

RF Exposure Evaluation Report

APPLICANT : FoxInsights GmbH
EQUIPMENT : FoxRadar
BRAND NAME : FoxInsights
MODEL NAME : FoxRadar-V1
FCC ID : 2BKML-FOXRADAR
STANDARD : 47 CFR Part 2.1091
FCC KDB 447498 D01 v06

The product evaluation date was started from Oct. 31, 2024 and completed on Oct. 31, 2024. We, Sporton International Inc. (Kunshan), 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. (Kunshan), the test report shall not be reproduced except in full.



Approved by: Si Zhang

Sporton International Inc. (Kunshan)

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Revision History

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FA492504	Rev. 01	Initial issue of report.	Nov. 18, 2024



1. Administration Data

1.1. Testing Laboratory

Sporton International Inc. (Kunshan) is accredited to ISO/IEC 17025:2017 by American Association for Laboratory Accreditation with Certificate Number 5145.02.

Testing Laboratory			
Test Firm	Sporton International Inc. (Kunshan)		
Test Site Location	No. 1098, Pengxi North Road, Kunshan Economic Development Zone Jiangsu Province 215300 People's Republic of China TEL : +86-512-57900158		
Test Site No.	Sporton Site No.	FCC Designation No.	FCC Test Firm Registration No.
	SAR01-KS	CN1257	314309

Applicant	
Company Name	FoxInsights GmbH
Address	Ridlerstr. 57 80339 Munich Germany

Manufacturer	
Company Name	FoxInsights GmbH
Address	Ridlerstr. 57 80339 Munich Germany



2. Description of Equipment Under Test (EUT)

Product Feature & Specification	
EUT Type	FoxRadar
Brand Name	FoxInsights
Model Name	FoxRadar-V1
FCC ID	2BKML-FOXRADAR
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 LTE Band 25 : 1850 MHz ~ 1915 MHz LTE Band 26 : 814 MHz ~ 849 MHz LTE Band 66 : 1710 MHz ~ 1780 MHz LTE Band 85: 698 MHz ~ 716 MHz NB-IOT Category NB2: 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 LTE Band 25 : 1850 MHz ~ 1915 MHz LTE Band 66 : 1710 MHz ~ 1780 MHz LTE Band 85: 698 MHz ~ 716 MHz WLAN 2.4GHz Band: 2412 MHz ~ 2462 MHz Bluetooth: 2402 MHz ~ 2480 MHz Radar: 57 GHz ~ 64 GHz
Mode	GSM/GPRS/EGPRS LTE Category M1: QPSK / 16QAM NB-IOT Category NB2 :BPSK / QPSK WLAN 2.4GHz 802.11b/g/n HT20/HT40 Bluetooth BR/EDR/LE Radar
Antenna Gain	GSM850 : 1.20 dBi GSM1900 : 3.10 dBi LTE Band 2 : 3.10 dBi LTE Band 4 : 3.10 dBi LTE Band 5 : 1.20 dBi LTE Band 12 : 1.20 dBi LTE Band 13 : 1.20 dBi LTE Band 25 : 3.10 dBi LTE Band 26 : 1.20 dBi LTE Band 66: 3.10 dBi LTE Band 85: 1.20 dBi WLAN2.4GHz/Bluetooth: 3.7 dBi
Antenna Type	WWAN: Surface Mount Device Antenna WLAN/Bluetooth: PCB Antenna Radar: 2 embedded Dipole Antennas
HW Version	1.0
SW Version	1.0.0
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
GSM(GMSK, 1 Tx slot)	35.00	32.00
GPRS (GMSK, 1 Tx slot)	35.00	32.00
GPRS (GMSK, 2 Tx slots)	32.00	30.00
GPRS (GMSK, 3 Tx slots)	31.00	29.00
GPRS (GMSK, 4 Tx slots)	29.00	28.00
EDGE (8PSK, 1 Tx slot)	26.00	26.00
EDGE (8PSK, 2 Tx slots)	25.00	25.00
EDGE (8PSK, 3 Tx slots)	23.00	24.00
EDGE (8PSK, 4 Tx slots)	22.00	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
	Band 25	22.00
	Band 26	22.00
	Band 66	22.00
	Band 85	22.00
NB-IOT	Band 2	22.00
	Band 4	22.00
	Band 5	22.00
	Band 12	22.00
	Band 13	22.00
	Band 25	22.00
	Band 66	22.00
	Band 85	22.00

<2.4GHz WLAN >

Mode		Maximum Average Power (dBm)
2.4GHz	802.11b	19.00
	802.11g	19.00
	802.11n-HT20	19.00
	802.11n-HT40	18.00

<Bluetooth>

Mode		Maximum Average power(dBm)
Bluetooth	EDR	5.00
	LE	1.00



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)	Maximum EIRP (W)	Average EIRP (mW)	Power Density at 20cm (mW/cm ²)	Limit (mW/cm ²)	Power Density / Limit
GSM/GPRS 850 (1 Tx slot)	824.0	1.20	35.00	36.200	4.169	524.807	0.104	0.549	0.190
GPRS 850 (2 Tx slots)	824.0	1.20	32.00	33.200	2.089	524.807	0.104	0.549	0.190
GPRS 850 (3 Tx slots)	824.0	1.20	31.00	32.200	1.660	622.300	0.124	0.549	0.225
GPRS 850 (4 Tx slots)	824.0	1.20	29.00	30.200	1.047	524.807	0.104	0.549	0.190
EGPRS 850 (1 Tx slot)	824.0	1.20	26.00	27.200	0.525	66.069	0.013	0.549	0.024
EGPRS 850 (2 Tx slots)	824.0	1.20	25.00	26.200	0.417	104.713	0.021	0.549	0.038
EGPRS 850 (3 Tx slots)	824.0	1.20	23.00	24.200	0.263	98.628	0.020	0.549	0.036
EGPRS 850 (4 Tx slots)	824.0	1.20	22.00	23.200	0.209	104.713	0.021	0.549	0.038
GSM/GPRS 1900 (1 Tx slot)	1850.0	3.10	32.00	35.100	3.236	407.380	0.081	1.000	0.081
GPRS 1900 (2 Tx slots)	1850.0	3.10	30.00	33.100	2.042	512.861	0.102	1.000	0.102
GPRS 1900 (3 Tx slots)	1850.0	3.10	29.00	32.100	1.622	608.135	0.121	1.000	0.121
GPRS 1900 (4 Tx slots)	1850.0	3.10	28.00	31.100	1.288	645.654	0.129	1.000	0.129
EGPRS 1900 (1 Tx slot)	1850.0	3.10	26.00	29.100	0.813	102.329	0.020	1.000	0.020
EGPRS 1900 (2 Tx slots)	1850.0	3.10	25.00	28.100	0.646	162.181	0.032	1.000	0.032
EGPRS 1900 (3 Tx slots)	1850.0	3.10	24.00	27.100	0.513	192.309	0.038	1.000	0.038
EGPRS 1900 (4 Tx slots)	1850.0	3.10	22.00	25.100	0.324	162.181	0.032	1.000	0.032
LTE Band 2	1850.0	3.10	22.00	25.100	0.324	323.594	0.064	1.000	0.064
LTE Band 4	1710.0	3.10	22.00	25.100	0.324	323.594	0.064	1.000	0.064
LTE Band 5	824.0	1.20	22.00	23.200	0.209	208.930	0.042	0.549	0.076
LTE Band 12	699.0	1.20	22.00	23.200	0.209	208.930	0.042	0.466	0.089
LTE Band 13	777.0	1.20	22.00	23.200	0.209	208.930	0.042	0.518	0.080
LTE Band 25	1850.0	3.10	22.00	25.100	0.324	323.594	0.064	1.000	0.064
LTE Band 26	814.0	1.20	22.00	23.200	0.209	208.930	0.042	0.543	0.077
LTE Band 66	170.0	3.10	22.00	25.100	0.324	323.594	0.064	0.200	0.322
LTE Band 85	698.0	1.20	22.00	23.200	0.209	208.930	0.042	0.465	0.089
Bluetooth	2402.0	3.70	5.00	8.700	0.007	7.413	0.001	1.000	0.001
2.4GHz WLAN	2412.0	3.70	19.00	22.700	0.186	186.209	0.037	1.000	0.037
Radar	57000.0			-8.600	0.0001	0.138	0.00003	1.000	0.00003

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.
3. Radar maximum EIRP power from RF test report which can be referred to Sporton No: FR492601.

**5.2. Collocated Power Density Calculation**

WWAN Power Density / Limit	WLAN 2.4GHz Power Density / Limit	Bluetooth Power Density / Limit	Radar Power Density / Limit	Σ (Power Density / Limit) of WWAN + WLAN 2.4GHz + Bluetooth + Radar
0.322	0.037	0.001	0.00003	0.360

Note:

1. 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 + WLAN2.4GHz+ Bluetooth + Radar.
2. Considering all transmitter of the EIRP performance listed in the table above, the aggregated (power density /limit) is smaller than 1, and MPE collocated transmitters is compliant.

Conclusion:

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

-----THE END-----