Excellence in Compliance Testing

Certification Exhibit

FCC ID: QHC-KVEVZE41

FCC Rule Part: 15.247

ACS Project Number: 14-0144

Manufacturer: Itron
Model: 570974-001

RF Exposure

General Information:

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

The 570974-001 is designed to be integrated into 2S, 3S, 4S, 9S, 12S, 16S and 45S electric utility meter forms and be collocated and transmit simultaneously with Sierra Wireless CDMA modem SL5011, FCC ID: N7NSL5011 / IC: 2417C-SL5011.

Technical Information:

Table 1: Technical Information (Including Collocated Transmitters on Board / In Host)

	Itron 900 MHz LAN module Model 570974-001 ***FCC ID: QHC-KVEVZE41***	**Itron 802.15.4 (Zigbee) module Model 570974-001** ***FCC ID: QHC-KVEVZE41***	**Sierra Wireless CDMA modem Model SL5011 FCC ID: N7NSL5011 IC: 2417C-SL5011**
Antenna Type	Slot	PCB F-type	Under Glass Ribbon External Monopole
Antenna Gain	0 dBi	3.3 dBi	Under Glass Ribbon: 850 Band: 0 dBi 1900 Band: 0 dBi External Monopole: 850 Band: 3 dBi 1900 Band: 4 dBi
Conducted Power	41.21 mW	15.85 mW	850 Band: 748.17 mW* 1900 Band: 767.36 mW*
Maximum Peak EIRP	41.21 mW	33.88 mW	850 Band: 1492.79 mW 1900 Band:1927.52 mW
Maximum Peak ERP	25.12 mW	20.65 mW	850 Band: 909.91 mW 1900 Band:1174.90 mW

* Power provided for FCC ID: N7NSL5011 is power as listed on the grant and measured in the original FCC certification filing.

Note: Maximum EIRP/ERP calculated based on maximum antenna gain where multiple antennas are applicable.

MPE Calculation

The Power Density (mW/cm^2) 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 2: MPE Calculation (Including Collocated Devices)

MPE Calculator for Mobile Equipment Limits for General Population/Uncontrolled Exposure*							
Transmit Frequency (MHz)	Radio Power (dBm)	Power Density Limit (mW/Cm2)	Radio Power (mW)	Antenna Gain (dBi)	Antenna Gain (mW eq.)	Distance (cm)	Power Density (mW/cm^2)
914.8	16.15	0.61	41.21	0	1.000	20	0.008
2475	12	1.00	15.85	3.3	2.138	20	0.007
824.7	28.74	0.55	748.17	3.0	1.995	20	0.297
1880	28.85	1.00	767.36	4.0	2.512	20	0.383

Summation of Power Densities – Simultaneous Transmissions
This device contains multiple transmitters which can operate simultaneously and is collocated with additional transmitters in host integration; therefore the maximum RF exposure is determined by the summation of MPE ratios. The limit is such that the summation of MPE ratios is ≤ 1.0.

The summation of MPE ratios is as follows:

SL5011 Modem Operating in the 850 Band:
900 LAN MPE Ratio + 802.15.4 MPE Ratio + SL5011 850 MPE Ratio
(0.008 / 0.61) + (0.007 / 1.0) + (0.297 / 0.55) = (0.013) + (0.007) + (0.540) = 0.560
0.560 < 1

SL5011 Modem Operating in the 1900 PCS Band:
900 LAN MPE Ratio + 802.15.4 MPE Ratio + SL5011 1900 MPE Ratio
(0.008 / 0.61) + (0.007 / 1.0) + (0.383 / 1.0) = (0.013) + (0.007) + (0.383) = 0.403
0.403 < 1

RF Exposure

In accordance with FCC requirements of human exposure to radio frequency fields, the radiating element shall be installed such that a minimum separation distance of 20 centimeters will be maintained.

Conclusion

This device complies with the MPE requirements by providing adequate separation between the device, any radiating structure and the general population.