



Certification Exhibit

FCC ID: 2ATKJ-LTBS

FCC Rule Part: 47 CFR Part 2.1093

Project Number: 72146891

Manufacturer: GE Infrastructure Sensing, LLC
Model: LUMEN-TERRAIN-1-0-0-0-F-0-1

RF Exposure

General Information:

Applicant: GE Infrastructure Sensing, LLC
Device Category: Fixed
Environment: General Population/Uncontrolled Exposure

Technical Information (900MHz Radio):

Antenna Type: Dipole
Antenna Gain: 2 dBi (Pulse Larsen, P/N: W5017)
Maximum Transmitter Conducted Power: -4.4dBm, 0.36mW
Maximum System EIRP: -2.4 dBm, 0.58 mW
Exposure Conditions: Greater than 20 centimeters

Technical Information (Cellular Radio):

Antenna Type: Multi-band LTE/GPS
Antenna Gain: 2.74 dBi (698-960MHz), 4.39 dBi (1710-2170MHz), 3.49 dBi (2500-2800MHz) (Taoglas, P/N: MA140.A.LB.001)

LTE B2

Maximum Transmitter Conducted Power: 24dBm, 251.19mW
Maximum System EIRP: 28.39 dBm, 690.2 mW

LTE B4

Maximum Transmitter Conducted Power: 24dBm, 251.19mW
Maximum System EIRP: 28.39 dBm, 690.2 mW

LTE B5

Maximum Transmitter Conducted Power: 24dBm, 251.19mW
Maximum System EIRP: 26.74 dBm, 472.1 mW

LTE B7

Maximum Transmitter Conducted Power: 23dBm, 199.53mW
Maximum System EIRP: 26.49 dBm, 445.7 mW

LTE B12

Maximum Transmitter Conducted Power: 24dBm, 251.19mW
Maximum System EIRP: 26.74 dBm, 472.1 mW

LTE B13

Maximum Transmitter Conducted Power: 24dBm, 251.19mW
Maximum System EIRP: 26.74 dBm, 472.1 mW

LTE B25

Maximum Transmitter Conducted Power: 24dBm, 251.19mW
Maximum System EIRP: 28.39 dBm, 690.2 mW

LTE B26

Maximum Transmitter Conducted Power: 24dBm, 251.19mW
Maximum System EIRP: 26.74 dBm, 472.1 mW

LTE B30

Maximum Transmitter Conducted Power: 23dBm, 199.53mW
Maximum System EIRP: 27.39 dBm, 548.3 mW

LTE B41

Maximum Transmitter Conducted Power: 23dBm, 199.53mW
Maximum System EIRP: 25.74 dBm, 375.0 mW
Exposure Conditions: Greater than 20 centimeters

MPE Calculation

The Power Density (mW/cm²) is calculated as follows:

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

Where:

S = power density (in appropriate units, e.g. mW/cm²)

P = power input to the antenna (in appropriate units, e.g., 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 (appropriate units, e.g., cm)

Table 1: MPE Calculation

Transmit Frequency (MHz)	Radio Power (dBm)	Power Density Limit (mW/cm ²)	Radio Power (mW)	Antenna Gain (dBi)	Antenna Gain (mW eq.)	Distance (cm)	Power Density (mW/cm ²)
902.2	-4.4	0.60	0.36	2	1.585	20	0.0001
1850	24	1.00	251.19	4.39	2.748	20	0.137
1710	24	1.00	251.19	4.39	2.748	20	0.137
824	24	0.55	251.19	2.74	1.879	20	0.094
2500	23	1.00	199.53	3.49	2.234	20	0.089
699	24	0.47	251.19	2.74	1.879	20	0.094
777	24	0.52	251.19	2.74	1.879	20	0.094
1850	24	1.00	251.19	4.39	2.748	20	0.137
814	24	0.54	251.19	2.74	1.879	20	0.094
2305	23	1.00	199.53	4.39	2.748	20	0.109
2496	23	1.00	199.53	2.74	1.879	20	0.075

Table 2: Simultaneous Transmissions Calculations

Technology	Transmit Frequency (MHz)	Power Density Limit (mW/m ²)	Power Density (mW/m ²)	MPE Ratio to Limit (%)	Sum of MPE Ratios (%)	Limit (%)
LTE B2	1850	1.00	0.137	13.73	13.75	100
Sub-GHz	902.2	0.60	0.0001	0.019		
LTE B4	1710	1.00	0.137	13.73	13.75	100
Sub-GHz	902.2	0.60	0.0001	0.019		
LTE B5	824	0.55	0.094	17.10	17.12	100
Sub-GHz	902.2	0.60	0.0001	0.019		
LTE B7	2500	1.00	0.089	8.87	8.89	100
Sub-GHz	902.2	0.60	0.0001	0.019		
LTE B12	699	0.47	0.094	20.15	20.17	100
Sub-GHz	902.2	0.60	0.0001	0.019		
LTE B13	777	0.52	0.094	18.13	18.15	100
Sub-GHz	902.2	0.60	0.0001	0.019		
LTE B25	1850	1.00	0.137	13.73	13.75	100
Sub-GHz	902.2	0.60	0.0001	0.019		
LTE B26	814	0.54	0.094	17.31	17.33	100
Sub-GHz	902.2	0.60	0.0001	0.019		
LTE B30	2305	1.00	0.109	10.91	10.93	100
Sub-GHz	902.2	0.60	0.0001	0.019		
LTE B41	2496	1.00	0.075	7.46	7.48	100
Sub-GHz	902.2	0.60	0.0001	0.019		