

WHAT DISPATCHERS SHOULD KNOW ABOUT ...

FCC LICENSING

BY CHRISTINE PHELPS

PHOTOS: GERT ZOUTENDIJK

Did you know that your public safety communications radio system is considered a radio station by the Federal Communications Commission (FCC) and requires a radio station license to operate? This applies to almost every land mobile radio system (i.e., two-way radios), although there are a few exceptions for very low-power operations, such as cordless phones, garage door openers and radio-controlled toy cars.

“Why do I, as a dispatcher, need to know about FCC licensing?” you ask.

Answer: You’re the one pushing the button to talk to your officers, firefighters or other public safety personnel out in the field, so you should also know about the licensing of the frequencies you use. It can help you understand why you’re required to use only the frequencies licensed to your agency, in a specific configuration and with limited parameters. You should also be aware of basic FCC rules and regulations with regard to the operation of your agency’s licensed system.

It’s not all that complicated. Honest!

FIRST STEPS

After an agency has decided on a particular system that will provide the coverage needed to communicate efficiently, the first step is to obtain a radio station license. New systems will not have frequencies automatically assigned. An FCC-Certified Frequency Coordinator (coordinator) will search for frequencies that will work with a system and assign the most appropriate frequencies for licensing. FCC rules and regulations state that agencies should not purchase equipment until frequencies are secured, because recommendations by the coordinators are advisory in nature and may not be granted by the FCC. Also, it’s not guaranteed that a coordinator can find frequencies that would be useable, due to the lack of spectrum in many areas.

There are two distinct categories of spectrum for two-way radio systems under Part 90 of the FCC Rules and Regulations: Public Safety and Industrial/Business. There are specific frequency pools, eligibility and FCC rules and regulations for these categories, and each category has FCC-Certified Frequency Coordinators. Public Safety has four coordinators: APCO, IMSA (International Municipal Signal Association), AASHTO (American Association of State Highway and Transportation

Officials) and FCCA (Forestry Conservation Communications Association), with APCO being the largest by volume. Industrial/Business also has several. For the purpose of this article, we'll focus on Public Safety.

When it comes to licensing frequencies for a public safety agency, the FCC requires an agency to complete an application and submit it to a coordinator for approval before it is submitted to the FCC for licensing. There are exceptions, such as for renewals, notifications and certain frequency ranges, but for the most part, all new systems and major modifications to existing licenses must be coordinated by a coordinator.

FCC Form 601 is a government form and can be intimidating for someone who is unfamiliar with the forms and procedures for licensing. APCO-AFC provides full-service licensing, which includes completing the proper forms and moving application through the coordination and licensing process. Other coordinators may also offer this service.

If an agency has a dedicated employee familiar with FCC Form 601, it can submit applications to a coordinator electronically. To file with APCO, an applicant can register to use the Spectrum Watch program, which is user friendly and cost free for the user. The program can be accessed at www.spectrumwatch.com. Not only does the program check the integrity of the application, but it saves the coordinator from having to enter the application into its coordination system.

The applicant must indicate the proper system configuration requirements on the application so a coordinator can assign the frequencies correctly. Examples of some common systems are:

- **Mobile only:** Communicating from mobile (portable, vehicular, aircraft or marine) to mobile. One frequency is required.
- **Base/mobile simplex:** Communicating from base to mobile and mobile to base. One frequency is required.
- **Repeater:** A base that replicates signals weakened or distorted by transmission over long distances and through areas with high levels of electromagnetic interference (EMI). Two frequencies are required.

- **Telemetry:** Non-voice signals for the purpose of automatically indicating or recording measurements at a distance from the measuring instrument. These systems may include airport runways for measuring conditions on the runways, water treatment plants for measuring water levels or sprinkler systems. Usually, one frequency is assigned.

These are only a few of the most common systems. There are many other types of systems, and some can be quite complicated.

Conventional systems typically consist of one system type with one or more frequencies. A trunked system, on the other hand, employs a number of frequency pairs that are given a type of characteristic that extends between two switching points. When activated, the system looks for the closest available frequencies to use.

TECHNICAL CONSIDERATIONS

Once the vendor determines the type of system, the frequency band required and the parameters necessary to operate the system functionally, the next step is for the coordinator to run searches to find new frequencies or to check existing frequencies that are being modified against incumbent users to rule out harmful interference.

During the coordination process, the applicant may be asked to obtain/provide additional information so the coordinator can approve the frequencies. The most common requirement is letters of concurrence (LOCs) from adjacent and/or co-channel licensees in the area that may be affected by the assignment. If the LOCs can be obtained, the frequencies are typically approved. If the applicant receives a denial from an incumbent licensee, the coordinator will look for the next best frequency from the search.

Another common requirement is engineering studies. Depending on the assignment, the studies may need to show that harmful interference will not occur to the applicant or to other licensees, that the power levels will not exceed FCC rules and regulations, that the type of antenna being used is sufficient for communications by the applicant, etc.

There are many technical areas to consider when coordinating an application.

The FCC rules and regulations state that an applicant must not apply for more frequencies, number of units or other parameters that exceed the needed functionality of the communications system. In other words, a town of 15,000 residents cannot request 10 frequencies for city use with 1,000 units at 1,000 W of power on a tower with a 1,000-foot antenna. (That sounds utterly ridiculous even to us laymen.) If a request is received that looks implausible, the coordinator will send a notice to the applicant explaining the FCC rules and regulations.

Coordinators often receive applications requesting parameters or a number of frequencies that appear to be questionable, according to FCC policies and procedures. The coordinator will then request additional information from the applicant, such as verification of the request after the FCC rules and regulations are cited or a letter of justification providing details of how the system will work.

Excessive power may require an engineering study and/or a letter of justification for the FCC if Safe Harbor Rules are not met. Safe Harbor Rules are meant to control the power of frequencies to protect incumbent licensees. However, it is common for some requests, mostly in mountainous areas, to fail the Safe Harbor requirements in places where the terrain is rugged and high. Safe Harbor requirements may drop the power to an extremely low level, which may not allow for reliable communications for the applicant. The applicant can request higher power than what the rules allow, but will need to submit engineering studies showing their maximum coverage and a justification letter for the higher power.

The way coordination is done depends a lot on what band of frequencies is being requested.

VHF low band (30–50 MHz) is not often requested for new systems due to old technology and level of interference, because the waves hug the ground. An agency in Minnesota could hear someone in South America.

VHF high band (150–174 MHz) is the most popular band in public safety, which makes these frequencies extremely difficult to coordinate without causing interference to the applicant or incumbent licensees.

UHF band (450–470 MHz) is also com-

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mon in public safety, and again, frequencies are difficult to coordinate due to the lack of available spectrum in many areas.

UHF TV-band (470–512 MHz) channels are available on a geographically shared basis with television broadcast stations in specific areas throughout the U.S. These frequencies have specific assignment requirements.

800-MHz (851–865/806–823 MHz) and 800-NPSPAC (National Public Safety Planning Advisor Committee) frequencies (866–869/821–824 MHz) are also often used by public safety entities. This whole band is in the middle of rebanding, which means the pool of frequencies is being moved around between Public Safety and Business/Industrial. Rebanding has been completed in many regions, but due to adjacent regions still pending, the coordination of this band has been very complex. On top of that, the NPSPAC channels require Regional Committee approval before the applications can be submitted to a coordinator.

700-MHz band frequencies are now available, but applicants must contact the Regional Chair for their area for frequency assignment and approval before submitting their applications to a coordinator. Also, the FCC has not yet approved plans for some regions.

The FCC's narrowbanding deadline is Jan. 1, 2013. All existing systems in the 150–174 MHz and 421–512 MHz bands are required to switch to narrowband emission by that date to avoid license cancellation. This FCC action is designed to provide increased efficiency and capacity to spectrum bands through the creation of new channel centers between the existing channel centers. Licensees should conduct a full inventory of all radios in their systems, identify those radios that require reprogramming and/or replacement, develop a wideband-to-narrowband system conversion plan and modify any licenses to show the changes. The application for the modification requires coordination and should be submitted through a coordinator.

BORDER AREAS

Agencies applying for new station licenses in the Canadian Border Region (70 miles from the Canadian border) should expect a long licensing process. Industry Canada (counterpart to our FCC) does not follow

the same rules and regulations as the U.S., so assignments can be denied. The coordinator will work with the applicant to resolve any issues that arise, but this whole process can take several months, or even several years, to satisfy coordination and licensing requirements. Modifications to existing licenses could also bring up issues. It is highly recommended that licensees in the Canadian Region never let their license expire.

Agencies in the Mexican Border Region can also face interference issues because the Mexican government does not have a frequency database and does not coordinate with the U.S.

INTERFERENCE

Interference issues in all areas can also be a problem, even with proper frequency coordination. APCO International Inc. is the contact for all public safety interference complaints through a Memo of Understanding (MoU) with the FCC. APCO will assist licensees with interference issues and try to resolve them before FCC intervention is needed.

FCC APPROVAL

Once the coordinator is satisfied with the assignment, the application is approved and made available to the other public safety coordinators to review. If an objection is not received within five business days, the application is submitted to the FCC for licensing electronically through a batch file.

The FCC will review the certified application and grant the license. This process can take a few days, with an "Auto-Grant," or several months. It depends on many different conditions. If the applicant is requesting new frequencies in the Canadian Region (Line A, 70 miles from the Canadian Border), the application must be reviewed by Industry Canada. This process can take several weeks to several months.

Once a license is granted to an agency, it must be posted at the base. It is a *legal* document. Most permanent licenses are active for 10 years.

ONCE IS NOT ENOUGH

Licensees will receive Renewal Notices and Construction/Coverage Notices from the FCC 90 days prior to the license's ex-

piration date. License renewals can be submitted online on the FCC's Universal Licensing System (ULS) at www.fcc.gov. If the request is submitted within 30 days after expiration, the FCC will accept a renewal request with a waiver letter for late submission. After that, the license is cancelled. If the licensee intends to continue to operate, it should file for a Special Temporary Authority (STA), which can be done online on the FCC's Web site. The STA allows operations for 180 days (six months) while the permanent license is being coordinated. At the same time the STA is submitted, the licensee must submit an application to a coordinator for a new station license with the same information as on the old license. Because the license expired, the whole process of applying for a new station license is required. It is not guaranteed that the same frequencies and/or parameters can then be approved for licensing due to grandfather clauses and the continuing coordination of other licenses in the area.

The FCC requires notification through a Construction/Coverage Notice (FCC Form 601 Main Form and Schedule K) within one year of the time of grant of the license or modification that the frequencies are fully constructed and operational. This notification can be submitted online on the FCC's Web site. If the licensee does not submit the notice by the deadline, the FCC will terminate the license.

Administrative changes can also be submitted on the FCC's Web site. Notices are sent to the address on file for the license, so agencies need to ensure their information is current.

All agencies doing business with the FCC are required to register their Taxpayer Identification number (TIN) with the FCC, which can be done online on the FCC's Web site. After the information is entered, the program will prompt the agency to create a password. The agency will receive an immediate response with an FCC Registration number (FRN). This FRN must be used on all correspondence with the FCC. Also, the agency will need the FRN and password whenever it needs to access its license information to renew a license, change administrative information or submit required notifications. Modifications of licenses that require coordination must include the FRN.

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ONGOING MANAGEMENT

Licenses require regular monitoring to remain in compliance with current FCC rules and regulations. If an agency does not have a designated person to manage the licenses it holds, it should consider hiring a professional license manager. The cost does not compare with that of the loss of a license. Communications that provide protection of life and property should be considered top priority.

A license manager would work with an agency to review current licenses for accu-

racy and compliance with FCC rules and regulations. If any licenses require modifications, the license manager would assist the licensee with the proper paperwork to update the licenses. After all licenses are determined to be in acceptable order, the license manager will monitor the licenses for renewal dates and required notification dates, notify the licensee when a license is flagged and work with the agency to file the proper paperwork. A licensee must protect its right to operate a radio system by managing its licenses properly.

As an FCC-Certified Frequency Coordinator, APCO-AFC is ready to answer your questions about licensing, coordination, license management, license preparation and engineering. **||PSC||**

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1. **What is the first step after deciding on a particular system?**
 a. Write a letter to the FCC b. Obtain a radio station license
 c. Research frequencies d. Find a vendor
2. **Who searches for available frequencies?**
 a. Frequency coordinator b. Spectrum Watch
 c. Communications director d. Police or fire chief
3. **Why does the FCC require frequencies to be secured before equipment is purchased?**
 a. Because different frequencies cost different amounts
 b. Because certain equipment requires certain frequencies
 c. Because frequency recommendations are advisory in nature and may not be granted by the FCC
 d. Because frequencies are guaranteed
4. **Of the four common systems described in the article, which one requires two frequencies?**
 a. Mobile only b. Base/mobile simplex
 c. Repeater d. Telemetry
5. **What FCC rule, noted in this article, controls the power of frequencies to protect incumbent licensees?**
 a. Harbor Signal rule b. Safe Signal rule
 c. FCC Harbor rule d. Safe Harbor rule
6. **When must all existing systems in the 150–174 MHz and 421–512 MHz bands be required to switch to narrowband emission?**
 a. Jan. 1, 2010 b. Jan. 1, 2011 c. Jan. 1, 2012 d. Jan. 1, 2013
7. **How many days before expiration will licensees receive a renewal notice?**
 a. 120 b. 90 c. 60 d. 30
8. **Where must the radio license be posted?**
 a. In the comm center b. In the lobby of the police/fire station
 c. At the base d. At the local FCC licensing office
9. **How many FCC-certified public safety coordinators are there?**
 a. 5 b. 2 c. 4 d. 3
10. **What FCC form is used to apply for a public safety radio station license?**
 a. FCC Form 600 b. FCC Form 601

- c. FCC Form 574 d. FCC Form 475
11. **When a coordinator runs searches to find a new frequency for an applicant, what is the main consideration for an assignment?**
 a. Power b. Antenna placement
 c. Bandwidth d. Interference
12. **Mobiles include which group of radios?**
 a. Portables, handhelds and vehicles
 b. Portables, vehicular and walkie-talkies
 c. Portables, vehicular, aircraft and marine
 d. Portables, marine and vehicular
13. **What is the FCC's counterpart in Canada called?**
 a. Canadian Government b. Canadian FCC
 c. Industry FCC d. Industry Canada
14. **According to an MOU, who is the contact for public safety interference?**
 a. Coordinators b. APCO International c. FCC d. FCCA
15. **STAs are valid for how many days?**
 a. 30 days b. 90 days c. 100 days d. 180 days
16. **How long after a frequency is granted does the FCC require notification that the frequency(ies) assigned is/are fully constructed and operational?**
 a. One year b. Six months c. 30 days d. 90 days
17. **How long is the normal term of a permanent license?**
 a. Five years b. 10 years c. One year d. Six years
18. **What is an FRN?**
 a. Federal Registration number b. FCC Regulatory number
 c. FCC Registration number d. Frequency Registration number
19. **Which of the following are required to be licensed by the FCC?**
 a. Cordless phones b. Two-way portable radio
 c. Garage door opener d. Radio-controlled toy cars
20. **What frequency range does UHF include?**
 a. 400–500 MHz b. 150–174 MHz
 c. 450–470 MHz d. 100–400 MHz

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