



Certification Exhibit

FCC ID: SK9CAT1

FCC Rule Part: 47 CFR Part 2.1091

Project Number: 72151409

Manufacturer: Itron, Inc.
Model: CAT1

RF Exposure

General Information:

Applicant: Itron, Inc.
Device Category: Mobile
Environment: General Population/Uncontrolled Exposure

Technical Information (900MHz Radio):

Antenna Type: PCB Trace
Max Antenna Gain: -4.21 dBi
Maximum Transmitter Conducted Power: 27.5dBm, 562mW
Maximum System EIRP: 23.29 dBm, 213.30 mW
Exposure Conditions: Greater than 20 centimeters

Technical Information (WLAN Radio):

Antenna Type: PCB Trace
Max Antenna Gain: 4.57 dBi
Maximum Transmitter Conducted Power: 14.4dBm, 28mW
Maximum System EIRP: 18.97 dBm, 78.89 mW
Exposure Conditions: Greater than 20 centimeters

Technical Information (Cellular Radio):

Antenna Type: Custom / permanently attached
Antenna Gain: Refer to Table 3 on Page 4

LTE B2 / 25

Maximum Transmitter Conducted Power: 24.5dBm, 281.84mW
Maximum System EIRP: 27.08 dBm, 510.50 mW

LTE B4 /66

Maximum Transmitter Conducted Power: 24.5dBm, 281.84mW
Maximum System EIRP: 26.34 dBm, 430.53 mW

LTE B5 /26

Maximum Transmitter Conducted Power: 24.5dBm, 281.84mW
Maximum System EIRP: 22.98 dBm, 198.61 mW

LTE B12

Maximum Transmitter Conducted Power: 24.5dBm, 281.84mW
Maximum System EIRP: 24.3 dBm, 269.15 mW

LTE B13

Maximum Transmitter Conducted Power: 24.5dBm, 281.84mW
Maximum System EIRP: 23.23 dBm, 210.38 mW

LTE B14

Maximum Transmitter Conducted Power: 24.5dBm, 281.84mW
Maximum System EIRP: 22.98 dBm, 198.61 mW

LTE B17

Maximum Transmitter Conducted Power: 24.5dBm, 281.84mW
Maximum System EIRP: 24.3 dBm, 269.15 mW

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)
2412	14.4	1.00	27.54	4.57	2.864	20	0.0157
910	27.5	0.61	562.34	-4.21	0.379	20	0.042
1850	24.5	1.00	281.84	2.58	1.811	20	0.102
1710	24.5	1.00	281.84	1.84	1.528	20	0.086
814	24.5	0.55	281.84	-1.52	0.705	20	0.040
699	24.5	0.47	281.84	-0.2	0.955	20	0.0535
777	24.5	0.52	281.84	-1.27	0.746	20	0.042
788	24.5	0.53	281.84	-1.52	0.705	20	0.040
704	24.5	0.47	281.84	-0.2	0.955	20	0.054

Table 2: Simultaneous Transmissions Calculations

Technology	Transmit Frequency (MHz)	Power Density Limit (mW/cm ²)	Power Density (mW/cm ²)	MPE Ratio to Limit (%)	Sum of MPE Ratios (%)	Limit (%)
LTE B2 / 25	1850	1.00	0.102	10.16	18.72	100
WLAN	2412	1.00	0.0157	1.57		
Sub-GHz	910	0.61	0.042	6.99		
LTE B4 / 66	1710	1.00	0.086	8.57	17.13	100
WLAN	2412	1.00	0.0157	1.57		
Sub-GHz	910	0.60	0.086	6.99		
LTE B5 / 26	824	0.55	0.040	7.19	15.76	100
WLAN	2412	1.00	0.0157	1.57		
Sub-GHz	910	0.60	0.086	6.99		
LTE B12	699	0.47	0.0535	11.49	20.05	100
WLAN	2412	1.00	0.0157	1.57		
Sub-GHz	910	0.60	0.086	6.99		
LTE B13	777	0.52	0.042	8.08	16.64	100
WLAN	2412	1.00	0.0157	1.57		
Sub-GHz	910	0.60	0.086	6.99		
LTE B14	788	0.53	0.040	7.52	16.08	100
WLAN	2412	1.00	0.0157	1.57		
Sub-GHz	910	0.60	0.086	6.99		
LTE B17	704	0.47	0.054	11.41	19.97	100
WLAN	2412	1.00	0.0157	1.57		
Sub-GHz	910	0.60	0.086	6.99		

Table 3: Cellular Antenna Gain Table

Frequency	Gain (dBi)
746MHz	-0.2
751MHz	-0.41
756MHz	-0.6
777MHz	-1.27
782MHz	-1.68
787MHz	-1.52
1.71GHz	1.84
1.747GHz	1.56
1.785GHz	1.89
1.805GHz	2.5
1.84GHz	2.4
1.85GHz	2.58
1.88GHz	1.53
1.91GHz	1.25
1.92GHz	1.05
1.93GHz	1.19
1.95GHz	1.69
1.96GHz	1.8
1.98GHz	2.45
1.99GHz	2.49
2.11GHz	-1.59
2.132GHz	-1.83
2.14GHz	-0.7
2.155GHz	-0.98