

RF EXPOSURE REPORT

FOR

Applicant	:	Pioneer Corporation
Address	:	28-8, Honkomagome 2-chome, Bunkyo-ku, Tokyo 113-0021, Japan
Equipment under Test	:	RDS AV RECEIVER
Model No.	:	DMH-W3050NEX, DMH-W3000NEX
Trade Mark	:	<i>Pioneer</i>
FCC ID	:	AJDK124
Manufacturer	:	Pioneer Corporation
Address	:	28-8, Honkomagome 2-chome, Bunkyo-ku, Tokyo 113-0021, Japan

Issued By: Guangdong Dongdian Testing Service Co., Ltd.

Add.: Unit 2, Building 1, No. 17, Zongbu 2nd Road, Songshan Lake Park,
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REPORT

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Test Report Declare

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Standard Used: KDB447498 D01 General RF Exposure Guidance v06

We Declare:

The equipment described above is assessed by Guangdong Dongdian Testing Service Co., Ltd. and in the configuration assessed the equipment complied with the standards specified above.

The assessed results are contained in this report and Guangdong Dongdian Testing Service Co., Ltd. is assumed of full responsibility for the accuracy and completeness of these assess.

After evaluation, our opinion is that the equipment In Accordance with above standard.

Report No:	DDT-RE23060602-2E24		
Date of Receipt:	Aug. 02, 2023	Date of Test:	Aug. 02, 2023 ~ Aug. 30, 2023

Prepared By:

Bobo Chen

Bobo Chen/Engineer

Approved By:

Damon Hu

Damon Hu/EMC Manager

Note: This report applies to above tested sample only. This report shall not be reproduced in parts without written approval of Guangdong Dongdian Testing Service Co., Ltd.

Revision History

Rev.	Revisions	Issue Date	Revised By
---	Initial issue	Sep. 07, 2023	

1. General Information

1.1. Description of equipment

EUT* Name	: RDS AV RECEIVER
Model Number	: DMH-W3050NEX, DMH-W3000NEX
Difference of models	: Above models are identical in schematic and structure, the DMH-W3000NEX features no HD Radio/iDataLink compared to the DMH-W3050NEX, therefore the test performed on the model DMH-W3050NEX.
EUT Function Description	: Please reference user manual of this device
Power Supply	: DC 10.8 ~ 15.1V / 10A (max)
Radio Specification	: Bluetooth V5.3 IEEE 802.11a/n/ac
Operation Frequency	: Bluetooth: 2402 MHz - 2480 MHz IEEE 802.11a/n HT20/11ac VHT20: 5735-5755 MHz IEEE 802.11n HT40/11ac VHT40: 5735-5775 MHz IEEE 802.11ac VHT80: 5735-5815 MHz
Modulation	: Bluetooth: GFSK, $\pi/4$ -DQPSK, 8DPSK IEEE 802.11a: OFDM (64QAM, 16QAM, QPSK, BPSK) IEEE 802.11n HT20, HT40: OFDM (64QAM, 16QAM, QPSK, BPSK) IEEE 802.11ac: OFDM (256QAM, 64QAM, 16QAM, QPSK, BPSK)
Data Rate	: Bluetooth: 1 Mbps, 2 Mbps, 3 Mbps IEEE 802.11a: up to 54 Mbps IEEE 802.11n HT20: up to 72.2 Mbps IEEE 802.11n HT40: up to 150 Mbps IEEE 802.11ac VHT20: up to 86.7 Mbps IEEE 802.11ac VHT40: up to 200 Mbps IEEE 802.11ac VHT80: up to 433.3 Mbps
Antenna Gain	: FPC antenna, 2.4GHz maximum PK gain:0.8 dBi, 5.8GHz Maximum PK gain: 3.2 dBi
Sample Type	: Series production
Sample Number	: S23060602-08 for conductive, S23060602-09 for radiation

1.2. Assess laboratory

Guangdong Dongdian Testing Service Co., Ltd.

Add.: Unit 2, Building 1, No. 17, Zongbu 2nd Road, Songshan Lake Park, Dongguan, Guangdong, China, 523808.

Tel.: +86-0769-38826678, <http://www.dgddt.com>, Email: ddt@dgddt.com.

CNAS Accreditation No. L6451; A2LA Accreditation Number: 3870.01

FCC Designation Number: CN1182, Test Firm Registration Number: 540522

Innovation, Science and Economic Development Canada Site Registration Number: 10288A

Conformity Assessment Body identifier: CN0048

VCCI facility registration number: C-20087, T-20088, R-20123, R-20155, G-20118

2. RF Exposure Evaluation

2.1. Requirement

Systems operating under the provisions of FCC 47 CFR section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess of the Commission's guidelines.

In accordance with 47 CFR FCC Part 2 Subpart J, section 2.1091 this device has been defined as mobile device whereby a distance of 0.2 m normally can be maintained between the user and the device, and below RF Permissible Exposure limit shall comply with.

Limits for General Population/Uncontrolled Exposure

(B) 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 Time 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
1500-100,000			1.0	30

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

2.2. Calculation method

$$E(\text{V/m}) = \frac{\sqrt{30 \times P \times G}}{d} \quad \text{Power Density: } S(\text{mW/cm}^2) = \frac{E^2}{377}$$

E = Electric field (V/m)

P = Peak RF output power (mW)

G = EUT Antenna numeric gain (numeric)=

d = Separation distance between radiator and human body (m)

The formula can be changed to

We can change the formula to:

$$S = \frac{30 \times P \times G}{377 \times d^2} \quad \text{or, } d = \sqrt{\frac{30 \times P \times G}{377 \times S}}$$

From the peak EUT RF output power, the minimum mobile separation distance, d= 0.2 m, as well as the gain of the used antenna, the RF power density can be obtained.

2.3. Estimation result

Mode	PK Output power (dBm)	Output power (mW)	tune up power (dBm)	tune up power (mW)	Antenna Gain (dBi)	Antenna Gain (linear)	MPE Values (mW/cm ²)	MPE Limit (mW/cm ²)
BT	2.76	1.89	2	1.58	0.8	1.20	0.00038	1
BLE	2.92	1.96	2	1.58	0.8	1.20	0.00038	1
5G WIFI	9.42	8.75	9	7.94	3.2	2.09	0.00330	1

Simultaneous:

BT+5GWIFI=0.00038/1+0.00330/1=0.00368 < 1

BLE+5GWIFI=0.00038/1+0.00330/1=0.00368 < 1

Note: The estimation distance is 20 cm

Conclusion: The measurement results comply with the FCC Limit per 47 CFR 2.1091 for the uncontrolled RF Exposure of mobile device.

END OF REPORT