

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.**



|                                                                                                         |            |                                                                                                                                                         |                                                                     |
|---------------------------------------------------------------------------------------------------------|------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------|
| Test Report No.: FCC2021-0024-RF-2                                                                      |            | Page 2 of 11                                                                                                                                            |                                                                     |
| <b>Applicant</b>                                                                                        |            | Name : MMD Hong Kong Holding Limited<br>Address : Unit 1006, 10th Floor, C-Bons International Center, 108 Wai Yip Street, Kwun Tong, Kowloon, Hong Kong |                                                                     |
| <b>Manufacturer</b>                                                                                     |            | Name : MMD Hong Kong Holding Limited<br>Address : Unit 1006, 10th Floor, C-Bons International Center, 108 Wai Yip Street, Kwun Tong, Kowloon, Hong Kong |                                                                     |
| <b>Equipment Under Test</b>                                                                             |            | Name : Wireless on-ear headphones<br>Model/Type: TAH4205XT<br>Trade mark :N/A<br>SerialNO.:N/A<br>Sample NO.:1-1                                        |                                                                     |
| Date of Receipt.                                                                                        | 2021.07.23 | Date of Testing                                                                                                                                         | 2021.08.03~2021.08.13                                               |
| <b>Test Specification</b>                                                                               |            | <b>Test Result</b>                                                                                                                                      |                                                                     |
| FCC Part 2 (Section 2.1091)<br>KDB 447498 D01<br>IEEE C95.1<br>IC RSS-102 Issue 5, Amendment 1          |            | PASS                                                                                                                                                    |                                                                     |
| <b>Evaluation of Test Result</b>                                                                        |            | The equipment under test was found to comply with the requirements of the standards applied.<br><br><b>Issue Date: 2021.08.20</b>                       |                                                                     |
| Tested by:<br><br>Xu ZhenFei<br><br>Xu ZhenFei<br>Name Signature                                        |            | Reviewed by:<br><br>Liu YongHai<br><br>Liu YongHai<br>Name Signature                                                                                    | Approved by:<br><br>chenHuawen<br><br>Chen HuaWen<br>Name Signature |
| <b>Other Aspects: NONE.</b>                                                                             |            |                                                                                                                                                         |                                                                     |
| Abbreviations:OK, Pass= passed Fail = failed N/A= not applicable EUT= equipment, sample(s) under tested |            |                                                                                                                                                         |                                                                     |



This test report relates only to the EUT, and shall not be reproduced except in full, without written approval of CVC.

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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 <sup>2</sup> ) | 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  $\leq 50$  mm are determined by:

$[(\text{max. power of channel, including tune-up tolerance, mW})/(\text{min. test separation distance, mm})] \cdot [\sqrt{f(\text{GHz})}] \leq 3.0$  for 1-g SAR and  $\leq 7.5$  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  $\leq 50$  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  $\leq 6$  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  $[1 + \log(100/f(\text{MHz}))]$  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  $\frac{1}{2}$  for test separation distances  $\leq 50$  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( $\pi/4$ QPSK) | 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<sup>4,5</sup>**

| 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<sup>6</sup> 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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