

New England Spectrum Management Council

Electronic Frequency Coordination Application (EFCA) User Guide

Some of the new users of the online application have been having a little trouble grappling with the intricacies of the application. This is an attempt to guide the first time user through an online filing.

There are three steps to filing an online application. These steps are:


- 1) Gathering the necessary information
- 2) Creating an online account
- 3) Entering or updating the information.

This document will only directly address areas 2 and 3. It is expected that if you are expecting to become a repeater trustee, that you already understand the intricacies of building a repeater and selecting a site. Help with that information is beyond the scope of this document.

The screen shots and form captures in this document were current on 11/21/2004. The system has gone through many changes in the recent past and will probably go through more changes in the future. These screen shots are examples and representative of the intent of the system. Any additional changes may not be in this document. For additional information, please contact the NESMC staff at questions@nesmc.org.

Logging In

The NESMC EFCA login screen is illustrated below. To create an account, enter your callsign in the first box, then click on the “create an account” link.



HOME **REPEATER DATABASE** **DOCUMENTS** **NESMC FAQ's** **ELECTRONIC FILING** **HOW TO CONTACT US**

Electronic Filing Opens for ALL BANDS on January 1st
Please see the [NESMC home page](#) for details.

NESMC Electronic Filing - Login Screen
This is the login screen to the NESMC electronic database. Once you create an account, you may submit coordination requests online, and review or modify previously filed requests. There is no charge for this service. You must hold a valid U.S. amateur license to create an account.

If you have an account, enter your callsign and password and click on "Login"

Callsign:

Password:

If you forgot your password, enter your callsign only above, then [click here](#).

To create an account, enter your callsign above, then [click here](#)

If you need help, you may send e-Mail to the web administrator [here](#)

Your callsign will be checked against the FCC database. If it is valid callsign, you will be presented with the screen on the next page.

Signing Up

Please enter your contact and password information on the screen and press the submit button. Your Name and address are pulled from the official FCC database. If incorrect, they must be first corrected with the FCC. (You really should keep this information up to date anyway as the FCC can invalidate your amateur license if it is not correct.)



NESMC - Electronic Access Signup

After you complete this page, your account will be created automatically. You will then be forwarded to the main menu, where you can file your first application. BOLD indicates a required field. Choose your password wisely. Anyone with your password may enter the system and review/modify your applications.			
Callsign	KB1EDV <i>If the callsign is incorrect, use the BACK button to return to the previous screen</i>		
Name	First Norfolk	Middle County Repeater	Last Association
Mailing Address	Street 2224 Main St City State Zip Walpole MA 02081		<i>Data is obtained from a lookup of your callsign in the FCC database. After your account has been validated, you may make corrections as necessary.</i>
Primary e-mail	<input type="text"/> <i>Your e-mail address will be used for NESMC business only, and will not be released to anyone outside of our organization.</i> <input checked="" type="checkbox"/> I would like to receive the quarterly NESMC e-newsletter, NESMC NEWS.		
Backup e-mail	<input type="text"/> <i>This address will be used if e-mail sent to your primary address is rejected.</i>		
Phone Numbers	Home <input type="text"/> Work <input type="text"/> Cell <input type="text"/>		<i>At least one phone number field must be complete. Be sure to include area code</i>
Password	<input type="password"/> <i>Minimum: 6 characters</i>		
Password Again	<input type="password"/> <i>This must match the password you just entered in above row.</i>		
<input type="button" value="Create Account and Continue to Main Menu"/>			

Once you have completed this information and submitted, you may log in from the first screen using your callsign and password. For this first time through, the system will automatically log you in after this screen and present you with the main menu screen on the next page.

If you should ever forget your password, enter your call sign on the first (login) screen and select the 'I forgot my password' link. The system will then email your login information to the primary email address for your account.

Main Menu

There are three selections at the top of the main menu screen. These selections allow you to either request a NEW coordination, or to request a renewal for a previous PAPER coordination.



Main Menu

Logged in as KB1LTL

[Logout](#)

Coordination Applications

You may create a new application, or update or renew previously filed applications

If this is the first time you have used the system, please understand that no coordinations that were done by paper have been converted to the online system. There is no practical way for us to input the hundreds of coordinations we have on file. Furthermore, this is an opportunity for us to refresh our data, much of which is out of date. **If you have an existing coordination, but it does not show up in the list below**, select the third option below. You will be required to fill out the form completely, much like filling out the paper application again. In the future, your data will be retained and you will be able to review and edit it as often as you wish. By selecting the third option, we will get an indication to review the application against the paper record we have, then process your renewal. Under the new system, your renewal will be processed in less than two weeks, perhaps even much shorter depending on the volume of renewals we receive during this start-up period. Thanks for your cooperation.

[File a new application](#)

[Modify an existing coordination done by US Mail](#)

[Renew an existing coordination done by US Mail \(no changes required\)](#)

You have no existing coordinations on file

Profile

Some profile data is locked until your account is validated by the NESMC staff

Name	First	Middle	Last
	New England	Spectrum Management	Council
Mailing Address	Street 2224 Main St City State Zip Walpole MA 02081		
Primary e-mail	<input type="text" value="440@nesmc.org"/> <small>Your e-mail address will be used for NESMC business only, and will not be released to anyone outside of our organization.</small>		
Backup e-mail	<input type="text" value="n1uec@n1uec.org"/> <small>This address will be used if e-mail sent to your primary address is rejected.</small>		
	<input checked="" type="checkbox"/> I would like to receive the quarterly NESMC e-Newsletter, NESMC NEWS		
Phone Numbers	Home	<input type="text"/>	
	Work	<input type="text"/>	
	Cell	<input type="text" value="508-333-5714"/>	
	<small>At least one phone number field must be complete. Be sure to include area code</small>		

Change Password

To change your password, complete both boxes below. If you leave them blank, your password will remain unchanged.

Password	<input type="text"/> <small>Minimum: 6 characters</small>
Password Again	<input type="text"/> <small>This must match the password you just entered in above row.</small>

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Session ID = 97117

Please understand that none of the paper applications have been entered into the system by the coordinators. It is the responsibility of the trustee to assure the completeness and correctness of their own data and to ensure that this is accomplished; the trustee must enter it the first time. At the end of this document is a blank screen from the 440 coordination process. This will cover all of the information required for an application and will explain it field by field so that you can be sure to have it all available when you sit down to enter it online. If you are missing some of the data, please enter what you have and do a best guess at the rest. There are many online attached tools to help you with the application and the bare minimum correct data will be laid out. You can always update the information later.

The first selection, file a NEW application, is for any transmitters that have never been coordinated in the past. The second or third selections are for transmitters that have been coordinated in the past (on paper) but never entered into the online system.

After you click on one of the three selections, you will see the *Electronic Frequency Coordination Application (EFCA)*. The next section will explain this screen.

After you have filed an application, a link will appear below the three selections just described. You may go back to review or edit a previously filed application by selected this new link. Each application you file will create an additional link on your main menu.

Keep in mind that NESMC coordinates *transmitters*. Each transmitter in your system should have its own application. The only exception to this policy is control links. In this case, NESMC coordinates a single frequency for multiple transmitters accessing a single receiver. This is the only case where the receiver information is the primary information on the form.

As an example, in a system with a repeater, auxiliary link to/from another site, and a control receiver, the trustee would file three applications: (1) a repeater application, (2) an auxiliary link application for the aux link transmitter, and (3) a control link application for the control receiver.


The Electronic Frequency Coordination Application (EFCA)

The application form consists of many data fields. Below the screen shot of the form, we are going to examine those fields and how they behave one by one.

After the exhaustive field-by-field description, we will explain the minimum data required for a coordination to be accepted.

On your browser, you will have to scroll down to see the entire form. However, in order to display properly in this document, the screen shot has been broken into three parts. When you view this form online it will appear as one long page.

You will notice that to the right of many of the fields is a gray box with a “?” or other comment. These “?”s or other comments are hyperlinks. If you click on them, they will supply a quick hint or provide supplemental information that will assist you in completing the form correctly.

**NESMC**
New England Spectrum Management Council

Frequency Coordination Application
Logged in as KB1LTL [Cancel](#)

The New England Spectrum Management Council provides frequency coordination in New England, except for VT and CT. Applications that are incomplete or inaccurate may be returned. Completed forms will be processed by the coordinator and a six month test and construction coordination will be issued. The coordinator will change a trial coordination to 'final' status after six months of operation without problems.

System Coordination Status: <i>This field is set by the coordinator</i>		New Request <input checked="" type="radio"/> Includes renewals and modifications to existing coordinations that are not in the online system. In this case, coordinator will verify your data and change your status to Final if all is OK. <input type="radio"/> Trial <input type="radio"/> Final <input type="radio"/> Cancelled
Click on the '?' in the right-hand column for additional help		
Frequency(ies) <small>If your system requires multiple transmit frequencies (main transmitter, control link, aux link, etc), you will need to file a separate application for each transmit frequency.</small>	Output: <input type="text"/> MHz Input: <input type="text"/> MHz Band: <input type="radio"/> 10m <input type="radio"/> 6m <input type="radio"/> 2m <input type="radio"/> 222 <input type="radio"/> 440 <input type="radio"/> 902+	Channel Width: <input checked="" type="radio"/> 5KHz/Standard <input type="radio"/> 2.5KHz/Narrow <div style="text-align: center;">?</div> <div style="text-align: center;">See Bandplan</div>
Application is for:	<input type="radio"/> Repeater <input type="radio"/> Link <input type="radio"/> Other (Specify) <input style="width: 100px;" type="text"/>	?
Last Submittal Type	New	
This Submittal Type	<input checked="" type="radio"/> New Application <input type="radio"/> Modification to Existing Coordination <input type="radio"/> Renewal of Existing Coordination <input type="radio"/> Withdraw/Cancel this Application	?
Application Control Number	A97119	
Date of Application:	November 21, 2004	?
Applicant Data <small>Person filling out this application</small>	New England Spectrum Management Council, KB1LTL 2224 Main St Walpole, MA 02081 Cell: 508-333-5714 440@nesmc.org	?
Sponsoring Individual or Organization: <small>Full Name for NESMC files</small>	<input style="width: 250px;" type="text"/>	?
Abbreviated Sponsor Name: <small>Shorter Name, as it will appear in the ARRL Repeater Directory, max 10 chars.</small>	<input style="width: 60px;" type="text"/>	?

Trustee	<input type="checkbox"/> Same as applicant Name: <input type="text"/> Operator Callsign: <input type="text"/> Transmitter Callsign: <input type="text"/>	2
Primary Control Operator:	<input type="checkbox"/> Same as applicant Name: <input type="text"/> Callsign: <input type="text"/> Home Phone: <input type="text"/> Work Phone: <input type="text"/>	2
Exact location of transmitter <i>If there are multiple transmitters involved (such as a control link that several control operators will use), use the location of the main receiver. Otherwise, specify the location of the transmitter. Please be very specific and include a description of the building or structure if the street address is ambiguous. (i.e. Pinnacle Hill, Town Water tower, etc.)</i>	Street: <input type="text"/> Building: <input type="text"/> City/Town: <input type="text"/> State <input type="text"/> Zip <input type="text"/> Site Coordinates: <input type="text"/> ° <input type="text"/> ' <input type="text"/> " N <input type="text"/> ° <input type="text"/> ' <input type="text"/> " W	2
Elevation above mean sea level of site ground (AMSL)	<input type="text"/> feet	2
Antenna height above ground at antenna center	<input type="text"/> feet	2
Antenna height above average terrain (HAAT)	<input type="text"/> feet	Calculate HAAT
Antenna	Type or Model #: <input type="text"/> Gain: <input type="text"/> dB	
Mount	<input type="radio"/> Top <input type="radio"/> Side, if side what exact spacing? <input type="text"/> inches	
Direction antenna will favor (if applicable)	<input type="text"/> °	
Feedline	Type: <input type="text"/> Length: <input type="text"/> feet est. loss: <input type="text"/> dB	Coax Calculator
Power output from transmitter into feedline (after cavities if they exist)	<input type="text"/> Watts	2
CTCSS Frequencies or DCS codes	<input type="radio"/> Carrier Access <input type="radio"/> CTCSS RX <input type="text"/> Hz TX <input type="text"/> Hz <input type="radio"/> DCS RX <input type="text"/> TX <input type="text"/>	2
Will this system be linked to a network?	<input type="radio"/> Yes <input type="radio"/> No Which? <input type="text"/>	
If this application is for a split-site repeater or auxiliary link, show location of receiver:	Exact Location of Structure: <input type="text"/> City/Town: <input type="text"/> State <input type="text"/> Zip <input type="text"/>	

This transmitter will be		<input type="radio"/> Open to all <input type="radio"/> Members only (club/group membership is available to all amateurs) <input type="radio"/> Closed (club/group membership NOT available to all amateurs) <input type="radio"/> Private (do not publish in Repeater Directory)	?
<input type="checkbox"/> a Open Autopatch <input type="checkbox"/> (ca) Closed Autopatch <input type="checkbox"/> e Emergency Power <input type="checkbox"/> E-SUN Solar Power <input type="checkbox"/> E-WIND Wind Power <input type="checkbox"/> z Direct Access to Law Enforcement <input type="checkbox"/> WX Weather Net <input type="checkbox"/> x Wide-Area Coverage <input type="checkbox"/> p Portable <input type="checkbox"/> y RTTY <input type="checkbox"/> TT Touch Tone Access <input type="checkbox"/> PKT Packet/Digital Capable <input type="checkbox"/> s Affiliated with ARES <input type="checkbox"/> r Affiliated with RACES <input type="checkbox"/> EXP Experimental System			
Repeater Directory Notes (optional) The following notes will appear next to your listing in the ARRL repeater directory <input type="text"/>			
Have you researched the frequencies we should consider?		<input type="radio"/> Yes <input type="radio"/> No	?
Is equipment ready to be put on air? For renewals of existing systems, answer 'Y'		<input type="radio"/> Yes <input type="radio"/> No if not, please estimate the approximate equip. ready date <input type="text"/>	
Comments		<input type="text"/>	
<input type="button" value="Cancel"/> <input type="button" value="Reset Form"/> <input type="button" value="Submit Application"/>			
Back to Top		© 2004 New England Spectrum Management Council Session ID = 97117	

Field descriptions:

System Coordination Status:

This field lets you, the user know what the status of your application is within the system. Once the application is entered, only the NESMC officer coordinating your application can change this field.

The status will start as new, renewal, or modification based on the type of request you have made.

Once processed by the coordinator, the status will become trial, final, or cancelled.

A status indication of Trial authorizes the trustee of the system to bring it into compliance with the application within a six month timeframe. If this cannot be accomplished, please let the coordinator know, by email, what the status is (need more time, not going to be pursued, on the air, etc.)

A status of Final authorizes the trustee of the system to operate the system for a period of three (3) years, after which, a renewal application must be made by the system trustee. If the system operating parameters change or the system is off the air for a period of 3 months, the coordination can become void and a re-application may be required.

Frequency(ies):

Here is where the meat and potatoes of the application process begin. You must specify the EXACT output (transmit) frequency of the system. NESMC only coordinates transmitters, not receivers. For the purpose of a repeater system, the input frequency will automatically be filled in for you. If you have a system that does not fit the current NESMC bandplan for the band you are requesting coordination, then the system will not accept the application. There are rare circumstances where a specific, non-standard machine will be granted a grandfathered coordination, however, these will be handled on a case by case basis and require the intervention of the coordinator.

For specific allowable frequencies, please see the NESMC bandplan on the NESMC website.

Channel Width:

This is a radio button (computer term that allows a one only selection from a list) that allows you to select standard or narrow channel width.

Certain frequencies in the 440 band will begin to require a narrow transmission width (maximum of 2.5 kHz of deviation) {Commercial repeaters are already required to do this}. If you select or have received coordination with the narrow deviation restriction, it is binding. This will allow us, over time, to double the number of UHF frequencies available. Newer equipment available to the amateur marketplace is now including this feature.

Band:

This radio button will select what frequency band and bandplan to use for this application. Please be sure to select the correct band.

Application is for:

This let's us know what you are looking for. If you want an auxiliary link, a control link, a repeater pair, or something else, be sure you have the correct selection here or the form may reject otherwise correct information.

Last submittal type:

This tells YOU what the status is before you enter any data.

This submittal type:

This is a field to tell us what YOU want US to do. If you select withdraw/cancel, you will no longer be able to modify this application.

Application Control Number

This is an internal record keeping number for the application. This is a computer generated number used to track anything that happens with your application.

Date of application:

This is the date the online system first saw your application. For a new one it should be TODAY. This is also the date used to compute your renewal and expiration dates.

Applicant Data:

This information is from your sign-in and should match YOU, the person filing the application. You do not have to be the trustee to file the application; however, we may contact the trustee to verify that you are acting on his/her behalf.

Sponsoring individual or organization:

This field allows you to tell us who is represented, for example, Walpole Emergency Management, Sharon Civil Defense, Norwood Amateur Radio Club, etc. Please do not abbreviate here as what may seem obvious to you may not be obvious to us.

Abbreviated Sponsor name:

This is what will appear in the sponsor field in the ARRL repeater directory.

Trustee:

There is a check box here that will fill in applicant information if it is the same, if it is not, be sure to fill in the correct name and the transmitter id call sign.

Primary Control Operator:

What we are looking for is who to contact if an on the air problem is noticed. We are not looking to become policemen! We would expect to see the person who has the technical control and responsibility for the machine here.

A check box is provided to fill in applicant information. If it is not the applicant, be sure to include telephone numbers that are accurate.

Exact location of transmitter:

What we want here is the appropriate latitude and longitude of the transmitter site and a brief description. We understand that many sites do not have an actual address (city water tank on knuckup hill) for instance. These need to be fairly accurate. Any GPS these days will yield acceptable data. The data can also be found using many online mapping programs. We need this to be able to check the projected coverage area of the machine given its sensitivity and output power as well as the height above average terrain (next fields). If this is incorrect or inaccurate, the coordination is void and may require you to change frequency and/or other operating parameters. **THIS IS CRITICAL DATA.** Please be sure to present it to us in degrees minutes and seconds that correlate to WGS84 datum. If you don't understand what that is, don't worry, just give us what you have for coordinates in deg, min, and sec or any other format from any GPS and we can help you out. The form needs the correct info and an email to us will let us help you out. If the description of the location and the coordinates do not match, the coordinator may change your data. If you feel the change is wrong, let us know.

Elevation above mean sea level of site ground (AMSL)

This is how high is the dirt at the base of the site above (or in some cases below) sea level. The level of the sea is 0! So, most places (not covered by water) are above 0. This

data is usually found on a topographical map. These can be hard to read, BUT, if you coordinates are accurate, the coordinator can help you with this number.

Antenna height above ground at antenna center.

How high is the antenna? A 9' tall station master on a 50' tower is at 54.5 feet (radiation point {center} of the antenna)

Antenna height above average terrain (HAAT)

This is what it is all about! If you have filled in your coordinates, base elevation and height of the antenna, there is a link on the far right of the page right here that will bring up a pop-up window with the data from a calculation that produces HAAT. This number gives us a guideline for how well the machine will operate. If you have actually ever performed these calculations before, you know how much of a pain it is. If you have different data and can provide backup for it, feel free to enter the number from your own calculations.

Antenna:

What we really need to know here is what the gain of the system could be. I don't care if the antenna is a rusty bent coat hanger or a 75' tall co-linear array. The type and model for a commercial antenna are great in that we can look at the numbers and verify what you have entered, but we really are looking for the db of gain figure to be correct. Please be sure to use db not dbi as dbi tends to be inflated and artificial. If all you have is a dbi figure, subtract 2.4 from it and enter that.

Mount:

This information is only important if the antenna has a directional pattern, either from mounting, or by the nature of the antenna, (yagi etc). Please be sure to use TRUE coordinates for the direction the antenna favors. Due east would be 090, etc. If the antenna is really top mounted but is a yagi, tell us it is a side mount so that we can see the direction!

Feed line

Please specify, if you know, the type and length of your feed line. Again a pop-up assistant can help you here as most common repeater feed line is available from the pop-up and the numbers are in the system. If you don't know, make an educated guess. We are just looking to create an accurate model. If the information is inaccurate, we'll estimate the range using loss less coax.

Power output from the transmitter into feed line (after cavities if they exist)

How much power is going into the feed line to try to get to the antenna? If the request is for more than 50 watts, be aware that our region has some restricted areas and more that 50 watts will not usually be approved.

CTCSS Frequencies or DCS codes

How do we bring up the machine to see if it is really there? Do you need a ctcss (pl) tone, do you need a DCS code, etc. Please be aware that new requests will always require you to build the machine to require at least PL. If you want you can request separate input and output pl tones.

Will this system be linked to a network?

Are you going to link to another machine, IRLP, or ECHOLINK???

If this application is for a split-site repeater or

Auxiliary link, show the location of the receiver:

This is the only time we need to know where the receiver is. Remember, we are coordinating the transmitter, so if you are linking from Mt Tom to Mt Wachusett, this would be the Mt Wachusett site!

This transmitter will be:

Is this an open or closed machine? Do you want it published?

Note:

Links are usually never published. If you selected “link” at the top of the form, the “Private” button will have automatically be selected for you here. If you change this to one of the other choices, your link data might get published, so be careful! If you have not filed an online application and we are using old data for your entry, it may get published even if you do not want it to (probably not for links, but possible for a private/unlisted repeater).

Repeater Directory Notes:

Please select all applicable notes fields for the ARRL repeater directory.

Have you researched the frequencies that we should consider?

If this is a new application, you should have made some attempt to come up with a frequency that we should grant. If the request does not fit the current users of the spectrum, we reserve the right to suggest or modify your request by selection of a different frequency pair. Please understand that we do not just change it because we want to. In many cases, other pending applications are not available to you, and the footprint of your machine may still not fit the frequency you have selected.

Is the equipment ready to be put on the air?

If this is a renewal, the answer here is YES, if this has been on the air in an uncoordinated state, the answer is also YES.

Please understand if you are requesting coordination of an existing UNCOORDINATED machine, we may need to suggest a different operating frequency. We are not trying to be a pain. Remember, if we grant you coordination, and then interference is observed, we are on the hook. We are trying to PREVENT the interference in the first place. If you machine is uncoordinated, and then we try but cannot fit your frequency into the current spectrum, we will need you to move or remain uncoordinated.

Comments?

This is a freeform field. Please let us know any additional information that you think is relevant that does not fit the rest of the form. We actually read this info!!!!

Once the application is submitted, you will receive an email confirmation that it is in the system. This is the same email that the coordinator receives. Please check it over and review the data for completeness. Now is the time to go back on-line and modify the application if you notice any gross errors. If you experience any application faults, be sure to send us an email with as much information about the problem as you can. This is a new application and, although it has been through some fairly thorough testing, bugs happen. Do not assume we know about it as we probably do not.

Once the application has been reviewed by the coordinator, the system will send you another email confirmation regarding the updated status of the application. If the status is now marked as Trial or Final, please print that email as it is an official coordination.

Please send any comments or suggestions regarding the online system or this user document to: web@nesmc.org

If you have questions on how to use the application, send email to questions@nesmc.org

Glossary

Term	Definition
AMSL	Height of the ground above mean sea level.
Autopatch	A system used to connect the land based telephone line to the repeater system.
Auxiliary Link	This is the kind of link commonly used to carry voice traffic from one repeater system or site to another.
Colinear	A common style of moderate gain antenna usually in a fiberglass radome. (stationmaster)
Control Link	This is the kind of link used by the control operator to issue commands to the repeater.
CTCSS or PL	Continuous Tone Coded Squelch System - A sub-audible (below 300 Hz) tone that is continuously transmitted along with the carrier in order to access the repeater system. PL is the Motorola trademarked name for Private Line.
db and dbi	These terms, often and mistakenly used interchangeably, are typically used to express gain or loss in a transmission , filter or antenna system. Actual definitions below.
db	Decibel. A logarithmic based unit used to express loss and gain.
dbi	db gain expressed over an isotropic source. This is a common trick antenna manufacturers use to express the gain the antenna can produce over a theoretical point based source. Manufacturers and sales people love this number and mistakenly drop the i because it is then 2.4 db higher than a unity source (half wave dipole). So, if I wanted you to believe that my dipole was better I would express it as a 2.4 dbi gain dipole. This really means it has no gain!
DCS	Digital Coded Squelch – A system that uses rapid dtmf tones at the beginning of a transmission to open the squelch of a repeater system.
Duplexer or cavity	The filters commonly used to allow close frequency separation of multiple RF devices on a common element. The most common use allows a receiver and a transmitter to be connected to a single antenna system.
Feedline	This is the item used to carry the rf signals to and from the antenna. Coax or hard line are the most common types.

HAAT	Height above average terrain. This is a theoretical height of the antenna above the local terrain height averaged on up to sixteen radials over up to eight ranges centered on the objective point.
Input Frequency	The frequency the repeater receives on.
Output Frequency	The frequency the repeater transmits on. Also, this is the frequency by which most people refer to the machine by.
Radome	an insulated container used to weatherproof the radiating elements of an antenna.
Repeater or machine	A full duplex voice transmission system. In this case, full duplex means that the system utilizes a receiver and transmitter operating simultaneously.
Tone Burst	A European standard that initiates a brief 1750Hz tone burst at the beginning of the transmission to open the squelch of a repeater system.
Yagi	A common style of beam (directional) antenna