
AREA REPEATER COORDINATION COUNCIL (ARCC). INC.

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INSTRUCTIONS FOR COMPLETING COORDINATION APPLICATION FORMS

Revision H

INTRODUCTION

There are two types of coordination application forms, one for repeaters and one for auxiliary links. Use the repeater form for FM, ATV, and digital repeaters that will be accessed by user stations. Use the link form for point-to-point auxiliary link frequencies used solely for the interconnection and networking of other coordinated repeaters and auxiliary links, but otherwise not accessed directly by user stations. Note that ARCC will not coordinate an auxiliary link within a repeater subband nor vice-versa.

For ATV and digital operations, use the appropriate form and skip the fields which do not apply. Ensure that the operation type on the frequency(s) specified is permitted per ARCC's bandplans. For non-standard operations, please use the form most appropriate for the application and include a separate, concise description of the system.

Please print or type all information, and fill out all required sections. Do not alter the form in any way. Completed forms, along with any accompanying documents, should be sent to the ARCC mailing address. Incomplete applications or those that contain inaccurate data will be rejected without action. It is strongly suggested that you read ARCC's list of Frequently Asked Questions (FAQ) and review ARCC's bandplans and coordination policies before completing the forms, all of which are available on ARCC's web site.

GENERAL INFORMATION

- Transmitter Callsign:** The station callsign that will be sent on the transmitted signal per FCC regulations. It does not necessarily have to be the same as the callsign of the person or group the coordination is issued to provided that the entity to whom the coordination is issued to has the approval of the trustee or licensee of the callsign being used.
- Club/Sponsor:** The name of the club or sponsor of the repeater. The contents of this field are used for the "Sponsor" field in repeater directories (when applicable).
- Issue Coordination To:** The person or group specified here will be considered the "holder" of the coordination. Only the coordination holder has rights or claims to the coordination. Clubs are strongly encouraged to have coordinations issued to the club rather than a club officer or trustee. Think carefully about who you want the holder of the coordination to be - it can't be changed later as **ARCC does not allow coordinations to be transferred.**
- Callsign:** The callsign of the party to whom the coordination will be issued. For clubs that do not have a club station license, write "CLUB" in this field.
- Sponsor Type:** If the repeater is sponsored by a club, specify the number of members in the club.

APPLICATION PROCESSING INFORMATION

- New:** If this is an application for a repeater or auxiliary link for which a current, valid coordination does not currently exist, select the first box.
- New SNP:** Applications for new SNP (shared, non-protected) repeaters must select this box. Policies and procedures specific to SNP repeaters are published on the web site at www.arcc-inc.org.
- Modification:** If you are submitting this form to change any of the parameters for a repeater or link transmitter that is currently coordinated, select the second box. If this box is checked, but there does not exist an active coordination associated with the operation, the application will be dismissed without action.
- Note that if any of the parameters that affect transmitter coverage or interference potential are being changed, including, but not limited to EIRP, HAAT, location, antenna pattern, access control (such as PL tone) etc., or if the frequencies have changed, your application will be reviewed in full. If the parameters that are being changed do not affect coverage or interference potential, such as transmitter callsign, contact information, etc. then the updates will be made to the database as an "administrative change", typically without any additional delay or coordinator review.
- If this box is checked, but there does not exist an active coordination associated with the operation, the application will be rejected.
- Waiting List:** If this application is for a frequency band in an area which applications are being accepted only through a waiting list, mark this box, and only this box. **Applications that are processed through the waiting list may not specify a particular frequency or frequency pair!** ARCC will reject an application if it is in a band/area for which there is a waiting list unless this box is marked. Likewise, if a frequency pair is specified, but the application is subject to waiting list processing procedures, the application will be rejected. The waiting list policies and procedures are published on ARCC's web site at www.arcc-inc.org.
- Auxiliary Link Use:** For auxiliary links, specify what the link is used for.

FREQUENCIES

- Suggest Frequencies:** If this is an application for a new coordination, it is strongly recommended that you check this box. ARCC will perform database searches to find one or more potentially-viable frequencies. Note that if ARCC suggests a frequency or frequency pair, in no way does it guarantee that it will be interference-free. The entire review process, including the initial probationary period, still applies.
- Repeaters:** Specify one frequency per line only. If you do not use a control receiver, specify "NONE" (repeater form only). Control channels may not lie within a repeater or auxiliary link subband where ARCC issues coordinations. Note that control channels are a shared resource, i.e. more than one repeater can use a particular frequency in a given area provided they use different PL, DPL, or DTMF codes, and that your choice of control channel has no effect on the processing, acceptance, or denial of a repeater coordination application. Contact ARCC for suggestions as to usable control frequencies and PL tones that won't conflict with other operations.
- Auxiliary Links:** Specify the frequency of the link transmitter. For a link transmitter that is activated whenever a signal is received, such as for a remote receiver link, a repeater-to-repeater link, etc., specify the input frequency. For example, a remote

receiver that receives the 147.600 input of a 147.000+ repeater and transmits out on the specified link frequency, the input frequency would be 147.600. Specify the PL, DPL, or other access control mechanism on the link transmitter frequency; carrier squelch access is not permitted.

Emission Designator: Use FCC standard emissions designators. Some common emissions designators are listed below:

FM Voice on a 10 kHz channel (10m only):	10K0F3E
FM Voice on a 15 kHz channel (2m above 146 MHz):	15K0F3E
FM Voice on a 20 kHz channel (6m, 2m below 146 MHz, 1.25m):	16K0F3E
FM Voice on a 25 kHz channel (70cm and up):	18K0F3E
Narrowband FM Voice:	11K2F3E
1200 baud AFSK Packet:	16K0F2D
D-Star Digital Voice:	6K00F7W
P25 Digital Voice ("narrowband" Phase I channel):	8K10F1E

GEOGRAPHIC INFORMATION FOR REPEATER/LINK TRANSMITTER SITE AND LINK TARGET SITE

- Facility:** The name of the facility where the transmitter (or receiver for link target site) is located (e.g. "WXYZ-TV tower"). This will be kept confidential.
- Address, City, State:** Address of the site. This, too, will be kept confidential.
- Location Name to List:** (Repeaters only) Name of the location to show for the repeater in the repeater directory. Some individuals or groups prefer to use a well-known location name in the directories, such as the name of the closest major city, even though the repeater may be located outside the city limits. There is only room for 14 characters maximum, including spaces. If you specify more than 14 characters, only the first 14 will be printed. The directory entries are grouped by county in the directory, and then sorted by location name within the county group.
- Base Ground Elev.:** The elevation at ground level of the site. If you do not have accurate elevation data for the site, you may leave this field blank if you provide accurate latitude/longitude coordinates. ARCC will obtain the elevation based on the coordinates supplied, but the antenna structure (tower, building, etc.) must be visible on satellite imagery at those exact coordinates. If an antenna structure is not visible, the application will not be accepted for processing until accurate coordinates and elevations are determined by the applicant.
- Height Above Ground:** Distance from the center of radiation of the antenna to the ground (not height above sea level!). You may not leave this field blank.
- Above Avg. Terrain:** Use the FCC-standard method of determining HAAT *It is imperative that the value provided for this field be calculated accurately!* Applications with erroneous or estimated values for HAAT will be returned without action. Use the HAAT Worksheet to assist you in determining HAAT if necessary. Alternatively, you may leave this field blank and HAAT will be calculated for you provided that all of the other information (ground elevation, antenna height, and coordinates) are accurate.

- Latitude/Longitude:** Coordinates of repeater or link transmitter site. *Please supply data accurate to within 1 second in degrees/minutes/seconds format.* Note that ARCC now uses NAD83 (WGS84) datum for lat/lon coordinates.
- ASR#:** FCC Antenna Structure Registration number. If the proposed site does not have an ASR#, leave this field blank.
- Link Target Site:** This location is receiving endpoint of the auxiliary link. For example, for a remote receiver for a repeater, the link target site is often the repeater transmitter site. ARCC needs to be able to afford interference protection to the receiver at the link target site, hence accurate data for this site is just as important as it is for the link transmitter site.

TRANSMITTER POWER

- Transmitter Power Out:** The power output from the transmitter's power amplifier before any external filtering, duplexer, combiner, isolator, or any other lossy device.
- Antenna System Loss:** The total loss, in decibels, through the antenna system. This includes feedline, duplexer, filter cavities, combining equipment, isolators, cross-band couplers, lightening arrestors, patch cables, and anything else in the path between the transmitter and the antenna which contribute to power loss. The EIRP Worksheet has loss data for many common coaxial cables.
- Max. Gain at Horizon:** The maximum antenna gain of the main lobe of the antenna's horizontal pattern at the horizon. Note that an antenna with electrical or mechanical downtilt will have less gain at the horizon than the same antenna without downtilt. Consult your antenna manufacturer's catalog or spec sheet to obtain this value. This value is specified in decibels referenced to an isotropic radiator (dBi). Most amateur antenna manufacturers specify their gain values referenced to an isotropic radiator (dBi). Most commercial manufacturers specify gain values referenced to a dipole (dBd). For manufacturers that do not specify dBd or dBi, assume dBi.
- EIRP:** This is the product of the transmitter power output, plus antenna gain, minus system losses. You can leave this field blank and the EIRP will be calculated for you provided you have filled in the above three fields. Use the EIRP Worksheet to assist you in calculating EIRP properly.

ANTENNA RADIATION PATTERN

- Omnidirectional, top:** A top-mounted antenna that radiates equally well in all horizontal directions. Note that auxiliary links may not utilize an omnidirectional antenna unless it is a linking hub, and even then, only the hub may be omnidirectional, but each of the associated stations linking into the hub must utilize a directional antenna.
- Omnidirectional, side:** An omnidirectional antenna mounted on the side of the tower. Side-mounted antennas typically have a distorted pattern due to proximity to the metallic tower. Be sure to note the shadowed direction and favored direction of a side-mounted omni, using degrees relative to true north (e.g. east = 90 degrees).
- Elliptical/Bidirectional:** An antenna that has two major lobes opposite each other by 180 degrees. For the major lobe axis, specify the bearing of the center of either one of the major lobes (it is assumed that the other major lobe is 180 degrees opposite the one specified). Specify the half-power (-3dB) beamwidth of one of the major lobes. The front-to-side ratio is the ratio of maximum gain in the major lobe to the gain

90 degrees off the major lobe. These parameters should be included in manufacturer's spec sheets.

Cardiod/Unidirectional: An antenna that radiates primarily in one direction. Examples of this type of antenna are yagis, corner reflectors, and dipole arrays with all elements on the same side of the mast or tower. Specify the bearing of the center of the major lobe, the half-power (-3dB) beamwidth of the major lobe, and the front-to-back ratio. These parameters should be listed in manufacturer's spec sheets.

Antenna Polarization: Polarization of the transmitting antenna. Please note that only certain polarizations are allowed for certain operation types. Please review ARCC's bandplans for details.

REPEATER OPERATING PARAMETERS AND SPECIAL FEATURES

Most of the items in this section are self-explanatory. The following are some additional clarifications.

Usage Policy: Open repeaters are those which any licensed amateur of applicable license class can use. Closed repeaters are those which are only to be used by amateurs as authorized by the repeater owner/trustee.

List Rpt. in Directories: If you select No, your coordination information will not be published in ARCC's public databases (either printed or on the web site), nor distributed to the ARRL or to any other entity soliciting information from ARCC to produce or distribute any type of repeater directory. Auxiliary link and control frequencies are never listed in public directories.

Linked System: Select Yes if this repeater is linked to one or more other repeaters. It is suggested that you do not check this box if the repeaters are not linked full-time.

Remote Base(s): Indicate if this repeater has a remote base connected to it directly. Do not check this box to imply that repeater users may use remote bases to access this repeater.

Severe Weather Net: If this repeater has severe weather nets on a regular basis, such as Skywarn, indicate such.

List PL/DPL in Dir.: If you selected Yes to "List Repeater in Directories", you have the option of listing or not listing the PL tone or DPL code for this repeater in published directories.

Rpt. Access Mode: Select the appropriate response and enter the appropriate code as necessary. **Note that all repeaters and auxiliary links require a means of access control; carrier squelch is not permitted.** Digital and ATV repeaters are considered to have *de facto* access control.

Access control method and the associated tone/code are coordinated parameters - the method and/or tone or code may not be changed without applying for, and receiving approval of, a coordination modification. The tone/code may not duplicate the same tone of any co-channel repeater within ARCC's territory or any adjacent coordination council's territory. PL tones utilized in the Western PA Repeater Council Regional Tone Plan (123.0, 131.8, 173.8, 186.2) should be avoided.

Autopatch Type: Open autopatches are available for use by anyone, whether or not they are a member of the group or club that sponsors the repeater. Open autopatches typically use the "star-up, pound-down" convention. Closed autopatches are for use only by club members or those authorized by the repeater owner/trustee.

Alternative Power:	If the repeater has battery or generator backup power, or operates via solar power, indicate such.
Long-Tone Zero:	Select yes if your repeater supports the long-tone zero protocol for emergency help.
Bi-Lingual Repeater:	Select yes if the use of a non-English language on the repeater is acceptable. Keep in mind that all station identification done by phone (i.e. either by human speech or synthesized voice) must be done in English per FCC regulations (47 CFR §97.119(b)(2)).
Web Page URL:	Applicable to repeaters only. If there is a web site associated with this repeater, indicate its URL here. This will be converted into a hyperlink in databases published on ARCC's web site.

PRIMARY CONTACT/SECONDARY CONTACT

The ARCC will use this information for all future correspondence. The secondary contact will only be used in the event that repeated attempts at contacting the primary contact have failed. The name, callsign, address, and one telephone number are required. ARCC will use email as the primary means of communication if there are any questions that arise during coordination application processing. If you routinely monitor a frequency, please note it as well. It is the responsibility of the coordination holder to keep accurate contact information on file at all times.

REPEATER HARDWARE

Completing this section is optional, however, it is recommend that you complete it. It assists ARCC in determining if any errors were made elsewhere in the application by allowing us to correlate the repeater hardware to the specified values for fields such as antenna gain, transmitter power, and passive losses.

180-DAY CONSTRUCTION PERIOD

If the proposed operation can be coordinated, ARCC will issue a Construction Coordination which is valid for 180 days. It is the responsibility of the coordination holder to notify ARCC that construction has been completed before the 180 day construction deadline, at which point an ARCC representative will confirm that the station is on the air and operating pursuant to its coordinated parameters, and then a permanent Certificate of Coordination will be issued. Notification can be made by US mail at the address above, or by email to buildout@arcc-inc.org. If a notification of construction completion is not received before the 180 day expiry of the Construction Coordination, it will be presumed that the station was never constructed, no permanent coordination will be issued, and the coordination record will be deleted from the database. Please do not apply for coordination until you have all of the necessary resources available to ensure that the station will be operational within the 180 day construction period.

APPLICATION FILING

If there is any additional information that you feel is important that ARCC know about the operation which is not adequately conveyed by the fields on the form, please provide concise information on a separate sheet and attach it to the form. It is not necessary to include coverage maps, contour maps, details regarding other co-channel or adjacent-channel repeaters, or other information related to interference analysis. ARCC performs detailed interference analysis, including coverage plots of the proposed and incumbent operations, when reviewing applications. Please do not send information unrelated to the technical aspects of the repeater, as ARCC approves or rejects coordination applications based solely on interference potential and compliance with ARCC and FCC policies and regulations.

Send the completed application form, along with copies of any relevant documents, to the ARCC's mailing address, via the US Postal System only. Faxes and emails are not accepted for formal coordination matters. Do not send worksheets (HAAT, EIRP, etc.), but retain them for your records. Likewise, be sure to keep a copy of the application and any other exhibits for your own records as well.

Applications with incomplete or inaccurate data will be rejected without action, and without coordination review. If you have any questions, please contact ARCC before submitting the application.