NVLAP LAB CODE 600341-0

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:	**Y4GDM8000-2**
Standard(s):	**47 CFR §1.1310, 47 CFR §2.1091, 47 CFR §15.247(i)**
Report Number:	**2402V85565E-RF-00E**
Report Date:	**2024/8/22**

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: Gavin Xu	**Approved By:** Ivan Cao
Title: RF Engineer	Title: EMC Manager

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DOCUMENT REVISION HISTORY

Revision Number	Report Number	Description of Revision	Date of Revision
1.0	2402V85565E-RF-00E	Original Report	2024/8/22

1. GENERAL INFORMATION

1.1 General Description Of Equipment under Test

EUT Name:	Mobile Radio
EUT Model:	DM8000-2
Multiple Models:	DM8100-2
Rated Input Voltage:	DC 13.8V from vehicle system
EUT Received Date:	2024/7/12
EUT Received Status:	Good

Note:
The multiple models are electrically identical with the test model. 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^2)**	**Averaging Time (minutes)**
0.3- 3.0	614	1.63	(100)*	6
3.0 - 30	1842/f	4.89/f	($900/f^2$)*	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^2)**	**Averaging Time (minutes)**
0.3–1.34	614	1.63	*(100)	30
1.34–30	824/f	2.19/f	*($180/f^2$)	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
$S = PG/4\pi R^2$ = power density (in appropriate units, e.g. mW/cm^2);
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^2)	MPE Limit (mW/cm^2)
		(dBi)	(numeric)	(dBm)	(mW)			
BDR/EDR	2402-2480	-3.39	0.46	1.5	1.41	20.00	0.0001	1.0
BLE	2402-2480	-3.39	0.46	1.0	1.26	20.00	0.0001	1.0
UHF	400-470	0	1.00	47	50119	40.00	1.25	1.33

Note:
The Conducted output power including Tune-up Tolerance provided by manufacturer.
UHF maximum operation duty cycle is 50%.
BT/BLE can`t transmit simultaneously.

For Simultaneous transmission:

UHF and BDR/EDR/BLE can transmit simultaneously:

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

$=S_{Bluetooth}/S_{limit\text{-}Bluetooth} + S_{UHF}/S_{limit\text{-}UHF}$

=0.0001 /1.0+1.25/1.33

=0.94

< 1.0

Result: Compliant. The device compliant Simultaneous transmission at 40cm distances.

APPENDIX A - EUT PHOTOGRAPHS

Please refer to the attachment 2402V85565E-RF-EXP EUT EXTERNAL PHOTOGRAPHS and 2402V85565E-RF-INP EUT INTERNAL PHOTOGRAPHS.

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