



Union Pacific Railroad Company

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FEDERAL COMMUNICATIONS COMMISSION
1270 Fairfield Road
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Application Narrative for Proposed Special Equipment Program

Proposed Program

Many of Union Pacific's locomotives and special-purpose rail cars are equipped with automated tracking systems and equipment, including Global Positioning System (GPS) receivers. The laboratory and installation facilities where these systems are developed and tested and the equipment is installed are opaque to GPS signals. We propose to install GPS re-radiating equipment at our development and test laboratory to allow reception of GPS signals within this facility. If the equipment proves satisfactory, we propose to equip our installation facilities.

The proposed equipment (following), manufactured by GPS Source (2211 Jones, Pueblo, CO 81004), is of a design and power output similar to a kit manufactured by GPS Networking, which has been licensed (WC2XSA) to re-radiate GPS signals in convention halls.

GPS Repeater Kit with extra port, P/N GPSRKL1-AP;
GPS Repeater Antenna, P/N L1P1;
Active Roof Antenna, P/N L1ACE.

Objectives

We seek to accomplish the following objectives:

1. Illumination of our development and test laboratory with re-radiated GPS signals;
2. Determination of the suitability of said equipment for use in our installation facilities.

Contribution to the Radio Art

Projects are under way at the Union Pacific to utilize GPS-derived information (position, speed, heading) in a variety of innovative applications, including, but not limited to:
Automated control of dispatcher radio frequency;
Precision application of rail bed ballast;
Augmentation of event recorder (the locomotive's "black box") data.