RF Exposure Evaluation Report

Report Reference No........................ :	**MTEB24090235-H**	
FCC ID.............................. :	**2BHAO-6273LM**	
Compiled by (position+printed name+signature)..:	File administrators Alisa Luo	*Alisa*
Supervised by (position+printed name+signature)..:	Test Engineer Sunny Deng	*Sunny*
Approved by (position+printed name+signature)..:	Manager Yvette Zhou	*Yvette*
Date of issue......................................:	**August.29,2024**	
Representative Laboratory Name. :	**Shenzhen Most Technology Service Co., Ltd.**	
Address.. :	No.5, 2nd Langshan Road, North District, Hi-tech Industrial Park, Nanshan, Shenzhen, Guangdong, China.	
Applicant's name................................ :	**NINGBO LONGMARCH IMPORT&EXPORT CO.,LTD**	
Address.................................... :	ROOM 1505, 15TH FLOOR, BUILDING 3, YUNHUI CENTER, NO. 299 TONGJI ROAD, JIANGBEI DISTRICT, NINGBO, CHINA	
Test specification/ Standard............:	**47 CFR Part 1.1307;47 CFR Part 1.1310** **KDB447498D01 General RF Exposure Guidance v06**	
TRF Originator....................................:	Shenzhen Most Technology Service Co., Ltd.	

Test item description.........................:	EchoDome Speaker
Trade Mark...:	BELL+HOWELL
Model/Type reference.......................... :	6273LM
Listed Models .... :	N/A
Modulation Type.................................... :	GFSK
	GFSK, π /4DQPSK,8DPSK
Operation Frequency.......................... :	2402MHz to 2480MHz
Hardware Version..................................	JH-SP-LY V3.11
Software Version...................................	JH-SP-LY V3.0 9A58
Rating...:	DC 5V by USB Port DC 3.7V by Battery
Result...:	**PASS**

T E S T   R E P O R T

Equipment under Test	:	EchoDome Speaker
Model /Type	:	6273LM
Listed Models	:	N/A
Remark		N/A
Applicant	:	NINGBO LONGMARCH IMPORT&EXPORT CO.,LTD
Address	:	ROOM 1505, 15TH FLOOR, BUILDING 3, YUNHUI CENTER, NO. 299 TONGJI ROAD, JIANGBEI DISTRICT, NINGBO, CHINA
Manufacturer	:	YUYAO SHENGPU PLASTIC CO., LTD
Address	:	NO. 5 HUNNAN VILLAGE, LINNAN VILLAGE,LINSHAN TOWN, YUYAO CITY,NINGBO,CHINA

Test Result:	PASS

The test report merely corresponds to the test sample.
It is not permitted to copy extracts of these test result without the written permission of the test laboratory.

1. Revision History

Revision	Issue Date	Revisions	Revised By
00	2024.09.19	Initial Issue	Alisa Luo

2．SAR Evaluation

2.1 RF Exposure Compliance Requirement

2.1.1 Standard Requirement

According to KDB447498D01 General RF Exposure Guidance v06
4.3.1. Standalone SAR test exclusion considerations
Unless specifically required by the published RF exposure KDB procedures, standalone 1-g head or body and 10-g extremity SAR evaluation for general population exposure conditions, by measurement or numerical simulation, is not required when the corresponding SAR Exclusion Threshold condition, listed below, is satisfied.

2.1.2 Limits

According to FCC Part1.1310: The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) radiation as specified in part1.1307(b)

TABLE 1—LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm^2)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposures				
0.3–3.0	614	1.63	*(100)	6
3.0–30	1842/f	4.89/f	*(900/f^2)	6
30–300	61.4	0.163	1.0	6
300–1500			f/300	6
1500–100,000			5	6
(B) Limits for General Population/Uncontrolled Exposure				
0.3–1.34	614	1.63	*(100)	30
1.34–30	824/f	2.19/f	*(180/f^2)	30
30–300	27.5	0.073	0.2	30
300–1500			f/1500	30
1500–100,000			1.0	30

F= Frequency in MHz
Friis Formula
Friis transmission formula: $Pd = (Pout*G)/(4* Pi * R^2)$ Where
Pd = power density in mW/cm^2
Pout = output power to antenna in mW
G = gain of antenna in linear scale
Pi = 3.1416

R = distance between observation point and center of the radiator in cm
Pd id the limit of MPE, 1 mW/cm2 . If we know the maximum gain of the antenna and the total power input to the antenna, through the calculation, we will know the distance r where the MPE limit is reached.

2.1.3 EUT RF Exposure

BLE

	GFSK		
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
Lowest(2402MHz)	0.943	0.943±1	1.943
Middle(2440MHz)	0.821	0.821±1	1.821
Highest(2480MHz)	0.175	0.175±1	1.175

Worst case: GFSK						
Channel	Maximum tune-up Power (dBm)	Maximum tune-up Power (MW)	Antenna Gain (dBi)	Power Density at R = 20 cm (mW/cm2)	Limit	Result
Middle(2402MHz)	1.943	1.56	-0.58	0.00027	1.0	Pass

Note: 1) Refer to report MTEB24090235-R1 for EUT test Max Conducted average Output Power value.
Note: 2) Pd = (Pout*G)/(4* Pi * R^2)=(1.56*0.87)/(4*3.1416*20^2)=0.00027
Note: 3)EUT's Bluetooth module is more than 20cm away from the human body.

BT classic

GFSK			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power (dBm)
Lowest(2402MHz)	-1.296	-1.296±1	-0.296
Middle(2441MHz)	-1.364	-1.364±1	-0.364
Highest(2480MHz)	-1.692	-1.692±1	-0.692

π /4DQPSK			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power (dBm)
Lowest(2402MHz)	-0.442	-0.442±1	0.558
Middle(2441MHz)	-0.507	-0.507±1	0.493
Highest(2480MHz)	-0.831	-0.831±1	0.169

8DPSK			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power (dBm)
Lowest(2402MHz)	0.052	0.052±1	1.052
Middle(2441MHz)	-0.023	-0.023±1	0.977
Highest(2480MHz)	-0.363	-0.363±1	0.637

Worst case: 8DPSK						
Channel	Maximum tune-up Power (dBm)	Maximum tune-up Power (MW)	Antenna Gain (dBi)	Power Density at R = 20 cm (mW/cm2)	Limit	Result
Middle(2402MHz)	1.052	1.27	-0.58	0.00022	1.0	Pass

Note: 1) Refer to report MTEB24090235-R for EUT test Max Conducted average Output Power value.
Note: 2) Pd = (Pout*G)/(4* Pi * R^2)=(1.27*0.87)/(4*3.1416*20^2)=0.00022
Note: 3)EUT's Bluetooth module is more than 20cm away from the human body.

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