

RF EXPOSURE REPORT

FOR

Applicant	:	Pioneer Corporation
Address	:	28-8, Honkomagome 2-chome, Bunkyo-ku Tokyo Japan
Equipment under Test	:	Digital Media Receiver
Model No.	:	MVH-S21BT, MVH-S219BT, MVH-S215BT
Trade Mark	:	PIONEER
FCC ID	:	AJDK105
Manufacturer	:	Pioneer Corporation
Address	:	28-8, Honkomagome 2-chome, Bunkyo-ku Tokyo Japan

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

Add: No. 17, Zongbu Road 2, Songshan Lake Sci&Tech, Industry Park, Dongguan
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REPORT

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TEST REPORT DECLARE

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Trade mark	:	PIONEER
Manufacturer	:	Pioneer Corporation
Address	:	28-8, Honkomagome 2-chome, Bunkyo-ku Tokyo Japan
Factory	:	Huizhou Foryou General Electronics Co., Ltd
Address	:	North Shangxia Road, Dongjiang Hi- tech Industry Park, Huizhou, Guangdong Province, 516005, P R China

Standard Used: KDB447498 D01 General RF Exposure Guidance v06

We Declare:

The equipment described above is assessed by Dongguan 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 Dongguan 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-R18022602-3E5		
Date of Receipt:	Apr. 08, 2018	Date of Test:	Apr. 08, 2018~ Apr. 12, 2018

Prepared By:

Sam Li

Sam Li/Engineer



Kevin Feng/EMC Manager

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

Revision history

Rev.	Revisions	Issue Date	Revised By
---	Initial issue	Apr. 12, 2018	

1. General information

1.1. Description of Equipment

EUT* Name	: Digital Media Receiver
Model Number	: MVH-S21BT, MVH-S219BT, MVH-S215BT
Difference of models	: All models are the same, only the model name is different, there for the test performed on the model MVH-S21BT
EUT function description	: Please reference user manual of this device
Power supply	: DC 14.4V
Radio Specification	: Bluetooth 3.0 + EDR
Operation frequency	: 2402MHz -2480MHz
Modulation	: GFSK, $\pi/4$ -DQPSK, 8DPSK
Data rate	: 1Mbps, 2Mbps, 3Mbps
Antenna Type	: Integrated PCB antenna, maximum PK gain: 0dBi
Sample Type	: Series production

1.2. Assess laboratory

Dongguan Dongdian Testing Service Co., Ltd

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2. RF Exposure evaluation for FCC

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 0.2m 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=0.2m, as well as the gain of the used antenna, the RF power density can be obtained.

2.3. Estimation Result

Mode	Frequency (MHz)	PK Output power (dBm)	Output power (mW)	Antenna Gain (dBi)	Antenna Gain (linear)	MPE Values (mW/cm ²)	MPE Limit (mW/cm ²)
GFSK	2402	4.35 (max)	2.72	0	1	0.00054	1
	2441	3.80	/	0	1	/	1
	2480	3.82	/	0	1	/	1
π/4 QPSK	2402	2.94	/	0	1	/	1
	2441	2.64	/	0	1	/	1
	2480	2.53	/	0	1	/	1
8-DPSK	2402	3.11	/	0	1	/	1
	2441	2.76	/	0	1	/	1
	2480	2.19	/	0	1	/	1

Note: The PK Output power including tune-up tolerance

Note: The estimation distance is 20cm

Conclusion: No SAR evaluation required since transmitter power is below FCC threshold

END OF REPORT