



Excellence in Compliance Testing

Certification Exhibit

FCC ID: QZC-REXUAI

FCC Rule Part: 15.247

ACS Project Number(s): 15-0285

Manufacturer: Elster Solutions, LLC
Model: REXUAI

RF Exposure

General Information:

Applicant: Elster Solutions, LLC
 Device Category: Mobile
 Environment: General Population/Uncontrolled Exposure
Required Separation Distance: 20 cm

The Elster REXUAI is designed to be installed in a meter housing and base to form a complete electricity meter, and the 900 MHz frequency hopping spread spectrum radio is collocated and transmits simultaneously with the separate on-board Elster direct sequence spread spectrum 2.4 GHz Zigbee radio.

Technical Information:**Table 1: Technical Information**

	Elster LAN radio 900 MHz	Elster Zigbee radio 2.4 GHz
Antenna Type	Printed circuit open-end slot	Printed Inverted F
Antenna Gain	4.1 dBi	3.8 dBi
Conducted Power	235.5 mW	104.7 mW
Maximum EIRP	605.3 mW	251.2 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 2: MPE Calculation (Including Collocated Devices)

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)	Radio
927.6	23.72	0.62	235.50	4.1	2.570	20	0.120	A
2440	20.2	1.00	104.71	3.8	2.399	20	0.050	B

Summation of MPE Ratios – Simultaneous Transmissions

This device contains multiple transmitters which can operate simultaneously; therefore MPE compliance is determined by the summation of MPE ratios. The limit is such that the summation of MPE ratios is ≤ 1.0.

Table 3: Summation of MPE Ratios

	Scenario 1
Radio A (900 MHz LAN)	x
Radio B (2.4 GHz Zigbee)	x
Radio A MPE Ratio	0.19
Radio B MPE Ratio	0.05
MPE Ratio Summation:	0.24