Field Day with Limited Space

How to plan a high-scoring, fun Field Day operation on less than an acre of land.

Eric Howell, W4MC

Not all of us have acres of land to erect a vast array of antennas for mounting a competitive Field Day effort. Over the last few years, my Field Day group has reinvented our vision of Field Day, while abiding by the rules and keeping to the spirit of the event. This has created an activity that is both enjoyable and competitive. Perhaps you can use some of what we experienced to revamp your Field Day.

Lessons Learned

In 2000, three friends — Dave, KE4UW; Roger, KN6RO, and Eric, WB8VTK (now W4MC) — decided to get together and set up a Field Day operation. With the call of N4N and the use of an overgrown field west of Atlanta, Georgia, we set up a modest operation with a couple of wire antennas and a KLM KT34 on a mast.

After that first Field Day, we got together for a "lessons learned" session. Afterwards, we realized that if we were going to continue to operate Field Day, we needed to plan farther in advance and use the "lessons learned" session for the next year's planning. This became our routine: planning ahead for Field Day to make sure everything was done before the last minute, then reviewing how it went afterwards. From that initial three-operator operation, N4N grew over the years, incorporating two motor homes, eight towers, five monoband beams, three tribanders, and a pneumatic mast for 6 and 2 meters, all with rotors (see Figure 1).

Operations

So how do you set up a serious Field Day operation on less than an acre of land, and why would you want to? Well, how many can say that they rank first in the state in their class and twelfth overall? We have achieved it more than once operating from within a subdivision in Marietta, Georgia (just northwest of Atlanta), and as I write this we are planning for the next operation.

As we were laying out our operations, we moved the CW operations away from the phone operations, which seem to always be noisy and full of people (see Figure 2). We only moved the CW tent about 30 – 40 feet from the phone operations, but it was not in the general traffic pattern and we found it made a significant difference.

During your planning, plan for breaks and the opportunity for many operators to take short shifts. Many of the operators that show up may be there to enjoy the company and would like to try their hand at operating. Don't expect only contesters to show up.

Antennas

The antenna system at N4N has also evolved over the years. In our first operation, we raised three antennas — a Fritzel FD4 Windom, a dipole, and a KLM KT34 tribander mounted on a 1½-inch, 20-foot military surplus fiberglass pole along with the rotor. When we operated in the empty field west of Atlanta, we used the treeline as a support. Over the years, we collected sections of towers and rotors so we could erect six or eight 20-foot towers with antennas. We typically limit ourselves to 20 or 30 feet simply because of logistics.

One of our lessons learned was that we could safely lift and lower a 20-foot tower with a beam. After raising a 30-foot tower with a two-element 40 meter beam, you understand that one of these per Field Day is more than adequate and maybe other options should be investigated. We found the answer in a military surplus AB-621 crank-up tower. We refer to it as the "rocket launcher," because you load 5-foot sections and crank it up as if it were a rocket being launched. With this solution, we can erect almost any beam to 45 feet without worry.

The location of the towers was also discussed. When we had a wide open field, we decided that placing them in a southwest to northeast line provided the best coverage for us, so we would have minimal issues that would result in interference. With the open space, we could physically separate the antennas. In the reduced size of the subdivision lot, placement is important, but unfortunately, physical separation is limited.

Obviously, the wire antennas were another issue. We tried to move the wire antennas as far away from each other as was practical. Even then we had some issues with CW and phone on 80 meters at the same time. On 40 meters, we managed to reduce this interference through polarization. One station used a dipole and the other a vertical. The use of band-pass filters on all of the antennas also made a huge improvement to the interference issues. This also limited our antennas to two per band, which prevented us from accidentally operating more than one phone and one CW station on any given band at a time.

Get on the Air

Early on, we added a GOTA ("Get on the Air") station to our plans, and it paid off in points. We got the call N4G for our GOTA

Figure 1 — The N4N Field Day operation.

operation. As we considered the GOTA station, we had to look at the most likely times that the GOTA station would be active, and what bands would be active at those times. We planned on using one antenna for the GOTA station, so during peak operating times the bands that the GOTA operators used would be at their maximum to provide both the best chance of making points and the best chance to make contacts so new operators don't get discouraged. We also chose a coach to help walk the new operators through the process. For the last few years, we have been fortunate to have Gary, WB4SQ, to lead the GOTA operators.

Power and Radios

When you are not around a lot of other homes, a construction generator will work well and can be obtained rather inexpensively. However, when you run one of these units in a subdivision for 24 hours, you soon have some upset neighbors. To prevent this, we rent one of the quiet generators from a tool rental company. We always get a generator large enough to support all of the radios and computers needed for the entire operation. Power cables in this reduced footprint means that we have little loss, unlike some years when we had to run long power lines because of the noise of the generators.

For years, we used our various rigs — Icoms, Kenwoods, Yaesus, and so on — but in the last few years we started to notice that much of our interference issues went away when we were only operating Kenwood TS-590s and Elecraft K3s. As soon as the GOTA station came on the air, everyone had problems, and the GOTA station experienced interference from the other stations. The only difference was the radio.

This past year, we decided to stick with all TS-590s and Elecraft K3 radios. Our theory is that the rejection in these radios helps reduce interference between stations. Fortunately, we have enough of these within our group to support our operation and the GOTA station. The VHF/UHF station is a Kenwood TS-2000, which was also not a problem considering the frequencies involved. By limiting all of the transceivers to Kenwood and Elecraft, we had no station-to-station interference like we had in years past.

Setup and Preparation

We always wait until the approved start time to set up radios and antennas, but we never wait until the last minute to get things ready.

Figure 2 — With the next Field Day upon us, N4N is ready. Phone operations are in the foreground, and CW operations are on the other side of the pool.

We make sure that everything is in good repair and anything that might need to be fabricated has a lead time. Fortunately, we have mechanically gifted folks like Shane, KF4TJY, who has fabricated some amazing items that we could not find elsewhere.

The computers are always set up in advance and configured together weeks before Field Day. This allows us to get the radios interfaced and the network verified. By doing the advance setup, we are sure that everyone has the same version of the logging program and the same macros, so moving between stations is not a problem.

Why We Do It

Why do we limit ourselves to a subdivision lot in suburbia? The truth is:

- The location is convenient (meaning we don't have to lug equipment far).
- If thunderstorms arrive Sunday afternoon, we can delay tear-down until a safer time.
- We have an air-conditioned place to take a nap.

Field Day for the N4N Field Day group has become a family event where the hams involved can bring their children and grandchildren to enjoy the pool while we are operating. Often, during their breaks from the pool and hot tub, we get new operators for the GOTA station, and it is not unusual for us to enjoy the pool during breaks while we are operating.

Even though this is a social event, we are serious about mounting a good Field Day effort. We start making plans for the next Field Day about a week or so after the last one. Because of the way N4N came together — not as a club but as a bunch of friends — we have managed to maintain a proper balance between the amount of work and the amount of fun. As we plan for the next Field Day, we are looking forward to even more stories, more fun, and a great score.

All photos are courtesy of the author.

Eric Howell, W4MC, was first licensed as WN8KXU in 1971. As he took the hobby around the world, he was licensed as GM5CCW, EI2VMW, VQ9EH, V47VTK, VP5/WBVTK, and VP2EH. He assisted with various emergency services, including Escambia Search and Rescue in Pensacola, Florida, and ARES, providing communications for hurricanes, tornados, plane crashes, train wrecks, and events like the Special Olympics and the Blue Angels homecoming. He served as MARS Chief, directing communications services for ships at sea. He is currently employed as a network engineer in the power industry. He can be reached at **w4mc@mindspring.com**, or 4511 Alpine Ct, Snellville, GA 30039.