Badger Meter

4545 W Brown Deer Road
PO Box 245036
Milwaukee, Wisconsin 53224-9536
414-355-0400 | 800-876-3837

February 23, 2024

TO: Federal Communications Commission – Experimental License System (ELS)

ATTENTION: Form 442 File: 0166-EX-CN-2024
RE: EIRP calculation

In response to ELS requirements, Form 442, EIRP calculation, we, Badger Meter Inc., hereby provide the following information:

Calculations provided by manufacturer (Roger-GPS) and distributor (Steffes and Company).

See next page.

The equipment described in Form 442 (ROGER-GPS model: GNSS-L1G1GA-BP40-US) has a gain adjustment feature which will be set at or below 90° position. This setting will ensure the gain is **below** 25dBm used in the calculation.

See illustration provided by manufacturer (Roger-GPS).

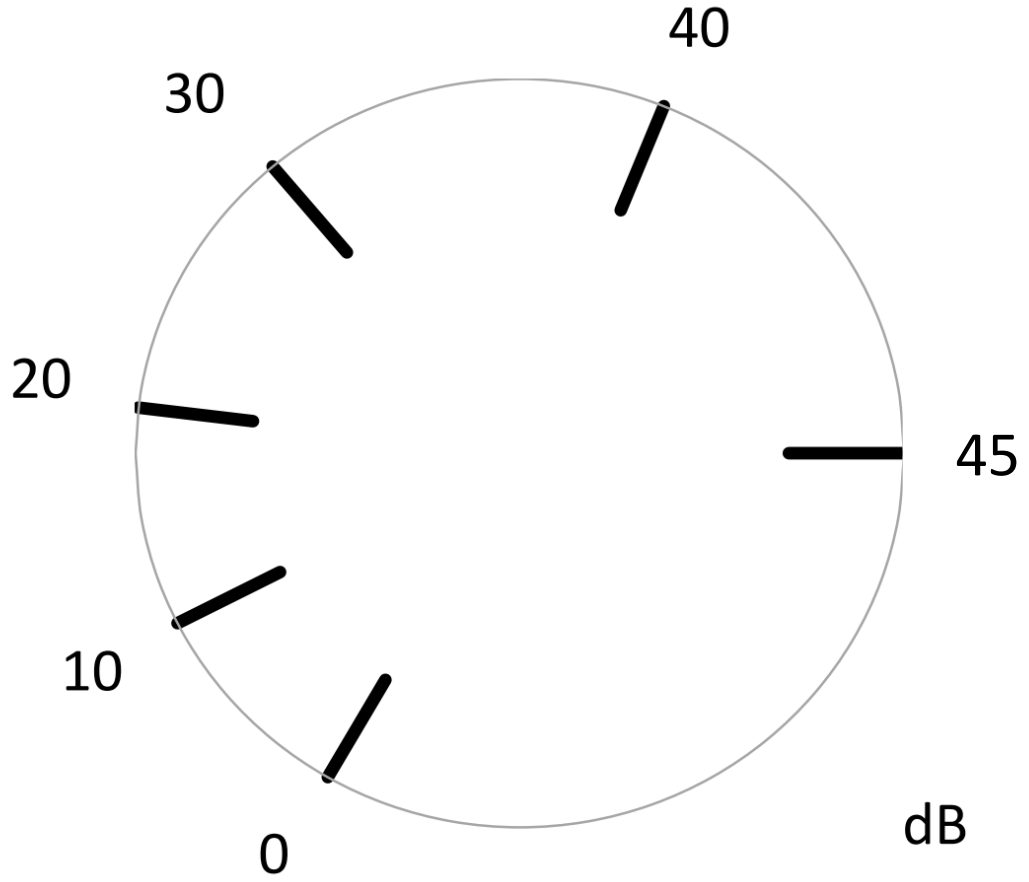
The equipment will be installed out of reach of the employees and general public because it is located on the factory ceiling. Once in place, the gain cannot be further increased. If needed, the gain adjustment control knob could be permanently secured with a super glue or Loctite® adhesive.

Respectfully,

Randall Schultz – Senior Regulatory Compliance Engineer
Badger Meter, Inc.

Gain knob adjustment L1G1GA

L1G1GA GAIN	
Degrees	Approx.Gain
0	0
40	10
80	20
120	30
175	40
240	45



Roger GPS, repeater budget calculator for NTIA regulations

GPS carrier frequency, use code L1 or L2

L1

1575 MHz

Values in light blue cells only can be edited

Distance from Building

209 ft

63.7032 m

0.040 mi

0.064 km

	Avg Receive Power North America Isotropic Antenna		External components: Receiver + Antenna Gain		Cable Loss		Attenuator		Repeater unit: Repeater Gain		Repeater Antenna Gain		Antenna Isotropic vs Dipole		Free Space Loss	
			38.0	dB	-11.2	dB	0.0	dB	25.0	dB	5.0	dB	-2.2	dB	-72.5	dB
Level	-130.0	dBm	-92.0	dBm	-103.2	dBm	-103.2	dBm	-78.2	dBm	-73.2	dBm	-75.4	dBm	-145.7	dBm
															2.7E-18	W

0.0 Attenuator needed to reach allowed output limit

Effective Radiated Power

Effective Isotropic Radiated Power

Repeated Signal Power @ distance

NTIA requires < -140 @ 100 ft dBm

Steffe's & Company, LLC.
Tel: +1 434 660 7411
Fax: +1 434 253 1810
E-mail: info@steffesandco.com