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Test Model:	SKR3MD8800
Received Date:	Jan. 14, 2019
Test Date:	Jan. 15 to 26, 2019
Issued Date:	Mar. 06, 2019
Applicant:	Inseego Corp.
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Test Location:	E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300, Taiwan R.O.C.
FCC Registration / Designation Number:	723255 / TW2022

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	Release Control Record						
Issue No.	Description	Date Issued					
SA190122E03	Original release.	Mar. 06, 2019					



# 1Certificate of ConformityProduct:4G LTE Wireless RouterBrand:InseegoTest Model:SKR3MD8800Sample Status:ENGINEERING SAMPLEApplicant:Inseego Corp.Test Date:Jan. 15 to 26, 2019Standards:FCC Part 2 (Section 2.1091)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 EMC characteristics under the conditions specified in this report.

Prepared by :	Phoeis	Huang	Date:	Mar. 06, 2019	
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# 2 RF Exposure

### 2.1 Limits for Maximum Permissible Exposure (MPE)

Frequency Range (MHz)	Electric Field Strength (V/m)	Field Magnetic Field Power Density   V/m) Strength (A/m) (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

 $Pd = (Pout^{*}G) / (4^{*}pi^{*}r^{2})$ 

where

 $Pd = power density in mW/cm^{2}$ 

Pout = 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 27cm away from the body of the user. So, this device is classified as **Mobile Device**.



# 2.4 Antenna Gain

Antenna No.	Brand Name	Model Name	Antenna Net Gain (dBi)	Frequency Range	Antenna Type	Connector Type
\A/LANL 1	DE link		4.11	2.4~2.4835GHz	Dinala	
VVLAN_1		KFZ1300300AA1	6.12	5.15~5.85GHz	Dipole	R-SIVIA
	Magar	C027 511242 A	4.11	2.4~2.4835GHz	Dinolo	
WLAN_2	w.gear	C037-511545-A	6.12	5.15~5.85GHz	Dipole	R-SIVIA
BT_ANT	RF link	RF21S00506AX1	4.11	2,402~2,480GHz	Dipole	R-SMA
			2.1	1850 MHz to 1910 MHz		
			1.8	1710 MHz to 1755 MHz		SMA
		SWX-614XRSXX-999	1.8	824 MHz to 849 MHz		
WWAN_1_1	-		2.7	2500 MHz to 2570 MHz	Dipole	
			0.4	777 MHz to 787 MHz		
			0.4	788 MHz to 798 MHz		
			1.8	1710 MHz to 1780 MHz		
			2.1	1850 MHz to 1910 MHz		
		- SWX-614XRSXX-999	1.8	1710 MHz to 1755 MHz		
			1.8	824 MHz to 849 MHz		
WWAN_1_2	-		2.7	2500 MHz to 2570 MHz	Dipole	SMA
			0.4	777 MHz to 787 MHz		
			0.4	788 MHz to 798 MHz		
			1.8	1710 MHz to 1780 MHz		
GPS_ANT	-	-	2.4	1575.4	Dipole	SMA



### 2.5 Calculation Result of Maximum Conducted Power

Operation Mode	Evaluation Frequency (MHz)	Max Power (mW)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )
WLAN 2.4GHz	2437	608.881	7.12	27	0.34245	1
WLAN 5GHz (UNII-1)	5200	323.377	9.13	27	0.28892	1
WLAN 5GHz (UNII-3)	5745	524.248	9.13	27	0.46838	1
BT-LE	2440	4.875	4.11	27	0.00137	1

Note:

1. 2.4GHz: The directional gain = 4.11dBi + 10log(2) = 7.12dBi.

2. 5GHz: The directional gain = 6.12dBi +  $10\log(2) = 9.13$ dBi.

3. The Max. Power  $\geq$  Max. tune up power including tolerance.

### For WWAN

Frequency Band	Max Power	Antenna Gain	Distance	Power Density	Limit
(MHz)	(mW)	(dBi)	(cm)	(mW/cm <sup>2</sup> )	(mW/cm <sup>2</sup> )
824.7-848.3	251.19	1.80	27	0.04150	0.5498*

Note:

1. \*Limit of Power Density = F/1500

2. The Max. Power  $\geq$  Max. tune up power including tolerance.

### Conclusion:

The formula of calculated the MPE is: CPD1 / LPD1 + CPD2 / LPD2 + .....etc. < 1 CPD = Calculation power density

LPD = Limit of power density

WLAN 2.4GHz + WLAN 5GHz (U-NII-3) + Bluetooth + WWAN = 0.34245 / 1 + 0.46838 / 1 + 0.00137 / 1 + 0.04150 / 0.5498 = 0.88768

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



# Appendix

# For WWAN

Mode	Equipment	Transmitter Range (MHz)		Maximum		Antenna	Power Density (mW/cm <sup>2</sup> )		Ratio
	Category	Start	Stop	(dBm)	(W)	Gain (dBl)	Vaule	Limit	
	Band 2	1852.4	1907.6	24.00	251.19	2.10	0.04447	1	0.0317
VUCDIVIA	Band 5	826.4	846.6	24.00	251.19	1.80	0.04150	0.5509*	0.0536
	Band 2	1850.7	1909.3	24.00	251.19	2.10	0.04447	1	0.0317
	Band 4	1710.7	1754.3	24.00	251.19	1.80	0.04150	1	0.0296
	Band 5	824.7	848.3	24.00	251.19	1.80	0.04150	0.5498*	0.0537
LTE	Band 7	2502.5	2567.5	24.00	251.19	2.70	0.05106	1	0.0364
	Band 13	779.5	784.5	24.00	251.19	0.40	0.03007	0.5197*	0.0412
	Band 14	790.5	795.5	24.00	251.19	0.40	0.03007	0.527*	0.0406
	Band 66	1710.7	1779.3	24.00	251.19	1.80	0.04150	1	0.0296

Note: \*Limit of Power Density = F/1500

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