Test Report No.:
FCC2021-0024-RF-2

Test Report

EUT	:	**Wireless on-ear headphones**
MODEL	:	**TAH4205XT**
BRAND NAME	:	**PHILIPS**
APPLICANT	:	**MMD Hong Kong Holding Limited**
Classification Of Test	:	**N/A**

CVC Testing Technology Co., Ltd.

Applicant	**Name : MMD Hong Kong Holding Limited** **Address : Unit 1006, 10th Floor, C-Bons International Center, 108 Wai Yip Street, Kwun Tong, Kowloon, Hong Kong**
Manufacturer	**Name : MMD Hong Kong Holding Limited** **Address : Unit 1006, 10th Floor, C-Bons International Center, 108 Wai Yip Street, Kwun Tong, Kowloon, Hong Kong**
Equipment Under Test	**Name : Wireless on-ear headphones** **Model/Type: TAH4205XT** **Trade mark :N/A** **SerialNO.:N/A** **Sample NO.:1-1**

Date of Receipt.	**2021.07.23**	Date of Testing	**2021.08.03～2021.08.13**

Test Specification	**Test Result**
FCC Part 2 (Section 2.1091) **KDB 447498 D01** **IEEE C95.1** **IC RSS-102 Issue 5, Amendment 1**	PASS

Evaluation of Test Result	The equipment under test was found to comply with the requirements of the standards applied. **Issue Date: 2021.08.20**

Tested by:	Reviewed by:	Approved by:
Xu ZhenFei	Liuyonghai	chenHuawen
Xu ZhenFei	**Liu YongHai**	**Chen HuaWen**
Name Signature	Name Signature	Name Signature

Other Aspects: NONE.

Abbreviations:OK, Pass= passed Fail = failed N/A= not applicable EUT= equipment, sample(s) under tested

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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
FCC2021-0024-RF-2	Original release	2021.08.20

1. GERTIFICATION

FCC ID	2AR2STAH4205XT
IC ID	24589-TAH4205XT
PRODUCT	Wireless on-ear headphones
BRAND	PHILIPS
MODEL	TAH4205XT
ADDITIONAL MODEL	N/A
APPLICANT	MMD Hong Kong Holding Limited
STANDARDS	FCC Part 2 (Section 2.1091), IC RSS-102 Issue 5, Amendment 1
	KDB 447498 D01
	IEEE C95.1

2. RF EXPOSURE LIMIT

2.1 FCC Part 2(Section 2.1091) RF EXPOSURE

2.1.1 LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

FREQUENCY RANGE(MHz)	ELECTRIC FIELD STRENGTH (V/m)	MAGNETIC FIELD STRENGTH (A/m)	POWER DENSITY(mW/cm^2)	AVERAGE TIME(minutes)
LIMITS FOR GENERAL POPULATION / UNCONTROLLED EXPOSURE				
300-1500	…	…	F/1500	30
1500-100,000	…	…	1.0	30

F = Frequency in MHz

2.1.2 RF EXPOSURE DEFINE

The corresponding SAR Exclusion Threshold condition, listed below:

1) The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances ≤ 50 mm are determined by:
[(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)] ·[√f(GHz)] ≤ 3.0 for 1-g SAR and ≤ 7.5 for 10-g extremity SAR,16 where

- f(GHz) is the RF channel transmit frequency in GHz
- Power and distance are rounded to the nearest mW and mm before calculation
- The result is rounded to one decimal place for comparison

The test exclusions are applicable only when the minimum test separation distance is ≤ 50 mm and for transmission frequencies between 100 MHz and 6 GHz. When the minimum test separation distance is < 5 mm, a distance of 5 mm is applied to determine SAR test exclusion.

2) At 100 MHz to 6 GHz and for test separation distances > 50 mm, the SAR test exclusion threshold is determined according to the following:

a) [Threshold at 50 mm in step 1) + (test separation distance - 50 mm)·(f(MHz)/150)] mW, at 100MHz to 1500 MHz
b) [Threshold at 50 mm in step 1) + (test separation distance - 50 mm)·10] mW at > 1500 MHz and ≤ 6 GHz
3) At frequencies below 100 MHz, the following may be considered for SAR test exclusion.
a) The threshold at the corresponding test separation distance at 100 MHz in step 2) is multiplied by [1 + log(100/f(MHz))] for test separation distances > 50 mm and < 200 mm.
b) The threshold determined by the equation in a) for 50 mm and 100 MHz is multiplied by ½ for test separation distances ≤ 50 mm.
c) SAR measurement procedures are not established below 100 MHz. When SAR test exclusion cannot be applied, a KDB inquiry is required to determine SAR evaluation requirements for any test results to be acceptable.

2.1.3 Classification

The antenna of this product, under normal use condition, is at less than 20cm away from the body of the user. So, this device is classified as Portable Device.

2.1.4 Antenna Gain

The antennas provided to the EUT, please refer to the following table:

Frequency Band	Antenna Gain (dBi)	Antenna Type
BT(GFSK)	0.81	PCB Antenna
BT(Π/4QPSK)	0.81	PCB Antenna
BT(8DPSK)	0.81	PCB Antenna

2.1.5 calculation result of maximum conducted AV power

The tuned conducted Peak Power (declared by client)

Mode	Frequency (MHz)	Target Power (dBm)	Tolerance (dBm)	Lower Tolerance (dBm)	Upper Tolerance (dBm)
BT(GFSK)	2402-2480MHz	4	+-2	2	6
BT(8DPSK)	2402-2480MHz	4	+-2	2	6

The measured conducted Peak Power

Mode	Frequency (MHz)	Peak Power (dBm)
BT(GFSK)	2480	3.97
BT(8DPSK)	2480	3.88

Frequency (MHz)	**Maximum source-based time Peak conducted output power (dBm)**	**Minimum separation distance (mm)**	**Result of Eq. 1**	**Limit for 1-g SAR**	**Limit for 10-g extremity SAR**	**Verdict**
2402-2480	6	5	1.260	3.0	7.5	Exempt from SAR

Conclusion：

Therefore this device complies with FCC’s RF radiation exposure limits for general population without SAR evaluation.

2.2 RSS 102 - Annex C - Declaration of RF Exposure Compliance for Exemption from Routine Evaluation Limits

The tuned conducted Average Power (declared by client)

Mode	Frequency (MHz)	Target Power (dBm)	Tolerance (dBm)	Lower Tolerance (dBm)	Upper Tolerance (dBm)
BT (GFSK)	2402-2480	2	+-2	0	4
BT (8DPSK)	2402-2480	2	+-2	0	4

Antenna gain=0.81dBi

The measured conducted Average Power

Mode	Frequency (MHz)	Averaged Power (dBm)
BT(GFSK)	2480	2.1
BT (8DPSK)	2480	1.98

SAR Test Exclusion Thresholds
As above table, EIRP= 3.027mW less than 4mW limit

Annex 1

Portable device –

When the device operates at or below the applicable output power level (adjusted for tune-up tolerance) for the specified separation distance defined in below table.

Output power level shall be the higher of the maximum conducted or equivalent isotropically radiated power (e.i.r.p.) source-based, time-averaged output power. For controlled use devices where the 8 W/kg for 1 gram of tissue applies, the exemption limits for routine evaluation in Table 1 are multiplied by a factor of 5. For limb-worn devices where the 10 gram value applies, the exemption limits for routine evaluation in Table 1 are multiplied by a factor of 2.5. If the operating frequency of the device is between two frequencies located in Table 1, linear interpolation shall be applied for the applicable separation distance. For test separation distance less than 5 mm, the exemption limits for a separation distance of 5 mm can be applied to determine if a routine evaluation is required.

For medical implants devices, the exemption limit for routine evaluation is set at 1 mW. The output power of a medical implants device is defined as the higher of the conducted or e.i.r.p to determine whether the device is exempt from the SAR evaluation.

Table 1: SAR evaluation – Exemption limits for routine evaluation based on frequency and separation distance[4,5]

Frequency (MHz)	Exemption Limits (mW)				
	At separation distance of ≤5 mm	At separation distance of 10 mm	At separation distance of 15 mm	At separation distance of 20 mm	At separation distance of 25 mm
≤300	71 mW	101 mW	132 mW	162 mW	193 mW
450	52 mW	70 mW	88 mW	106 mW	123 mW
835	17 mW	30 mW	42 mW	55 mW	67 mW
1900	7 mW	10 mW	18 mW	34 mW	60 mW
2450	4 mW	7 mW	15 mW	30 mW	52 mW
3500	2 mW	6 mW	16 mW	32 mW	55 mW
5800	1 mW	6 mW	15 mW	27 mW	41 mW

Frequency (MHz)	Exemption Limits (mW)				
	At separation distance of 30 mm	At separation distance of 35 mm	At separation distance of 40 mm	At separation distance of 45 mm	At separation distance of ≥50 mm
≤300	223 mW	254 mW	284 mW	315 mW	345 mW
450	141 mW	159 mW	177 mW	195 mW	213 mW
835	80 mW	92 mW	105 mW	117 mW	130 mW
1900	99 mW	153 mW	225 mW	316 mW	431 mW
2450	83 mW	123 mW	173 mW	235 mW	309 mW
3500	86 mW	124 mW	170 mW	225 mW	290 mW
5800	56 mW	71 mW	85 mW	97 mW	106 mW

Annex 2

Mobile device –

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 MHz[6] 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).

Quick Fact

MHz	EIRP (W)	EIRP (dBm)
920	1.39	31.43
850	1.32	31.19
2450	2.71	34.33
1900	2.28	33.58
5200	4.54	36.57

Important

(1) The test report is valid with the official seal of the laboratory and the signatures of Test engineer, Author and Reviewer simultaneously.

(2) The test report is invalid if altered.

(3) Any photocopies or part photocopies in the test report are forbidden without the written permission from the laboratory.

(4) Objections to the test report must be submitted to the laboratory within 15 days.

(5) Generally, commission test is responsible for the tested samples only.

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