <u>A vitilitzi di stativni </u>	ىمىچىلىكى ئۇرۇپى يەرىيەن يەرىيەن ئۇرۇپىيە بەلىرىكى ئەرىپىلەر ئەرىلىرى ئەرىپى ئەرىپىلەر ئەرىلىرى ئەرىپى ئەرىپى ب	w		Manayara, Asha, dangi suyan, Iddan ya	ay diadhaile ann an Annail	paga ang Kasarang Loky	ayışlararan benderleri	<mark>is de en ste in de la sette en s</mark> tate en s	all allen to be	
No.	30-	Results (dBuV/m)	Factor (dB) -3.57	2483.5 Limit (dBuV/m) 74.0		Detector	Table (o) 66.00	Height (cm)	ANT	2500 Verdic	

Note: 1. The PK emission level less than the AV limit. No necessary to record the AV emission level.

2. The three modulation modes of GFSK, Pi/4D-QPSK and 8DPSK were tested. And only the worst case was recorded in the test report. GFSK was the worst case.

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8.0 Antenna Requirement

Applicable Standard

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section.

This product has an Integral antenna with gain 0.99dBi maximum. It fulfills the requirement of this section. Test Result: Pass

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9.0 20dB Bandwidth Measurement

Test Configuration



Test Procedure

The transmitter output was connected to the spectrum analyzer through an attenuator. The bandwidth of the fundamental frequency was measured by spectrum analyzer with 30kHz RBW and 100kHz VBW.

The 20dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 20dB.

Limit

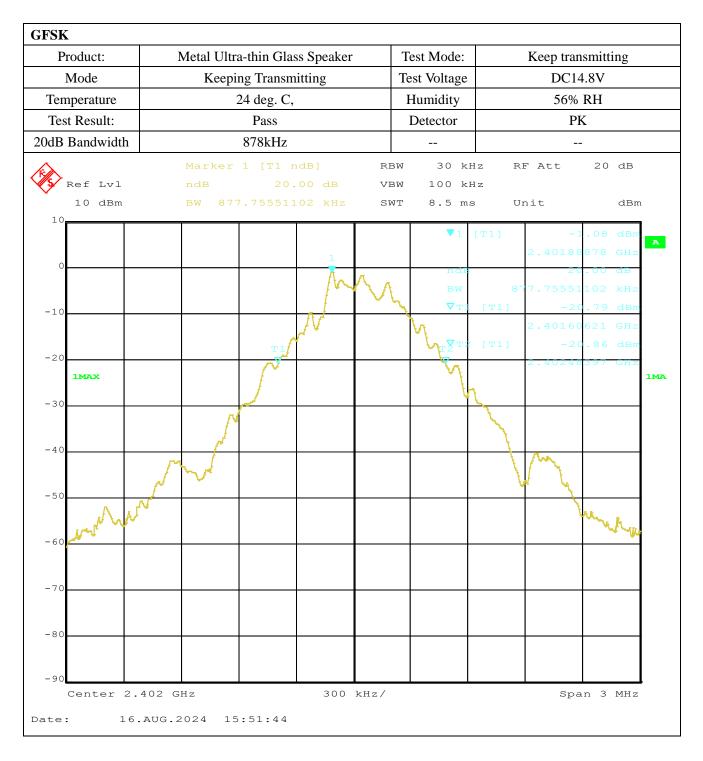
N/A

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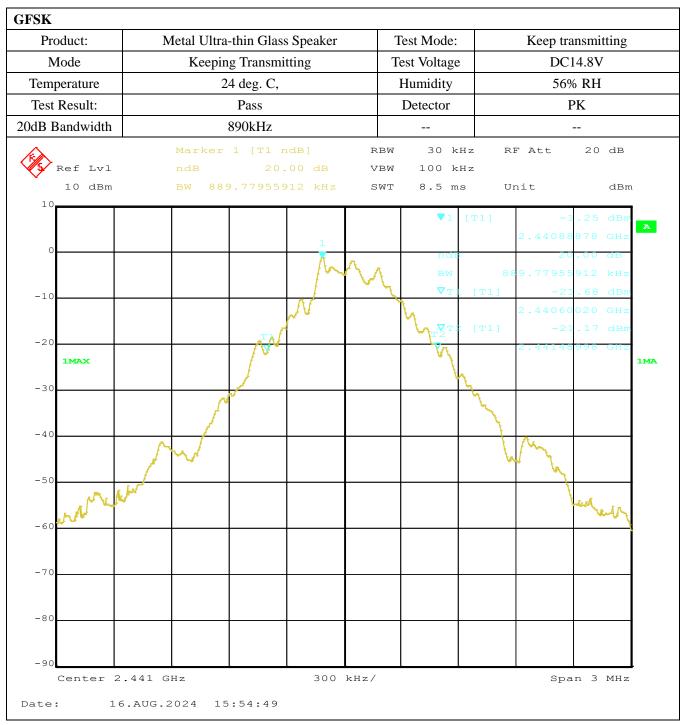
Test Result



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Л/4DQPSK							
Product:	Metal Ultra-thin Glass	Speaker	Test Mode:	Keep transmitting DC14.8V 56% RH PK			
Mode	Keeping Transmitt	ting	Test Voltage				
Temperature	24 deg. C,		Humidity				
Test Result:	Pass		Detector				
20dB Bandwidth	1.232MHz			-	-		
A	Marker 1 [T1 nd]	B] RE	3W 30 kH	Iz RF Att	20 dB		
Ref Lvl	ndB 20.0						
10 dBm 10	BW 1.2324649	3 MHz SV	VT 8.5 ms	5 Unit	dBm		
			▼1	[T1] -	1.08 dBm		
		1		2.4018			
0		A A	ndb	2	0.00 dB		
				1.2324 [T1] -2	6493 MHz 0.95 dBm		
-10			and the	2.4014	1383 GHz		
	211		VII	[T1] -2	1.06 dBm		
-20				2.4026	4629 GHz		
-30					1MA		
	m			typ			
-40				John -	ma		
- 5 0							
- 60							
- 7 0							
- 8 0							
-90 Center 2.40)2 GHz	300 kHz/			an 3 MHz		
	UG.2024 16:11:43	/		SP.			

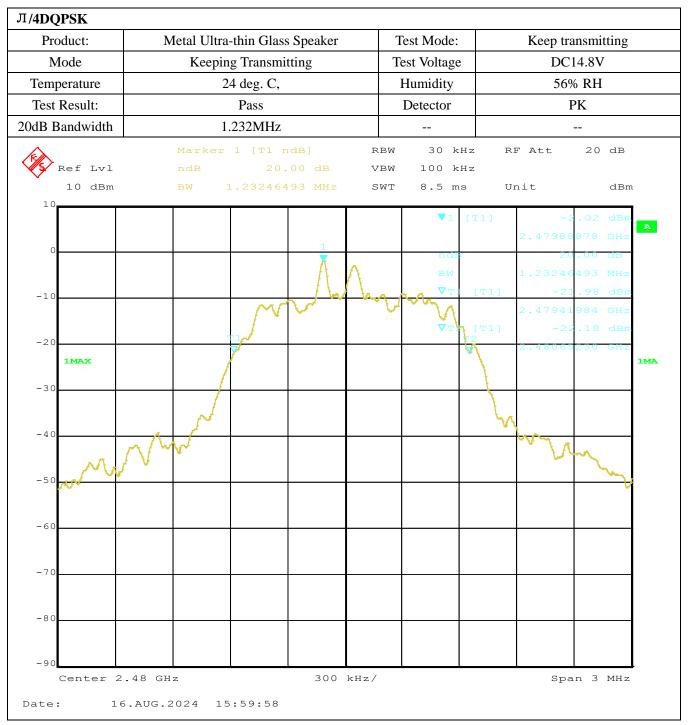
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Mode Temperature Test Result: DdB Bandwidth Ref Lv1 10 dBm	1	ng Transmi 4 deg. C, Pass .238MHz	tting			st Voltage		DC1	14.8V		
Test Result: DdB Bandwidth	1	Pass					Keep transmitting DC14.8V				
DdB Bandwidth Ref Lvl 10 dBm					H	lumidity		56% RH			
Ref Lvl 10 dBm		.238MHz			Ι	Detector		F	РК		
10 dBm	Marker		1.238MHz								
10 dBm		1 [T1 n	ndB]	RI	BW	30 ki	Hz RI	F Att	20 dB		
	ndB	20.	00 dB	VI	B₩	100 ki	Hz				
	BW	1.238476	95 MHz	SI	WΤ	8.5 m	s Ui	nit	dBr	l	
10						V 1	[T1]	-1	.23 dBm		
			1					2.44088	878 GHz	A	
0			٨	А		ndB		20	.00 dB	ĺ	
				()		BW ∧ ⊽T1		1.23847	695 MHz		
-10		M		<u>~~</u>	Vf	-A-VI	[T1]	2.44041	.19 dBm 383 GHz		
						▽ T 2	[[T1]	-21	.43 dBm		
-20		7					<u></u>	2.44165	230 GHz		
-30	1						Ì			1M2	
	~						E.				
-40	m						(\sim			
-50	r							ţ,	my		
-30										ĺ	
-60										İ	
										1	
-70											
										1	
- 8 0											
-90 Center 2.44	1			kHz/					n 3 MHz	l	

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BDPSK											
Product:	Metal Ultra-thin Glass Speaker				Test Mode:		Keep transmitting				
Mode	Keeping Transmitting			Test Voltage Humidity		DC14.8V 56% RH					
Temperature	24 deg. C,										
Test Result:		Pass]	Detector		РК			
20dB Bandwidth	1.232MHz										
	Marker	1 [T1 r	ndB]	RI	BW	30 k	Hz R	F Att	20 dB		
Ref Lvl	ndB	20.	.00 dB	V	BW	100 k	Hz				
10 dBm	BW	1.232464	193 MHz	SI	ΠN	8.5 m	s U	nit	dBr	ı	
10						▼1	[T1]	- 1	.07 dBm		
			1					2.40188	878 GHz	A	
0			Ā	Δ		ndB	,	20	.00 dB	ł	
			A.	()		BW		1.23246	6493 MHz		
-10				$\vdash \checkmark$	$\overline{}$		[T1]	-21	.12 dBm		
			<u> </u>				, [T1]	2.40141	383 GHz		
-20		<u>1</u> 7				V 1 2	72 ¹¹¹	-20	.90 dBm		
1MAX								2.10201		11	
- 30	hand						h				
-50	ψ							V~~	my		
-60											
-70											
-80											
-90											
Center 2.402	GHz		300	kHz/				Spa	an 3 MHz		

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DPSK				1			
Product:	Metal Ultra-thin Glass S	Speaker	Test Mode:	Keep transmitting			
ModeKeeping TransmittingTemperature24 deg. C,			Test Voltage	DC14.8V 56% RH			
			Humidity				
Test Result:Pass20dB Bandwidth1.238MHz			Detector	PK			
K	Marker 1 [T1 nd	B] R	BW 30 kHz	RF Att	20 dB		
Ref Lvl			BW 100 kHz				
10 dBm 10	BW 1.2384769	5 MHz S	WT 8.5 ms	Unit	dBm		
10			▼1 [1	r1] -1	.23 dBm 🗛		
0		1		2.44088	878 GHz		
0		A A	ndh	20	.00 dB		
			BW	1.23847 [T1] -21	695 MHz .50 dBm		
-10	M		V	2.44040	782 GHz		
	71			[T1] -21	.07 dBm		
-20				2.44164	629 GHz		
1MAX					1MA		
	~			h			
-40	The second			$-+\sqrt{-}$			
m	V			- (my		
-50							
-60							
-70							
-80							
-90							
Center 2.4	141 GHz	300 kHz/		Spa	n 3 MHz		
Date: 16.2	AUG.2024 16:07:00						

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Product:	Metal Ultra-thin Glass Speaker					Test Mode:			Keep transmitting		
ModeKeeping TransmittingTemperature24 deg. C,					Test Voltage Humidity Detector			DC14.8V			
							-	56% RH PK			
Test Result: Pass											
Provide structure Provide structure 20dB Bandwidth 1.232MHz											
<u> </u>	Ma		1 [T1 n	dB]	F	RBW	30 k	Hz RI	F Att	20 dB	
Ref Lvl		dB		00 dB	V	/BW	100 k	Hz			
10 dBm	BI	W 1	.232464	93 MHz	5	WT	8.5 m	.s Ui	nit	dBn	n
10							V 1	[T1]	-2	.04 dBm	1
								3	2.47988	878 GHz	A
0				1			ndł	5	20	.00 dB	
				A	\wedge		BW		1.23246	493 MHz	
-10					ta.			[T1]	-22	.03 dBm	
						\sim	\sim		2.47941	984 GHz	
-20		1	-1 m				TΔ	[T1] F2	-22	.25 dBm	
1MAX			7					V	2.40000	230 GHZ	1MA
-30		~						Ly .			
-40	NW	ſ							w V	~~	
-50										<u> </u>	
- 60											
-70											ļ
- 80											
ŬŬ											
-90 Center 2	.48 GHz			300	kHz/				L Spa	n 3 MHz	ł

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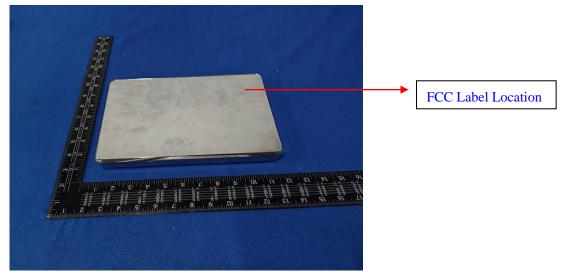
10.0 FCC ID Label

FCC ID: 2AIOQ-DK11

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation

The label must not be a stick-on paper label. The label on these products must be permanently affixed to the product and readily visible at the time of purchase and must last the expected lifetime of the equipment not be readily detachable.

Mark Location:



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11.0 Photo of testing

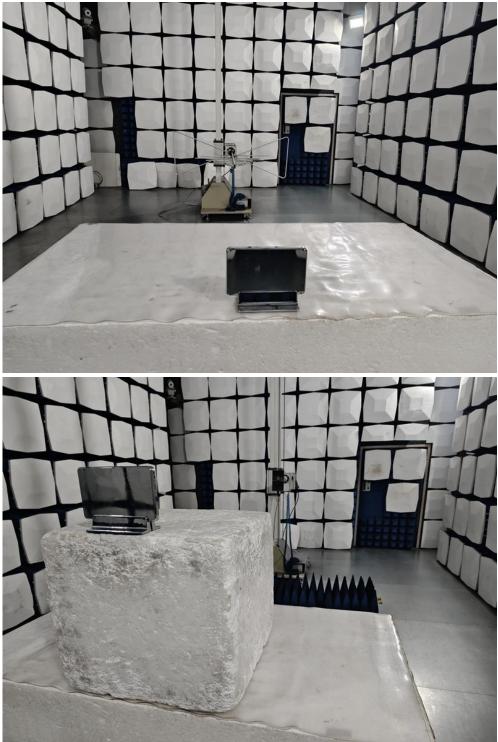
11.1 Conducted test View



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Radiated emission test view



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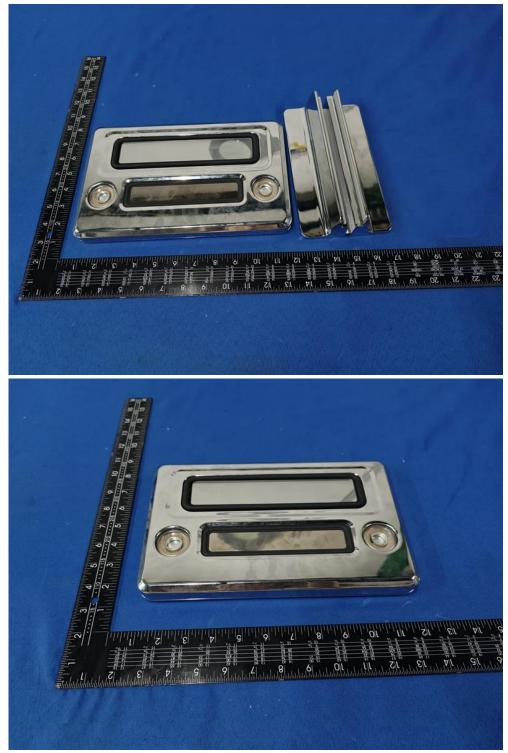
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Photographs - EUT 11.2

Outside View

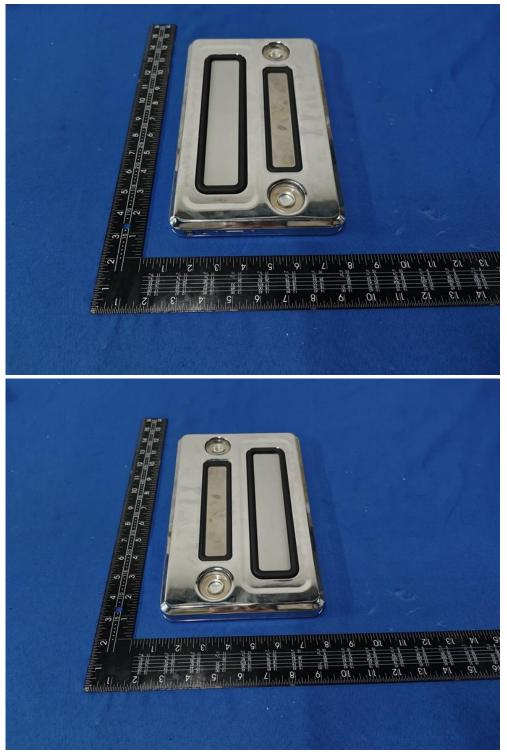


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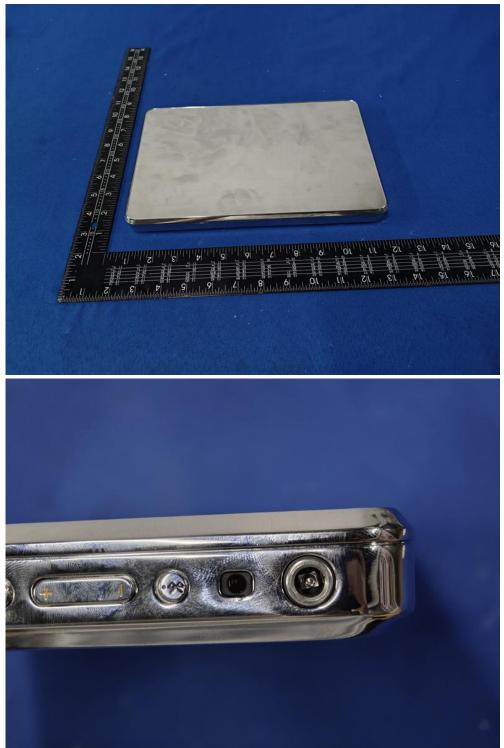
Outside View



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Outside View

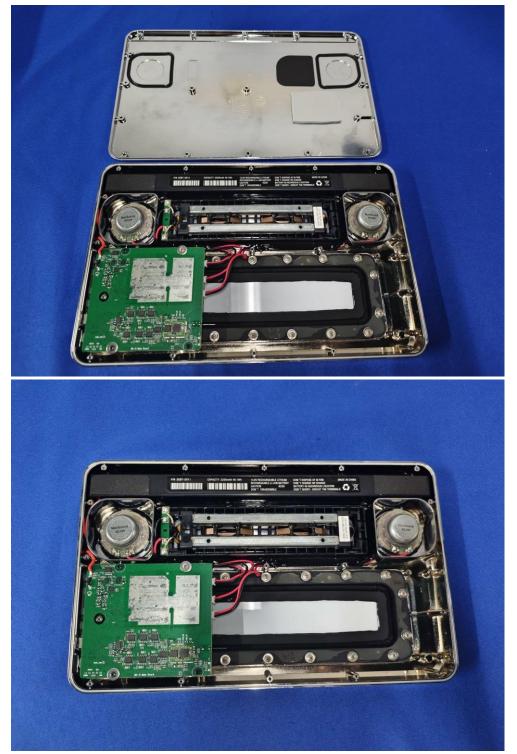


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Inside View



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Inside View



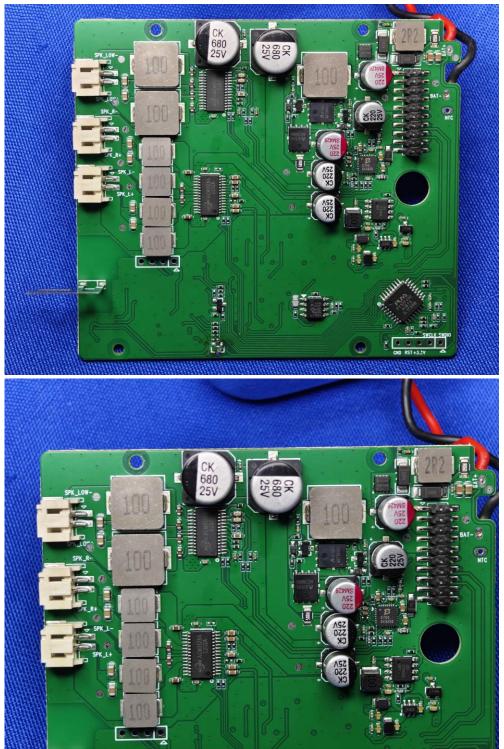
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Inside View

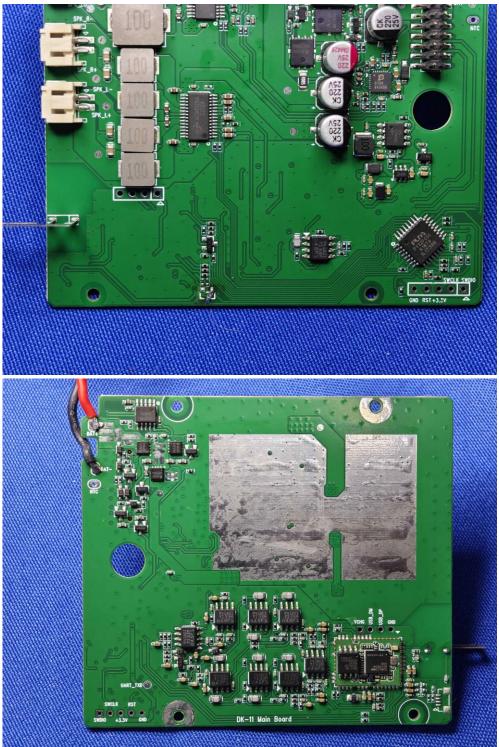


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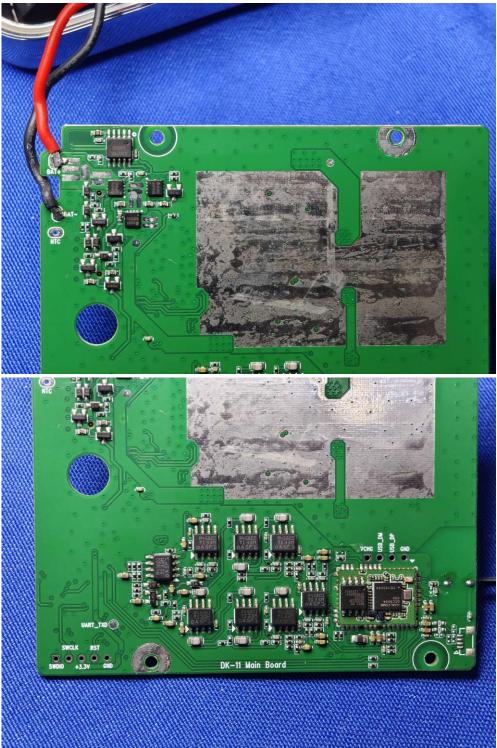
Inside View



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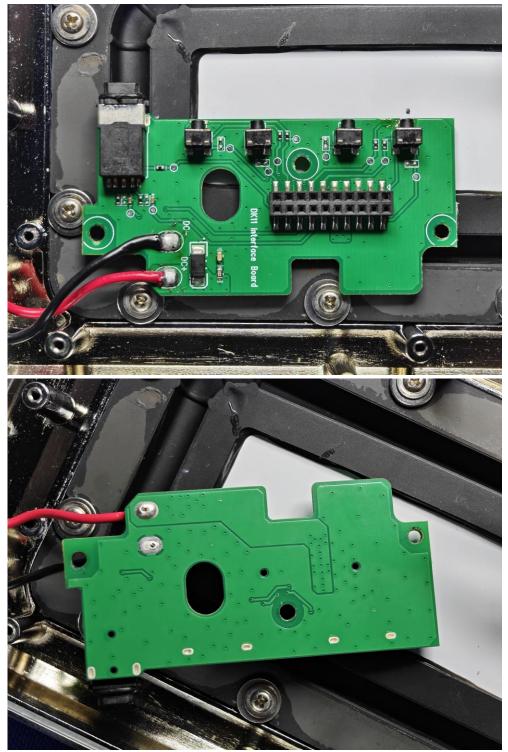
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Inside View



--End of the report--

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