

Sierra Signals

Sierra Foothills Amateur Radio Club
Auburn, CA
An ARRL Special Service Club

<http://sf-arc.org>

August 2007

P.O. Box 1005, Newcastle, CA 95658

Lessons in Hanging Wallpaper

(Reported by Greg, KO6TH)

The AO-51 satellite was placed into an experimental mode last week. For three days, the satellite was turned into a cross-band and cross-mode repeater in space. While this provided an opportunity to experiment with a new satellite configuration for some, it was an experiment in hanging wallpaper for others. Yes, wallpaper.

If you've ever tried to hang wallpaper yourself, you know what I am referring to. There are simply not enough arms, legs, fingers, or

toes on one person to get it done properly. The expression "one-armed wallpaper hanger" is used to describe exercises in futility that lack of ways to control all the things that need controlling. Holding eleven corks under water with your ten fingers is similar, as is attempting to nail Jello to a tree. Satellite operators often claim their aspect of the hobby is equally challenging.

(continued on page 2)

At the Key of S.F.A.R.C.

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ARRL: Casey, W7IB

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RESOURCES

REPEATERS

145.430 (-0.6 MHz/PL 162.2)

440.575 (+5.0 MHz/PL 94.8)

223.860 (-1.6 MHz/PL 100.0)

CLUB NET

Thursdays, 7:30PM, K6ARR/R

145.430

CLUB MEETINGS

Second Friday of the month,

7:30PM at the Library, 350

Nevada St, Auburn CA

CLUB BREAKFAST

Last Sat of the month at Susie's

Café, Cirby at Riverside, Roseville

- 8:00 AM

NET CONTROL OPS

Dave Jenkins, WB6RBE

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Joe Sylvia, KF6OQY

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2007 Calendar of Events

(Operating Events in Italics)

[Dates are local unless otherwise indicated]

Aug 4	VE Session
Aug 4-5	<i>No. American QSO Party</i>
Aug 10	Regular Meeting
Aug 11-12	<i>Worked All Europe - CW</i>
Aug 18-19	<i>No. American QSO Party-SSB</i>
Aug 25	Club Breakfast
Aug 25-26	<i>Ohio QSO Party</i>
Sept 1	VE Session
Sept 14	Regular Meeting
Sept 29	Club Breakfast

We encourage members to receive Sierra Signals via email to save the Club the cost of reproduction and mailing

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Thirty Years Ago At The SFARC

(Reported by Gary, KQ6RT)

August 1977

Mailed SFARC News, Vol. XIX, No. 3. with a plea for "Help" from the President/Trustee, K6ARR. Also mailed cards of membership for life, if you support the station.

73,
Gary
KQ6RT

Lessons in Hanging Wallpaper

(Continued from front page)

AO-51's new mode was "VU SSB/FM". That means that one transmits to the satellite on the "V" band (2 meters) in Single Sideband mode, and receives on the "U" band (70cm) in narrow band FM mode. This is cross-band and cross-mode. Normally AO-51 listens in FM mode, and this makes the bird one of the "Easy Sats", because FM modulation minimizes the effect of the ever-present Doppler shift. The simple change to SSB on the uplink removes that assistance, adding the need for one more arm to hang this cosmic wallpaper. The Doppler shift on the uplink makes the operator feel like he's working with a VFO that drifts 5 khz in about 10 minutes. When being off by only a few ten's of Hz will make you sound like Donald Duck, and being off by more makes you unintelligible, Doppler shift is a big deal.

There are, of course, advantages to using SSB on the uplink. One problem with FM is the so-called "capture effect", where the strongest signal is the only one heard. On a single channel communication device this means that if two people talk at the same time, one is heard and the other is drowned out. If two signals of similar strength are heard, then neither wins. We've all heard this happen with FM repeaters. It is much more common on the FM satellites, where many more operators are trying to get their turn at a QSO before the satellite disappears below the horizon. SSB solves this by removing the capture effect. You can't really have more than one conversation at a time, but at least you can hear both stations and make progress. The cost, of course, is the need for frequency control, including negating the effects of the Doppler shift.

So, let's count the arms. Before us is this piece of wallpaper, moving roughly 18,000 miles/hour. We need to get a signal to it, at a precise frequency as heard by the satellite, and receive a signal from it, within our passband. I count five arms. Finding the satellite takes control of both azimuth and elevation for the beam antennas, Transmit and receive frequency, after correcting for Doppler. That makes four. Oh, and you have to push the mike button and talk at the right time, otherwise

there's no point to any of this. Five. Basic anatomy says that I only have two, so to avoid the "one armed paper hanger" model, we need to grow a few arms.

One thing that can help is to realize that you don't need a massive antenna array to work the LEO satellites. Many operators use an HT and a small dual band hand-held beam antenna. A couple of elements on VHF and a half dozen on UHF co-located on the same boom make for a very portable satellite station. (Google for "arrow satellite antenna" and you'll find several.) But we're still in trouble. We have one arm running the antenna, and one on the rig (with the PTT button); what to do about frequency control?

For the FM/FM mode (the Easy Sat configuration), many operators save time and arm-juggling by pre-programming several uplink/downlink combinations into their rig's memory channels. An occasional twist of the channel knob is all that is needed to maintain frequency. But, with SSB you have more of a challenge, as the uplink will need constant attention. That's one too many arms for me.

Another aid can be found in the fact that a LEO satellite's orbit is really fairly low, relatively speaking. Quite a few operators work them with omni-directional antennas and a small preamp on the receive side. A simple ground plane antenna, especially one operating on the 3rd harmonic, can be good enough for the higher passes. Also, while Doppler shift is a factor on the FM receive side, it is not so bad that you need to adjust for it constantly. An occasional bump of the receive dial is all you need. It's the uplink side that needs constant attention, and there's a big knob on the front of your rig for that.

So, cable up that all-mode rig to a pair of 2m ground plane antennas. One for the 2m uplink, and the other through a preamp to receive the 70cm downlink. With one arm holding the mike, and the other on the tuning knob, you've got everything covered and are ready to go! (This setup will also work when the satellite is in the primary VU FM/FM mode, so you can work all the Easy Sats with it too.)

Now, if I could only figure out how to hang wallpaper correctly...

73s,
Greg KO6TH

Contesting

The Sport of Amateur Radio

(Reported by Fred, K6DGW)

Selected Contests for August:

Here's a short list for August. -- as always, the complete list can be found on Bruce's page at www.hornucopia.com/contestcal/ I write this on Thu, 26 Jul and it is quite possible you won't see this until after the NAQP CW but on the outside chance I listed it too.

No. American QSO Party: 4 Aug 1800Z – 5 Aug 0600Z
ncjweb.com/naqprules.php

Worked All Europe -- CW: 11 Aug 000Z – 12 Aug 2400Z
www.darc.de/referate/dx/fedcw.htm

No. American QSO Party – SSB: 18 Aug 1800Z – 19 Aug 0600Z
ncjweb.com/naqprules.php

Ohio QSO Party: 25 Aug 1600Z – 26 Aug 0400Z www.oqp.us

Contest Chatter: The NAQP RTTY in July was a lot of fun. I only got about 4 ½ hours in since I volunteered at a blood drive at the Auburn theaters in the middle of the day, but I managed to get my RTTY station set up and working. I began using my K2/100 in RTTY contests because I can set the filters very narrow. It is a huge change over the FT-847 I was using. I also decided to switch to WriteLog + MMTTY because getting the log out of MixW in a useable format was a huge amount of work. WriteLog is filled with bells and whistles, options, settings, and the like, and starting out can be a little daunting, but once you figure out that you can ignore nearly all the options, it gets a lot easier. The CW will beery well attended.

The WAE is a fairly unique contest. First off, only QSO's with EU stations count. The QSO exchange is RST and a serial number and our multipliers are the EU countries [there's a list on the web site]. You can operate 36 of the 48 hours, but there are some restrictions about off-times. The "wrinkle" in WAE is the QTC. After you've been on for awhile, EU stations will begin asking you "QTC?" A QTC is a message you send back to an EU station reporting a previous QSO with anyone but him. There is a format on the web site. The good news is that most of the logging software does all of this for you. I use TR-Log on CW and it keeps track of QSO's, won't let me include a QSO with the station I'm sending the QTC to, etc. Once you get the hang of WAE, it is easy. If you don't have any QSO's to send right then, just reply "QRU"

I put the Ohio QSO Party in because there was nothing else for that weekend and we can't have that! I've actually been in it and will likely operate this year too. There's usually a good OH turnout.

Results: I received an email the other day from the WI QSO Party telling me the results were on the web site. I had figured I'd be dead last since my score was 42. It turned out I was close to last but there were stations below me. I don't think I'll get any of the cheese awards however. They do list club affiliation, and I took first place in "Entries from the No. Calif. Contest Club" category, however. Possibly being the only NCCC entry helped J.

Other Stuff: Each year, the NCCC and Mother Lode DX and Contest Club hold a joint meeting in Jackson. This year, Bob, W6RGG [our ARRL Pacific Division Director and leader of the BS7H expedition to Scarborough Reef earlier this year] gave a presentation on the expedition. Take a look at www.scarboroughreef.com/ for some pictures. It's hard to believe that 4 isolated rocks sticking a few feet above the China Sea constitute a DXCC entity, but it's true. Still looking for a BS7H card [also still looking for an N8S card].

Hope everyone's summer is going well. Our own Cal QSO Party is coming up the first weekend in October, and it's never

too soon to begin planning for it. See www.cqp.org for details.

73,

Fred K6DGW

July Meeting Minutes

(Reported by Leslie, K7NYE)

Minutes of the SFARC Board and General Meeting, July 13, 2007 at the Auburn, CA main library:

No Board of Directors meeting was held to lack of a quorum.

SFARC General Meeting Minutes:

7:35 PM Meeting started by SFARC Club President, Don Hay, WB6LPJ. Meeting started with Pledge of Allegiance, introductions of general members and officers. Twenty four members and guests were attendance. Reports were given by VE, ARES and ARRL representatives.

Old Business: Preparations for the upcoming Club picnic were discussed. Through the efforts of Bob Boeckman, WA6ULL, arrangements have been made for a no-cost venue for the club picnic. The picnic will be held at PineBrook Mobile Home park in Folsom on Saturday, August 18th, between the hours of 11:00 AM and 2:00 PM. Hamburgers and hotdogs, buns, soft drinks, water, condiments, napkins and place settings (plates/forks/knives, etc.) will be provided by the club. Members are to bring a side dish, salad or dessert, as well as chairs for their own use.

New Business: No new business was discussed.

Presentation: There was no formal presentation, but Field Day 2007 was debriefed for the benefit of the club by those that attended this year in Nyack. Also, a short DVD presentation was seen by the attendees. It was regarding the Northern California DX Foundation and the DXpedition services they provide to hams. The DVD presented information about the Northern California DXpedition support amateur radio activities around the globe.

Gene, KG6NYH held the monthly Drawing. Meeting was adjourned around 9:30 PM.

Respectfully submitted:

Leslie, K7NYE

Secretary



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**SIERRA FOOTHILLS AMATEUR RADIO CLUB
2007 MEMBERSHIP APPLICATION**

Name: _____ Call: _____ Class: _____ e-mail: _____

Address: _____ City: _____ State: _____ Zip: _____

Associate Name: _____ Call: _____ Class: _____

Phone Number: _____ Application: (Circle One) New Renewal

Member Dues: Circle Amounts That Apply. Applications (for new members only) received in the middle of the year will be pro rated. Contact the President or Treasurer for exact rate.

Membership:	\$22.00	Name Badge:	\$7.00
Associate:	\$ 7.00	Repeater Donation:	\$ _____
Auto Patch Donation:	\$ _____	Newsletter Booster:	\$ _____
Miscellaneous Donation:	\$ _____	Christmas Donation:	\$ _____
Worldradio Renewal:	\$ _____	TOTAL:	\$ _____

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Date: _____	Treasurer: _____	Secretary: _____	Roster: _____
Payment: _____	Check Number: _____	Cash: _____	