So, You want to do Radio Control ...

By Del Tapparo

Just how important is radio range?

And can you trust the manufacturer's specs?

Radio control, or remote control, implies that you want to do something from a distance. In our case run our trains outdoors in a garden railroad. What is the farthest distance you want to control your trains from? If it is just walk around and follow the train, then 15 feet or so should be plenty, right? But what if the train is on the other side of the loop, you have a disaster, and you need an emergency stop? Well, maybe now you need at least 50 feet. Or, like many folks, you may want to get your trains up and running and then retire to the patio some 100 plus feet away to enjoy a cool one. But you may still need that emergency stop!

Now that you know your worst case distance, it's time to shop for that radio control system, making sure you check the specifications for radio range. Specifications are numbers that can be very misleading, because not every vendor will use the same criteria.

Here are some examples of radio range specifications from the literature of five different large scale R/C vendors, currently on the market.

- "Up to 30m / 80' R/C, indoors or outdoors" (OK. My layout is only 50 feet wide.)
- "to a range of 300 feet" and on the same page "to a distance of minimally 300 feet" (So is 300 feet the minimum or the maximum?)
- "Range exceed 400 feet outdoors" (Sounds pretty good. Under what conditions?)
- "Range up to 800 ft. line-of-sight" (Why would I need that much range?)
- And one vendor just won't say. Many comments about how to improve your range, what to do when your loco is out of range, etc. (That doesn't sound too encouraging)

Under what conditions do these statements apply? Which, in all fairness, is why one vendor won't put a number on it. Because it varies, depending on the installation and the operating environment.

The most ideal conditions, the ones the actual manufacturer of the radio system uses (not the large scale R/C vendor) is transmitter antenna to receiver antenna, direct line of site. Yes, you get some great range. But as soon as you put a piece of plastic in between you and the transmitter by installing it in a locomotive tender, and then expose it to electrical motor noise, you may have cut that range in half or more. Put the loco on the ground with any kind of obstacle, such as dirt, rock, buildings, trees, and it goes down some more. Now that "400 feet" may only be 50 feet. Still good, but what about that tunnel or the other side of the mountain? What if you need to install your receiver in a metal tender, which acts like a Faraday cage that actually tries to block radio waves. Now you may be down to 0 feet! And starting out with a theoretical 80 feet? Plan on walking around with your train, or running to it when disaster strikes (even though it will be too late).

The point is, you can't rely on vendor specs. Your best bet is to ask users of the system you are interested in purchasing, just what their experience has been. I've seen many a garden railroader, using one of the popular systems, following his train around like a dog on a leash trying to keep control of his loco. I had the same experience years ago, and that is what got me into this business.

And of course, the G-Scale Graphics RailBoss 4 system is mine. So let me tell you about It's specs: It is the "Range up to 800 ft. line-of-sight" (Why would I need that much range?) spec.

The spec for the radio component used in the RailBoss 4 is 0.5 miles (2,640 feet) outdoor line of sight ! We could use that spec, and you would really be impressed. But we know that isn't going to happen in the real world of garden railroading.

Our 800 feet line of sight spec was tested many times using a RailBoss 4 installed in an Aristo-Craft railbus sitting on the ground at a full stop. So there is no motor noise, but it stays in one place so we can see it and measure the distance from the transmitter, which was held waist high, in direct sight of the loco. At 800 feet you can't even hear the whistle. But the RailBoss 4 radio system is bidirectional. The "receiver" can actually talk back to the "transmitter". The transmitter has a vibration motor in it, which is used for feedback. When the receiver gets a signal, it sends a signal back to actuate the vibration motor. You could also do this with two people and cell phones, but what would be the fun in that. This is a standard feature on all RailBoss 4 systems, so our users can easily test their own radio range under whatever conditions they like. We have had many customers that use the RailBoss 4 in metal tenders, like the Accucraft K-27, with excellent results.

For the most part, they are all good systems. Just don't be misled by specifications. Ask other garden railroaders about the real world radio range their system gets. And, if you are already a RailBoss 4 user, share your experience with others!