Compliance with NTIA Criteria, Drawing of RSI facility where Re-radiation equipment will be installed, and link budget:

Exhibit showing compliance with Section 8.3.28 of the NTIA Manual –
Use of Fixed Devices That Re-Radiate Signals Received from the Global Positioning System

NTIA Criteria:

1. Individual authorization is for indoor use only, and is required for each device at a specific site:

Rex Systems, Inc. (RSI) is applying for authorization to use GPS re-radiation at the RSI facilities located at 10684 43rd Ave, Chippewa Falls, WI. The re-radiation amplifier and antenna will be located inside the test lab at the RSI main facility. The proposed use of re-radiation equipment will be for the testing of GPS receiver modules installed in equipment that is being developed for the US military in accordance with a government contract issued to RSI. The installation will be for one re-radiation device, to be installed in the test lab, see diagram.

2. Applications for frequency assignment shall be applied for as an "XT" station class with a note indicated that the device is to be used as an "Experimental RNSS Test Equipment for the purpose of testing GPS Receivers" and describing how the device will be used.

Rex Systems, Inc. has filed through the FCC's experimental licensing system, requesting a two year experimental authorization. The purpose is to provide a means testing of GPS receiving modules installed in prototype equipment being developed for the US military. These GPS modules include a ceramic receiving antenna which is affixed to the unit, limiting functional testing of the device to direct reception of GPS signals. Furthermore, the GPS receiving module is incorporated into a complex printed circuit board containing numerous static sensitive components. Because this equipment is under development, it is necessary to test units at the printed circuit board level. Due the sensitive nature of the components installed on these boards, this testing must be carried out in a static safe environment. Because such an environment cannot be maintained outside the RSI facility, there is a need to bring a GPS signal inside the RSI test lab during periods of prototype testing.

3. Approved applications for frequency assignment will be entered in the GMF.

Rex Systems, Inc. requests the assistance of the FCC and NTIA to ensure that this frequency assignment is entered into the government master file.

4. The maximum length of the assignment will be two years, with possible renewal.

Rex Systems, Inc. is requesting a two year authorization through the end of our current contract, which would extend through the current and subsequent contract phases.

Compliance with NTIA Criteria, Drawing of RSI facility where Re-radiation equipment will be installed, and link budget:

5. The area of potential interference to GPS reception has to be under the control of the user.

The Rex Systems Inc. facility is restricted to employees of the company and a limited number of visitors to which the company may grant temporary access. The RSI facility is located in a remote location on private property. The area surrounding the RSI facility consists mostly of wooded lots and open farm fields, with one private residence located within 500 feet of the facility. The remote location of the facility will by itself greatly limit the potential for interference. The re-radiation system will only be in use for limited periods of time when prototype testing is required, and will generally be limited to RSI's normal business hours of 7:30 AM to 4:00 PM.

6. The maximum equivalent isotropically radiated power (EIRP) must be such that the calculated emissions are no greater than -140dBm/24MHz as received by an isotropic antenna at a distance of 100 feet (30 meters) from the building where the test is being conducted. The calculations showing compliance with this requirement must be provided with the application for frequency assignment and should be based on free space propagation with no allowance for additional attenuation (e.g., building attenuation).

Rex Systems, Inc. is submitting those calculations as part of a link budget at the end of this exhibit. Further, we are submitting diagrams showing the installation and the distances from the installation to 100 feet outside of the building.

7. GPS users in the area of potential interference to GPS reception must be notified that GPS information may be impacted for periods of time.

Rex Systems, Inc. is willing to notify visitors to the facility when GPS re-radiating equipment is in operation.

8. The use is limited to activity for the purpose of testing RNSS equipment/systems.

Rex Systems, Inc. intends to use the re-radiation equipment solely for the purpose of testing GPS modules in prototype equipment. This equipment is not for operational use.

9. A "Stop Buzzer" point of contact for the authorized device must be identified and available at all times during GPS re-radiation operation of the device under any condition.

The "Stop Buzzer" point of contact is: Cindy Rathbun, Rex Systems, Inc. Engineering Administrator. Ms. Rathbun is reachable by telephone at (715) 723-9313.

Compliance with NTIA Criteria, Drawing of RSI facility where Re-radiation equipment will be installed, and link budget:

Attachment A – Calculations and diagrams related to re-radiation equipment installation

The drawings set out on the following pages depict the Rex Systems, Inc. (RSI) main facility. The dimensions of the RSI facility are noted in the diagram. The solid circle with the word "Antenna" located near the center of the drawing depicts the location inside the facility where the re-radiating antenna will be located. The test lab, while not depicted in the drawing, is an internal room of dimension 48.5' x 79', with the long dimension located along the north wall of the building. The re-radiating antenna will be located near the NW corner of the room. The antenna will be located on the wall approximately six feet above floor level, oriented inwards toward the front half of the test lab hall at a slight downward angle. The second drawing is a higher level view of the same data showing the RSI facility and grounds.

The link budget calculations on the pages following the diagrams describe the signal strength at distances of 100, 150, 200 and 250 feet from the re-radiating antenna. The worst case scenario will be at a location 100 feet from the outside of the north wall of the facility. The other distances are shown to help locate a distance of 100 feet from the two entrances to the building as specified in item 6 of the NTIA criteria "100 feet from the building". These calculations assume no building attenuation for the signal.

Drawing of RSI facility where Re-radiation equipment will be installed:

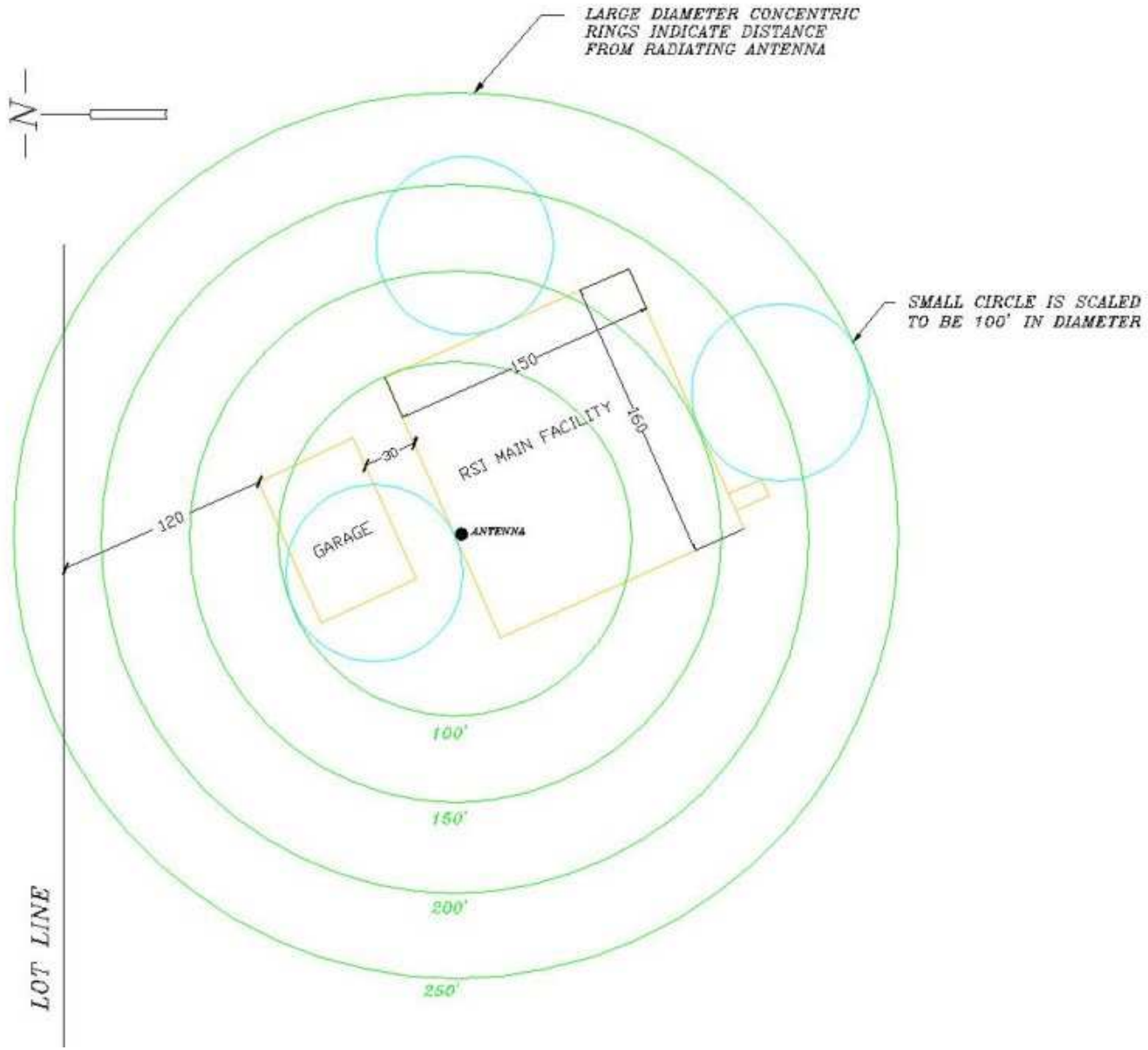

Figure 1: Close in View of RSI Facility with Distance Measurements

Drawing of RSI facility where Re-radiation equipment will be installed:

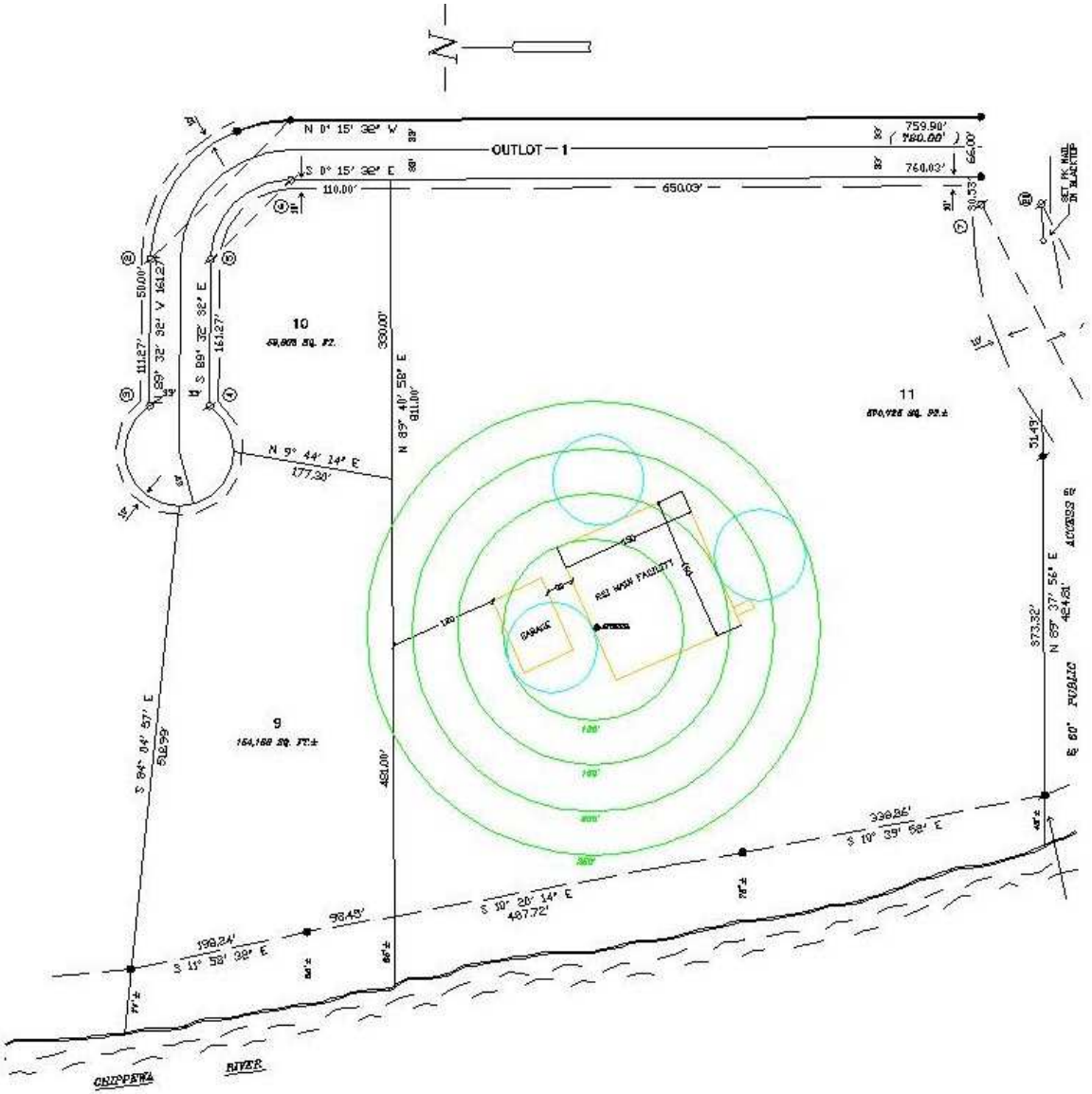

Figure 2: High Level View of RSI Facility with Distance Measurements

Drawing of RSI facility where Re-radiation equipment will be installed:

Link Budget and Calculations showing compliance with Item 6 of NTIA Criteria:

Satellite Transmitter	
Transmitter Power (25 Watts)	14 dBW
RF Losses in transmitter path	-1.25 dB
Antenna Gain (with respect to isotrope)	13.50dBi
Satellite ERP	**26.25 dBW**

Propagation	
Atmospheric and Polarization Losses	-0.5 dB

Free Space Path Loss $= -10 \times \log_{10} [(4\pi d/\lambda)^2]$

Where d = distance (25236 km)
Lambda = wavelength = c/f
C = speed of light (3x10^8 m/s)
F = frequency (1.57542 GHz)

$= -10 \log [317.125 \times 10^6 / 190.425 \times 10^{-3}]^2$
$= -10 \log [1.665 \times 10^9]^2$
$= \quad -184.43$ dB

Received Power on Earth	**-158.68 dBW** **-128.68 dBm**

Gain of Receive Antenna	38 dBic
RF losses in 150 feet of LMR400 cabling from Receive Antenna to Line Amplifier (Does not include connector losses)	-7.885 dB
Gain of Line Amplifier	20 dB
Gain of Passive Radiating Antenna	3 dBic

Drawing of RSI facility where Re-radiation equipment will be installed:

Free Space Path Loss $= -10 \times \log_{10} [(4\pi d/\lambda)^2]$

Where d = 100 feet distance (30.48 m)
Lambda = wavelength = c/f
C = speed of light (3x10^8 m/s)
F = frequency (1.57542 GHz)

$= -10 \log [383.023 / 190.425 \times 10^{-3}]^2$
$= -10 \log [2011.41]^2$
= -66.07 dB at 100 foot distance

RF Power Level at 100 foot Distance -141.635 dBm

Free Space Path Loss $= -10 \times \log_{10} [(4\pi d/\lambda)^2]$

Where d = 150 feet distance (45.72 m)
Lambda = wavelength = c/f
C = speed of light (3x10^8 m/s)
F = frequency (1.57542 GHz)

$= -10 \log [574.534 / 190.425 \times 10^{-3}]^2$
$= -10 \log [3017.11]^2$
= -69.59 dB at 150 foot distance

RF Power Level at 150 foot Distance -145.155 dBm

Free Space Path Loss $= -10 \times \log_{10} [(4\pi d/\lambda)^2]$

Where d = 200 feet distance (60.96 m)
Lambda = wavelength = c/f
C = speed of light (3x10^8 m/s)
F = frequency (1.57542 GHz)

$= -10 \log [766.046 / 190.425 \times 10^{-3}]^2$
$= -10 \log [4022.81]^2$
= -72.09 dB at 200 foot distance

RF Power Level at 200 foot Distance -147.655 dBm

Drawing of RSI facility where Re-radiation equipment will be installed:

Free Space Path Loss $= -10 \times \log_{10} [(4\pi d/\lambda)^2]$

Where d = 250 feet distance (76.20 m)
Lambda = wavelength = c/f
C = speed of light (3x10^8 m/s)
F = frequency (1.57542 GHz)

$= -10 \log [957.557 / 190.425 \times 10^{-3}]^2$
$= -10 \log [5028.52]^2$
$=$ -74.03 dB at 250 foot distance

RF Power Level at 250 foot Distance **-149.595 dBm**