

Kantronics Application Note

Introduction to the FCC Licensing Process

Those new to the world of radio data communications may not be familiar with the licensing requirements for most radio communications. This note is intended to briefly introduce the why's and how's of the licensing process in the United States and its territories, where licensing is governed by the Federal Communications Commission (FCC). This note does not pretend to make you an expert. *If you have not been through the licensing process before, we suggest you contact your local two-way radio dealer for assistance going through the actual process.* But hopefully this note will help you understand what they are talking about.

Why does licensing exist?

Radio communications around the world is a shared (and precious) resource. Just as it doesn't work for two people to talk at the same time in a conversation, it doesn't work for two radios to broadcast on the same frequency in the same vicinity, because the result would be garbled signals (unless they are both saying exactly the same thing at the same time, kind of like people singing in unison). National governments regulate the use of radio transmitters, limiting their transmitting power, frequency, and other characteristics to prevent users from interfering with each other. In turn, the International Telecommunications Union (ITU) coordinates use among countries on a global basis. The general goal for both national and international agencies is to get as much public good (successful use and reuse) out of the limited radio spectrum available as possible. Other regulations address public health and safety issues. (Lights and color bands on tall transmitter towers aren't just there for decoration – they warn pilots of a potential obstacle (the tower) intruding into the air space the planes share.) The regulatory agencies like the FCC also establish responsibility and procedures for resolution when transmitters interfere with each other.

How do I get started?

The first step is probably to identify which usage category your application fits in. The FCC sets aside certain frequency ranges and rules of operation for each usage category they have established. In FCC terminology, these usage categories are referred to as *services*. Examples of these “services” would be AM broadcast radio, FM broadcast radio, broadcast television, aircraft navigational aids and communications, private land mobile radio, specialized mobile radio, cellular communications services, etc. Most public safety communications and private business communications usage currently falls within the private land mobile radio (PLMR) service. Communications services offered for resale to others falls within the specialized mobile radio (SMR) service, cellular communications, or similar service bands. An explanation of these services is available at <http://wireless.fcc.gov/services/> on the FCC's web site. Usage requirements and limitations for each service are listed in a corresponding part of the Code of Federal Regulations (CFR). The pertinent part of the CFR for a given service should be listed along with the other information about that service on the FCC's site. If you jot down the relevant part/section numbers of the CFR that apply to that service, you can look up the actual regulations at <http://wireless.fcc.gov/rules.html>, again on the FCC's site.

Depending on your experience level, you may or may not find reading the regulations very helpful in determining whether this is the appropriate service band for your usage. (For example, when describing allowed uses for Private Land Mobile Radio service, they refer to non-profit use. This does not mean the service is limited to not-for-profit corporations. Rather, it means that you will be using the service internally in your company's operations, and not re-selling the communications service to others. That usage would fall under the Specialized Mobile Radio service.)

One good reason to be aware of the actual regulations is that you will be responsible for adhering to them when you get licensed for the service. So if you don't understand them, you might want to get clarification of what they mean from someone more experienced before you begin operations.

What about the actual licensing process?

The first step to actual licensing is to get an *FCC Registration Number (FRN)*. This identifies who (what entity) is applying for licenses. You can get an FRN online at <http://wireless.fcc.gov/uls/> on the FCC's site.

Once you have your FRN, you fill in the licensing application (also available at the FCC's site).

The next step depends on whether the usage will be a normal license or a temporary use license. Examples of temporary use would be setting up a system for a few days at a trade show outside your normal area of usage, or usage (outside your normal license usage) in the aftermath of an emergency.

Applications for temporary use are submitted directly to the FCC. Normal license applications, however, are submitted to a *frequency (or spectrum allocation) coordinator*. The frequency coordinator will assign your entity one or more frequencies on which to operate, at a specified maximum power, within a specified geographic area. They will choose these frequencies carefully to avoid interference between your usage and other existing users. The list of frequency coordinators for specific services may also be found on the FCC web site. Frequently the frequency coordinator for a specific service is a trade organization related to users allowed on that service.

The frequency coordinator will then submit the application to the FCC on your behalf.

Once you get your license, you have one year in which to construct the transmitter site(s) covered by the license. You must notify the FCC that you have completed construction of the transmitters by the end of that one year period. If you do not, the FCC will revoke the license. This is to prevent frequencies from being tied up by a licensee who is not actively using them.

Licenses are generally multiple year duration. Licensing fees and duration are subject to change over time, so they aren't listed here.

I need more help...

Now that you have a little understanding of the process, we suggest that you get further assistance with licensing and system deployment from you local two-way radio dealer or other expert.

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