

From: Mary Slack

To: Jose Trevino

Date: September 09, 2010

Subject: FCC file number 0405-EX-PL-2010

Message:

Output Power should be 0.200000 nW, not 0.300000 nW as originally indicated.

8.3.28 Use of Fixed Devices That Re-Radiate Signals Received From the Global Positioning System

1. This Experimental License request is for indoor use only, at the specified location.
2. The device is to be used as an Experimental RNSS Test Equipment for the purpose of testing GPS receivers. We plan to quality testing new and repaired GPS receivers.
3. The license request is for 2 years, with possibility of renewal.
4. Approved applications for frequency assignment will be entered in the GMF.
5. The area of potential interference to GPS reception will be within our facility and under the control of Spectracom.

6. Power Level Considerations

The NTIA restricts the maximum signal level to -140 dBm (24 MHz BW) as received from an isotropic antenna at a distance of 100 feet from the building where the test is being conducted. Therefore, the maximum power level output from the GSG Signal Generator is limited to conform with this regulation.

Antenna distance to nearest exterior wall: 50 ft.

Antenna gain: 0 dB (omni antenna)

Cable loss, antenna to GSG: 3 dB (3 ft RG-58 plus connector loss)

Using the free space loss calculation for radio propagation:

Loss (dB) = $20 \log_{10} (4\pi * \text{Distance} / \lambda)$

Where λ = wavelength: @ 1575 MHz = 19 cm = 0.62 ft

Distance = 150 ft total => 50 ft from antenna exterior wall + 100 ft to restricted perimeter

Loss = 70 dB = $20 \log_{10} (4\pi * 150 / 0.62)$

Using the free space calculation is a worst case scenario as the wall and any other obstructions will likely reduce the signal even more. Therefore, setting the power output of the GSG to -140 + 70 + 3 = -67 dBm or less will guarantee compliance.

Reference: http://en.wikipedia.org/wiki/Path_loss

7. GPS users in the area of potential interference to GPS reception will be notified that GPS information may be impacted for periods of time.
8. The use of this equipment will be limited to activity for testing RNSS equipment and systems.
9. The "Stop Buzzer" point of contact is Lisa Perdue, 585-321-5822 who will be available at all times during GPS re-radiation operation.