

TEST REPORT

Product Name: True wireless headphones

Trade Mark:



or PHILIPS

Model No./HVIN: TAT3217LC

Add. Model No.: TAT3217, TAT3217LCxx/yy (xx=AA-ZZ or blank denoted different color; yy=00-99 denoted different country destination)

Report Number: 211106069RFC-2R1

Test Standards: FCC 47 CFR Part 15 Subpart C
RSS-247 Issue 2
RSS-Gen Issue 5

FCC ID: 2AR2STAT3217LC

IC: 24589-TAT3217LC

Test Result: PASS

Date of Issue: January 6, 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

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:

January 6, 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-RSS247-V1.1

Version

Version No.	Date	Description
V1.0	December 22, 2021	Original (Report no.: 211106069RFC-2)
V1.1	January 6, 2022	Add the model TAT3217

**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

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Fax: +86-755-28230886

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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
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

1.2 EUT INFORMATION

1.2.1 General Description of EUT

Product Name:	True wireless headphones	
Model No. /HVIN:	TAT3217LC	
Add. Model No.:	TAT3217, TAT3217LCxx/yy (xx=AA-ZZ or blank denoted different color; yy=00-99 denoted different country destination)	
Sample No.:	211106065-B02/2(Conducted) 211106065-C01/2(Radiated)	
Trade Mark:	 or PHILIPS	
DUT Stage:	Production Unit	
EUT Supports Function:	2.4 GHz ISM Band:	Bluetooth 5.2
Software Version:	V220.02.01	
Hardware Version:	V1.2	
Sample Received Date:	November 19, 2021	
Sample Tested Date:	December 6, 2021 to December 15, 2021	
Note: The additional model TAT3217, TAT3217LCxx/yy (xx=AA-ZZ or blank denoted different color; yy=00-99 denoted different country destination) is identical with the test model TAT3217LC except the model number for marketing purpose.		

1.2.2 Description of Accessories

Cable	
Description:	USB Type-C Plug Cable
Cable Type:	Unshielded without ferrite
Length:	0.65 Meter

Battery (Charging case)	
Model No.:	901535
Battery Type:	Lithium-ion Rechargeable Battery
Rated Voltage:	3.7 Vdc
Limited Charge Voltage:	4.2 Vdc
Rated Capacity:	460mAh

Battery (Earbud)	
Model No.:	WEL 501012
Battery Type:	Lithium-ion Rechargeable Battery
Rated Voltage:	3.7 Vdc
Limited Charge Voltage:	4.2 Vdc
Rated Capacity:	40mAh

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1.3 PRODUCT SPECIFICATION SUBJECTIVE TO THIS STANDARD

Frequency Band:	2400 MHz to 2483.5 MHz	
Frequency Range:	2402 MHz to 2480 MHz	
Bluetooth Version:	Bluetooth BR + EDR	
Modulation Technique:	Frequency Hopping Spread Spectrum (FHSS)	
Type of Modulation:	GFSK, $\pi/4$ DQPSK, 8DPSK	
Number of Channels:	79	
Channel Separation:	1 MHz	
Hopping Channel Type:	Adaptive Frequency Hopping Systems	
Antenna Type:	Chip Antenna	
Antenna Gain:	Left earbud: 2.62 dBi Right earbud: 1.90 dBi	
Maximum Peak Power:	Left Earbud	8.04dBm
	Right Earbud	7.42dBm
Normal Test Voltage:	3.7 Vdc	

1.4 OTHER INFORMATION

Operation Frequency Each of Channel	
$f = 2402 + k \text{ MHz}, k = 0, \dots, 78$	
Note:	
f	is the operating frequency (MHz);
k	is the operating channel.

Modulation Configure			
Modulation	Packet	Packet Type	Packet Size
GFSK	1-DH1	4	27
	1-DH3	11	183
	1-DH5	15	339
$\pi/4$ DQPSK	2-DH1	20	54
	2-DH3	26	367
	2-DH5	30	679
8DPSK	3-DH1	24	83
	3-DH3	27	552
	3-DH5	31	1021

1.5 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested with associated equipment below.

1) Support Equipment

Description	Manufacturer	Model No.	Serial Number	Supplied by
Notebook	Lenovo	E450	SL10G10780	UnionTrust
Mouse	DELL	MS111	CN-011D3V-738	UnionTrust

2) Support Cable

Cable No.	Description	Connector	Length	Supplied by
1	Antenna Cable	SMA	0.10 Meter	UnionTrust
2	serial port	USB	0.50 Meter	UnionTrust

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1.6 TEST LOCATION

Shenzhen UnionTrust Quality and Technology Co., Ltd.

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Telephone: +86 (0) 755 2823 0888

Fax: +86 (0) 755 2823 0886

1.7 TEST FACILITY

The test facility is recognized, certified, or accredited by the following organizations:

CNAS-Lab Code: L9069

The measuring equipment utilized to perform the tests documented in this report has been calibrated once a year or in accordance with the manufacturer's recommendations, and is traceable under the ISO/IEC 17025 to international or national standards. Equipment has been calibrated by accredited calibration laboratories.

A2LA-Lab Certificate No.: 4312.01

Shenzhen UnionTrust Quality and Technology Co., Ltd. has been accredited by A2LA for technical competence in the field of electrical testing, and proved to be in compliance with ISO/IEC 17025 General Requirements for the Competence of Testing and Calibration Laboratories and any additional program requirements in the identified field of testing.

ISED Wireless Device Testing Laboratories

CAB identifier: CN0032

FCC Accredited Lab.

Designation Number: CN1194

Test Firm Registration Number: 259480

1.8 DEVIATION FROM STANDARDS

None.

1.9 ABNORMALITIES FROM STANDARD CONDITIONS

None.

1.10 OTHER INFORMATION REQUESTED BY THE CUSTOMER

None.

1.11 MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the Product as specified in CISPR 16-4-2. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

No.	Item	Measurement Uncertainty
1	Conducted emission 9KHz-150KHz	±3.2 dB
2	Conducted emission 150KHz-30MHz	±2.7 dB
3	Radiated emission 9KHz-30MHz	± 4.7 dB
4	Radiated emission 30MHz-1GHz	± 4.6 dB
5	Radiated emission 1GHz-18GHz	± 4.4 dB
6	Radiated emission 18GHz-26GHz	± 4.6 dB
7	Radiated emission 26GHz-40GHz	± 4.6 dB
8	RF Power, Conducted	± 0.69 dB
9	Transmission Time	± 0.19 %
10	Occupied Bandwidth	± 1.86 %
11	Power Spectral Density, conducted	± 0.6 dB
12	Radio Frequency	± 6.5 x 10 ⁻⁸
13	Conducted out of band emission	± 2.7 dB

2. TEST SUMMARY

FCC 47 CFR Part 15 Subpart C Test Cases			
Test Item	Test Requirement	Test Method	Result
Antenna Requirement	FCC 47 CFR Part 15 Subpart C Section 15.203/15.247 (c) RSS-Gen Issue 5, Section 6.8	N/A	PASS
AC Power Line Conducted Emission	FCC 47 CFR Part 15 Subpart C Section 15.207 RSS-Gen Issue 5, Section 8.8	ANSI C63.10-2013 Section 6.2	N/A ^(Note2)
Conducted Peak Output Power	FCC 47 CFR Part 15 Subpart C Section 15.247 (b)(1) RSS-247 Issue 2, Section 5.4(b)	ANSI C63.10-2013 Section 7.8.5	VERIFIED (NOTE3)
20 dB Bandwidth	FCC 47 CFR Part 15 Subpart C Section 15.247 (a)(1) RSS-247 Issue 2, Section 5.1(a)	ANSI C63.10-2013 Section 6.9.2	VERIFIED (NOTE3)
Occupied Bandwidth	RSS-Gen section 6.7	RSS-Gen section 6.7	VERIFIED (NOTE3)
Carrier Frequencies Separation	FCC 47 CFR Part 15 Subpart C Section 15.247 (a)(1) RSS-247 Issue 2, Section 5.1(b)	ANSI C63.10-2013 Section 7.8.2	VERIFIED (NOTE3)
Number of Hopping Channel	FCC 47 CFR Part 15 Subpart C Section 15.247 (b)(1) RSS-247 Issue 2, Section 5.1(d)	ANSI C63.10-2013 Section 7.8.3	VERIFIED (NOTE3)
Dwell Time	FCC 47 CFR Part 15 Subpart C Section 15.247 (a)(1) RSS-247 Issue 2, Section 5.1(d)	ANSI C63.10-2013 Section 7.8.4	VERIFIED (NOTE3)
Conducted Out of Band Emission	FCC 47 CFR Part 15 Subpart C Section 15.247(d) RSS-247 Issue 2, Section 5.5	ANSI C63.10-2013 Section 6.10.4 & Section 7.8.8	VERIFIED (NOTE3)
Radiated Emissions	FCC 47 CFR Part 15 Subpart C Section 15.205/15.209 RSS-Gen Issue 5, Section 6.13/8.9/8.10	ANSI C63.10-2013 Section 6.3 & 6.5 & 6.6	VERIFIED (NOTE3)
Note: 1) N/A: In this whole report not applicable. 2) This EUT is charged by AC adapter to the battery, when charging, it doesn't transmitting while charging. 3) This report is based on the original report add the model, after evaluation, no need to retest, all test items (test data) refer to the original report no. 211106069RFC-2 Issued December 22, 2021.			

*** End of Report ***

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