

## RF Exposure Evaluation Report

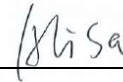
**Report Reference No.....: MTWC21110851-H**

**FCC ID.....: 2ABD3-MA800F**

**IC.....: N/A**

Compiled by

( position+printed name+signature)..: File administrators Alisa Luo



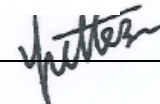
Supervised by

( position+printed name+signature)..: Test Engineer Sunny Deng



Approved by

( position+printed name+signature)..: Manager Yvette Zhou



Date of issue.....: **November 18, 2021**

**Representative Laboratory Name ..: Shenzhen Most Technology Service Co., Ltd.**

Address .....: No.5, 2nd Langshan Road, North District, Hi-tech Industrial Park,  
Nanshan, Shenzhen, Guangdong, China.

**Applicant's name.....: Ocean Digital Technology Ltd.**

Address .....: Flat B, 12/F., Yeung Yiu Chung (No.8) Ind. Bldg., 20 Wang Hoi  
Road, Kowloon Bay, Hong Kong.

**Test specification/ Standard .....: 47 CFR Part 1.1307**

**47 CFR Part 1.1310**

**KDB447498D01 General RF Exposure Guidance v06**

TRF Originator.....: Shenzhen Most Technology Service Co., Ltd.

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**Test item description .....: Internet Radio**

Trade Mark .....: N/A

Manufacturer .....: Ocean Digital Technology Ltd.

Model/Type reference.....: MA-800F

Listed Models .....: WR-800F, MA-800, WR-800

Modulation Type .....: GFSK,  $\pi/4$ DQPSK, 8DPSK; CCK/DSSS/ OFDM

Operation Frequency.....: 2412 - 2462MHz for BT classic

2412 - 2462MHz for WIFI 2.4G

Hardware Version.....: V2.0

Software Version .....: (APP:20200304.1159)

Rating .....: DC 9V by Adapter

Result.....: **PASS**

**TEST REPORT**

Equipment under Test : Internet Radio

Model /Type : MA-800F

Listed Models : WR-800F, MA-800, WR-800

Remark : Only different in model name and appearance

Applicant : **Ocean Digital Technology Ltd.**

Address : Flat B, 12/F., Yeung Yiu Chung (No.8) Ind. Bldg., 20 Wang Hoi Road, Kowloon Bay, Hong Kong.

Manufacturer : **Ocean Digital Technology Ltd.**

Address : Flat B, 12/F., Yeung Yiu Chung (No.8) Ind. Bldg., 20 Wang Hoi Road, Kowloon Bay, Hong Kong.

<b>Test Result:</b>	<b>PASS</b>
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The test report merely corresponds to the test sample.  
It is not permitted to copy extracts of these test result without the written permission of the test laboratory.

## 1. Revision History

Revision	Issue Date	Revisions	Revised By
00	2021.11.18	Initial Issue	Alisa Luo

## 2. SAR Evaluation

### 2.1 RF Exposure Compliance Requirement

#### 2.1.1 Standard Requirement

According to KDB447498D01 General RF Exposure Guidance v06

##### 4.3.1. Standalone SAR test exclusion considerations

Unless specifically required by the published RF exposure KDB procedures, standalone 1-g head or body and 10-g extremity SAR evaluation for general population exposure conditions, by measurement or numerical simulation, is not required when the corresponding SAR Exclusion Threshold condition, listed below, is satisfied.

#### 2.1.2 Limits

According to FCC Part1.1310: The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) radiation as specified in part1.1307(b)

TABLE 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> )	Averaging time (minutes)
<b>(A) Limits for Occupational/Controlled Exposures</b>				
0.3–3.0 .....	614	1.63	*(100)	6
3.0–30 .....	1842/f	4.89/f	*(900/f <sup>2</sup> )	6
30–300 .....	61.4	0.163	1.0	6
300–1500 .....	.....	.....	f/300	6
1500–100,000 .....	.....	.....	5	6
<b>(B) Limits for General Population/Uncontrolled Exposure</b>				
0.3–1.34 .....	614	1.63	*(100)	30
1.34–30 .....	824/f	2.19/f	*(180/f <sup>2</sup> )	30
30–300 .....	27.5	0.073	0.2	30
300–1500 .....	.....	.....	f/1500	30
1500–100,000 .....	.....	.....	1.0	30

F= Frequency in MHz

Friis Formula

Friis transmission formula:  $P_d = (P_{out} \cdot G) / (4 \cdot \pi \cdot R^2)$  Where

$P_d$  = power density in mW/cm<sup>2</sup>

$P_{out}$  = output power to antenna in mW

G = gain of antenna in linear scale

$\pi$  = 3.1416

R = distance between observation point and center of the radiator in cm

$P_d$  is the limit of MPE, 1 mW/cm<sup>2</sup>. If we know the maximum gain of the antenna and the total power input to the antenna, through the calculation, we will know the distance r where the MPE limit is reached.

### 2.1.3 EUT RF Exposure

Antenna Gain: 0dBi

Antenna Gain: The maximum Gain measured in fully anechoic chamber is 2.4 in linear scale. Output Power Into Antenna & RF Exposure Evaluation Distance:

IEEE for 802.11b mode			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
Lowest(2412MHz)	8.767	$8.767 \pm 1$	9.767
Middle(2437MHz)	10.596	$10.596 \pm 1$	11.596
Highest(2462MHz)	8.756	$8.756 \pm 1$	9.756

IEEE for 802.11g mode			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
Lowest(2412MHz)	9.441	$9.441 \pm 1$	10.441
Middle(2437MHz)	11.089	$11.089 \pm 1$	<b>12.089</b>
Highest(2462MHz)	10.277	$10.277 \pm 1$	11.277

IEEE for 802.11n(HT20) mode			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
Lowest(2412MHz)	9.612	$9.612 \pm 1$	10.612
Middle(2437MHz)	10.561	$10.561 \pm 1$	11.561
Highest(2462MHz)	9.609	$9.609 \pm 1$	10.609

## BT classic

GFSK			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
Lowest(2402MHz)	-2.51	$-2.51 \pm 1$	-1.51
Middle(2440MHz)	-1.55	$-1.55 \pm 1$	-0.55
Highest(2480MHz)	-1.74	$-1.74 \pm 1$	-0.74

$\pi/4$ DQPSK			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
Lowest(2402MHz)	0.15	$0.15 \pm 1$	1.15
Middle(2440MHz)	0.22	$0.22 \pm 1$	1.22
Highest(2480MHz)	1.05	$1.05 \pm 1$	2.05

8DPSK			
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power
			(dBm)
Lowest(2402MHz)	1.55	$1.55 \pm 1$	2.55
Middle(2440MHz)	2.05	$2.05 \pm 1$	3.05
Highest(2480MHz)	2.55	$2.55 \pm 1$	<b>3.55</b>

Worst case: IEEE for 802.11g mode						
Channel	Maximum Peak Conducted Output Power (dBm)	Maximum Peak Conducted Output Power (MW)	Antenna Gain (dBi)	Power Density at R = 20 cm (mW/cm <sup>2</sup> )	Limit	Result
Middle(2437MHz)	12.089	16.18	0	0.0032	1.0	Pass

Note: 1) Refer to report MTWC21100788 for EUT test Max Conducted average Output Power value.

Note: 2)  $P_d = (P_{out} * G) / (4 * \pi * R^2) = (16.18 * 1) / (4 * 3.1416 * 20^2) = 0.0032$

Worst case: 8DPSK						
Channel	Maximum Peak Conducted Output Power (dBm)	Maximum Peak Conducted Output Power (MW)	Antenna Gain (dBi)	Power Density at R = 20 cm (mW/cm <sup>2</sup> )	Limit	Result
Highest(2480MHz)	3.55	2.27	0	0.0004	1.0	Pass

Note: 1) Refer to report MTWC21100788 for EUT test Max Conducted average Output Power value.

Note: 2)  $P_d = (P_{out} * G) / (4 * \pi * R^2) = (2.27 * 1) / (4 * 3.1416 * 20^2) = 0.0004$

.....THE END OF REPORT.....