



BUREAU
VERITAS

FCC RF Exposure Test Report



Certificate #6613.01

FCC RF Exposure Test Report

Report No. : PSU-QSU2403110115SA01

Applicant : SAIC MOTOR OVERSEAS INTELLIGENT MOBILITY TECHNOLOGY CO., LTD

Address : 7TH FLOOR, 36 YUTIAN SOUTH ROAD, ANTING TOWN, JIADING DISTRICT,
SHANGHAI

Product : TBOX

FCC ID : 2BFZV-FLC-WNP26C

Brand : SOIMT

Model No. : FLC-WNP26C

Standards : FCC Part 2 (Section 2.1091)
KDB 447498 D01 General RF Exposure Guidance v06

Sample Received Date : Apr. 07, 2024

Date of Testing : Apr. 07, 2024 ~ May. 11, 2024

CERTIFICATION: The above equipment have been tested by **Huarui 7Layers High Technology (Suzhou) Co., Ltd.**, 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 SAR characteristics under the conditions specified in this report. It should not be reproduced except in full, without the written approval of our laboratory. The client should not use it to claim product certification, approval, or endorsement by A2LA or any government agencies.

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Release Control Record

Report No.	Reason for Change	Date Issued
PSU-QSU2403110115SA01	Initial release	May. 11, 2024



1. Description of Equipment Under Test

EUT Type*	TBOX
FCC ID*	2BFZV-FLC-WNP26C
Brand Name*	SOIMT
Model Name*	FLC-WNP26C
Tx Frequency Bands (Unit: MHz)	GSM850 : 824.2 MHz ~ 848.8 MHz GSM1900 : 1850.2 MHz ~ 1909.8 MHz WCDMA Band II : 1852.4MHz ~ 1907.6MHz WCDMA Band IV: 1712.4MHz ~ 1752.6MHz WCDMA Band V : 826.4MHz ~ 846.6 MHz LTE Band 2 : 1850.7 MHz ~ 1909.3 MHz LTE Band 4 : 1710.7 MHz ~ 1754.3 MHz LTE Band 5 : 824.7 MHz ~ 848.3 MHz LTE Band 7 : 2502.5 MHz ~ 2567.5 MHz LTE Band 38 : 2572.5 MHz ~ 2617.5 MHz LTE Band 41 : 2557.5MHz ~ 2652.5MHz BLE: 2402 MHz -2480MHz
Uplink Modulations*	GSM & GPRS : GMSK EDGE : 8PSK WCDMA : BPSK/QPSK LTE : QPSK, 16QAM BLE: GFSK
Antenna Type*	WWAN:Fixed External Antenna BLE:Chip Antenna
EUT Stage*	Production Unit

Note:

- *Since the above data and/or information is provided by the client relevant results or conclusions of this report are only made for these data and/or information , Test Lab is not responsible for the authenticity, integrity and results of the data and information and/or the validity of the conclusion.
- The above EUT information is declared by manufacturer and for more detailed features description please refers to the manufacturer's specifications or User's Manual.



2. MPE(Maximum Permissible Exposure) Assessment

2.1 Introduction

According to 47 CFR §2.1091, a mobile device is defined as a transmitting device designed to be used in other than fixed locations and to generally be used in such a way that a separation distance of at least 20 cm is normally maintained between the transmitting antenna and the body of the user or nearby persons. In this context, the term “fixed location” means that the device is physically secured at one location and is not able to be easily moved to another location. Transmitting devices designed to be used by consumers or workers that can be easily re-located, such as wireless devices associated with a personal computer, are considered to be mobile devices if they meet the 20 cm separation requirement. The limits to be used for MPE evaluation are specified in §1.1310. All unlicensed personal communications service (PCS) devices and unlicensed NII devices shall be subject to the limits for general population/uncontrolled exposure.

2.2 RF Radiation Exposure Limits

According to 47 CFR §1.1310, the criteria listed in below table shall be used to evaluate the environmental impact of human exposure to RF radiation as specified in §1.1307(b), except in the case of portable devices which shall be evaluated according to the provisions of §2.1093.

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm ²)	Averaging Time (min)
(A) Limits for Occupational / Controlled Exposures				
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 – 100000	-	-	5	6
(B) Limits for General Population / Uncontrolled Exposures				
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 – 100000	-	-	1.0	30

Limits for maximum permissible exposure (MPE)

Notes:

1. f = frequency in MHz
2. Occupational/controlled limits apply in situations in which persons are exposed as a consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure. Limits for occupational/controlled exposure also apply in situations when an individual is transient through a location where occupational/controlled limits apply provided they are made aware of the potential for exposure.
3. General population/uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or cannot exercise control over their exposure.



2.3 MPE Assessment Method

Calculations can be made to predict RF field strength and power density levels around typical RF sources. For example, in the case of a single radiating antenna, a prediction for power density in the far-field of the antenna can be made by use of the general Equations below. This equation is generally accurate in the far-field of an antenna but will over-predict power density in the near field, where they could be used for making a "worst case" or conservative prediction.

$$\text{Power Density (S)} = \frac{PG}{4\pi R^2} = \frac{\text{EIRP}}{4\pi R^2}$$

Where

S = Power Density, unit in mW/cm²

P = Power input to the antenna, unit in mW

G = Power gain of the antenna in the direction of interest relative to an isotropic radiator

R = Distance to the center of radiation of the antenna, unit in cm

EIRP = Effective isotropically radiated power

2.4 MPE Calculation for Standalone Operations

The manufacturer expects that the radiated component of this device will not close to the human body during normal usage and the warning statement was also stated in the user instruction. Since the transmitting antenna will be kept at least 20 cm away from the human body, the MPE level is calculated based on this condition and the result is listed in below table.

CALCULATION FOR MAXIMUM E.I.R.P

Band	Frequency (MHz)	Antenna Gain (dBi)	Maximum Power (dBm)	Average EIRP (mW)	Power Density (mW/cm ²)	Limit (mW/cm ²)	Power Density / Limit	Result
Bluetooth LE	2402	0	5.049	3.198	0.001	1.000	0.001	Pass
GSM 850	824.2	-1.3	34	234.423	0.047	0.549	0.085	Pass
GSM 1900	1850.2	0.1	31.2	169.824	0.034	1.000	0.034	Pass
WCDMA Band II	1852.4	0.1	24.7	301.995	0.060	1.000	0.060	Pass
WCDMA Band IV	1712.4	2.1	24.4	446.684	0.089	1.000	0.089	Pass
WCDMA Band V	826.4	-1.3	25.5	263.027	0.052	0.551	0.095	Pass
LTE Band 2	1850.7	2.0	24.4	436.516	0.087	1.000	0.087	Pass
LTE Band 4	1710.7	2.1	24.3	436.516	0.087	1.000	0.087	Pass
LTE Band 5	824.7	3.0	24.4	549.541	0.109	0.550	0.199	Pass
LTE Band 7	2502.5	2.1	23.8	389.045	0.077	1.000	0.077	Pass
LTE Band38	2572.5	1.2	23.6	301.995	0.060	1.000	0.060	Pass
LTE Band41	2557.5	2.1	23.5	363.078	0.072	1.000	0.072	Pass



2.5 CONCLUSION OF SIMULTANEOUS TRANSMITTER

Both of the BT and WWAN can transmit simultaneously, the formula of calculated the MPE is:

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

CPD = Calculation power density

LPD = Limit of power density

Band	Antenna Gain (dBi)	Maximum Tune up Power (dBm)	Average EIRP (mW)	Power Density (mW/cm ²)	Power Density / Limit	$\Sigma(\text{Power Density / Limit})$	Limit	Result
WWAN	-1.3	34.0	234.423	0.047	0.549	0.0866	1.000	PASS
BT	0	5.049	3.198	0.001	1.000			

Summary:

Since the ERP (effective radiated power) operated at < 1.5 GHz is less than 1.5 watts and > 1.5 GHz is less than 3 watts, the routine environmental evaluation is not required, and the MPE result calculated for this device complies with the MPE limit as specified in 47 CFR §1.1310.



3. Information on the Testing Laboratories

We, Huarui 7layers High Technology (Suzhou) Co., Ltd. ,were founded in 2020 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are accredited and approved according to ISO/IEC 17025.

If you have any comments, please feel free to contact us at the following:

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