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Certification Exhibit

FCC ID: SK9PMCR1
IC: 864G-PMCR1

FCC Rule Part: 15.247, 15.249
IC Radio Standards Specification: RSS-210

ACS Report Number(s): 08-0454

Manufacturer: Itron Electricity Metering Inc.
Model(s): Cell Relay Pole, GSM

RF Exposure

General Information:

Applicant: Itron Electricity Metering Inc.
ACS Project: 08-0454
FCC ID: SK9PMCR1
Device Category: Mobile
Environment: General Population/Uncontrolled Exposure
Exposure Conditions: Greater than 20 centimeters
Simultaneous Tx: Yes

Technical Information:

Radio	900 MHz LAN	2.4GHz Zigbee (Register PCB)	2.4GHz Zigbee (Cell Relay PCB)[1]	GPRS Modem Module *FCC ID: N7NMC8790 IC:2417C-MC8790*
Antenna Type	phantom	omnidirectional	omnidirectional	Mobile low profile vertical
Antenna Gain	3dBi	0dBi	0dBi	GSM850: 3dBi GSM1900: 3dBi
Conducted Power	18.99dBm	17.21dBm	0.19dBm	GSM850: 31.8dBm GSM1900: 28.7dBm
Maximum EIRP	0.158W	0.053W	0.0015mW	GSM850: 3.019W GSM1900: 1.479W
Maximum ERP	0.096W	0.032W	0.0006mW	GSM850: 1.840W GSM1900: 0.901W

Note 1: The Cell Relay 2.4GHz low power Zigbee contribution to the overall MPE calculation is negligible and therefore will not be included in the power density calculations below.

MPE Calculation:

Power Density
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)

Source Based Time Averaging of GPRS/EDGE Modem
The GPRS Modem is a Class 12 modem with a 50% source-based time averaged duty cycle. The measured level was reduced by a factor 3dB to account for the duty cycle of the Modem. The duty cycle correction factor is determined using the formula: 10log (0.50) = 3dB.

Corrected Level 850 = 31.8 – 3.0 = 28.8dBm
Corrected Level 1900 = 28.7 – 3.0 = 25.7dBm

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)
902.25	18.99	0.60	79.25	3	1.995	20	0.031
2405	17.21	1.00	52.60	0	1.000	20	0.010
824	28.8	0.55	758.58	3	1.995	20	0.301
1850	25.7	1.00	371.54	3	1.995	20	0.147

Summation of Power Densities – Simultaneous Transmissions
This device contains multiple transmitters which can operate simultaneously and therefore the maximum RF exposure is determined by the summation of power densities.

The maximum power density as calculated by a summation of power densities for each simultaneous transmission combination as follows:

GPRS Modem Operating in the 800MHz Cellular Band:
900MHz LAN: 0.031 (mW/cm^2)
2.4GHz Zigbee: 0.010 (mW/cm^2)
GSM 850 (GPRS):   0.301 (mW/cm^2)
TOTAL: **0.342 (mW/cm^2)**

GPRS Modem Operating in the 1900MHz PCS Band:
900MHz LAN: 0.031 (mW/cm^2)
2.4GHz Zigbee: 0.010 (mW/cm^2)
GSM 1900 (GPRS):   0.147 (mW/cm^2)
TOTAL: **0.188 (mW/cm^2)**

Installation Guidelines:
The installation manual shall contain text similar to the following advising how to install the equipment to maintain compliance with the FCC RF exposure requirements:

"RF Exposure (Intentional Radiators Only)
In accordance with FCC requirements of human exposure to radiofrequency fields, the radiating element shall be installed such that a minimum separation distance of 20cm is maintained from the general population."

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