

RF Exposure Evaluation Report

APPLICANT : Dexter Axle
EQUIPMENT : DEX 102
BRAND NAME : DEXTER
MODEL NAME : DEX-102
FCC ID : 2BOIO-DEX102
STANDARD : 47 CFR Part 2.1091
FCC KDB 447498 D01 v06

The product evaluation date was started from Apr. 10, 2025 and completed on Apr. 10, 2025. We, Sporton International Inc. (Shenzhen), would like to declare that the device has been evaluated in accordance with 47 CFR Part 2.1091 and FCC KDB 447498 D01 v06, and pass the limit. Without written approval of Sporton International Inc. (Shenzhen), the test report shall not be reproduced except in full.

Hank Huang

Approved by: Hank Huang



Sporton International Inc. (Shenzhen)

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Revision History

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FA531715	Rev. 01	Initial issue of report.	Jun. 24, 2025



1. Administration Data

1.1. Testing Laboratory

Sporton International Inc. (Shenzhen) is accredited to ISO/IEC 17025:2017 by American Association for Laboratory Accreditation with Certificate Number 5145.01.

Testing Laboratory			
Test Firm	Sporton International Inc. (Shenzhen)		
Test Site Location	1/F, 2/F, Bldg 5, Shiling Industrial Zone, Xinwei Village, Xili, Nanshan, Shenzhen, 518055 People's Republic of China TEL: +86-755-86379589 FAX: +86-755-86379595		
Test Site No.	Sporton Site No.	FCC Designation No.	FCC Test Firm Registration No.
	SAR01-SZ	CN1256	421272

Applicant	
Company Name	Dexter Axle
Address	2900 Industrial parkway; Elkhart, IN 46515

Manufacturer	
Company Name	Shenzhen Xiyuan Electronic Technology Co.,Ltd.
Address	Room 602, Huachuangda Business Building, Cuizhu Road, 46 District, Bao'an District, Shenzhen , Guangdong province, P.R.China

2. Description of Equipment Under Test (EUT)

Product Feature & Specification	
EUT Type	DEX 102
Brand Name	DEXTER
Model Name	DEX-102
FCC ID	2BOIO-DEX102
Wireless Technology and Frequency Range	GSM850: 824 MHz ~ 849 MHz GSM1900: 1850 MHz ~ 1910 MHz LTE Category M1: LTE Band 2 : 1850 MHz ~ 1910 MHz LTE Band 4 : 1710 MHz ~ 1755 MHz LTE Band 5 : 824 MHz ~ 849 MHz LTE Band 12 : 699 MHz ~ 716 MHz LTE Band 13 : 777 MHz ~ 787 MHz WLAN 2.4GHz Band: 2412 MHz ~ 2462 MHz Bluetooth: 2402 MHz ~ 2480 MHz
Mode	GPRS/EGPRS LTE Category M1: QPSK / 16QAM WLAN 2.4GHz 802.11b/g/n HT20/HT40 Bluetooth LE
Antenna Gain	GSM850 : -2.4 dBi GSM1900 : 2.74 dBi LTE Band 2 : 2.74 dBi LTE Band 4 : 3.36 dBi LTE Band 5 : -2.4 dBi LTE Band 12 : -1.4 dBi LTE Band 13 : 1.06 dBi WLAN2.4GHz: 3.26 dBi Bluetooth: 3.26 dBi
Antenna Type	WWAN: PIFA Antenna WLAN: PCB Antenna Bluetooth: PCB Antenna
HW Version	V 2.3
SW Version	V 0.1.11
EUT Stage	Identical Prototype

Remark: The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.

Comments and Explanations:

1. The declared of product specification for EUT presented in the report are provided by the manufacturer, and the manufacturer takes all the responsibilities for the accuracy of product specification.
2. The maximum RF output tune up power, antenna gain also the safe distance used for evaluate RF exposure were declared by manufacturer.

3. Maximum RF average output tune up power among production units

<GSM>

Mode	Burst average power(dBm)	
	GSM 850	GSM 1900
GPRS (GMSK, 1 Tx slot)	33.50	30.50
GPRS (GMSK, 2 Tx slots)	33.00	29.50
GPRS (GMSK, 3 Tx slots)	31.50	28.00
GPRS (GMSK, 4 Tx slots)	30.50	26.50
EDGE (8PSK, 1 Tx slot)	26.50	26.00
EDGE (8PSK, 2 Tx slots)	25.50	25.00
EDGE (8PSK, 3 Tx slots)	24.00	23.00
EDGE (8PSK, 4 Tx slots)	23.00	22.00

<LTE>

Mode		Maximum Average power(dBm)
LTE Cat M1	Band 2	22.00
	Band 4	22.00
	Band 5	22.00
	Band 12	22.00
	Band 13	22.00

<WLAN 2.4GHz >

Mode		Maximum Average Power (dBm)
2.4GHz	802.11b	20.50
	802.11g	20.00
	802.11n-HT20	19.00
	802.11n-HT40	18.50

<Bluetooth>

Mode		Maximum Average power(dBm)
Bluetooth	LE	10.00

4. RF Exposure Limit Introduction

According to ANSI/IEEE C95.1-1992, the criteria listed in Table 1 shall be used to evaluate the environmental impact of human exposure to radio frequency (RF) radiation as specified in §1.1310.

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm ²)	Averaging time (minutes)
(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
1500-100,000			5	6
(B) 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 ²)	30
30-300	27.5	0.073	0.2	30
300-1500			f/1500	30
1500-100,000			1.0	30

The MPE was calculated at 20 cm to show compliance with the power density limit.

The following formula was used to calculate the Power Density:

$$S = \frac{PG}{4\pi R^2}$$

Where:

S = Power Density

P = Output Power at Antenna Terminals

G = Gain of Transmit Antenna (linear gain)

R = Distance from Transmitting Antenna



5. Radio Frequency Radiation Exposure Evaluation

5.1. Standalone Power Density Calculation

Band	Frequency (MHz)	Antenna Gain (dBi)	Maximum Power (dBm)	Maximum EIRP (dBm)	Average EIRP (mW)	Power Density at 20cm (mW/cm ²)	Limit (mW/cm ²)	Power Density / Limit
GPRS 850 (1 Tx slot)	824.0	-2.40	33.50	31.100	162.181	0.032	0.549	0.059
GPRS 850 (2 Tx slots)	824.0	-2.40	33.00	30.600	288.403	0.057	0.549	0.104
GPRS 850 (3 Tx slots)	824.0	-2.40	31.50	29.100	304.789	0.061	0.549	0.110
GPRS 850 (4 Tx slots)	824.0	-2.40	30.50	28.100	323.594	0.064	0.549	0.117
EGPRS 850 (1 Tx slot)	824.0	-2.40	26.50	24.100	32.359	0.006	0.549	0.012
EGPRS 850 (2 Tx slots)	824.0	-2.40	25.50	23.100	51.286	0.010	0.549	0.019
EGPRS 850 (3 Tx slots)	824.0	-2.40	24.00	21.600	54.200	0.011	0.549	0.020
EGPRS 850 (4 Tx slots)	824.0	-2.40	23.00	20.600	57.544	0.011	0.549	0.021
GPRS 1900 (1 Tx slot)	1850.0	2.74	30.50	33.240	265.461	0.053	1.000	0.053
GPRS 1900 (2 Tx slots)	1850.0	2.74	29.50	32.240	420.727	0.084	1.000	0.084
GPRS 1900 (3 Tx slots)	1850.0	2.74	28.00	30.740	444.631	0.089	1.000	0.089
GPRS 1900 (4 Tx slots)	1850.0	2.74	26.50	29.240	420.727	0.084	1.000	0.084
EGPRS 1900 (1 Tx slot)	1850.0	2.74	26.00	28.740	94.189	0.019	1.000	0.019
EGPRS 1900 (2 Tx slots)	1850.0	2.74	25.00	27.740	149.279	0.030	1.000	0.030
EGPRS 1900 (3 Tx slots)	1850.0	2.74	23.00	25.740	140.605	0.028	1.000	0.028
EGPRS 1900 (4 Tx slots)	1850.0	2.74	22.00	24.740	149.279	0.030	1.000	0.030
LTE Band 2	1850.0	2.74	22.00	24.740	297.852	0.059	1.000	0.059
LTE Band 4	1710.0	3.36	22.00	25.360	343.558	0.068	1.000	0.068
LTE Band 5	824.0	-2.40	22.00	19.600	91.201	0.018	0.549	0.033
LTE Band 12	699.0	-1.40	22.00	20.600	114.815	0.023	0.466	0.049
LTE Band 13	777.0	1.06	22.00	23.060	202.302	0.040	0.518	0.078
Bluetooth	2402.0	3.26	10.00	13.260	21.184	0.004	1.000	0.004
2.4GHz WLAN	2412.0	3.26	20.50	23.760	237.684	0.047	1.000	0.047

Note:

1. For conservativeness, the lowest frequency of each band is used to determine the MPE limit of that band.
2. Chose the maximum power to do MPE analysis.

**5.2. Collocated Power Density Calculation**

WWAN Power Density / Limit	Bluetooth Power Density / Limit	Σ (Power Density / Limit) of WWAN + Bluetooth
0.117	0.004	0.121

WWAN Power Density / Limit	WLAN 2.4GHz Power Density / Limit	Σ (Power Density / Limit) of WWAN + WLAN 2.4GHz
0.117	0.047	0.164

Note:

1. According to the EUT characteristic, WWAN and Bluetooth/ WLAN 2.4GHz can transmit simultaneously.
2. According to the EUT characteristic, Bluetooth and WLAN 2.4GHz can't transmit simultaneously.
3. Σ (Power Density / Limit): This is a summation of [(power density for each transmitter/antenna included in the simultaneous transmission)/ (corresponding MPE limit)], for WWAN + Bluetooth, WWAN + WLAN 2.4GHz.
4. Considering all transmitter of the EIRP performance listed in the table above, the aggregated (power density /limit) is smaller than 1, and MPE of collocated transmitters is compliant.

Conclusion:

According to 47 CFR §2.1091, the RF exposure analysis concludes that the RF Exposure is FCC compliant.

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