

FCC Experimental License Application Guide

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Overview

Anyone wishing to obtain an FCC experimental license for repeated GPS signals can obtain authorization for use through the FCC Experimental Licensing site. This document serves as a guide for what to expect throughout the process and how to file. There are three parts to applying for a license, use this as a guide for your own reference.

To review GPS Source, Inc.'s application and granted FCC experimental license visit:
<https://gullfoss2.fcc.gov/oetcf/els/reports/CallsignSearch.cfm>
 and search Call Sign: **WD2XTF**

Here you have access to view all materials related to the application submitted by GPS Source, Inc. This information can be used for your own application reference with minimal changes such as latitude longitude and configuration of the room where the equipment will be operating.

Part I -- Obtain an FRN (FCC Registration Number)

Step 1. Register yourself or business/agency at the FCC Commission Registration System (CORES) found here: <https://svartifoss2.fcc.gov/coresWeb/publicHome.do>

The screenshot shows the FCC Registration System (CORES) website. At the top, there is a navigation bar with links for 'FCC Home', 'Search', 'Updates', 'E-Filing', 'Initiatives', 'For Consumers', and 'Find People'. Below the navigation bar, the page title is 'FCC Registration'. The main content area contains the following text: 'If you wish to conduct business with the FCC, you must first register through the FCC's COMmission REgistration System (CORES). Upon registration, you will be assigned a FCC Registration Number (FRN). This number will be used to uniquely identify you in all transactions with the FCC.' Below this text, there is a link for 'News releases related to the FCC Registration Number.' At the bottom of the page, there is a section titled 'Select one of the following:' with three options: 'REGISTER' (with a 'REGISTER' button), 'UPDATE' (with an 'UPDATE' button), and 'SEARCH' (with a 'SEARCH' button). A small hourglass icon is visible to the right of the buttons.

Step 2. The system will prompt if you are registering as a business or individual, choose whichever applies and continue.

Step 3. Select your business type and fill in the additional information specific to your application (if registering as a business).

FRN Registration

[Return to FCC Registration Home](#)

Register a Domestic Business	
Business Type:	Federal Agency <input type="button" value="v"/> Subtype: Administration <input type="button" value="v"/>
Business Name:*	Federal Agency Foreign Entity Private Sector State or Local Agency
If your business has an EIN number or Taxpayer Identification Number , enter it here: <input type="text"/>	
If your business does not have an Employer Identification Number , select a reason: <input type="button" value="v"/> <input type="button" value="?"/>	
Contact Information	
Organization:	<input type="text"/>
Salutation:	<input type="button" value="v"/>
Middle Initial:	<input type="text"/>
Suffix:	<input type="text"/>
Position:*	<input type="text"/>
First Name:	<input type="text"/>
Last Name:	<input type="text"/>

Step 4. Upon completion of this are of the website, choose “*submit*” from the bottom of the page.

<input type="button" value="SUBMIT"/>
Asterisks (*) indicate required fields.

The **FRN number** will be generated upon submission of the form. Print or note the number from this confirmation page for your records

Part II -- Obtain an experimental license

Step 1. First go to the internet site: <https://gullfoss2.fcc.gov/prod/oet/cf/els/index.cfm>* to begin the filing process, **Form 442** is used for initial filings for experimental license. **Form 405** is used to renew an existing license. In general, licenses are good for 2 years. The **Special Temporary Authority (STA) Filing Option** is valid for 6 months).

***Note:** for testing of the system before filing for an actual license, use the testing site and register with **FRN 0005072848** found here:

<https://selafoss.fcc.gov/prod/oet/cf/els/index.cfm>

For the application submitted by GPS Source, including frequency ranges and product model/type visit:
https://gullfoss2.fcc.gov/prod/oet/cf/els/reports/442_Print.cfm?mode=initial&application_seq=29633&license_seq=29905

Step 2. Answer questions pertaining to your organization and the goals of the project, lifecycle and click proceed. Unless you have filed in the past, you will be entering “all new data.” This application illustrates a local fire department application with all screenshots throughout the process shown.

FCC > FCC E-filing > ELS > FCC FORM 442 [FCC Site Map](#)

Application For New or Modified Experimental Radio Station Authorization (Form 442)

Use this form for experiments that will last longer than six months. Experiments of shorter duration should use the Special Temporary Authority Filing Option.

Enter the following information:

[Application Purpose:](#) * New Authorization

All New Data

uses information from an existing application (i.e. - a template) - NOT TO BE USED FOR MODIFICATION OF EXISTING LICENSE.
File Number:

Modification of Existing License
(Specify callsign):

[Is confidentiality required for this filing?](#) * Yes No

[Applicant FCC Registration Number \(FRN\):](#) *

Notice: If you respond "YES" to "Confidentiality" question, please submit a justification as an exhibit along with your application. The justification should state why confidentiality is requested.

* - Indicates that this field must be completed before this page can be submitted.

Figure 1. Screen 1 --- New Authorization

Step 3. Input the following information related to your project. Depending on the scope of your project, enter yes or no for questions 4-7. The maximum project length is 24 months (between renewal of licenses) and enter no for the last page where your use will not have an impact on surrounding environment, in most cases this is 'no.' for repeater applications.

FCC > FCC E-filing > ELS > FCC FORM 442 [FCC Site Map](#)

Federal Communications Commission Application For New FORM 442

Please enter the following information:

[1. Name of Applicant \(Company\):](#) *

[2. Mailing Address:](#)

Attention: *

Street Address:

P.O. Box:

City: *

State:

Zip Code:

Country (If not the United States):

E-mail Address: *

[3\(a\).](#) * **Application is for:** NEW STATION

[3\(b\).](#) For Modification indicate below:
File No: Callsign:

3(b). For Modification indicate below:
File No: Callsign:

4. *
Is this authorization to be used for fulfilling the requirement of a government contract with an agency of the United States Government? If "YES", include as an exhibit a narrative statement describing the government project, agency and contract number.
 Yes No

5. *
Is this authorization to be used for the exclusive purpose of developing radio equipment for export to be employed by stations under the jurisdiction of a foreign government? If "YES", include the contract number and th name of the foreign government concerned as an exhibit.
 Yes No

6. *
Is this authorization to be used for providing communications essential to a reasearch project? (The radio communication is not the objective of the research project)? If "YES", include as an exhibit the following information:
a. A description of the nature of the research project being conducted.
b. A showing that the communications facilities requested are necessary for the research project.
c. A showing that existing communications facilities are inadequate.
 Yes No

7. If all the answers to Items 4, 5, 6 are "NO", include as an exhibit a narrative statement describing in detail the following items:
a. The complete program of research and experimentation proposed including description of equipment and theory of operation.
b. The specific objectives sought to be accomplished.
c. How the program of experimentation has a reasonable promise of contribution to the development, extension, expansion or utilization of the readio art, or is along line not already investigated.

8. *
Give an estimate of the length of time that will be required to complete the program of experimentation proposed in this application: in

9. *
Would a commission grant of this application come within Section 1.1307 of the FCC Rules, such that it may have a significant environment impact? If "YES", include as an exhibit an Environmental Assessment as required by Section 1.311.
 Yes No

* - Indicates that this field must be completed before this page can be submitted.

Figure 2. Screen 2 --Applicant Information and Authorization Information

Step 4. The next step is entering data related to the Manufacturer and type of transmitting repeater equipment. In the following example, the GPS Source, Inc. GPSRKL1 repeater kit is entered which includes active L1 frequency band antenna. The L1 band is most often those in common GPS applications for public safety. Cables and brackets do not have to be included, only the equipment used to reradiate the GPS signals. The following example lists the model no. of the repeater kit, the outside active antenna and the passive antenna which is included with the repeater kit.

Application for FCC FORM 442

10. List below transmitting equipment to be installed (if experimental, so state) if additional rows are required, please submit equipment list as an exhibit: *

Manufacturer	Model Number	No. of Units	Experimental	Delete this row
<input type="text" value="GPS Source, Inc"/>	<input type="text"/>	<input type="text"/>	<input type="radio"/> Yes <input checked="" type="radio"/> No	<input type="checkbox"/>

The following is all the equipment data on file for this application. Click the desired link to modify or delete:
[Manufacturer: GPS Source, Inc., Model No: GPSRKL1, No. Units: 1](#)

* - At least one line of equipment data must be completed before this page can be submitted.

Figure 3. – Screen 3- Enter manufacturer and model number of Repeater Equipment

Step 5. The following information is related to the equipment, and the applicant. Enter as shown below or where the information is different, enter according to your agency. Items with an (*) are required.

FCC > FCC E-filing > ELS > FCC FORM 442 [FCC Site Map](#)

Application for FCC FORM 442

11. *Is the equipment listed in Item 10 capable of station identification pursuant to Section 5.1115? Yes No

12. *Applicant is:
 Individual Association Partnership Corporation Other
 If "OTHER" is selected, include as an exhibit a narrative statement describing the type of applicant.

13. *Is applicant a foreign government or a representative of a foreign government? Yes No

14. *
 Has applicant or any party to this application had any FCC station license or permit revoked or any application for permit, license or renewal denied by this Commission?
 If "YES", include as an exhibit a statement giving call sign of license or permit revoked and relate circumstances. Yes
 No

15. *Will applicant be owner and operator of the station? Yes No

16. Give the following information of person who can best handle inquiries pertaining to this application:

Last Name: *

First Name: *

Title: *

Phone Number (including area code): *

E-mail Address: *

17. *APPLICANT ANTI-DRUG ABUSE CERTIFICATION:
 By checking "YES", the individual applicant certifies that he or she is eligible for this license. This requires that he or she is not subject to a denial of federal benefits, including FCC benefits, as a result of a drug offense conviction pursuant to Section 5301 of the Anti-Drug Abuse Act of 1988, 21 U.S.C 862. A non-individual applicant, eg., corporation, partnership or other unincorporated association, certifies that no party to the application is subject to a denial of federal benefits, pursuant to that section. For definition of a "party" for these purposes, see 47CFR 1.2002(b).
 Yes No

18. CERTIFICATION:
 THE APPLICANT CERTIFIES THAT:

- a. Copies of the FCC Rule Parts 2 and 5 are on hand; and
- b. Adequate financial appropriations have been made to carry on the program of experimentation which will be conducted by qualified personnel; and
- c. All operations will be on an experimental basis in accordance with Part 5 and other applicable rules, and will be conducted in such a manner and at such a time as to preclude harmful interference to any authorized station; and
- d. Grant of the authorization requested herein will not be construed as a finding on the part of the Commission:
 - 1. that the frequencies and other technical parameters specified in the authorization are the best suited for the proposed program of experimentation, and
 - 2. that the applicant will be authorized to operate on any basis other than experimental, and
 - 3. that the Commission is obligated by the results of the experimental program to make provision in its rules including its table of frequency allocations for applicant's type of operation on a regularly licensed basis.

THE APPLICANT FURTHER CERTIFIES THAT:

- e. All the statements in the application and attached exhibits are true, complete and correct to the best of the applicant's knowledge; and
- f. The applicant is willing to finance and conduct the experimental program with full knowledge and understanding of the above limitations; and
- g. The applicant waives any claim to the use of any particular frequency or of the electromagnetic spectrum as against the regulatory power of the USA.

Signature of Applicant (Authorized person filing application): * Signature Date:

Title of Person Signing Application: *

Check appropriate classification: *
 Individual Applicant Member of applicant partnership

Figure 4. Screen 4 -- Final Screen prior to submission of administrative information

FCC > FCC E-filing > ELS > FCC FORM 442 FCC Site Map

The administrative portion of the Form 442 has been submitted successfully to the OET Experimental Licensing Branch. Please print or record the following information and save for future reference:

Form 442 Confirmation Number: **EL713368**
 Form 442 File Number: **0211-EX-PL-2007**
 Date of Submission: **May 1, 2007**
 Press this button to proceed to technical data.

Figure 5. Final Screen Confirming Submission

Print or save the confirmation screen to keep on file. Read the information below the technical data button prior to beginning the technical data portion. You can use the information contained in this document as a guide if you are applying for the same type repeater.

Part III – Enter Technical Data related to Antenna Application

The following is confirmation of the successful submission of the FCC filing. You need to continue by following the “Technical Data” button midway down the page (see Figure 5). The technical data must be completed within 30 calendar days of filing the information or the application will be removed from the system.

FCC > FCC E-filing > ELS > Antenna Registration FCC Site Map

Antenna Registration For File Number 0211-EX-PL-2007

Application Purpose

The purpose of this is application is to: *

Add this antenna to the application/license
 Edit data pertaining to this antenna
 Delete this antenna from the application/license

Figure 6. Screen 5 – Antenna Purpose

Transmitter Location

Proposed location of transmitter and transmitting antenna: *

Fixed/Base
 Mobile
 Base and Mobile

If permanently located at a FIXED location, provide the following:

State:

County:

City or Town:

Number and street (or other indication of location):

If mobile, describe the exact area of operation:

If fixed, enter the geographical coordinates exact to the nearest second. If mobile or base and mobile, enter either the area of operation or the fixed/center coordinates and the radius of operation:

North Latitude (DD-MM-SS):
 ° ' "

West Longitude (DDD-MM-SS):
 ° ' "

Radius of Operation (Km):

Figure 7. Transmitter Location

Latitude/Longitude Conversion Sites:

<http://www.fcc.gov/mb/audio/bickel/DDMMSS-decimal.html>

Datum

Datum: *

NAD 27 NAD 83

Directional Antenna

Is a directional antenna (other than radar) used?: *

Yes No

If yes, provide the following information:

i. Width of beam in degrees at the half power point:
 ii. Orientation in horizontal plane (degrees):
 iii. Orientation in vertical plane (degrees):

The information requested above exists in an exhibit submitted with this application.

Figure 8. Datum and Directional Antenna

Antenna Height

Will the antenna extend more than six meters above the ground, or if mounted on an existing building, will it extend more than six meters above the building, or will the proposed antenna be mounted on an existing structure other than a building? *

Yes No

If yes, provide the following information:

- i. Overall height above ground to tip of antenna (in meters):
- ii. Elevation of ground at antenna site above mean sea level is:
- iii. Distance to nearest aircraft landing area (in kilometers):
- iv. List any natural formations of existing man-made structures (hills, trees, water tanks, towers, etc.) which, in the opinion of the applicant, would tend to shield the antenna from aircraft and thereby minimize the aeronautical hazard of the antenna.
- v. Submit as an exhibit a vertical profile sketch of total structure including supporting building, if any, giving heights in meters above ground for all significant features. Clearly indicate existing portion, noting particulars of aviation obstruction lightly already available. Submit this sketch under the "Antenna Drawing" exhibit type.

* - Indicates that this field must be completed before this page can be submitted.

Figure 9. Antenna Height Information

The following screen is used to designate the frequency of operation. For L1 frequency, use the designation below. The most common frequencies used for civilian applications is the L1 frequency carrier.

For conversion of dBm to Volts or Watts, use this conversion site: <http://www.ipass.net/teara/dbm.html>

FCC > FCC E-filing > ELS > Frequency Registration FCC Site Map

Antenna Frequency Registration

Antenna Information

File Number: 0211-EX-PL-2007
Antenna Location: Fixed Fowler, Colorado
Coordinates: 38 7 51 N latitude 104 1 30 W longitude
Area of Operation:
Street Address: 215 7th Street
City: Fowler
State: Colorado
Radius of Operation: 0.10

Particulars of Operation

Action *

Add frequency Modify frequency Delete frequency

[Lower Frequency](#) [Upper Frequency](#) [Frequency Units](#)

[Power](#) [Power Units](#) [ERP](#) [ERP Units](#)

[Mean/Peak](#) [Frequency Tolerance](#)

[Station Class](#)

Fixed Mobile

* - At least one line of frequency data must be completed before this page can be submitted.

Figure 10. Antenna Frequency Operation

This is the final step in specifying the antenna frequencies. After adding frequencies to be used, the filing may be viewed by clicking “view Filing” as shown in the bottom right corner of Figure 10.

Part IV – Add Attachments

If during the application process, you were advised of attachments that would need to be included; you may wait for correspondence from the FCC of submit at any time during the application process.

This section allows you to upload drawings of the facility

NOTICE: Please be sure the following exhibits have already been submitted:
[Click Here For Attachment Submission Instructions](#)
 Form 442 Question 7: Experimentation Description

Exhibit Type	Confidential	Description	File	File Format
Text Documents	<input type="checkbox"/>	n of type of business	C:\Documents and S... Browse...	Microsoft Word
	<input type="checkbox"/>		Browse...	
	<input type="checkbox"/>		Browse...	
	<input type="checkbox"/>		Browse...	
	<input type="checkbox"/>		Browse...	
	<input type="checkbox"/>		Browse...	
	<input type="checkbox"/>		Browse...	
	<input type="checkbox"/>		Browse...	
	<input type="checkbox"/>		Browse...	
	<input type="checkbox"/>		Browse...	
	<input type="checkbox"/>		Browse...	
	<input type="checkbox"/>		Browse...	
	<input type="checkbox"/>		Browse...	
	<input type="checkbox"/>		Browse...	
	<input type="checkbox"/>		Browse...	

Send File(s) To FCC

During the application process there are portions where attachments are requested if certain information is entered. There is also a requirement by the FCC to attach a drawing of the facility as well as the location where the GPS reradiated signal will originate inside the facility.

Once you have submitted each of the portions, you can access to modify by logging back in to the system.

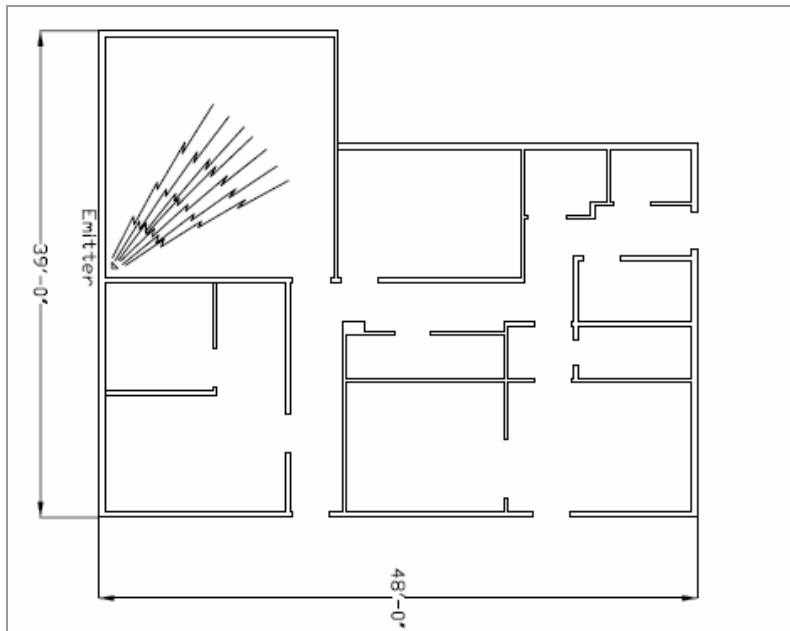


Figure 11. Illustration of an attachment showing building layout/dimensions and transmitting antenna configuring for FCC filing

Useful Resources

GPS Source, Inc. Repeater Regulations

<http://www.gpssource.com/upload/GPSSourceRepeaterRegulations.pdf>

Manual of Regulations and Procedures for Federal Radio Frequency Management

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

For further Questions, please contact:

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