ORRC

Relay Station Coordination
Process and Procedures

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General

This procedure defines the process used by an applicant for Coordination of an analog, digital, or experimental relay system, the procedure used to review, approve/disapprove coordination requests, ongoing maintenance and updates of a coordination, and the process for de-coordination.

Scope

This document describes the operating procedures of the Oregon Radio Relay Council (ORRC) and its management and coordination/de-coordination of Amateur Radio Relay Stations (analog and digital) operating within the Amateur Radio Bands and in accordance with the ORRC/ARRL Band Plan.
This Procedure does not apply to stations that are operating within the spectrum allocated for uses other than Radio Relay Stations (Simplex, Satellite, EME, etc.). It does however strive to protect the spectrum that these modes utilize.

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Guidelines

1. All coordination decisions will be based on public interest, convenience, and necessity. ORRC staff will assist any amateur radio operator holding a valid/current license through the application process. When channels are available applications may be handled on a “first come first served” basis by Post Marked date of the request.

2. When multiple amateurs submit applications for the same or similar coordination, the applicant proposing the greatest service to the community will prevail. If a decision is appealed to the ORRC board of directors, the applicant and affected users will be allowed to submit written and oral information relevant to the decision making process. Board deliberation shall be a part of the written record of the decision. (Service to the community is a general term describing those attributes of a “Relay Station” which are of importance to the Amateur Radio Community and Public (as it relates to amateur radio service, safety, health, and welfare) at large.

3. ORRC recognizes and cooperates with bordering recognized Coordination bodies. As such all coordination requests and or disputes potentially affecting our neighbors are evaluated and commented on by the affected body prior to a final coordination being granted.

4. The ORRC keeps all information about its members and their coordination(s) in a database. This database is used to protect the users systems and serves as a means for the ORRC to publish selected information to ARRL, neighboring Coordinating bodies, and other organizations interested in serving the Amateur Community. Should a user determine that his/her information should not be published? A written request specifying his/her desire must be made to the current Secretary of the ORRC board or to the Operations Committee via the Post Office Box address or reflected on the application at the time the coordination is being requested.

5. It is the responsibility of the system(s) owner to operate their systems in accordance with good Amateur Radio and technical practices. All operations should comply with the current systems parameters filed with the ORRC. Should the Operational Parameters change, the system owner must notify the ORRC in writing within 6 months of the change. Non compliance may result in a system being de-coordinated.

6. Harmful Interference that seriously degrades obstructs, or repeatedly interrupts the operation of a relay system must be resolved as quickly as possible. Should the owner of another system that is known to be causing interference not be able to resolve the problem within 30 days of notice he/she will be required to

terminate their system(s) operation until such time the Interference has been confirmed as having been resolved.

1. Research and Preparation for a Coordination Application

1.1. Any Amateur Radio Operator holding a valid license (Technician class or higher) may apply for coordination of a Relay Station. In order for an application to be properly processed it is recommended that the Applicant(s) work with his/her region representative to research and prepare the application(s). This will speed the approval process, and ensure both the Applicant(s) and the ORRC are satisfied with the results.

1.2. Basic items to consider when preparing an application.

1.2.1. Band and or frequency desired
1.2.2. Will this frequency be shared with other coordinated systems
1.2.3. Service to be provided (digipeater, voice repeater, autopatch, etc.)
1.2.4. Site (location, elevation, antenna height, terrain)
1.2.5. Equipment (power, duplexer loss, antenna gain, feed line loss, etc.)
1.2.6. Time Line for construction and to become operational
1.2.7. Area/community served
1.2.8. Emergency power plans (if any)
1.2.9. Alternate plans or contingencies (what to do if your coordination is called into question or you need to select another frequency, restrict area served, etc.)

2. Submitting the Coordination Application or update

2.1. Filling out the application

Please follow the instructions on the inside of the form. This should provide enough information to get your application properly processed. The explanation below is intended to provide better clarity should it be needed.

Block 1: The type of request and type of station you are requesting coordination for.

Select one of the three check boxes:

Request for Coordination - Asking ORRC to consider your application for a new Amateur Relay System.

Update of Systems Parameters - Asking the ORRC to consider your application for changes to an already coordinated Amateur Relay System.

Operational System Report - Report to the ORRC that you have completed your construction/testing and the Amateur Relay System is operating.

Select the applicable boxes of 10 remaining:

Repeater – Voice and or ATV (analog) repeater system.
Control Channel - Frequency used to by a Repeater Control Operator to manage the operations of the repeater. This is typically only a control Rx at the repeater end and simplex TX at the Control Operator(s) end.
Control Link - This is typically a bi-directional link used in the same manner as the "Control Channel". It differs in that it allows the Control Operator to control the Amateur Relay Station and the Relay Station to provide feedback of the commands and or control/telemetry status.
HDX Link – HDX stands for Half Duplex Link. This is typically a bi-directional RF link used to allow communications on one or more repeater system. This type of link limits the communications between system(s) to a unidirectional type of communication. (It sends transmitted content in only on direction at a time). It is typically used in point to point types of linking. Normally an HDX link will use a single (simplex) frequency.
FDX Link – FDX stands for Full Duplex Link. This is typically a bi-directional RF link used to allow communications to one or more repeater system. This type of a link allows for full simultaneous (bi-directional) communications between the systems it connects. It is typically used for multi-point linking of larger linked systems. An FDX link requires that two separate frequencies be used (one for transmit and one for receive).
Packet Node – This is a digital repeating station. This station is typically engaged in receiving, recognizing, and selectively repeating digital frames.
Network BBS – This is a digital Bulletin Board System that provides Network services to one or more users in a packet network. Network services would include but not be limited to Message or File storage and retrieval, network linking services, and information routing.
Other – Users are encouraged to experiment. If one of the choices above does not meet your needs please check this box and provide a detailed explanation of you plans and intentions.

Block 2: <u>Transmitter Information</u>

Multi-point - Typical repeater will be multi-point.
Point to Point – Typically Links and control systems would be point to point.

TX Freq: - This is typically assigned by the Operations committee, however if you are planning to share a frequency, or have a strong reason to specify a frequency, then enter it into this block in Megahertz (i.e. 146.02). Please keep in mind that in Duplex systems this frequency will represent what the user receivers will be listening to.

Antenna Type – Specify the general type of antenna planned for use as the transmit antenna. If the antenna is the same for RX, then note that in Block 3.

Gain - Gain should be in dBd (decibels above a dipole). This is an important number to know. The accuracy of this number will affect the calculation of the ERP.

If the antenna is directional then use the specs that came with the antenna to fill out the **Major Lobe in Degrees and F/B ratio in dB**.

Power/ERP - Circle power if you do not know the ERP and ERP if you now your power and gain in dBd. (Example: TX power is 25 watts and antenna is 6 dBd gain. math is: 25 watts x 4 = 100 watts ERP. (3dBd=2x 6dBd =4x). See the ARRL antenna book for a more detailed explanation).

Site Name – Enter the name of the site if it has one. I.e. “Laurel Mountain”.

“Lat: and Long:” – Enter the exact latitude and longitude for the site. Enter this information in Degrees, Minutes, and Seconds. This is a critical piece of information. Please be accurate! In many cases the Site Owner will have this data. Another source is to use/borrow a GPS and obtain the coordinates from it.

Site AMSL - Average Site Elevation. This should the elevation at the base of the antenna or base of the antenna support structure.

Nearest City – Enter the nearest city or town to the site.

Street Address – Enter the full Street Address for the site (if it has one).

Ant. height above ground – This entry is critical. Coupled with the site AMSL it determines how high the antenna actually is.

Rptr/Xmtr Call - The repeater call should reflect the call sign that will be on the repeaters ID. This may be an owner of the repeater, the club sponsoring the repeater, a trustee, and or control operator. Typically it is the call of the owner or the sponsoring club. This must be a current/valid amateur call sign.

Block 3: With the following exceptions the definitions are the same as for Block 2.

Access Type- This references the type of activation required for the Receiver. Typical methods: COS (carrier operated switch),

PL/CTCSS (Private Line/Continuos Tone Coded Squelch System), or DCS (Digital Coded Squelch).
PL Freq. – This is the frequency of the PL used to activate your Receiver (if you entered it as a means of activation in the Access Type as noted above. If other than PL please enter the codes/access tones here.

If you have separate TX and RX sites then this section must be fully completed. If not then write "Same as Block 2" in this section and move to Block 4.

Block 4: Hopefully this section is self-explanatory. Note: The contact name and call sign does not have to be the same as the Owner. The contact must be an authorized person that has been identified to the ORRC in writing by the coordination holder at the time of application or by addressing a letter to the ORRC via the PO Box.

Block 5: Geographical area to be served. This is typically a tough question. Ordinarily the radius of coverage varies with elevation, terrain, and equipment/antennas. The best way to estimate this is to have some friends help you with a test at the proposed site. Use a Mobile on a power setting similar to what you are planning to use. Contact your friends in the surrounding area and note their location and signal quality. This can take some time but typically will help you determine needs for your system development. Ordinarily a 25 to 40-mile radius around a site will the range of a low power repeater. Some at higher elevations and with good equipment/antennas can reach out in excess of 200 miles. So you can see for coordinating purposes this information is critical. If your repeater will serve a 20-mile radius around the city of Hillsboro, Oregon, then it will be easy to coordinate you with another repeater system on the same frequency in Central Washington and Central Oregon. If you are at an elevation of 5000 feet and have an antenna of 6 dBd with 200 watts of ERP then ORRC would have to find you a clear operating frequency State Wide and possibly have to negotiate with the adjacent coordinating organizations as well.

Block 6: This is additional information needed to better understand your repeater or linking system parameters. Simply check the boxes as Yes or No. If an Auto Patch is installed then provide the area (geographic) served by the Auto Patch. Example would be an Auto Patch installed on a repeater that is on the boarder of Washington and Oregon but the phone lines are set for local access to Vancouver Washington and the surrounding area, but not Portland or its surrounding communities. Then you would put "Vancouver

Washington and surrounding areas" as the Patch area even though the repeater serves a larger geographic region.
If you have links attached or associated with the system your applying for, please list them by referencing the transmit frequencies. Attaching a system map will be very much appreciated and may help to clarify your plans and speed up the evaluation process.
If the system is a packet station check all the boxes as Yes or No. Fill in your BBS Call, the geographic area served (BBS area) and the BBS alias.
If the Packet System is connected (RF or hard wired) to other systems please note this in the Connectivity to: line(s).
If the system is linked to other systems please list them by referencing the transmit frequecies. Attaching a system map will be very much appreciated and may help to clarify your plans and speed up the evaluation process.

Finish Up: Complete the form by signing it and noting your position your position within the organization. If you are not part of an organization leave the Position entry blank.

Take time to review and confirm the information you have written on the form.
Make at least one copy of the form. Please consider sending a copy to your region representative and or talking about you're application and needs prior to the next ORRC meeting. In that way your representative will be properly prepared to represent your interests and this will expedite the process of coordination.
Be sure to enclose your application/membership fee and mail the application to the PO box noted on the form.

3. Evaluation Process

3.1. Once a coordination request has been accepted for evaluation by the ORRC it will be submitted to the Operations Chair. The Operations Chair will review the application to ensure it is complete and that all requirements for application have been met prior to submitting it to the committee for consideration.

3.2. The application and accompanying information is presented for review and disposition at the next regularly scheduled Operations Committee Meeting (typically every other month).

3.3. The Operations Chair will review the application with the committee and recommend action and or approval of the application.

3.4. Actions resulting from a committee review are as follows:
- 3.4.1. Approval as submitted
- 3.4.2. Conditional Approval (application modified with one or more conditions)
- 3.4.3. Temporary approval pending testing results or additional conditions being met. (Some times called an STA or Special Testing Authorization).
- 3.4.4. Application put on hold (typically due to the application being incomplete or application fees not having been submitted).
- 3.4.5. Pending. This status puts the application on hold pending additional information. The Regional Representative will be assigned to inform the applicant and work with him/her to provide the needed information to move the application forward in the review process.
- 3.4.6. Returned for insufficient or incomplete application.
- 3.4.7. Application Denied. This is a result of the application being in conflict with another system or the applicant not having qualified for a Coordination of an Amateur Relay Station.

4. Processing of Coordination Requests

4.1. If the Application is approved:

4.1.1. There are three forms of approval:

4.1.1.1. Construction Permit

4.1.1.1.1. The application was approved. The applicant may begin to build and make operational the system as described by the application with the limitations and restrictions that may have been imposed as conditions for approval of the application.

4.1.1.1.2. When the Construction of the system is complete and you determine it to be operational send a formal written notice on an application form or formal letter to the ORRC Post Office Box and notify your Regional Representative.

4.1.1.2. Coordination

4.1.1.2.1. Although rare, you may be granted Coordination by the operations committee. If so you may begin operations of your station immediately after notification by your Regional Representative.

4.1.1.2.2. Formal notification will be provided via the US Mail.

4.1.1.3. STA (Special Testing Authorization)

4.1.1.3.1. This is granted for the purposes of determining if a proposed station will have a negative impact on an area or neighboring Relay Stations. The STA is a temporary grant that allows you to test your station(s) at the proposed site with the approximate systems parameters detailed in your application.

4.1.1.3.2. The STA is only good for the period specified on the application form and noted in the Database.

4.1.1.3.3. Unless approved for Construction Permit you may not operate your relay station(s) beyond the allotted time.

4.1.2. The approved application and fee are forwarded to the Treasurer and Database Manager. The Treasurer will deposit the application fee and the database manager will enter the New Coordination into the Database and distribute the new database to the ORRC Board and Committee members.

4.1.3. The Regional Representative is tasked with providing the applicant with approval status and any applicable conditions or restrictions within 3 weeks of the meeting were the decision is made.

4.1.4. The Database Manager will post on the ORRC WEB site (orrc.org) a list of applications and their status approximately 1 week after the minutes are published on the WEB site.

4.2. If an Application is denied

4.2.1. The Application and the application fee are forwarded to the Treasurer and Database Manager. The Fee is returned to the applicant and the application is filed for future reference.

4.2.2. There are several Reasons an application may be denied

4.2.2.1. Application is not properly filled out

4.2.2.1.1. The Application will be returned to the Regional Representative. He/she has the responsibility to work with the applicant to correct the form and get it back to the Operations Committee for re-consideration.

4.2.2.2. The application does not have the application/membership fee attached.

4.2.2.2.1. In this case the application will be held until the funds are received. The Regional Representative is responsible for notifying the applicant.

4.2.2.3. The Application is for a frequency or band that is fully utilized.

4.2.2.3.1. In this case, their Region Representative will notify the applicant and the Secretary will return the application fee. Since this is the case on many of our bands today, please be specific in your application of what kind of coordination is being requested. Wide Area repeaters are very difficult to find in most all bands. Shared frequencies for low level repeaters are more possible but have many restrictions. In most cases the Operations Committee is working directly from a Database of frequency allocations and not looking for sharing opportunities. It is up to you to do the research if you are considering sharing the frequency with another Owner/Operator. Evidence of sharing approvals is typically in the form of Co-channel sharing letters attached to your application. Without prior approvals of co-channel sharing from existing users the possibility of getting your application approved is very slim. Work with your Regional Representative. He/she should be able to help you with the procedure of writing requests for co-channel sharing.

4.2.2.4. The Application is in conflict with Band Plan or Adjacent State Repeater Operations

4.2.2.4.1. In this case the Regional Representative will work with you to try and find a usable spectrum/frequency for your requested operations.

4.2.2.5. There may be other reasons for an application being denied. Technology, Geographic location, Number of systems being requested, operating parameters, improper class license, and more. The Operations Committee considers and carefully weighs each application against the impact to the Amateur Radio and Public communities, which it will serve. In all cases the Regional Representative will notify you and work with you to resolve all possible issues and try and resolve issues preventing the applicant/application from being denied in the future.

5. Notification of Status to Applicants

5.1. All applicants are notified via their Regional Representatives (verbally and or written). This notification serves as a formal approval and the applicant may be construction/operations at the time of notification.

5.2. The Operations Committee and or Database Manager will post a list of applications and their results after the minutes of the last meeting are posted on the ORRC WEB site (orrc.org).

6. Updating System Status

6.1. Notify your Regional Representative of any and all changes to your operating/system parameters.

6.2. If changes to your system that impact the coverage provided by your system or change the operating frequency, you are required to apply for a new coordination. Minor changes in your system may be made via the application form or via the annual updates. In most cases updates are relatively minor and are approved as long as the changes pose no impact to shared or neighboring systems (ORRC determination not users or applicants opinion).

7. Coordination Maintenance

7.1. Annually the ORRC will supply forms requesting you confirm that the Data we have on file for your system(s) is accurate. We also need to know if you want it published or not. So, please complete this form and return the promptly. This procedure allows us to properly consider other applications that may affect your operations and ensure the data you want published is accurately reported the ARRL and other Coordinators.

7.1.1. There are two publications that use and publish our Database. The ARRL and WWARA (Western Washington Amateur Repeater Association). Both of these groups publish a repeater directory each year. If you do not wish to be in one or either of them you must notify ORRC via your update forms.

8. **De-Coordination**

8.1. Users may loose their coordination should the ORRC or the FCC determine the user is violating good amateur practice, ORRC guidelines, or FCC law as follows:

8.1.1. Should the ORRC or another coordination body in cooperation with ORRC determine that a coordinated user is creating willful interference, the ORRC will work with the offending amateur/club/organization to resolve the issue in a timely manner. If the interference cannot be resolved within a reasonable time frame the issue will be referred to the Operations Committee and the coordination holder may be de-coordinated with out any further research and the user will be notified by mail. The frequency will then be returned to the available frequency pool for re-issuance.

8.1.2. Should the FCC or another government agency in cooperation with the FCC determine that a user is creating interference harmful to another radio service, creating a hazard, or imposing a risk? The ORRC will work with the FCC to de-coordinate the user if there is not and immediate and apparent effort to resolve the interference to the FCC's satisfaction.

8.1.3. Each year the ORRC will send out an update form. If the update form is not received for a period of three consecutive years the user will be de-coordinated and the frequency returned to the available frequency pool for re-issuance.

8.1.4. If a coordinated relay station is determined and documented to be inoperable for a period of 6 consecutive months or more, the ORRC will notify the user and request that the user get the station operational within a specified period by the Operations Committee. If the user chooses not to comply with the Committee's request then the user will be de-coordinated and frequency returned to the available frequency pool for re-issuance.