

## RF Exposure Report

**Report No.:** MFBCKS-WTW-P25050539

**FCC ID:** LXC-V2X-OBV-5931

**Test Model:** OBU-5931

**Received Date:** 2024/7/15

**Test Date:** 2025/6/4 ~ 2025/6/30

**Issued Date:** 2025/7/9

**Applicant:** DENSO International America, Inc.

**Address:** 2251 Rutherford Road Suite 100, Carlsbad, California, 92008-8815 United States

**Issued By:** Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch  
Lin Kou Laboratories

**Lab Address:** No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan

**Test Location:** No. 19, Hwa Ya 2nd Rd., Wen Hwa Vil., Kwei Shan Dist., Taoyuan City 33383, Taiwan

**FCC Registration /**

**Designation Number:** 788550 / TW0003



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## Table of Contents

<b>Release Control Record</b> .....	<b>3</b>
<b>1 Certificate of Conformity</b> .....	<b>4</b>
<b>2 RF Exposure</b> .....	<b>5</b>
2.1 Limits for Maximum Permissible Exposure (MPE).....	5
2.2 MPE Calculation Formula .....	5
2.3 Classification .....	5
2.4 Antenna Gain .....	6
2.5 Calculation Result .....	7

### Release Control Record

Issue No.	Description	Date Issued
MFBCKS-WTW-P25050539	Original Release	2025/7/9

## 1 Certificate of Conformity

**Product:** On-Board Unit  
**Brand:** MobiQ  
**Test Model:** OBU-5931  
**Sample Status:** Engineering sample  
**Applicant:** DENSO International America, Inc  
**Test Date:** 2025/6/4 ~ 2025/6/30  
**FCC Rule Part:** FCC Part 2 (Section 2.1091)  
**Standards:** KDB 447498 D01 General RF Exposure Guidance v06

The above equipment has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's RF characteristics under the conditions specified in this report.

**Prepared by :** Pettie Chen , **Date:** 2025/7/9  
Pettie Chen / Senior Specialist

**Approved by :** Jeremy Lin , **Date:** 2025/7/9  
Jeremy Lin / Project Engineer

## 2 RF Exposure

### 2.1 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> )	Average Time (minutes)
Limits For General Population / Uncontrolled Exposure				
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

### 2.2 MPE Calculation 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

### 2.3 Classification

The antenna of this product, under normal use condition, is at least 20 cm away from the body of the user. So, this device is classified as **Mobile Device**.

## 2.4 Antenna Gain

WWAN antenna:

Type	Dipole											
Connector	SMA											
Band	GSM 850 / EDGE 850	GSM 1900 / EDGE 1900	LTE B2	LTE B4	LTE B5	LTE B7	LTE B12	LTE B14	LTE B17	LTE B25	LTE B26	LTE B66
Gain (dBi)	3.4	5.9	5.9	5.9	3.4	4.1	4.1	4.1	4.1	5.9	3.4	5.9
Cable loss	2.06	4.15	4.15	4.35	2.06	3.05	2.1	2.1	2.1	4.15	2.06	4.35
Gain With cable loss (dBi)	1.34	1.75	1.75	1.55	1.34	1.05	2	2	2	1.75	1.34	1.55

OBU antenna:

Type	Connector	Gain (dBi)	
		Ant. 0	Ant. 1
V2X	Fakra Code C Jack	5.18	5.50

\*Detail antenna specification please refer to antenna datasheet and/or antenna measurement report.

## 2.5 Calculation Result

Operation Mode	Frequency Band (MHz)	Conducted Power (dBm)	Gain (dBi)	EIRP (dBm)	Distance (cm)	Power Density (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )
GPRS 850	824-849	30.69	1.34	32.03	20	0.317	0.549
GPRS 1900	1850-1910	28.35	1.75	30.1	20	0.204	1.00
LTE Band 2	1850-1910	22.88	1.75	24.63	20	0.058	1.00
LTE Band 4	1710-1755	22.37	1.55	23.92	20	0.049	1.00
LTE Band 5	824-849	23.09	1.34	24.43	20	0.055	0.549
LTE Band 7	2502-2568	22.73	1.05	23.78	20	0.048	1.00
LTE Band 12	698-716	22.92	2	24.92	20	0.062	0.465
LTE Band 14	788-798	23.02	2	25.02	20	0.063	0.525
LTE Band 17	706-714	22.92	2	24.92	20	0.062	0.469
LTE Band 25	1850-1915	22.55	1.75	24.3	20	0.054	1.00
LTE Band 26	814-824	23.22	1.34	24.56	20	0.057	0.542
LTE Band 26	824-849	23.17	1.34	24.51	20	0.056	0.549
LTE Band 66	1710-1780	22.38	1.55	23.93	20	0.049	1.00

Band	Frequency Band	EIRP Power (dBm)	Distance (cm)	Power Density (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )
Part 95L	5915 MHz	28.18	20	0.131	1

Note:

1. The WWAN module (Brand: WNC, Model: UMC-MT2731CBN, FCC ID: NKRUMC-MT2731CBN) is collocated in this EUT.
2. Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.
3. Detail antenna specification please refer to antenna datasheet or an antenna gain measurement report.

### Conclusion:

The formula of calculated the MPE is:

$$CPD1 / LPD1 + CPD2 / LPD2 + \dots \text{etc.} < 1$$

CPD = Calculation power density

LPD = Limit of power density

$$\text{Part 95L} + \text{GSM Band} = 0.131 / 1 + 0.317 / 0.549 = 0.708$$

$$\text{Part 95L} + \text{LTE Band} = 0.131 / 1 + 0.062 / 0.465 = 0.264$$

Therefore, the maximum calculations of above situations are less than the "1" limit.

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