

Successful Hamfest Satellite Demos

By

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One of the best ways to promote Amateur Radio Satellites is to demonstrate how simple, inexpensive, and fun satellite operations can be in conjunction with an AMSAT Booth at a Hamfest or Convention. Demonstrations can also be very effective at Amateur Radio Club Meetings, Schools, and other groups. There are two key elements to successful demonstrations; planning and execution. Hopefully, this paper will identify these key elements and give you some ideas for your own use. These ideas are mostly common sense and have evolved over many years of doing demonstrations by myself and others throughout the country.

Planning the Demo –

I don't want to make this sound too rigorous because that may scare you off; however, some general guidelines are in order.

1. There are two universal truths to consider: ***Hams don't read and Hams are cheap.***
 - a. The first of these truths can be helped by having available some simple handouts outlining the "Birds" that are available along with basic information about each one, pass information for the next few days, and how to obtain additional pass information. Don't forget AMSAT Publications such as "Getting Started with Amateur Satellites" and the AMSAT Web Page. Brochures are available from Clint, K6LCS; Patrick, WA9EWK; and Gould, WA4SXM to use as guides to working the FM Birds.
 - b. Design your demonstrations to utilize simple, cheap, radios and antennas. Have several examples available if possible. HTs, separate transceivers, and converters. Antennas are a good place to show a variety: Arrow, Elk, Cheap LEO Antennas, and other "home brew." Personally, I use two Yaesu FT-817s a lot and sometimes supplement these radios with a Yaesu FT-530 and/or a Kenwood TH-D7A. I have also used a Yaesu VX-5R on several occasions.
 - c. Some useful sources of information are:

AMSAT Web Site: <http://www.amsat.org>

Cheap LEO Antennas:

<http://www.wa5vjb.com/references/Cheap%20Antennas-LEOs.pdf>

Cheap AZ-EL Antenna Positioner: http://www.amsat.org/amsat-new/echo/Az_El_Pos.pdf

AMSAT Field Operations files

Elk Antennas: <http://www.ElkAntennas.com>

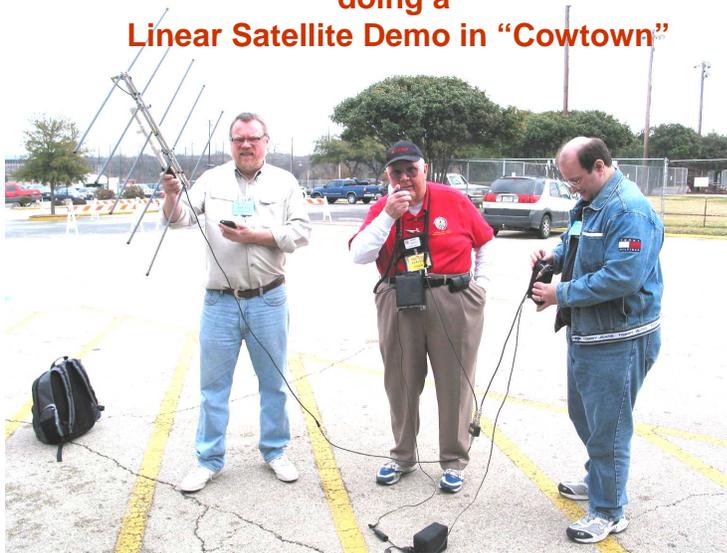
Arrow Antennas: <http://arrowantennas.com/>

2. Know specifically which “Birds” will be coming over during Demo time and what mode(s) they are in.
 - a. Mode V/U FM – Most common and easiest to demo. Least equipment necessary. Full duplex equipment is desirable but not absolutely necessary.
 - b. Linear Transponders – SSB/CW – More difficult to demo but have the potential for longer QSOs and greater audience participation. Requires multi-mode, full duplex equipment.
 - c. Special modes such as V/S or U/S. Requires S Band down converter and S Band antenna in addition to basic equipment. Very good “bang for the buck” when effectively demonstrated. Only available when modes are available on the “Birds.” Given enough lead time, you may be able to influence the mode schedule on the “Birds” by requesting scheduling through the command stations or the satellite operation committee. This is most effective for large gatherings or other special events.
 - d. Don’t overlook value of “receive only” demonstrations using beacons, telemetry, etc. I like to use the CW Beacon on HO-68 as an illustration of Doppler.
3. Know your event and plan around its overall schedule.
 - a. Know the physical layout of the event site. It is important to know the geometry of the site vs. pass orientation. You may want to have several locations depending upon the passes to be used for demonstrations. It is necessary to get outside and you need to know the effects of local obstructions.
 - b. Know how to announce an upcoming demo. Be sure to announce where to gather for the demo. I usually tell folks to come to the AMSAT Booth and we’ll go from there unless there is some other easily identified meeting place. Not many Hamfests have a dedicated demo area like we have at Dayton.
 - c. Post planned demo passes on AMSAT-bb ahead of time to be sure folks are aware that you will be doing demonstrations so that there will be someone out there to talk to.
 - d. Post planned demo passes in the Hamfest schedule or on a poster in the AMSAT Booth.
4. Set up your equipment far enough in advance so that you have time to discuss it and the procedures to be used during the contact before contact time..
 - a. If you have the luxury of a dedicated demo area, the setup can be more elaborate. It is very helpful to have a portable power source

available. Antennas can be on an antenna positioner, rigs on a table, tracking computer available, computer controls shown as an alternate to manual, Sun shield for computers, equipment, and operators, etc. If using a laptop computer, devise a light shield to aid in viewing it in sunlight. Remember, once this setup is done, you must staff it as long as the equipment is in place which could be all day. This is what we do at Dayton. This is a very rewarding way to go and a lot of interest can be generated.

- b. Without a dedicated demo area, plan to haul equipment in and out of the building each time a pass comes over. You can set equipment up on a small table, antennas hand held or on an antenna positioner, and enlist Hams to help carry it all out to the site and back. This helps you and it makes them feel like a part of the demo. I do this at most Hamfests out of necessity. I also do it at Ham-Com in Texas to avoid as much of the Texas Summer Heat as possible.
- c. Especially if doing demos on linear transponders, recruit help from the crowd. It's a great opportunity to let one Ham operate the receiver, another operates the transmitter, and a third points the antennas. Of course this requires constant coaching on your part. In this type of operation, I usually operate the transmitter which involves talking and doing the in-pass Doppler correction.

**The "Three Musketeers"
doing a
Linear Satellite Demo in "Cowtown"**



**Doug
W5BL**

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Execution –

Execution sounds very *final* and it is where the “proof of the pudding” resides. Some of this has been touched on in the planning discussion but it will be re-emphasized here.

1. Be sure you have checked out your equipment, and yourself, before demo time. Do some practice before the demo to brush up on operating technique.
2. Refer to The Live OSCAR Satellite Status Page - <http://oscar.dcarr.org/> - to verify the operational status of your intended “Bird.” It is very embarrassing to plan a pass and find that the “Bird” is not-available for some reason. It’s quite helpful to have this available on the AMSAT Booth Computer if you have internet access.
3. Plan your demo as described above and then post your passes and times that you will be available on amsat-bb a couple of days in advance if possible. Don’t forget the callsign and the name of the Hamfest, Convention, or club/school group that the demo is being done for.
4. Announce the demo at the event on the PA system or by signs and posters. Have people meet at the AMSAT Booth or demo site. If it’s hot, cold, or wet outside, describe the operation while still inside at the AMSAT Booth or other indoor location.
5. Set up the equipment if not already done and verify local compass directions. You need to know for sure where North, South, East, and West are. This does not have to be known with great precision but you do need to know the general direction to expect the “Bird” to come from.
6. Start listening for the “Bird” at the appointed time. Move the antennas around the initial direction while listening for the “Bird.” For SSB/CW transponders it will be necessary to tune around for signals while also moving the antennas.
7. Establish contact(s) and move on to the next one. Keep it short on the “FM Birds” but do mention that you are doing a “Demo for _____.” On the “Linear Birds” feel free to rag chew for the whole pass if you are able to. The crowd will love it. Continue to make contacts as long as the pass lasts.
8. Conduct a “wrap-up” Q&A session immediately after the pass is over. Take as long as necessary to answer everyone’s questions. You can move back inside for this if the climate is not cooperating.
9. Follow up in the AMSAT Booth with discussion and distribution of books, software, etc. You will be surprised what a successful Demo will do for this activity.
10. Get ready for the next pass!

As you can see there is a lot involved but it is not overwhelming and will become easy and intuitive after a little practice and a few demos “under your belt.” The rewards are great – finding some new friends, introducing the Amateur Radio Satellites to some new and/or old Hams and other folks. **Last but not least – it’s fun!**

I’ll talk to you during my next Demo!

73 – Keith, W5IU