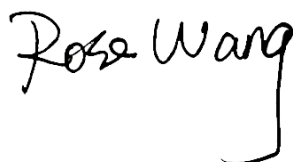


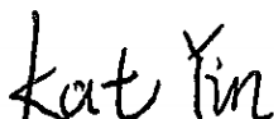
RF Exposure Evaluation Report

APPLICANT : Inseego Corp.
EQUIPMENT : 5G Enterprise Gateway
BRAND NAME : Inseego
MODEL NAME : S2000e-3
FCC ID : PKRISGS2000E3
STANDARD : 47 CFR Part 2.1091
FCC KDB 447498 D01 v06

We, Sporton International (Kunshan) Inc., 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 (Kunshan) Inc., the test report shall not be reproduced except in full.



Reviewed by: Rose Wang / Supervisor



Approved by: Kat Yin / Manager



Sporton International (Kunshan) Inc.

No. 1098, Pengxi North Road, Kunshan Economic Development Zone Jiangsu Province 215300
People's Republic of China



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Revision History

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FA0D1601	Rev. 01	Initial issue of report.	Mar. 16, 2021



1. Administration Data

1.1. Testing Laboratory

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

Testing Laboratory		
Test Firm	Sporton International (Kunshan) Inc.	
Test Site Location	No. 1098, Pengxi North Road, Kunshan Economic Development Zone Jiangsu Province 215300 People's Republic of China TEL : +86-512-57900158 FAX : +86-512-57900958	
Test Site No.	FCC Designation No.	FCC Test Firm Registration No.
	CN1257	314309

Applicant	
Company Name	Inseego Corp.
Address	9710 Scranton Road Suite 200, San Diego,, CA 92121

Manufacturer	
Company Name	MeiG Smart Technology Co., Ltd
Address	Floor 2, Office Building No.5, Lingxia Road, Fenghuang Community, Fuyong Street, Bao 'an District, Shenzhen

2. Description of Equipment Under Test (EUT)

Product Feature & Specification	
EUT Type	5G Enterprise Gateway
Brand Name	Inseego
Model Name	S2000e-3
FCC ID	PKRISGS2000E3
Wireless Technology and Frequency Range	WCDMA Band II: 1850 MHz ~ 1910 MHz WCDMA Band IV : 1710 MHz ~ 1755 MHz WCDMA Band V: 824 MHz ~ 849 MHz LTE Band 2 : 1850 MHz ~ 1910 MHz LTE Band 4 : 1710 MHz ~ 1755 MHz LTE Band 5 : 824 MHz ~ 849 MHz LTE Band 7 : 2500 MHz ~ 2570 MHz LTE Band 12 : 699 MHz ~ 716 MHz LTE Band 13 : 777 MHz ~ 787 MHz LTE Band 14 : 788 MHz ~ 798 MHz LTE Band 17 : 704 MHz ~ 716 MHz LTE Band 25 : 1850 MHz ~ 1915 MHz LTE Band 26 : 814 MHz ~ 849 MHz LTE Band 30 : 2305 MHz ~ 2315 MHz LTE Band 38 : 2570 MHz ~ 2620 MHz LTE Band 41 : 2496 MHz ~ 2690 MHz LTE Band 42 : 3550 MHz ~ 3600 MHz LTE Band 43 : 3600 MHz ~ 3700 MHz LTE Band 48 : 3550 MHz ~ 3700 MHz LTE Band 66 : 1710 MHz ~ 1780 MHz LTE Band 71: 663 MHz ~ 698 MHz 5G NR n2 : 1850 MHz ~ 1910 MHz 5G NR n5 : 824 MHz ~ 849 MHz 5G NR n12 : 699 MHz ~ 716 MHz 5G NR n25 : 1850 MHz ~ 1915 MHz 5G NR n41 : 2496 MHz ~ 2690 MHz 5G NR n66 : 1710 MHz ~ 1780 MHz 5G NR n71 : 663 MHz ~ 698 MHz Bluetooth: 2402 MHz ~ 2480 MHz
Mode	RMC 12.2Kbps HSDPA/HSUPA DC-HSDPA HSPA+ (16QAM uplink is not supported) LTE: QPSK, 16QAM, 64QAM, 256QAM(Downlink Only) DFT-s-OFDM (PI/2 BPSK / QPSK / 16QAM / 64QAM / 256QAM) CP-OFDM (QPSK / 16QAM / 64QAM / 256QAM) Bluetooth LE
Antenna Gain	<For WWAN/5G NR> WCDMA Band II : 6.00 dBi WCDMA Band IV : 6.00 dBi WCDMA Band V : 4.00 dBi LTE Band 2 : 6.00 dBi LTE Band 4 : 6.00 dBi LTE Band 5 : 4.00 dBi LTE Band 7 : 7.00 dBi LTE Band 12 : 3.20 dBi LTE Band 13 : 3.50 dBi LTE Band 14 : 3.60 dBi LTE Band 17 : 3.20 dBi LTE Band 25 : 6.00 dBi LTE Band 26 : 4.00 dBi LTE Band 30 : -0.60 dBi LTE Band 38 : 7.00 dBi

	LTE Band 41 : 5.00 dBi LTE Band 42 : 3.50 dBi LTE Band 43 : 3.50 dBi LTE Band 48 : 3.50 dBi LTE Band 66 : 6.00 dBi LTE Band 71 : 3.10 dBi n2: 6.00 dBi n5: 4.00 dBi n12: 3.20 dBi n25: 6.00 dBi n41 : 5.00 dBi n66: 6.00 dBi n71 : 3.10 dBi <For Bluetooth> Bluetooth: gain 4.00 dBi
HW Version	1.01
SW Version	2.37
EUT Stage	Identical Prototype

Remark:

1. The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.
2. This device supports HPUE for LTE band 41 with class 2 power level, so HPUE has been performed standalone power density calculation.
3. LTE band 42/43 covered by LTE band 48 with the same power level, so only chose LTE band 48 to perform standalone power density calculation.
4. For DFT-s-OFDM and CP-OFDM output power measurement reduction, according to maximum power reduction for the CP-OFDM mode will not higher than DFT-s-OFDM mode, therefore, CP-OFDM measurement is unnecessary. We always chose higher power (DFT-s-OFDM mode) to perform MPE analysis.
5. 5GNR supports NSA mode.

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 Tune Up power among production units

<WCDMA>

Mode		Maximum Average power(dBm)
WCDMA	Band II	24.00
	Band IV	24.00
	Band V	24.00

<LTE>

Mode		Maximum Average power(dBm)
LTE	Band 2	24.00
	Band 4	24.00
	Band 5	24.00
	Band 7	24.00
	Band 12	24.00
	Band 13	24.00
	Band 14	24.00
	Band 17	24.00
	Band 25	24.00
	Band 26	24.00
	Band 30	24.00
	Band 38	24.00
	Band 41	24.00
	Band 41-HPUE	26.00
	Band 42	19.50
	Band 43	19.50
	Band 48	19.50
	Band66	24.00
	Band71	24.00

<5G NR>

Mode		Maximum Average power(dBm)
5G NR	n2	24.00
	n5	24.00
	n12	24.00
	n25	24.00
	n41	24.00
	n66	24.00
	n71	24.00



<Bluetooth>

Mode	Maximum Average Power (dBm)
Bluetooth LE	4



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
WCDMA Band 2	1852.4	6.00	24.00	30.000	1.000	1000.000	0.199	1.000	0.199
WCDMA Band 4	1712.4	6.00	24.00	30.000	1.000	1000.000	0.199	1.000	0.199
WCDMA Band 5	826.4	4.00	24.00	28.000	0.631	630.957	0.126	0.551	0.228
LTE Band 2	1850.7	6.00	24.00	30.000	1.000	1000.000	0.199	1.000	0.199
LTE Band 4	1710.7	6.00	24.00	30.000	1.000	1000.000	0.199	1.000	0.199
LTE Band 5	824.7	4.00	24.00	28.000	0.631	630.957	0.126	0.550	0.228
LTE Band 7	2502.5	7.00	24.00	31.000	1.259	1258.925	0.251	1.000	0.251
LTE Band 12	699.7	3.20	24.00	27.200	0.525	524.807	0.104	0.466	0.224
LTE Band 13	779.5	3.50	24.00	27.500	0.562	562.341	0.112	0.520	0.215
LTE Band 14	790.5	3.60	24.00	27.600	0.575	575.440	0.115	0.527	0.217
LTE Band 17	706.5	3.20	24.00	27.200	0.525	524.807	0.104	0.471	0.222
LTE Band 25	1850.7	6.00	24.00	30.000	1.000	1000.000	0.199	1.000	0.199
LTE Band 26	814.7	4.00	24.00	28.000	0.631	630.957	0.126	0.543	0.231
LTE Band 30	2307.5	-0.60	24.00	23.400	0.219	218.776	0.044	1.000	0.044
LTE Band 38	2572.5	7.00	24.00	31.000	1.259	1258.925	0.251	1.000	0.251
LTE Band 41-HPUE	2498.5	5.00	26.00	31.000	1.259	1258.925	0.251	1.000	0.251
LTE Band 48	3552.5	3.50	19.50	23.000	0.200	199.526	0.040	1.000	0.040
LTE Band 66	1710.7	6.00	24.00	30.000	1.000	1000.000	0.199	1.000	0.199
LTE Band 71	665.5	3.10	24.00	27.100	0.513	512.861	0.102	0.444	0.230
5G NR n2	1850	6.00	24.00	30.000	1.000	1000.000	0.199	1.000	0.199
5G NR n5	824	4.00	24.00	28.000	0.631	630.957	0.126	0.549	0.229
5G NR n12	699	3.20	24.00	27.200	0.525	524.807	0.104	0.466	0.224
5G NR n25	1850	6.00	24.00	30.000	1.000	1000.000	0.199	1.000	0.199
5G NR n41	2496	5.00	24.00	29.000	0.794	794.328	0.158	1.000	0.158
5G NR n66	1710	6.00	24.00	30.000	1.000	1000.000	0.199	1.000	0.199
5G NR n71	663	3.10	24.00	27.100	0.513	512.861	0.102	0.442	0.231
Bluetooth	2402	4.00	4.00	8.000	0.006	6.310	0.0013	1.000	0.001

Note:

1. For conservativeness, the lowest frequency of each band is used to determine the MPE limit of that band.
2. This device supports HPUE for LTE band 41 with class 2 power level, so HPUE has been performed standalone power density calculation.
3. LTE band 42/43 covered by LTE band 48 with the same power level, so only chose LTE band 48 to perform standalone power density calculation.
4. Chose the maximum power density to do MPE analysis.

**5.2. Collocated Power Density Calculation**

WWAN Power Density / Limit	5G NR Power Density / Limit	Bluetooth Power Density / Limit	Σ (Power Density / Limit) of WWAN + 5G NR + Bluetooth
0.251	0.231	0.001	0.483

Note:

1. For collocation analysis, LTE Band7/38/41-HPUE is chosen for summation due to the highest (power density/limit) among all WWAN wireless modes.
2. For collocation analysis, 5G NR n71 is chosen for summation due to the highest (power density/limit) among all 5G NR modes.
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 + 5G NR + BT.
4. Considering the WWAN module collocation with the 5G NR transmitter of the EIRP performance listed in the table above, the aggregated (power density /limit) is smaller than 1.

Conclusion:

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

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