



# MAXIMUM PERMISSIBLE EXPOSURE EVALUATION REPORT

**Applicant:** SHENZHEN COVALUE COMMUNICATIONS CO.,LTD.

**Address:** No.616,Block A,Building 7,No. 1008 Songbai Road,Xili street,Nanshan District,Shenzhen,Guangdong,China

**Product Name:** Mobile Radio

**FCC ID:** Y4GDM8000-1

**Standard(s):** 47 CFR §1.1310, 47 CFR §2.1091,  
47 CFR §15.247(i)

**Report Number:** 2402Z105052E-RF-00E

**Report Date:** 2024/12/17

The above device has been tested and found compliant with the requirement of the relative standards by Bay Area Compliance Laboratories Corp. (Dongguan).

**Reviewed By:** Pedro Yun

**Approved By:** Gavin Xu

**Title:** Project Engineer

**Title:** RF Supervisor

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**Bay Area Compliance Laboratories Corp. (Dongguan)**  
No.12, Pulong East 1<sup>st</sup> Road, Tangxia Town, Dongguan, Guangdong, China

Tel: +86-769-86858888

Fax: +86-769-86858891

[www.baclcorp.com.cn](http://www.baclcorp.com.cn)

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## 1. GENERAL INFORMATION

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### 1.1 General Description Of Equipment under Test

<b>EUT Name:</b>	Mobile Radio
<b>EUT Model:</b>	DM8000-1
<b>Multiple Model:</b>	DM8100-1
<b>Rated Input Voltage:</b>	DC 13.8V from vehicle system
<b>EUT Received Date:</b>	2024/11/15
<b>EUT Received Status:</b>	Good

Note: The multiple models are electrically identical with the test model, the difference is only the shape. Please refer to the declaration letter for more detail, which was provided by manufacturer.

## 2. RF EXPOSURE EVALUATION (MPE)

### 2.1 RF Exposure Evaluation

#### 2.1.1 Applicable Standard

According to 1.1310, 2.1091 systems operating under the provisions of this section shall be operated in a manner that ensures the public is not exposed to RF energy level in excess of the communication guidelines.

Limits for Maximum Permissible Exposure (MPE)

Limits for Occupational/Controlled Exposure				
Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm <sup>2</sup> )	Averaging Time (minutes)
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

f = frequency in MHz;

\* = Plane-wave equivalent power density;

Limits for General Population/Uncontrolled Exposure				
Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm <sup>2</sup> )	Averaging Time (minutes)
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; \* = Plane-wave equivalent power density;

According to §1.1310 and §2.1091 RF exposure is calculated.

#### 2.1.2 Calculation formula:

Prediction of power density at the distance of the applicable MPE limit

S = PG/4πR<sup>2</sup> = power density (in appropriate units, e.g. mW/cm<sup>2</sup>);

P = power input to the antenna (in appropriate units, e.g., mW);

G = power gain of the antenna in the direction of interest relative to an isotropic radiator, the power gain factor, is normally numeric gain;

R = distance to the center of radiation of the antenna (appropriate units, e.g., cm);

For simultaneously transmit system, the calculated power density should comply with:

$$\sum_i \frac{S_i}{S_{Limit,i}} \leq 1$$

### 2.1.3 Calculated Data:

Operation Modes	Frequency (MHz)	Antenna Gain		Conducted output power including Tune-up Tolerance		Evaluation Distance (cm)	Power Density (mW/cm <sup>2</sup> )	MPE Limit (mW/cm <sup>2</sup> )
		(dBi)	(numeric)	(dBm)	(mW)			
BDR/EDR	2402-2480	-3.39	0.46	2.5	1.78	20.00	0.0002	1.0
BLE	2402-2480	-3.39	0.46	1.5	1.41	20.00	0.0001	1.0
VHF	136-174	0	1.00	47.5	56234.13	55.00	0.7418	1.0

**Note:**

The Conducted output power including Tune-up Tolerance provided by manufacturer.

VHF maximum operation duty cycle is 50%.

VHF was Controlled Environment use.

BT/BLE can't transmit simultaneously.

**For Simultaneous transmission:**

VHF and BDR/EDR/BLE can transmit simultaneously:

$$\sum_i \frac{S_i}{S_{Limit,i}}$$

$$= S_{Bluetooth}/S_{limit-Bluetooth} + S_{VHF}/S_{limit-VHF}$$

$$= 0.0002 / 1.0 + 0.7418 / 1.0$$

$$= 0.742$$

$$< 1.0$$

**Result: Compliant. The device compliant Simultaneous transmission at 55cm distances.**

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## **EXHIBIT A - EUT PHOTOGRAPHS**

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Please refer to the attachment 2402Z105052E-RF-EXP EUT EXTERNAL PHOTOGRAPHS and 2402Z105052E-RF-INP EUT INTERNAL PHOTOGRAPHS.

\*\*\*\*\* **END OF REPORT** \*\*\*\*\*