



*State and Local Spectrum Management
Processes Report*

Final

November 1998

TABLE OF CONTENTS

	PAGE
INTRODUCTION	1
PROCESS OVERVIEW	2
FREQUENCY ASSIGNMENT	4
<i>User Activities</i>	5
<i>Frequency Coordinator Activities</i>	10
<i>FCC Activities</i>	13
FREQUENCY ADMINISTRATION	15
SPECTRUM ALLOCATION	17
APPENDIX A, Acronyms	A-1
APPENDIX B, Glossary	B-1
APPENDIX C, FCC Forms	C-1
APPENDIX D, National Public Safety Planning Advisory Committee (NPSPAC) Regional Chairpersons	D-1
APPENDIX E, Public Safety Radio Pool Licensees	E-1
APPENDIX F, Public Safety Radio Pool Frequency Coordination	F-1
APPENDIX G, Frequency Coordinator Forms	G-1

TABLE OF FIGURES

	PAGE
Figure 1	Cyclical Process of Spectrum Management..... 2
Figure 2	Frequency Assignment Activities..... 4
Figure 3	User Activities..... 5
Figure 4	Frequency Coordinator Activities.....10
Figure 5	FCC Activities.....13
Figure 6	Spectrum Allocation Process.....17
Figure D-1	NPSAC Regional Breakdown of United States and Its Territories D-1
Figure F-1	Overall Frequency Coordination Responsibility for Low-Band VHF Frequencies.....F-2
Figure F-2	Overall Frequency Coordination Responsibility for Mid-Band VHF FrequenciesF-4
Figure F-3	Overall Frequency Coordination Responsibility for High-Band VHF Frequencies.....F-5
Figure F-4	Overall Frequency Coordination Responsibility for Low-Band UHF Frequencies.....F-7
Figure F-5	Overall Frequency Coordination Responsibility for 800 MHz Band Frequencies.....F-8

TABLE OF TABLES

	PAGE
Table F-1	Frequency Coordination Responsibilities for Low-Band VHF Frequencies.....F-2
Table F-2	Frequency Coordination Responsibilities for Mid-Band VHF FrequenciesF-4
Table F-3	Frequency Coordination Responsibilities for High-Band VHF FrequenciesF-5
Table F-4	Frequency Coordination Responsibilities for Low-Band UHF Frequencies.....F-7
Table F-5	Frequency Coordination Responsibilities for 800 MHz Band FrequenciesF-8

ACKNOWLEDGEMENTS

The PSWN PMO wishes to thank the individuals who contributed to this report. The individuals listed below provided valuable information by participating in the interviews, submitting written thoughts, and providing general input to guide the direction of the study and subsequent report.

Name	Title
Mike Borrego	Acting Director, Communications Services Group-Division of Colorado Information Technology Services-Department of General Administration
Joe Friend	Washington, D.C., Office Coordinator, Forestry Conservation Communications Association
Carl Guse	Frequency Specialist, Bureau of Communications, Wisconsin State Patrol
Cheryl Harrer	Managing Director, Automated Frequency Coordination, Association of Public-Safety Officials-International, Inc.
Richard Kinsman	Vice President of Operations, Fire/EMS Radio Service Frequency Coordination, International Municipal Signal Association
Steve Linn	Deputy Chief, Licensing and Technical Analysis Branch, Public Safety and Private Wireless Division, Federal Communications Commission
Art McDole	Frequency Coordinator, Northern California, Association of Public-Safety Officials-International, Inc.
Larry Miller	Frequency Coordination Manager, American Association of State Highway and Transportation Officials
Mike Regiec	Engineer, Licensing and Technical Analysis Branch, Public Safety and Private Wireless Division, Federal Communications Commission
Robert Schlieman	Radio Engineer, New York State Police Department
Richard Sheldrew	Telecommunications Manager, Nevada Department of Transportation
Vincent Stiles	Communications of Radio Systems Director, Suffolk County, New York Police Department
Andrew Szekely	National Frequency Coordinator, International Municipal Signal Association

INTRODUCTION

State and local public safety entities use land mobile radio (LMR) systems as a primary means of communication. Like other wireless technologies, LMR systems require radio spectrum to operate. In general terms, radio spectrum can be thought of as an array of channels available for communications transmissions. Public safety personnel depend on available, clear, and reliable channels to perform their duties and to provide for their own personal safety.

The **Federal Communications Commission (FCC)** manages the non-Federal Government use of the radio spectrum, including state and local public safety and commercial users.

Radio spectrum is a finite, natural resource. As such, its use is managed, regulated, and coordinated by government organizations. Within the United States, the **Federal Communications Commission (FCC)** is central to spectrum management. The FCC manages the non-Federal Government use of the radio spectrum, including the spectrum used by state and local public safety entities. These organizations must interact with the FCC to secure the necessary approvals for operating in portions of the radio spectrum. However, these interactions are not intuitive to persons who are not experts in spectrum management.

This document is a **how-to guide** to help state and local entities with public safety missions obtain frequencies. It explains the frequency assignment, frequency administration, and spectrum allocation processes.

This guide is intended to serve as a **“how-to guide”** to help state and local agencies with public safety responsibilities obtain frequencies. It explains why the current processes are used to manage state and local spectrum. Its objective is to clarify, from a user’s perspective, the processes involved in obtaining a frequency assignment, administering the spectrum following assignment, and making the underlying spectrum allocations.

In addition, six appendixes are provided to lend further assistance and to expand general knowledge in this area:

Appendix A—Acronyms.

Appendix B—Glossary, which defines frequently used terms.

Appendix C—FCC Forms 159, 405A, 572C, 600, and 1046.

Appendix D—Information on the National Public Safety Planning Advisory Committee (NPSPAC) Regional Chairpersons, including names and contact information for each of the current 55 regional chairpersons.

Appendix E—Public Safety Radio Pool Licensees, which includes sample mission statements for the types of entities that currently hold licenses in the Public Safety Radio Pool.

Appendix F—Public Safety Radio Pool Frequency Coordination, which details the specific frequency responsibilities of each public safety frequency coordinator.

Appendix G—Frequency Coordinator Forms that applicants must use to request coordination or other services.

PROCESS OVERVIEW

The **Communications Act of 1934** created the Federal Radio Commission (FRC), which later became known as the Federal Communications Commission or FCC.

The FCC was established by the **Communications Act of 1934** and is now “charged with regulating interstate and international communications by radio, television, wire, satellite, and cable” throughout the 50 states, the District of Columbia, and all U.S. possessions.¹ Since its creation, the FCC has developed a series of processes to manage radio spectrum. The processes associated with frequency assignment, frequency administration, and spectrum allocation help ensure that state and local radio spectrum use is consistent with established spectrum policy. State and local agencies seeking to use LMR radio frequencies must follow the FCC’s established processes. Figure 1 illustrates the cyclical nature of the assignment, administration, and allocation processes. A brief overview of the cycle is first given, followed by detailed treatments of each of its elements—frequency assignment, frequency administration, and spectrum allocation.

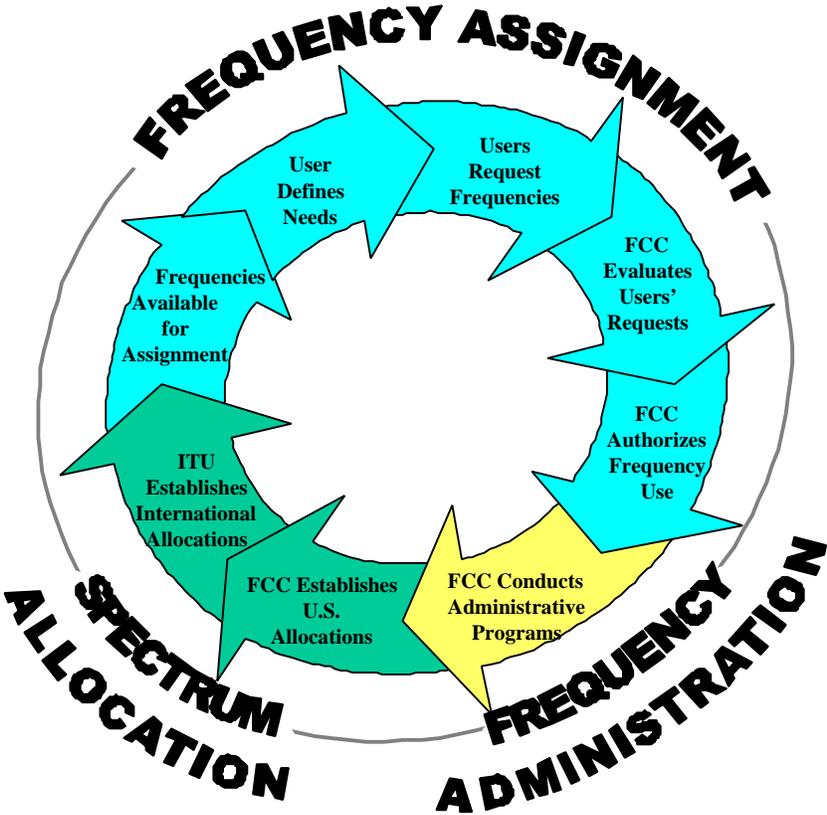


Figure 1
Cyclical Process of Spectrum Management

¹ FCC Web page, <http://www.fcc.gov/aboutfcc.html>

Frequency Assignment. From a user's perspective, one of the first steps in the process of developing an LMR system is to acquire radio frequencies. To obtain frequencies, users must follow the frequency assignment process developed by the FCC. This process consists of activities undertaken by users, a specified frequency coordinator, and the FCC. First, to prepare the necessary FCC application forms, users must define the communications requirements of the public safety entity seeking the frequency. After users complete the necessary application forms, the frequency coordinator reviews this information and selects available frequencies that are suitable for the user's system. Once the frequencies have been identified, the application is forwarded to the FCC for the final step. The FCC reviews the application for compliance with FCC rules ensuring that the public interest is upheld. If the request meets FCC standards, the FCC authorizes frequency use by granting a **frequency assignment** to the applicant.

Once a **frequency assignment** is granted, a frequency license or a temporary frequency authorization is issued to the applicant to confirm the approved use of assigned frequencies.

Frequency Administration. After assignments are granted and licenses are issued, both the FCC and the licensed state or local public safety entity have responsibilities to manage the use of assigned frequencies. It is the responsibility of the licensee to keep the FCC abreast of any changes or modifications to the licensed system, such as an address change, that affect the conditions of the original license. In addition, the FCC requires licensees to renew their license every five years regardless of system modifications. For its part, the FCC monitors state and local use of the radio spectrum to determine if frequency usage is in accordance with FCC rules and if interference exists among FCC-authorized users. The FCC also intervenes on behalf of domestic licensees in cases of international interference.

Spectrum Allocation. The remaining parts of the cycle shown in Figure 1 represent spectrum allocation, meaning the designation of a particular frequency range for a specified service. The FCC and the **National Telecommunications and Information Administration (NTIA)** work with executive branch agencies to allocate portions of the spectrum to specified services. International allocations strongly influence the decisions to allocate spectrum within the United States. The interests of domestic spectrum users, however, generally take precedence. U.S. and international spectrum allocations, therefore, do not always coincide. The U.S. Congress can also influence spectrum allocations through legislation. Once spectrum is allocated, the frequencies become available for assignment to state and local users, and the frequency assignment process begins again.

The **National Telecommunications and Information Administration (NTIA)** manages the Federal Government use of the radio spectrum.

FREQUENCY ASSIGNMENT

State and local entities with public safety missions must follow certain procedures to obtain use of LMR radio frequencies. The FCC has established these processes to assist public safety entities meet their mission requirements, prevent interference among communications, and make the most efficient use of the spectrum. As Figure 2 indicates, the frequency assignment process consists of activities performed by three entities: users, the frequency coordinator, and the FCC. The frequency assignment section first provides brief descriptions of user, frequency coordinator, and FCC activities, followed by more detailed treatments of each.

A **frequency assignment** is an authorization to use a given radio frequency or radio frequency channel under specified conditions.

User Activities. To initiate the process, users must first determine their communications requirements and system needs. After users determine their system requirements, they must prepare FCC Form 600, supplemental frequency coordinator forms, if applicable, and any supplemental information needed to justify their spectrum requirements. Then users apply to the appropriate frequency coordinator for a **frequency assignment**.

Frequency Coordinator Activities. On receiving an application for a frequency assignment, a frequency coordinator reviews the application, enters the information into the coordinator’s database, and selects available frequencies for assignment. The frequency coordinator then forwards the application to the FCC for review.

The **Wireless Telecommunications Bureau**, located in Gettysburg, PA, processes all non-Federal Government applications for frequency use.

FCC Activities. The FCC’s **Wireless Telecommunications Bureau** reviews the application, the selected frequencies, and related data to determine if it can grant the frequency assignment. Final approval is based on compliance with various regulations including those issued by the FCC, the Federal Aviation Administration (FAA), the Environmental Protection Agency (EPA), and the Canadian Government. If the application passes all of the regulatory requirements, the FCC grants the applicant a frequency assignment and a frequency license is issued.

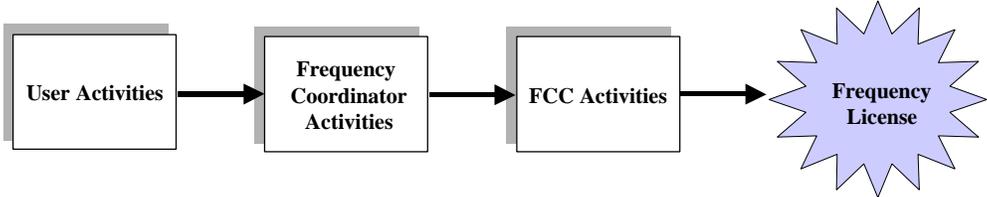


Figure 2
Frequency Assignment Activities

USER ACTIVITIES

Users planning to establish or expand LMR communications capabilities must determine what type of system will meet their needs, define their system requirements, complete a frequency license application, and provide the required information to a frequency coordinator and, if appropriate, a **National Public Safety Planning Advisory Committee (NPSPAC)** regional chairperson. This process is illustrated in Figure 3.

National Public Safety Planning Advisory Committee (NPSPAC)—The FCC formed this committee to coordinate its efforts and to ensure the involvement of public safety in the development of the National Public Safety Plan.

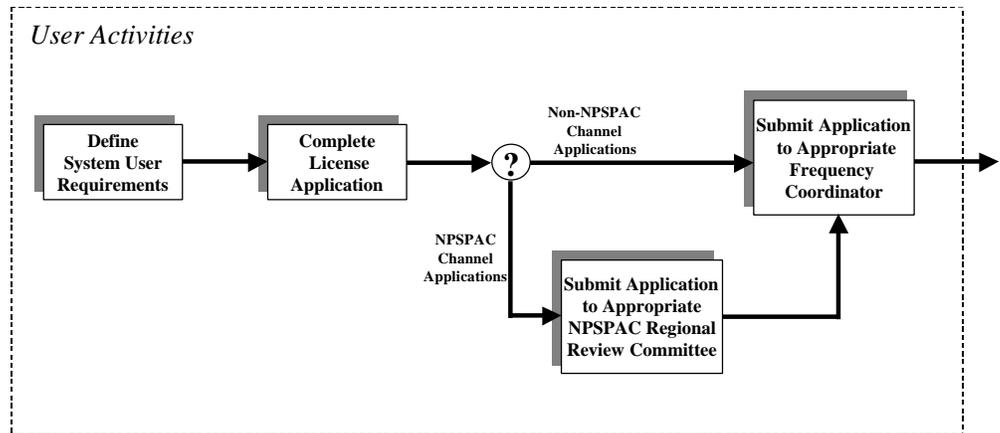


Figure 3
User Activities

Define System User Requirements. First, users must define basic communications requirements, such as how many users will utilize the system, how often the system will be used, the type of communications required, and the coverage required for the system. Sometimes, users define the communications requirements in conjunction with their vendor or a consultant.

FCC Form 600 can be obtained from Appendix C, the FCC homepage, or one of the four frequency coordinators.

The amount and type of information that needs to be forwarded on to a frequency coordinator and subsequently the FCC depends on the type of system being planned and installed.

In early 1998, the FCC released WT Docket 98-20, Universal Licensing System, which proposed the implementation of a new electronic filing system called the **Universal Licensing System (ULS)**. ULS will provide applicants the opportunity to apply for licenses, renew existing licenses, and check the status of pending licenses on-line.

Complete License Application. After users determine their system requirements, they must prepare **FCC Form 600**. In some cases, the FCC or the frequency coordinator requests additional system documentation, such as schematic diagrams for complex systems or copies of existing licenses, to supplement the standard application form. Applicants may also have to document system loading criteria, request waivers, and obtain letters of concurrence. The FCC is working to automate much of this process through its **Universal Licensing System (ULS)**. With the advent of this new system the FCC Form 600 will be superseded with Form 601.

Universal Licensing System

The FCC has recently released a Notice of Proposed Rulemaking (NPRM) WT Docket 98-20, Universal Licensing System. This is a proposal to make significant changes in the licensing process. The main intent is to consolidate a number of the forms and proceedings and to make the system accessible to the public through electronic means.

The docket has been out for comment, and for reply comments. No final action has been taken at this time, but the following are highlights of the proposed new system.

- Applications that require new frequencies or “major modifications” would first be subject to the normal frequency coordination process
- All other applications may be filed directly with the FCC by electronic means
- Form 601 would replace Form 600
- Notification of license renewal would be accomplished by electronic means
- All applicants would be required to provide their Taxpayer Identification Number (TIN) when applying for a frequency license

Document System Loading Criteria. If users choose to share frequencies with other state and local public safety entities, applicants must document the system loading criteria needed to support these additional users.

Request Necessary Waivers. If users knowingly design a system that conflicts in some manner with established FCC rules and regulations, they must develop a waiver request stating the reasons for noncompliance with FCC regulations. The waiver is to be attached to Form 600 so that it will be sent to and reviewed by the FCC. For example, if users decide to share frequencies with entities lacking a public safety mission, they must submit a waiver request. Users can either develop their own waiver request or ask the frequency coordinator to create one on their behalf.

Obtain Letters of Concurrence. If state or local users decide to allow federal users onto their system, the state or local entity must compose a **letter of concurrence** for the federal user. This letter states the agreed conditions of operation that the federal user must follow in order to operate as an approved user on the state or local system. The letter must accompany the submitted Form 600.

Seek Help, If Desired. **Form 600 preparation services** are available from some frequency coordinators and several commercial firms for a fee. The types of services offered range from conducting height-above-average-terrain (HAAT) calculations or performing propagation studies to completing Form 600 in its entirety.

A **letter of concurrence** is an agreement that specifies the terms and conditions of a sharing arrangement between a state or local public safety entity and federal users on state or local public safety frequencies.

APCO
Telecommunications
Services offers FCC **Form 600 preparation services**.
APCO will complete the form in its entirety for a fee.

Some **NPSAC regional review committees** accept applications only for a limited time each year. The committees open a “window” for accepting applications. Once a window is closed, users must wait until the next scheduled open window to apply for NPSAC frequencies.

Submit FCC Form 600 to NPSAC Regional Review Committee Chairperson, if appropriate. If the user chooses to operate within the 821-824/866-869 megahertz (MHz) band, otherwise known as the NPSAC channels, the application must be submitted to the appropriate NPSAC regional committee chairperson for review. A listing of current regional chairpersons is provided in Appendix D.

The regional chairperson reviews the application to ensure that it complies with the regulations and policies of that region’s NPSAC regional plan. The chairperson then, if necessary, forwards the application to other regional chairpersons in adjacent regions for interregional committee review.

If necessary, regional chairpersons operating in adjacent regions review the application for possible interference issues. Any disputes are brought to the attention of the originating regional chairperson and the applicant. Disputes must be resolved to the satisfaction of all involved regional chairpersons before the application is approved. Once approved, the application is signed by the originating regional chairperson and returned to the applicant, who must then forward it to the designated frequency coordinator. If an application is rejected by the regional chairperson, the user can appeal this decision to the Association of Public-Safety Communications Officials— International, Inc. (APCO), or the FCC.

Submit FCC Form 600 to Frequency Coordinator. When users have defined their communication requirements, completed the necessary forms, and, if necessary, obtained approval from the NPSAC regional chairperson, they must submit the application to the appropriate frequency coordinator, who initiates the frequency coordination process.

Identify Appropriate Frequency Coordinator. Within the Public Safety Radio Pool, the FCC has authorized four **frequency coordinators** to recommend available frequencies for users. The coordinators are:

- American Association of State Highway and Transportation Officials (AASHTO)
- Association of Public-Safety Communications Officials— International, Inc. (APCO)
- Forestry-Conservation Communications Association (FCCA)
- International Municipal Signal Association (IMSA).

The FCC has charged each frequency coordinator with managing selected public safety frequencies. The specific channels managed by each frequency coordinator are shown in Appendix F. Users applying for specific frequencies must obtain the approval of the coordinator assigned the specific frequency. The FCC allows frequency coordinators to serve all public safety users eligible for the **Public Safety Radio Pool**. Users may seek assistance from any of the four frequency coordinators, but they must obtain the approval of the frequency coordinator managing the frequencies they are requesting.

Contact Appropriate Frequency Coordinator. After the appropriate

A **frequency coordinator**, as defined in Part 47 of the Code of Federal Regulations (CFR), is an organization certified by the FCC to recommend frequencies for state and local entities applying for frequency licenses in the Private Land Mobile Radio (PLMR) services.

FCC Docket 92-235, the so-called “Refarming Docket,” consolidated the PLMR services below 512 MHz into two broad pools: Public Safety and Industrial/Business. The **Public Safety Radio Pool** encompasses all the spectrum bands reserved for public safety entities, a diverse group of activities, organizations, and

individuals. Examples include medical services, rescue organizations, veterinarians, persons with disabilities, disaster relief organizations, school bus services, beach patrols, establishments in isolated places, communications standby facilities, and emergency repair services for public communications facilities.

frequency coordinator has been identified, users should contact the frequency coordinator's national office:

AASHTO

Attn: Larry Miller
444 North Capitol Street, NW, Suite 249
Washington, DC 20001
Phone: (202) 624-5800 or (202) 624-5448
Fax: (202) 624-7788
E-mail address: larrym@ashto.org

APCO

Attn: Cheryl Harrer
Frequency Coordination Department
2040 South Ridgewood Avenue
South Daytona, Florida 32119
Phone: (904) 322-2500 or (888) APCO911 ext. 231
Fax: (904) 322-2502
E-mail address: harrerc@apointl.com

FCCA

Attn: Joe Friend
444 North Capitol Street, NW, Suite 540
Washington, DC 20001
Phone: (202) 624-5416
Fax: (202) 624-5407

IMSA

P.O. Box 1513
Providence, Rhode Island 02901
Phone: (401) 738-2220
Fax: (401) 738-7336
E-mail address: fireems@imsasafety.org

Obtain Pre-coordination Services, If Desired. Prior to officially submitting Form 600 to a coordinator, some users take advantage of "pre-coordination" services offered by a few frequency coordinators. For this report, pre-coordination is considered a user activity. Even though it depends heavily on the actions and services offered by the frequency coordinators, it is an optional step that occurs at the users' discretion.

APCO has approximately 100 primary and alternate **local frequency advisors** who assist frequency applicants on a volunteer basis. The level of services varies, depending on the individual advisor. Applicants may call the national APCO office for the name and telephone number of their local frequency advisor.

APCO, for example, offers pre-coordination services as a courtesy to prospective applicants. Use of the service is voluntary and contingent upon the availability of an APCO **local frequency advisor**. Not every local frequency advisor provides pre-coordination services, and pre-coordination is not a prerequisite to frequency coordination. During pre-coordination, a local frequency advisor can identify available channels and check for potential interference by looking for adjacent and co-channel license holders. Some APCO local frequency advisors also offer to check an application for completeness, technical accuracy, and compliance with FCC rules before the application is formally submitted.

IMSA also provides some pre-coordination services by emergency medical service directors. Located throughout the United States, these IMSA volunteers determine whether an entity is eligible to apply for a license in the Public Safety Radio Pool. Some of the IMSA volunteers also offer guidance in completing Form 600.

FREQUENCY COORDINATOR ACTIVITIES

The current national frequency coordination process for PLMR services was established in FCC Docket 86-143. The process proposed in the docket was intended to minimize defective applications and reduce the overall time involved in licensing.

The four frequency coordinators for public safety differ in the levels of service they provide and the fees they charge. In general, however, all coordinators follow the same process. As Figure 4 shows, this process consists of four basic stages—national office review of the application, identification of available frequencies, intercoordination, and submission of the application to the FCC.

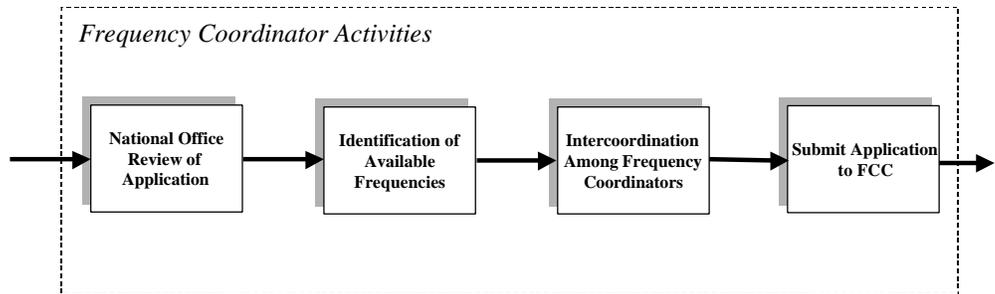


Figure 4
Frequency Coordinator Activities

National Office Review. Frequency coordination begins when the national office of a particular frequency coordinator receives an application. The office enters the application into the coordinator’s database of frequency licenses and applications, reviews the application for technical and fiscal competency, and selects suitable frequencies that are not likely to cause interference to nearby users. The FCC has ruled that the frequency coordinators have 20 work days to complete frequency coordination and submit the application to the FCC.²

The processes used by the frequency coordinators differ in the following respects:

AASHTO asks applicants to complete an ASSHTO form, AASHTO AFC-1 (see Appendix G), for submission with their application.

The **Communications Engineering Technology (CET)** database is used by AASHTO, FCCA, and IMSA for their frequency coordination activities.

AASHTO. After preliminary review by a national **AASHTO** frequency coordinator, an application is entered into a frequency license database that is maintained by **Communications Engineering Technology, Inc. (CET)**. The CET database provides computerized access to the FCC and other databases and programs designed to assist frequency coordinators and the general public with engineering communication systems and coordination of radio frequencies.

Typically, for the next step in the application review, AASHTO relies on radio frequency coordinators appointed by the highway and transportation department leadership in each state. Using the CET database network, AASHTO’s national coordinator sends the application electronically to the state radio frequency coordinator, who reviews it, selects available frequencies, and returns it to the national coordinator. In some cases, however, lack of time and financial constraints prevent state coordinators from performing this function. In these circumstances, the national coordinator performs the steps otherwise taken by the state radio frequency coordinator.

² FCC Docket 86-143, *Frequency Coordination in the Private Land Mobile Radio Services*, April 3, 1986

Next, the national office reviews the application to ensure compliance with FCC rules and technical requirements. It is then made available for intercoordination.

APCO. APCO asks applicants to complete an APCO form, APCO FDR-3 (see Appendix G), for submission with their application. After submission, APCO screens the application for fiscal and technical competency. The application is then either held for additional information or sent forward for “quick response.” If the application qualifies for quick response, the national office enters the application into APCO’s **Automated Frequency Coordination (AFC) System** database.

APCO’s database, the **Automated Frequency Coordination (AFC) System**, contains FCC licenses and license applications that are updated weekly. APCO and CET have the ability to access each other’s databases so that they may exchange information electronically.

Local APCO frequency advisors download new applications daily, review them for technical accuracy and compliance with FCC rules, and identify available channels. Applications are then “approved” by the local advisor and returned to APCO’s national office through the AFC database.

When APCO’s national office downloads the locally approved application, the application and technical requirements are checked again for compliance with FCC rules. The application is then made available for intercoordination.

FCCA. The FCCA national office screens applications and then forwards them to one of four regional coordinators, selecting the coordinator for the region where the application originated.

The regional coordinator reviews the application for completeness and technical accuracy, selects usable frequencies, and returns the application to the national office.

The national office then enters the application into one of two databases used by FCCA. If the application requires intercoordination, the application is entered into the CET database. If the application calls for a forestry-conservation channel, the application is entered into an internal FCCA database and forwarded to the FCC.

IMSA asks applicants to complete an IMSA form, which is included in Appendix G, for submission with their application.

IMSA. All **IMSA** coordination activities are performed at its national office. The IMSA national office screens the application for fiscal and technical competency, enters them into the CET database, selects available and usable frequencies, and makes them available for intercoordination.

Public Safety Communications Council (PSCC)—an organization whose members represent each of the four FCC-designated frequency coordinators for the Public Safety Radio Pool Services. The PSCC conducts annual meetings to discuss issues important to the frequency coordinators.

Intercoordination. Intercoordination begins after the frequency coordinator has conducted a thorough review of an application and has selected the applicant’s frequencies. If an application involves a frequency that is adjacent to a frequency managed by another coordinator, the application is subject to a review by the second coordinator. The **Public Safety Communications Council (PSCC)** has informally agreed to make these applications available for five days to allow other frequency coordinators to object to an application on the basis of potential interference. If an objection occurs, the application is returned to the original frequency coordinator. If 5 days expire without any objections, the application is ready for the FCC.

FCC fees are waived for entities that are legally defined as having public safety missions. Appendix E discusses this requirement and gives examples of those agencies that qualify as public safety entities.

FCC Submission. Once intercoordination is complete, CET or APCO usually forwards the application to the FCC's Licensing and Technical Analysis Branch in Gettysburg, PA. However, if the applicant is not legally defined as being a local government entity, the application must be forwarded along with Form 159, which is included in Appendix C, and the appropriate fees to the FCC location in Pittsburgh. Once the **FCC fees** are collected in the Pittsburgh location, the application is forwarded to Gettysburg for FCC review.

FCC ACTIVITIES

The FCC reviews applications to ensure that they conform technically to domestic and international regulations. Applications are processed in sequence by date of filing. The FCC's review process can last from 2 to 3 months depending on the type of request and the total volume of requests coming into the FCC at the time. Figure 5 shows the basic FCC process.

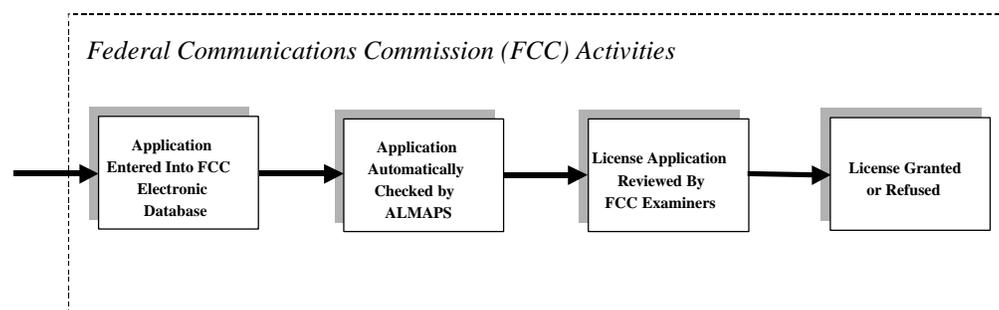


Figure 5
FCC Activities

The **Automated Land Mobile Application Processing System (ALMAPS)** is a computer software program used by the FCC to process and review public safety frequency license applications.

Application Entry Into FCC Database. Once the FCC receives an application, it is assigned a file number. After an application is assigned a file number, FCC data processors enter the application into the FCC's **Automated Land Mobile Application Processing System (ALMAPS)**.

Preliminary Application Review by ALMAPS. ALMAPS scans the application to ensure that all of the necessary fields have been completed. If the application is incomplete, ALMAPS rejects the application, and the FCC returns it to the applicant.

ALMAPS also conducts a series of checks to ensure that the projected system requirements and the requested frequencies conform to national and international regulations. Examples include—

- FAA tower height regulations
- EPA signal strength regulations
- Canadian border regulations.

If ALMAPS identifies a potential problem, the application is downloaded off of ALMAPS and the applicant or the frequency coordinator is notified of the problem. Applications that raise FAA questions are returned to the applicant for resolution. Applications that raise EPA questions are returned to the applicant so that an environmental assessment can be performed. Applications that raise Canadian border questions are forwarded to Industry Canada for coordination consistent with appropriate treaties. Once all issues are resolved, the application is forwarded to an FCC application processor or "examiner" who is chosen at random by ALMAPS.

FCC Examiner's Review of License Application. FCC examiners review the application to check for areas that require detailed examination. They verify, for example, that—

- The proposed use or purpose of the station does not conflict with FCC regulations and policies
- The intended use of the requested frequency conforms to FCC regulations
- The application is accompanied by required documentation, such as waiver requests or letters of concurrence. In these cases, the examiner reviews this supporting information and makes a decision about the validity of the special request. Some applications may require legal or engineering review.

ALMAPS tracks all the actions related to the review of an application so that its status is easily verified.

If an examiner identifies problems with an application, it is either returned to the applicant for corrections, or if the changes are extensive, it is rejected entirely and must be resubmitted as a new application. If an application is sent back for corrections, the applicant has 60 days to return the corrected application. If the applicant fails to return the application in 60 days, the application must then be resubmitted as a new application.

Once an application has been corrected and received at the FCC, the application is routed through ALMAPS again and prepared for final approval. Final approval is complete when an FCC examiner signals ALMAPS that the application has been approved by selecting the “license granted” option. Once an application has been approved, the granted license is mailed to the applicant.

FREQUENCY ADMINISTRATION

In addition to granting frequency assignments, the FCC is responsible for executing certain administrative activities to ensure that licensed frequencies are being used efficiently and in accordance with FCC policies and regulations. These activities also include judiciary functions, such as settling interference disputes among FCC-authorized users or between licensed domestic users and international entities. Licensed users are also charged with specific administrative activities, such as renewing licenses and notifying the FCC of changes to the conditions of a licensed system. Because of the vast number of license applications, renewals, and modifications handled by the FCC on a daily basis, state and local public safety licensees must share the administrative burden with the FCC.

User Activities. Users are responsible for renewing licenses and informing the FCC of any changes to an existing license.

Renewal of Licenses. The FCC requires state and local public safety licensees to renew their licenses every 5 years. Ninety days before a license expires, the FCC mails to the licensee a copy of the current license accompanied by a renewal application, Form 574-R. Before the license expires, the licensee must review the information on the license to confirm that it is correct and must complete Form 574-R, sign and date it, and return it to the FCC. Licensees can also renew licenses electronically through the FCC Electronic Filing Systems Internet Web site at <http://www.fcc.gov/e-file/welcome.html>.

If the licensee has not received a license renewal form in the mail 60 days before license expiration, the licensee must complete Form 405A, which is included in Appendix C, and return this form before the license expires.

If the FCC has not received a license renewal form before the license expiration date, the license is revoked. To retain the affected frequencies once a license has been revoked, the licensee must complete FCC Form 600 and apply for the frequencies as if it were a new application.

Modifications to Existing Licenses. The FCC requires licensees to report any changes or modifications to information about an existing license. Any changes to a user's license should be provided to the FCC, including the licensee's **mailing address**. If the technical system parameters of a licensed system are modified, the licensee must submit documentation of these system modifications to the FCC through the appropriate frequency coordinator.

Assignment or Transfer of Control. When control of a license is transferred from an individual or entity to another, the FCC requires the new licensee to complete and submit a Form 600. This form must be accompanied by either Form 1046, which is included in Appendix C, or a signed letter from the original licensee stating the desire to transfer the current authorization. These forms must be submitted 60 days before the effective date of the assignment or transfer of control.

Licensees must maintain accurate **mailing addresses** on file with the FCC, otherwise they will not receive license renewal notification and risk losing their frequency licenses.

Application for Special Temporary Authorization. Users can obtain a temporary authorization from the FCC to operate, for a period of 180 days, a new land mobile station or a licensed station in a manner that is beyond the scope of the existing authorized license. Users must submit Form 572C, which is included in Appendix C, at least 10 days before the proposed operation. If an applicant does not have access to Form 572C, FCC Instruction 108, which is included in Appendix C, details the process of requesting special temporary authority.

Users can obtain additional information from the FCC by calling the **National Call Center at 1 (888) CALL FCC.**

Additional Information: Users can obtain additional information from the FCC, such as how to renew a license, the status of an application, current rulemaking proceedings by calling the **FCC National Call Center at 1 (888) CALL FCC.**

FCC Activities. The FCC is responsible for ensuring that licensees are using the licensed frequencies in a manner consistent with the conditions of the granted license. The FCC also mediates disputes that arise among FCC-authorized licensees or between domestic licensees and international entities.

Because of the vast number of licensed systems in use throughout the United States, the FCC cannot patrol the airwaves to ensure that individual users are following the conditions of the licenses they were granted. Instead, the FCC acts on situations brought to its attention. In most cases, these issues involve disputes either among FCC-authorized users or between domestic licensees and international entities.

In the second case, the FCC International Bureau takes responsibility for contacting the international entity and acting as a liaison between the two parties. In the first case, the FCC reviews the facts of the dispute and makes a ruling.

SPECTRUM ALLOCATION

Spectrum allocation is defined as an entry in the National Table of Frequency Allocations that assigns a given frequency band for use by one or more radio communication services under specified conditions.

A series of coordinating activities must occur at the national and international levels before radio frequencies can be assigned. These activities constitute the **spectrum allocation** process for state and local public safety spectrum. This section provides an overview of the allocation of spectrum to state and local public safety users and introduces the roles and responsibilities of the key players in this process.

The FCC is principally responsible for allocating spectrum to state and local public safety entities and to commercial industry. As Figure 6 suggests, several factors, including U.S. spectrum policy, international spectrum policy, and congressional influence, affect the FCC’s ability to allocate spectrum.

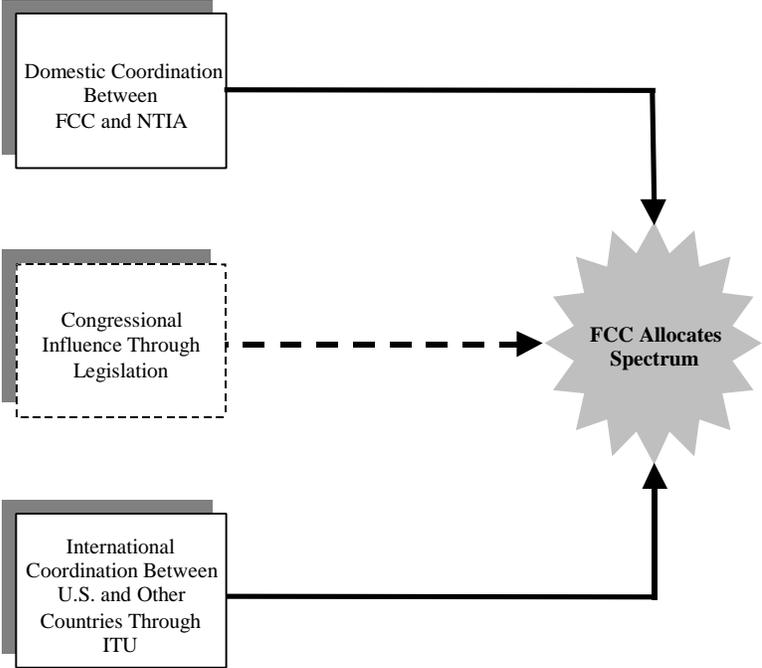


Figure 6
Spectrum Allocation Process

Domestic Coordination Between the FCC and NTIA. Perhaps the FCC’s most critical role is domestic spectrum coordination. The FCC is responsible for managing state and local government and commercial use of spectrum, and the NTIA is responsible for managing Federal Government use of spectrum. Because radio spectrum is a resource shared by FCC and NTIA constituencies, effective coordination between the two oversight organizations is crucial. The FCC and NTIA each establish individual spectrum requirements and then coordinate requirements with each other. If difficulties arise in the coordination process, the

The **Interdepartment Radio Advisory Committee (IRAC)** is an interagency committee of federal radio frequency managers, including the FCC, that develops policies, procedures, programs, and technical criteria related to spectrum allocation, management, and use. It advises the NTIA in carrying out its spectrum management activities.

The **International Telecommunication Union (ITU)** is the international body responsible for international frequency allocations, worldwide telecommunications standards, and telecommunication development activities.

Interdepartment Radio Advisory Committee (IRAC) may be consulted to facilitate negotiation efforts. Coordination between the FCC and NTIA ultimately results in the division of the spectrum into the portion allocated to government (defined as the Federal Government), the portion allocated to non-government (defined as state and local government and commercial entities), and the portion designated for shared use.

International Coordination Between the United States and Other Countries Through the ITU. The broadest level of spectrum coordination occurs at the international level. The **International Telecommunication Union (ITU)** is the worldwide spectrum governing body. Based in Geneva, Switzerland, the ITU holds conferences regarding world spectrum allocations. Formally known as World Radiocommunication Conferences (WRC), these conferences determine international spectrum allocations and international spectrum rules and regulations.

In preparation for each WRC, the FCC sponsors several Informal Working Groups (IWGs), which are open to the general public. The IWGs are used as a forum in which specific spectrum issues are discussed and debated. From these meetings, the FCC develops proposals that are provided to the NTIA for review and concurrence. If the NTIA agrees with the proposed items, the proposals are forwarded to the U.S. State Department. If the NTIA disagrees with any or all of the proposed items, the NTIA and the FCC work toward resolving the issues in the best interest of the U.S. Any remaining contested issues are presented to the U.S. State Department for resolution. The proposals that are approved by the State Department are finalized and then become recognized as the official U.S. proposals on spectrum issues. These official U.S. proposals are presented to the WRC and negotiated by a U.S. delegation that is appointed by the State Department.

The United States attempts to make domestic and international spectrum allocations coincide. Domestic allocations can and often differ from international allocations in order to meet specific national requirements as defined by NTIA and the FCC.

Congressional Influence. Although Congress cannot allocate spectrum, they can influence the process through legislation. Congress has the ability to legislate spectrum reallocation and the ability to control the funding for said reallocations.

FCC Allocation of Spectrum. Following domestic and international coordination efforts and input from Congress, the FCC determines spectrum allocations for state, local, and commercial entities. These allocations are listed in the National Table of Frequency Allocations. The spectrum bands allocated for use by state and local public safety entities are shown in Appendix F.