

Enfotrace

A: Enfotrace is a design, manufacturer and seller of LBS (location base services). Enfotrace designs and tests vehicle tracking devices that have a GPS receiver with built in GPS receiving antenna as one of the devices internal subsystems. It is impractical to perform this engineering and manufacturing testing outdoors. It is also impractical to simulate GPS signals through a coaxial cable since the antenna is built in and there is no RF connector. The only alternative is to repeat the GPS satellite signals indoors over the (2) 5'x8' production test benches. The below information from both the GPS repeater manufacture (GPS Source) and the NTIA demonstrates the need to first obtain an FCC experimental license.

Federal Communications Commission

FCC FORM 442 - FEDERAL COMMUNICATIONS COMMISSION
APPLICATION FOR NEW OR MODIFIED RADIO STATION UNDER PART 5 OF FCC RULES -
EXPERIMENTAL RADIO SERVICE (OTHER THAN
BROADCAST)

Form 442 section 7 seems to be completely missing any type of selection area or criteria for manufactures requiring the re-radiation of signals. In the case of Enfotrace the re-radiating of a GPS signal indoors for the manufacturing and test of tracking devices. This document is to try to best work with the limitations of section 7. In the future it may be a good idea for the FCC to modify this Form 442 or create another form for manufacturers requiring re-radiation of signals indoors.

Manufacturer of repeater:

The GPSRKL1 Repeater kit is a low power GPS 1.575GHz $\pm$ 20MHz frequency repeater for areas where the GPS signal is not present. The GPSRKL1 is manufactured and sold by GPS source The GPS position is of the active outdoor antenna and therefore is not used for location and/or navigation. Enfotrace use of the repeated GPS signal is used for system test of vehicle tracking devices developed and manufactured by Enfotrace.



Information provided from GPS Source below with pertinent information **Bolded**.

Due to current regulatory considerations, GPS Repeater kits are only available for sale to: International Customers (outside the U.S.), agencies of the US Federal Government, parties operating under the direction of the US Federal Government, **or parties that have received an STA or Experimental License under part 5 of the FCC rules, or parties that will be operating GPS Repeaters in a shielded room.**

If U.S. customers purchase the individual components separately and configure these components as illustrated below, **GPS Source recommends that the customer contact the FCC and apply for an Experimental License according to part 5 of the commission's rules.**

For customers that do not qualify for a license to operate a GPS Repeater kit, GPS Source will be happy to assist you in the development of alternative solutions for your GPS signal distribution needs, such as an RF coaxial cable distribution network with cable drops, or GPS shielded repeater "hats" that fit directly over the application antenna.

GPS re-radiator devices may be sold only to foreign parties or those domestic parties operating under direction of an agency of the U.S. Federal Government. For further information regarding NTIA requirements in applications involving re-radiated signal, see Section 8.3.28 of the [NTIA](http://www.ntia.doc.gov/osmhome/redbook/redbook.html) manual found here:

<http://www.ntia.doc.gov/osmhome/redbook/redbook.html>.

NTIA

The requested License is to comply with NTIA requirements for re-radiated signals as set in section 8.3.28 of the NTIA manual:

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

Except as otherwise authorized under Part 7.14, federal agencies and departments may, under the following conditions, operate fixed devices that re-radiate signals received from the Global Positioning System (GPS).

1. Individual authorization is for indoor use only, and is required for each device at a specific site.
2. Applications for frequency assignment should be applied for as an XT station class with a note indicating 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.
3. Approved applications for frequency assignment will be entered in the GMF.
4. The maximum length of the assignment will be two years, with possible renewal.
5. The area of potential interference to GPS reception (e.g., military or contractor facility) has to be under the control of the user.
6. The maximum equivalent isotropically radiated power (EIRP) must be such that the calculated emissions are no greater than -140 dBm/24 MHz as received by an isotropic antenna at a distance of 100feet (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.)
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.
8. The use is limited to activity for the purpose of testing RNSS equipment/systems.
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.

For further information see <http://www.ntia.doc.gov/osmhome/GPSrerad.htm>

Copy of response to from Enfotrace on required license

Mr. Northrup, you can file with the FCC for an experimental license. The FCC will coordinate that request with NTIA since the federal government has operations in the band. If you can meet the criteria in 8.3.28, NTIA will give its OK.

You are right in that many groups have been illegally marketing the devices as Part 15 unlicensed radio devices and some have been operating illegally. A few companies have been investigated and at least one has been fined.

Until NTIA developed 8.3.28 a couple years ago there was no legal way to use GPS re-radiators. Now they are permitted for the testing of GPS devices under controlled situations.

If you have any other questions, please feel free to call me or send me your number and I will call you.

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