

RF EXPOSURE EVALUATION REPORT

Product Name: CD soundmachine

Trade Mark:



or PHILIPS

Model No. / HVIN: AZ797T/37

Add. Model No: AZ797TAQ/37, AZ797Txx/yy(x=A-Z or nil,yy=00-99 or Nil , for country code)

Report Number: 2209021334RFC-2

Test Standards: FCC 47 CFR Part 1 Subpart I
RSS-102 Issue 5

FCC ID: 2AR2SAZ797T37

IC: 24589-AZ797T37

Test Result: PASS

Date of Issue: October 28, 2022

Prepared for:

MMD Hong Kong Holding Limited
Unit 1006, 10th Floor, C-Bons International Center 108 Wai Yip
Street, Kwun Tong, Kowloon, Hong Kong, China

Prepared by:

Shenzhen UnionTrust Quality and Technology Co., Ltd.
Unit D/E of 9/F and 16/F, Block A, Building 6, Baoneng science and
technology park, Longhua district, Shenzhen, China

TEL: +86-755-2823 0888

FAX: +86-755-2823 0886

Prepared by:

Kieron Luo
Project Engineer

Reviewed by:

Eric Yu
Project Supervisor

Approved by:

Kevin Liang
Assistant Manager

Date:

October 28, 2022

Shenzhen UnionTrust Quality and Technology Co., Ltd.

Address: Unit D/E of 9/F and 16/F, Block A, Building 6, Baoneng science and technology park, Longhua district, Shenzhen, China

Tel: +86-755-28230888

Fax: +86-755-28230886

E-mail: info@uttlab.com

<http://www.uttlab.com>

UTTR-RF-RSS102-V1.1

Version

Version No.	Date	Description
V1.0	October 28, 2022	Original

**Shenzhen UnionTrust Quality and Technology Co., Ltd.**

Address: Unit D/E of 9/F and 16/F, Block A, Building 6, Baoneng science and technology park, Longhua district, Shenzhen, China

Tel: +86-755-28230888

Fax: +86-755-28230886

E-mail: info@uttlab.com<http://www.uttlab.com>UTTR-RF-RSS102-V1.1

CONTENTS

1. GENERAL INFORMATION	4
1.1 CLIENT INFORMATION	4
1.2 EUT INFORMATION	4
1.3 PRODUCT SPECIFICATION SUBJECTIVE TO THIS STANDARD	4
1.4 OTHER INFORMATION.....	5
1.5 GENERAL DESCRIPTION OF APPLIED STANDARDS	5
1.6 DEVIATION FROM STANDARDS	5
1.7 ABNORMALITIES FROM STANDARD CONDITIONS.....	5
1.8 OTHER INFORMATION REQUESTED BY THE CUSTOMER	5
1.9 CONDUCTED AVERAGE OUTPUT POWER.....	5
2. EQUIPMENT LIST	6
3. MPE EVALUATION	6
3.1 REFERENCE DOCUMENTS FOR EVALUATION	6
3.2 MPE COMPLIANCE REQUIREMENT	6
3.2.1 LIMITS	6
3.2.2 TEST PROCEDURE	7
3.3 MPE CALCULATION METHOD.....	7
3.4 MPE CALCULATION RESULTS	7
3.4.1 FOR BT	7
APPENDIX 1 PHOTOS OF TEST SETUP	9
APPENDIX 2 PHOTOS OF EUT CONSTRUCTIONAL DETAILS.....	9

1. GENERAL INFORMATION

1.1 CLIENT INFORMATION

Applicant:	MMD Hong Kong Holding Limited
Address of Applicant:	Unit 1006, 10th Floor, C-Bons International Center 108 Wai Yip Street, Kwun Tong, Kowloon, Hong Kong, China
Manufacturer:	MMD Hong Kong Holding Limited
Address of Manufacturer:	Unit 1006, 10th Floor, C-Bons International Center 108 Wai Yip Street, Kwun Tong, Kowloon, Hong Kong, China

1.2 EUT INFORMATION

Product Name:	CD soundmachine	
Model No. / HVIN:	AZ797T/37	
Add. Model No:	AZ797TAQ/37, AZ797Txx/yy(x=A-Z or nil,yy=00-99 or Nil , for country code)	
Trade Mark:	 or PHILIPS	
DUT Stage:	Production Unit	
EUT Supports Function:	2.4 GHz ISM Band:	Bluetooth 5.0(Only support BR+EDR)
Software Version:	V1.0	
Hardware Version:	V1.0	
Sample Received Date:	September 2, 2022	
Sample Tested Date:	September 8, 2022 to September 20, 2022	
Note: The additional model AZ797TAQ/37, AZ797Txx/yy(x=A-Z or nil,yy=00-99 or Nil , for country code)is identical with the test model AZ797T/37 except the model number for marketing purpose.		

1.3 PRODUCT SPECIFICATION SUBJECTIVE TO THIS STANDARD

For BT_EDR	
Frequency Band:	2400 MHz to 2483.5 MHz
Frequency Range:	2402 MHz to 2480 MHz
Bluetooth Version:	Bluetooth EDR
Modulation Technique:	Frequency Hopping Spread Spectrum (FHSS)
Type of Modulation:	GFSK, $\pi/4$ DQPSK, 8DPSK
Number of Channels:	79
Channel Separation:	1 MHz
Antenna Type:	PCB Antenna
Antenna Gain:	2 dBi
Maximum Conducted Peak Power:	0.71 dBm

1.4 OTHER INFORMATION

Test channels for BT_EDR				
Mode	Tx/Rx Frequency	Test RF Channel Lists		
		Lowest(L)	Middle(M)	Highest(H)
GFSK (DH1, DH3, DH5)	2402 MHz to 2480 MHz	Channel 0	Channel 39	Channel 78
		2402 MHz	2441 MHz	2480 MHz
π /4DQPSK (DH1, DH3, DH5)	2402 MHz to 2480 MHz	Channel 0	Channel 39	Channel 78
		2402 MHz	2441 MHz	2480 MHz
8DPSK (DH1, DH3, DH5)	2402 MHz to 2480 MHz	Channel 0	Channel 39	Channel 78
		2402 MHz	2441 MHz	2480 MHz

1.5 GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT is a RF product, according to the specifications of the manufacturers. It must comply with the requirements of the following standards:

FCC 47 CFR Part 1 Subpart I
RSS-102 Issue 5

All test items have been performed and recorded as per the above standards

1.6 DEVIATION FROM STANDARDS

None.

1.7 ABNORMALITIES FROM STANDARD CONDITIONS

None.

1.8 OTHER INFORMATION REQUESTED BY THE CUSTOMER

None.

1.9 CONDUCTED AVERAGE OUTPUT POWER

Type of Modulation	Average Output Power (dBm)			Average Output Power (mW)		
	Channel 0	Channel 39	Channel 78	Channel 0	Channel 39	Channel 78
GFSK	-3.68	-4.27	-5.29	0.43	0.37	0.30
π /4 DQPSK	-3.88	-4.5	-5.48	0.41	0.35	0.28
8DPSK	-3.87	-4.49	-5.47	0.41	0.36	0.28

2. EQUIPMENT LIST

Please refer to the RF test report: 2209021334RFC-1;

3. MPE EVALUATION

3.1 REFERENCE DOCUMENTS FOR EVALUATION

No.	Identity	Document Title
1	FCC 47 CFR Part 1 Subpart I	PROCEDURES IMPLEMENTING THE NATIONAL ENVIRONMENTAL POLICY ACT OF 1969
2	RSS-102 Issue 5	Radio Frequency (RF) Exposure Compliance of Radiocommunication Apparatus (All Frequency Bands)
3	KDB 447498 D01 General RF Exposure Guidance v06	RF EXPOSURE PROCEDURES AND EQUIPMENT AUTHORIZATION POLICIES FOR MOBILE AND PORTABLE DEVICES

3.2 MPE COMPLIANCE REQUIREMENT

3.2.1 Limits

3.2.1.1 FCC 47 CFR Part 1 Subpart I

According to §1.1307(b)(1), system operating under the provisions of this section shall be operating in a manner that the public is not exposed to radio frequency energy level in excess limit for maximum permissible exposure.

Limits for Occupational / Controlled Exposure

Frequency range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm ²)	Averaging Times E ² , H ² or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842/f	4.89/f	(900/f)*	6
30-300	61.4	0.163	1.0	6
300-1500	/	/	F/300	6
1500-100000	/	/	5	6

Limits for General Population / Uncontrolled Exposure

Frequency range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm ²)	Averaging Times E ² , H ² or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f)*	30
30-300	27.5	0.073	0.2	30
300-1500	/	/	F/1500	30
1500-100000	/	/	1	30

Note: f = frequency in MHz: * = Plane-wave equivalent power density.

3.2.1.2 RSS-102 Issue 5

According to RSS-102 Issue 5, system operating under the provisions of this section shall be operating in a manner that the public is not exposed to radio frequency energy level in excess limit for maximum permissible exposure.

According to RSS-102 Issue 5, system operating under the provisions of this section shall be operating in a manner that the public is not exposed to radio frequency energy level in excess limit for maximum permissible exposure.

RF exposure evaluation is required if the separation distance between the user and/or bystander and the device's radiating element is greater than 20 cm, except when the device operates as follows:

- below 20 MHz⁶ and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than 1 W (adjusted for tune-up tolerance);
- at or above 20 MHz and below 48 MHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than $4.49/f^{0.5}$ W (adjusted for tune-up tolerance), where f is in MHz;
- at or above 48 MHz and below 300 MHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than 0.6 W (adjusted for tune-up tolerance);
- at or above 300 MHz and below 6 GHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than $1.31 \times 10^{-2} f^{0.6834}$ W (adjusted for tune-up tolerance), where f is in MHz;
- at or above 6 GHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than 5 W (adjusted for tune-up tolerance).

In these cases, the information contained in the RF exposure technical brief may be limited to information that demonstrates how the e.i.r.p. was derived.

3.2.2 Test Procedure

Software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel individually.

3.3 MPE CALCULATION METHOD

FCC 47 CFR Part 1 Subpart I

$$S = PG/4\pi R^2 = EIRP/4\pi R^2$$

S = power density (in appropriate units, e.g., mw/cm²)

P = power input to the antenna (in appropriate units, e.g., mw)

G = power gain of the antenna in the direction of interest relative to an isotropic radiator, the power gain factor is normally numeric gain.

R = distance to the center of radiation of the antenna (in appropriate units, e.g., cm)

3.4 MPE CALCULATION RESULTS

Note: For the test results, the EUT had been tested with all conditions. But only the worst case was shown in test report.

3.4.1 For BT

For BT_EDR function, operating at 2402MHz to 2480 MHz for GFSK, $\pi/4$ DQPSK, 8DPSK

3.4.2.1 Antenna Type:

Chain 0: PCB Antenna

3.4.2.2 Antenna Gain:

Chain 0: 2402MHz to 2480 MHz: 2.0 dBi

3.4.2.3 Results for FCC 47 CFR Part 1 Subpart I

Operating Mode	Freq.	Declared maximum conducted average output power	Max. positive tolerance according manufacturer	Antenna Gain	Calculated maximum EIRP	Declared maximum EIRP	MPE Limit	MPE Value
	(MHz)	(dBm)	(dBm)	(dBi)	(dBm)	(mW)	(mW/cm ²)	
EDR	2402-2480	-4	2	2	0	1	1	0.000199

3.4.2.4 Results for RSS-102 Issue 5

Operating Mode	Freq.	Declared maximum conducted average output power	Max. positive tolerance according manufacturer	Antenna Gain	Calculated maximum EIRP	Declared maximum EIRP	Limit
	(MHz)	(dBm)	(dBm)	(dBi)	(dBm)	(W)	(W)
EDR	2402-2480	-4	2	2	0	0.001	2.6764

So, the transmitter complies with the RF exposure requirements and the SAR is not required.

APPENDIX 1 PHOTOS OF TEST SETUP

N/A

APPENDIX 2 PHOTOS OF EUT CONSTRUCTIONAL DETAILS

Refer to Appendix 2 for EUT external and internal Photos.

*** End of Report ***

The test report is effective only with both signature and specialized stamp. The result(s) shown in this report refer only to the sample(s) tested. Without written approval of UnionTrust, this report can't be reproduced except in full.
