



FLORIDA REPEATER COUNCIL, INC.
<http://florida-repeaters.org/>

Voice Repeater Coordination Policy

1. The Florida Repeater Council, Inc. (FRC) is the ARRL recognized amateur frequency coordinating agency for the State of Florida.
2. The FRC provides frequency coordination and interference resolution services to all Florida repeater operators, FRC members and non-members alike.
3. The FRC coordinates only one type of fixed amateur transmitting system in those amateur band segments in which such a system is authorized by the Federal Communications Commission (FCC). That system is a repeater. The FRC no longer coordinates link or control transmitters but is requesting this information to assist in frequency/interference conflicts and any new 441/446 coordinations.
4. The FRC protects groups of frequencies for Packet Radio, and has appointed a representative from the digital community to assist in allocating digital systems within these groups of frequencies.
5. The FRC issues repeater pairs according to the following spectrum utilization plan: (See our Band Plans for guidance).

29 MHz: The FRC does not coordinate 10-Meter frequencies, but it will list all 10-Meter repeaters desiring to be included in the *ARRL Repeater Directory and Travel Plus CD*.

50 MHz: 51-52 MHz, -500 kHz offset on even raster with 20 kHz channel spacing; 52-54 MHz, -1000 kHz offset on odd raster with 20 kHz channel spacing. All channels Low in/High out.

144 MHz: +600 kHz offset with 15 kHz channel spacing above 147 MHz; -600 kHz offset with 15 kHz channel spacing below 147 MHz; -600 kHz offset with 20 kHz channel spacing below 146 MHz. The frequency pair 146.550 MHz (output), 147.550 MHz (input) is allocated statewide for transportable, temporary repeaters used only for emergencies.

222 MHz: -1.6 MHz offset with 20 kHz channel spacing. Low in/High out **ONLY**.

440 MHz: +5.0 MHz offset with 25 kHz channel spacing. High in/Low out **ONLY**. Coordinations in the frequency range 440.000 – 441.975 (out) / 445.000 – 446.975 (in) are allowed in FRC Districts 1, 2 and 4 **ONLY**. Due to existing voice and data links, coordinations in this range are always conditional; the repeater must not operate in carrier squelch and a sub-audible encoded squelch system (e.g. CTCSS, DCS, P25 NAC, etc.) is required; transmitter output power is limited to 50 watts; and antenna height is limited to 100 feet above ground level.

902 MHz: -12.0 or -25.0 MHz offset with 12.5 or 25 kHz channel spacing. Low in/High out **ONLY**.

1240 MHz: -12.0 MHz (and -20.0 MHz alternate) offset with 25 kHz channel spacing. Low in/High out **ONLY**.

6. The FRC will not honor requests for non-standard pairs (per Paragraph 5), or for more than one input or output frequency per band on any one repeater.
7. Upon application for coordination the applicant shall designate the Individual or Entity that shall be considered the "Holder of the Coordination" this is the party that controls the coordination and has the authority to change the trustee or "Holder" information, transfer or relinquish the coordination. The Licensee if an individual or Trustee if a club call sign, of an FRC coordination must be a person who holds a valid license under the Amateur Radio Service Part 97 of the Federal Communications Commission Rules and Regulations. This is the Amateur Licensee who is responsible for the proper technical and operational use of the repeater. The licensee's call sign will identify that repeater on the air, except when the

repeater is a club station identifying with the club's call sign, in which case the FCC-recognized trustee of the club station is the licensee. The applicant may designate an Entity that shall be considered the "Sponsor", this is the club or other organization that uses and/or supports the repeater but shall have NO AUTHORITY to make changes to the coordination.

All requests for new coordination, or changes in coordination to reflect changes to the designated "Holder", "Trustee" or geographical location must be submitted over the signature of the "Holder" and submit such documentation as may be required to authenticate such request. Requests for changes to technical specifications must be submitted in writing over the signature of the licensee or Trustee. The frequency coordination document shall be emailed to the applicant. The FRC may request verification in writing by a principal officer of the club or other "Holder" .

8. Coordinations are issued with a minimum adjacent-channel separation of 30 miles in the frequency range 146.000 MHz to 147.390 MHz (where frequency separation is 15 kHz), and the minimum co-channel separation (or radius of protection) is listed below:

TABLE 8.1 Minimum Co-Channel Separations

Height of Repeater Antenna above average terrain (feet)	Minimum Co-Channel Separation (Radius of Protection) (miles)		
	144 MHz	220 & 440 MHz	All other bands
50 to 200	65	50	85
201 to 300	70	60	85
301 to 500	80	70	85
501 to 700	90	80	85
701 to 1000	100	90	85
1001 to 1500	140	110	85
1501 to 2000	160	125	85

There are no minimum adjacent-channel separation requirements in any part of any other band.

Conditional coordinations will be issued in the frequency range of 145.13 to 145.50 where the even spaced coordinations, i.e. 145.14, 145.16, 145.18, etc, are issued for Narrow Band or Digital repeaters only. The Coordination Committee will issue these on a case-by-case basis.

Project 25 (P25) repeaters that are deployed as mixed-mode, that are capable of both analog and digital modulation, will be issued an analog voice coordination in any band unless the repeater is used in only a P25 digital format. When coordinated as only P25 digital then a narrow band 145.XX conditional coordination will be issued first, if available.

All new coordinations are issued with the radius of protection listed in Table 8.1. The FRC will consider both the separation required of a proposed repeater and the required separation from all existing coordinated co and adjacent channel repeaters as applicable. If ANY technical changes are made to the repeater then the coordination will be treated as a NEW coordination. In some coordination situations, the FRC may require the operator to agree to antenna height or pattern restrictions, ERP limitations, the use of a tone or digital squelch system or other access control methods, or all of the above in the interest of avoiding mutual interference.

8a. An alternative to the arbitrary separation-distance method for coordinating frequency pairs exists when it can be shown that somewhat shorter separation distances will provide satisfactory interference-free operation. This alternative method will be considered on a case-by-case basis. This alternate method of coordination will also include consideration of antenna heights and ERP of all repeaters geographically involved. The success or failure of such operation will be determined experimentally on a trial basis after issuing a 6 month conditional coordination to the applicant. If the experimental repeater operation produces acceptable interference-free operation, the conditional coordination will be upgraded to full coordination; if not, the conditional coordination will be rescinded, and another frequency search can begin.

8b. An applicant desiring coordination on a frequency at less than the required spacing may submit a fully executed "Close Spacing Agreement" between the applicant and ALL affected co and adjacent channel trustees.

8c. UNCOORDINATED repeaters including previously coordinated repeaters which have expired and passed the grace period for renewal may not be considered in the processing of coordination requests.

9. NO technical or geographical changes may be made to a coordinated repeater installation, such as effective radiated output power (ERP), antenna height, or location, without prior approval by the FRC. Any unauthorized changes could result in an immediate de-coordination. If technical changes are required the applicant shall submit a complete application for New Coordination also noting the items to be modified. Upon granting of the modified coordination the previous coordination shall be cancelled.

10. When either the licensee or owner of a coordinated repeater changes, the FRC, upon proper application, including proof of transfer acceptable to the FRC, will re-coordinate the frequency pair to the new licensee or owner, providing there have been no modifications to the technical or geographical specifications. If modified coordination specifications are proposed, an application for new coordination must be submitted along with the proof of transfer acceptable to the FRC. The FRC does not guarantee the transfer of an existing coordination, a new application must be filed and processed in due course. Should the new application fail to be approved the incumbent coordination is unchanged.

11. To apply for a new or changed coordination the following information must be submitted to the FRC on an FRC New Coordination Application form:

- a. The Name, address and contact information of the Individual or Entity that shall be considered the "Holder of the Coordination" this is the party that controls the coordination and has the authority to change the trustee or "Holder" information, transfer or relinquish the coordination.
- b. The Name, address and contact information of the licensee or Trustee if a club call sign, mailing address, home and work telephone numbers and email address. This is the Amateur Licensee who is responsible for the proper technical and operational use of the repeater.
- c. The Name, address and contact information of the Entity that shall be considered the "Sponsor", this is the club or other organization that uses and/or supports the repeater but shall have NO AUTHORITY to make changes to the coordination.
- d. Specific frequency pair applied for.
- e. Proposed location of the repeater: city, county, FCC antenna site registration number, latitude and longitude. The latitude and longitude must be stated in the standard form for indicating geographical coordinates in degrees, minutes and seconds, for example, 25° 28' 10 N, 80° 14' 23 W. Do NOT use decimal degrees.
- f. All repeater features, such as open, autopatch, Tone, digital or other access method, RACES, etc. If requested, the access tone or codes will not be published.
- g. Proposed antenna height and effective radiated output power (ERP). The application form used for coordination contains instructions for calculating ERP from known transmitter output power, duplexer loss, feed line loss and antenna gain.

12. When a new repeater coordination is approved, a conditional, non-renewable, six-month coordination will be issued. Once the District Director and Coordinator are notified that the repeater is in-service by the filing of a repeater update form, a full two-year coordination will be granted. A repeater will be considered uncoordinated on the expiration date of the coordination, even if the repeater is still in-service. It is solely the repeater licensee's responsibility to renew the coordination before its expiration date if they wish to remain coordinated. If the two-year coordination expires it may still be renewed during a six-month grace period after the expiration date. If the coordination is not renewed during the six-month grace period, the pair will become immediately available to be reissued without notice. After the six-month grace period a new application for repeater coordination must be filed if a coordination is desired. Effective 1/1/2004, no new or renewal repeater coordinations will be granted without an expiration date. A coordination will not be renewed if the repeater is not in-service unless upon timely application to the FRC, an exception or extension is granted by the FRC Board of Directors in the event a repeater is under repair or is relocating. Expired repeater coordinations will be listed on the FRC web site, <http://florida-repeaters.org> as a courtesy to Trustees. The failure of the FRC to list an expired coordination does not relieve the trustee or "Holder" from the responsibility of timely renewing their coordination.

13. The FRC will not honor any request for an UNLISTED pair. It is the policy of the FRC to furnish to the ARRL all coordinated repeater pairs for publication in the ARRL Repeater Directory, except as noted in paragraph 15. This policy assists in maintaining the integrity of the frequency utilization plan.

14. The following information will be published in the Repeater Directory: input and output frequencies, location, callsign, sponsor and features. All other information will be held strictly CONFIDENTIAL.

15. A requirement for listing repeaters in the ARRL Repeater Directory is the submission of any required repeater coordination renewal. Due to the many issues involved in the production of repeater listings the FRC can not guarantee that any or every coordinated repeater will be listed in the repeater directory. To qualify for the Directory listing the coordination must be current in the FRC Data Base on December 1 to meet the following year directory publication deadline.

16. FRC policies regarding interference between repeaters are in accordance with FCC rulings and guidelines, as follows:

- If an uncoordinated repeater causes harmful interference to a coordinated repeater, the primary responsibility for correcting the interference rests with the operator of the uncoordinated repeater.
- If both systems are coordinated, the FRC will determine who bears the primary responsibility for correcting the interference.
- If a repeater operator changes the location, antenna height, ERP, or other parameters of his system in a manner which causes harmful interference to other repeaters, that repeater operator bears the primary responsibility for correcting the interference, and possibly becomes subject to the requirement for recoordination. (See paragraph 9)

17. The FRC may de-coordinate a repeater under the following conditions:

- If a system is ordered permanently shut down by the FCC for any reason.
- If the operator of a system consistently violates good engineering practice by transmitting with excessive deviation (in excess of accepted standards for the band in which repeater is operating), with spurious emissions, or so far off-frequency as to cause harmful interference, and does not attempt in good faith to correct the problem within 60 days when notified by the FRC.
- When it has been determined by means of research that a pair has been inactive for a period of 60 days without submitting a satisfactory explanation for the inactivity in writing to the FRC.
- If a repeater is inoperative for more than 90 days without timely notice to the FRC of some extenuating circumstances, the coordination is automatically withdrawn. No individual or owner group is allowed to hold a frequency pair for future use.
- Any repeater that has not submitted a repeater coordination renewal form within the last 30 months (2 years term, 6 months grace) is cancelled. If mail sent to the latest address appearing in the FRC Data Base is returned undeliverable, and if the date of that address appearing in the data base is three or more years old, the coordination shall be cancelled immediately on the date the mail is returned. See paragraph 12.

18. All known cases of apparent malicious interference will be forwarded to the FCC Field Office with jurisdiction over the area in which the source of the interference is located.

19. If the phone number or address of the licensee is changed, making immediate FRC contact with licensee impossible, the licensee must notify the FRC by submitting new or accessible phone number and address within 14 days; the FRC must be able to contact the licensee if a situation arises that needs his immediate attention. Failure to report such changes shall be grounds for decoordination. In addition, if a coordination is abandoned for any reason, the FRC must be notified within 14 days of the abandonment.

20. The minimum antenna height for coordination is 50 feet measured between ground level and the top of the antenna. FRC may upon application coordinate a repeater at less than 50' AGL upon showing of high ground elevation or other special conditions.

21. All 144 and 440 MHz repeaters coordinated after January 1, 2003 are no longer approved to operate in Carrier Squelch and must support a tone, digital or other suitable access control method. If a CTCSS system is chosen it is strongly recommended that these repeaters choose the CTCSS frequencies recommended by the FRC for the respective district to prevent overlap with co-channel repeaters in adjacent districts, but they may choose other frequencies that aren't utilized in adjacent districts or other technologies such as Digital Coded Squelch (DCS). See our CTCSS info page on the FRC web site. Existing repeaters that choose not to utilize a sub-audible squelch system should not expect the FRC to resolve their interference problem if a sub-audible encoded squelch system would likely solve the problem.

22. New applications for coordination must specify the expected RF output power of the repeater transmitter. Federal Communications Commission Rule 97.313 (f) states that "No station may transmit with a transmitter power exceeding 50 W PEP on the 440 MHz band unless expressly authorized by the FCC and the military area frequency coordinator at the applicable military base." Any application submitted with a transmitter RF output power level (not ERP) greater than 50 watts must include written permission from the military frequency coordinator of Florida. Otherwise it will not be processed and returned to the applicant.

23. In order to allow for the timely processing of applications the FRC coordination committee may waive parts of these procedures where there is no detrimental impact on an applicant or existing trustee. Such waiver shall not create any special consideration for any future applications.