



# THE AIRWAVES

October 2007

SIERRA AMATEUR RADIO CLUB

An ARRL Special Service Club

RACES ARES

P O Box 1442

Ridgecrest

California

93556-1442

<b>BOARD</b>	President	Gene Brewer	KI6LO	446-1315
	First VP	John Andrus	KC6UWM	371-2190
<b>OF</b>	Second VP	Fred Moses	KG6STR	371-4034
	Secretary	Lloyd Brubaker	WA6KZV	375-7245
<b>OFFICERS</b>	Treasurer	Pam Evans	KC6UUS	375-4240

## SARC OWNED AND MAINTAINED REPEATERS

Randsburg	WA6YBN 145.34 MHz (-), PL 100.0 Hz, Wide Area, Emergency Power, linked to 147.00
Ridgecrest	WA6YBN 146.64 MHz (-), Translator, No Squelch Tail, Emergency Power
Ridgecrest	WA6YBN 147.00 MHz (+), PL 107.2 Hz, Autopatch, linked to 145.34
Ridgecrest	YBNBBS:WA6YBN, 145.050 MHz, Bulletin Board, 1200 Baud
Ridgecrest	#YBNSW:WA6YBN-4, 223.580 MHz, Node, 1200 Baud
Ridgecrest	#YBNSW:WA6YBN-4, 439.025 MHz, Node, 9600 Baud

## SARC Committees

**Technical Assistance:** Greg, WA7IRW 446-4383  
**Program:** Fred, KG6STR 371-4034  
**RF Interference:** Bill, WA6QYR 375-8566

**Public Relations:** John, KC6UWM 371-2190  
**Airwaves Editor:** Mike, WA6ARA 375-5324  
**Emergency and Public Service:** Mike, W6PA 793-0541

## THE AIRWAVES CALENDAR

**Every** **ARRL Audio News**  
1910 (7:10 p.m.) on 146.64 MHz

**Monday** **IWV Emergency Net**  
**Visitors Welcomed!**  
1930 hrs (7:30pm)  
WA6YBN Translator 146.64 MHz (-)

**Night** **East Kern County Emergency Net**  
**Visitors Welcomed!**  
Rand repeater 145.340, pl 100  
2000 hrs (8pm)

**Oct 06 Picnic In The Park**  
Ridgecrest to Kernville bicycle ride (See article inside) Contact: Elvy Hopkins NØLV  
[<lvrh7589@iwvisp.com>](mailto:lvrh7589@iwvisp.com) or 760-384-3589

**Oct 20 Jamboree on the Air**  
POC WA7IRW 446-4383 See info inside

**Oct 27 GIT-R-DONE Horse ride**  
POC ??

## AMATEUR RADIO LICENSE EXAMS

Every Even Month, Second Saturday

**Oct 10 SARC Board Meeting**  
7 pm – Heritage Inn Conference Room

**Oct 10 SARC General Meeting**  
730 pm – Heritage Inn Conference Room  
Program – Club Publicity or free ham software, DX Lab Suite

**Oct 13 Volunteer License Exam Session**  
Location: Guns 4 Us, basement classroom  
417 East Ridgecrest Blvd, Ridgecrest CA  
No handicapped access Pre-reg by 8 Oct. Limited to 8 applicant All must register at 9 AM  
Contact Elvy Hopkins NØLV 760-384-3589  
E-mail [lvrh7589@iwvisp.com](mailto:lvrh7589@iwvisp.com)

## From the President's Shack

Well it looks like cooler weather has finally started drifting into the valley. A pleasant change from the persistent heat of the last few months. Soon the fall rains will be here and then the bitter cold of old man winter will come calling.

Why the verbal Norman Rockwell imagery you might ask? Well, as many of us old timers in the valley have found out, winter seems to bring a fair share of disasters, from mild to serious. Remember back to Christmas 1990 when the loss of gas flow from the main line of natural gas into the valley coincided with one of the coldest nights on record. Scores of water pipes froze and ruptured. The valley was without gas for cooking or heating for a short period. My house was just finishing up being remodeled and got flooded from broken water lines.

If this were to occur this year, are you prepared to keep yourself and your family safe and secure until the services return? What about heating your home? When was the last time you actually had a fire in the fireplace? Do you actually know how to start a fire WITHOUT a gallon of gas and a flamethrower? Kidding aside, waiting until the need is not the time to try and learn survival skills. Lists are available outlining recommended supplies for survival during situations where there is loss of services and normal supply channels are severed. Get one of these lists and prepare if you haven't already.

I challenge you to take time during the next few weekends to take count of your supplies and abilities? Take the family aside and show each how to safely start a fire in the fireplace and operate the flue to avoid smoke in the house. Sign your entire family up for first aid classes some weekend. Does everyone know how to turn off the gas in case of earthquakes?

Lets not forget about amateur radio either. Does everyone in your household have a license? If not, some family members may not be interested but others might be. Getting licensed as a family project could be fun to do. Talk about what ham radio is all about with your kids. They may just know it as the 'thing Dad does on Saturday afternoon'. Learning to interface a computer to a radio to operate digital modes may just be the fuse that lights their lifelong interest and starts a career in a technology based field. Learning how to setup a temporary antenna could be a valuable skill in an emergency. Just remember, you can never know too much.

See ya at the club meeting,

Gene KI6LO

## September Meeting Minutes

None submitted

## TREASURER'S REPORT

Treasurer's Report as of 01 October, 2007:

Draft Account	\$ 291.10
Share Account	\$ 4,718.02
<b>BALANCE:</b>	<b>\$5,009.12</b>

submitted by Pam Evans, KC6UUS

## 20th Annual Kiwanis Walk-a-thon

The 20th Annual Kiwanis Walk-a-thon was held on Saturday, 29 Sept. The morning of the public service event was a beautiful Fall day, cool with a slight breeze. About 380 men, women, and children walked the 2.5 mile course. The last walker completed the course about 0945. The Kiwanis re-supply driver this year was a ham, Jerry WA6BFA. A handheld radio was loaned to him to communicate with the checkpoints. A record number of hams volunteered and eight actually showed up at the park. Many thanks to Hal KM6JM (in his bright orange "COMMUNICATIONS" vest), John KC6UWM, Lorilyn KG6LEW, Judy KC6UTF, Bill WA6QYR, Jerry KK6PA, Dennis W6DWF, and Greg WA7IRW.

## Public Service Opportunities

### Jamboree On The Air

Jamboree on the Air this year is 20 October from 9 to 3 pm at the Methodist church 639 N Norma. Greg, WA7IRW is leading the event and is looking for additional hams to support the event. Set up is around 8 am. There will be a group of about 8 boys and girls plus parents at the event for each hour period. Phelps is running the HF station. They will need help putting up the tower trailer antenna and doing some satellite operations. Greg has some "kits" to do a little soldering with the scouts for them to take home. Give Greg a phone call if you can help out. 446-4383.

### Picnic In The Park Bicycle Ride

This sixty mile bicycle ride from Leroy Jackson Park in Ridgecrest to River Park in Kernville on Saturday 6 October is Sponsored by the High Sierra Bicyclists of Ridgecrest. Eight Hams are needed to man five check points, a radio relay point, start and finish. Hams also keep track of all riders by number as they pass each of the check points. Greg Roush WA7IRW will set up the SARC portable repeater on a hill south of Lake Itchi Belli for communications from Walker Pass to Kernville. The SARC translator is used on the east side of Walker Pass. A two meter mobile with external antenna is required for reliable communications. Start time is 6:00 AM at Leroy Jackson Park. T-Shirts and lunch tickets will be distributed then. Elvy Hopkins NØLV will coordinate the operations. Contact Elvy at [lvrh7589@iwvisp.com](mailto:lvrh7589@iwvisp.com) or 760-384-3589.

## From the October 2007 World Radio magazine via John Denson, AI6A

Thanks to Tom White, K5EHX in Tulsa, Oklahoma, a new free service for those who want to know where a repeater is located and its approximate service area now exists.

Tom's repeater database is tied to Google Maps and lets you search by tags (try typing in WA6YBN), city, state or zip code. Tom says that the original idea was to make it easier to search for repeaters in a given area for planning a trip.

You can try it for yourself at <http://k5ehx.net/repeaters/>

### Movie Time

Here is a link to a old, actually well done, film made by MGM on amateur radio, made in the 1939. You can view it at: <http://www.youtube.com/watch?v=vBGldf0VjQ4>

### Where's The Manual

Oh no, Net Control/Base Camp wants me to come up on some frequency that I don't have programmed in my rig. How do I do that? How do I enter the repeater off-set and CTCSS tone? Where's the manual? Do I still have it?

Has this happened to you? It probably has if you've helped out with one of the many events that SARC supports throughout the year. Heck, just going someplace out of the valley can activate those sweat glands. How about going up to Visalia for the annual DX convention? I doubt it if you are going to program the "Talk-in" frequency for a once a year trip into one of your *valuable* 800 memories of your mobile rig. Plus, even if you did, would you remember this year that you programmed Visalia into memory 713 last year? I wouldn't.

Unless you can memorize all the procedures for all of your rigs, you need your manuals. So again, where's your manuals? I could tell you where mine are for all my mobile rigs and HTs, but that would be the end of this article and Mike/WA6ARA would have to find less interesting *stuff* to fill out the Airways.

Obviously, the manual for your mobile rig **better** be with your mobile rig, with your vehicle. That's a no-brainer. But what about your HTs? How many of you have your HT manuals in your radio shack? Come on, raise your hand. If you do keep your manuals in the shack, do you

always remember to bring the correct manual with you when you grab an HT? Raise your hand if you've forgotten to bring the manual at least once. Raise both hands if you brought the wrong manual at least once! Yeah, both of my hands were up in the air.

All right, I'll give you a hint on where to store you HT manuals. What's with you or near you most of the time? Give up? Your vehicle! Whether you are helping out with a SARC supported event, an ARES/RACES event, or at the mall, in all likelihood, you brought your vehicle with you. What do you have in all those door and map pockets? (Please don't tell me, I have a weak stomach). Besides maps, those pockets are an excellent place to store your ARRL Repeater Directory and manuals for your mobile rig and all of your HTs.

Don't complain that you now have to walk all the way out to the driveway or garage to grab the manual when you want to program your HT the night before the bike ride. At least you know where the manuals are. Besides, most of us could use the exercise! And the next time you're assigned to the intersection of Hwy 14 and 178 and need to transmit on the repeater output and listen on the repeater input, you'll have your manual a few feet away from you, not in your radio shack a few miles away from you!

73.....Elmer

## Free to Air Reception from Equatorial Satellites, Pt 4 Final Installment

By Joe Perry Jr, WB6DCO

### Choosing your Antenna and Pointing at a Satellite

If you want to splurge a bit, buy the dish with motorized position controllers.



This one has a motor that you mount on a pole. After some alignment you can tell it to move to any satellite in the Equatorial arc that is visible from your site. Remember that all FTA is line of site. No trees or branches or windows or anything can be between you and the satellite. Even snow and rain will lower the signal quality tell the storm leaves.



This is a fixed pointing 33" offset Ku band FTA dish with LNBF. Note on all antenna dishes that the LNBF horn is offset downward about 10 to 20 degrees reflection angle from the center normal axis of the dish concave shape.



If you like portability you can get a set up like this. It can be pointed manually to any satellite. If you like camping and want real TV go FTA.

There are some specialized dish antenna that allow you to have multiple LNBF horns mounted to the receiver end of the dish. The toroidal dish will allow you to manually align up to 8 satellite signals from one fixed dish.  
Basically



All dishes use LNBF horns. These horns are Ku down link receivers that change the gigahertz satellite signal to a lower IF frequency for your receiver input. Horns come in various types and sizes.



This is a standard universal LNBF. It receives the satellite signal, down converts the frequency for your receiver, and has two outputs at the bottom of the LNBF. This way you can run two rg-6 coax cables to different places and use the same horn.



There are some horns that are fully incased for DISH and DTV. These horns are **not usable** by the FTA receiver because they do the satellite splitting inside the horn and most FTA receivers can not figure out how to separate the signals. So, don't buy or use the self combined LNBF heads. You want only separate LNBF horns.



Some satellites are so close together, less than the 1.5 degrees, that they have special horns that are spaced just for these satellites.

Here is an example of a SUPER dish. This dish has closely spaced horns so that it can decode the 105,110 or 110,121 HD satellites. The super dish is larger than the standard 18" dish, and thusly is quite usable for any FTA

signal hunting.

I have spent some space talking about FTA TV, there are many RADIO stations that also can be FTA received. There are several old time radio stations on the internet and on many of the satellites. These include foreign stations and well as English. One oldy is on G11 Ku band transponder 18 with Vertical Polarization. If you go to the [lyngsat.com/freeradio/](http://lyngsat.com/freeradio/) you will see 100's of radio stations you can get off the satellites. You can set up an FTA so the audio goes to a radio speaker rather than your TV audio.

To obtain a dish antenna you may go visit internet selling sites, pawn places, or you can visit your local satellite store. Many satellite stores will have taken down older dishes and may give them to you to get rid of them. Look in to your local trade paper, junk paper and some one will be trying to sell or giveaway a BUD or dish for the pick up.



Here are examples of the FTA dishes placed on the roof and pointed at different satellites. Left to right are: OLD DISH BEV antenna, Toroidal antenna, Superdish antenna, and a few standard dual horn dishes.

For every satellite you can FTA, you have to have an RG-6 coax cable from the LNBF to a receiver. We will talk about FTA receivers next and methods to multiplex up to 4 satellites to one FTA receiver. You can do more but it takes more time and effort.



This is a satellite finder inline signal meter. This will show when a down-link signal is generating output from your dish antenna, but does not show you anything about which satellite you maybe pointing at.

I have mentioned a few types of satellites receiver boxes. There are used receivers available at swap meets, pawn stores, and your local paper ads, and thrift shops. These receivers generally will work to run the LNBF horns for Ku band but will only decode analog FTA.

These are some of the older BUD type receivers. These types are Uniden, Cheyenne, Cheyenne IRD, Sierra, Monterey, Drake, General Instruments 4DTV, Houston Tracker, Kenwood, NextLevel, Nextwave, Panasonic type Analog C and Ku receivers.



Another popular model is the 4DTV General Instrument C/Ku receiver.



This is a C/Ku band BUD horn. These are very large and heavy and will only do analog C and Ku band reception. You can get DVB BUD horns to replace the older analog horns, but then you loose the analog capability to

FTA. So, it is best to have separate antenna's for the various satellite types.

There are many places on the internet that you can search for FAT receivers and parts. One warning, if you buy a legacy receiver be sure it comes with the HAND CONTROLLER. As many of the older BUD receivers did not have front panel button control and finding a matching hand controller is a problem.

Standard FTA receivers are made by Pansat USA, CoolSat, Viewsat, Sonicview, Dreambox, Neusat, and some others. You **do not** want a CLONE of a receiver, unless you get it free hi hi. Clones may be cheaper but have other problems running FTA codes.



This is a Pansat type FTA receiver. They make many models and prices. Some have hard drives so you can record the TV shows off the FTA.

The sub parts that you will need to wire you dish antenna to your FTA receiver are things like RG-6 coax available anywhere, and a 4 to 1 DISEqC multiplex combiner module. Generally if you buy an FTA you get the multiplexer and hand controller with the unit.



A Diseqc 4 to 1 lnb input combiner switch. This splitter allow you to combine 4 lnb inputs to one FTA receiver. There are ways to combine multiple Diseqc switches to add more satellites to your FTA. Your FTA can scan as many satellites as you can point too. You do not have to multiplex the satellite signals through splitters. You can purchase a motor driven dish with a single lnb horn. The dish rotates to point at each satellite. All you do is point to the satellite, scan the satellite and then the next time you want to watch a channel from any of the satellites you have scanned the dish will auto move to that satellite. There is a brief interval for the dish to move in the satellite arc.



This is the motor to which you can attach a dish antenna with a single lnb and then train it to locate all possible satellites for your FTA.

Once you have located all your equipment you next choice is the location on your land to point up about 45 degrees with line of site unblocked by any trees or wires.

The receivers come with some instructions on how to point your dish to find the satellite, how to check for a signal, and how to scan for all the digital DVB channels.

Pointing a satellite antenna dish at your ground station is the hardest part of the FTA fun. The satellites are in an arc from East to West along the Equator. So, if you watch the sun cross the sky from morning to evening you will see that it goes in a arc. The arc at sunrise is low on the East horizon. The belt of satellites follow the Sun arc, either above or below the sun. As the sun passes through the Equinoxes it is on the Equator. The Sun puts out enough frequency radiation that when it passes in

front of you antenna dish and hits the LNBF, you will loose reception tell the Sun has passed on Westward. This is called solar drop out. You can experience drop out also when it rains or hails or snows very hard.

A good satellite to start with is the T5 satellite. This is located at 97 degrees west, and your line of site due south from California is about 118 degrees west. So this satellite is like 45 degrees up Elevation from the horizon and azimuth angle is like SSW. Connect up your FTA to the satellite without the multiplexer first. Move the dish antenna in left and right and up and down motions by 1 degree tell you FTA shows a green signal strength. Remember there are many satellites in the neighborhood of the one you want, so you may actually hit T6, or G3, or G6 or S4 and not know it.

If you go to Google and type in "satellite finder" you will get many web pages on how to calculate the direction to the satellite you wish to find. Since the satellites are all along the Equator all the calculator needs is your home latitude and longitude to show you're the position angles, Azimuth from the North Magnetic Pole, and the Elevation above your southern horizon in the direction of the satellite.

In our example we take Los Angeles City at 34 North, 118 longitude west, looking for a satellite at 97 West longitude. The calculator shows 145 degrees Azimuth from the north pole (be careful some use the north magnetic pole) and 34 degrees up form the SSE horizon.

Most antenna have a scale on the side that shows some angle up and down. This angle is usually only for use with DISH or DTV satellite installations. You will notice that the LNBF horn is below the center line of the antenna dish by about 10 to 20 degrees. This varies with each antenna design. If you can measure this offset of the horn from the center axis of the antenna dish you can then subtract that offset angle from the Elevation that the calculator shows. So, to find T5 at 34 degrees above the SSE horizon I need to set the dish angle marked on the side to 34 minus the offset angle (say 10 deg) to 24 degrees. Then point the dish SSE and start a small scan up and down and left and right of the expected position of the satellite in the sky. Remember satellites are 1.5 degrees apart so you must move the antenna in very small steps, like 1 degree. Turn your FTA receiver to the satellite name you want to find, turn on the high volume of your TV output, and set the FTA into signal mode. You will hear a beep or a tone form the FTA TV box. If and when you actually pass a satellite signal it can figure out, you will hear the tone pitch change to higher pitch as the signal gets stronger. Move the antenna dish until you get at least a 70% signal strength. Now you are ready to scan the satellite and see if the channels you get match the list on lyngsat.com. Then you know you got the T5.

If you were looking for T5 but get T6 or GC-3 then you will see a different set of channels on the FTA receiver. You do not need to delete those channels. If you now go move the dish slightly right or left and slightly up or down you may find the next satellite in the sky. Scan that satellite and build up an FTA set of channels. The FTA box can hold 999 satellite channels. All you would need to do is point back at the other satellites and

choose a channel from the FTA satellite list to see that channel.

In time the satellites will move, be changed and or channels moved and deleted or changed modes. From time to time it is good to delete a satellites channels from a single satellite and then re-scan the satellite so that you maintain the best FTA list.

After you find a signal you have to perform the blind scan of the satellite to see what you get. If you get lots of foreign stations then you probably have found T5. Use Lyngsat.com to check your station listings and to figure out which satellite you found.

The last item to mention is that some groups have developed hacked code for many of the FTA receiver models. This code can help you scan and find satellites easier, and provide extended capabilities for the FTA.

Good Surfing of the sky.

Wb6dco

**Check out the SARC Web Page**  
**[www.qsl.net/wa6ybn/](http://www.qsl.net/wa6ybn/)**

**MEMBERSHIP APPLICATION**

**SIERRA AMATEUR RADIO CLUB of the HIGH MOJAVE**

Please fill out this form. It is used to make the club roster and newsletter mailing list. This form must accompany all membership, badge and patch payments. All renewals are due 1 January. Memberships not renewed by 31 March are dropped from the membership role. Please mail this application and your payment to SARC, POB 1442, Ridgecrest, CA 93556-1442 or give them to the Secretary at a meeting.

<u>Type of membership</u>	<u>New or Renewal</u>	<u>July - December</u>
Individual	\$20.00	\$3.00 + \$1.50/mo.
Individual (Newsletter via Email only)	\$17.00	\$3.00 + \$1.50/mo.
Full time student or active duty military	\$10.00	\$1.50 + \$0.75/mo.
Family ( <i>One Newsletter</i> )	\$30.00	\$4.50 + \$2.25/mo.
Family ( <i>One Newsletter, via Email only</i> )	\$27.00	\$4.50 + \$2.25/mo.

**Individual or First Family Member**

Date \_\_\_\_\_

Name: Last \_\_\_\_\_ First \_\_\_\_\_ MI \_\_\_\_\_ Call Sign \_\_\_\_\_

Newsletter Format Printed via mail \_\_\_\_\_ Email PDF \_\_\_\_\_ Email Plain Text \_\_\_\_\_

E-Mail Address \_\_\_\_\_ (Note: Email address is not shared, for newsletter only)

Mailing address: \_\_\_\_\_ City \_\_\_\_\_

State \_\_\_\_\_ Zip \_\_\_\_\_

Phone: Home \_\_\_\_\_ Work \_\_\_\_\_ License Expire Date \_\_\_\_\_

Novice \_\_\_ Tech \_\_\_ Tech Plus \_\_\_ Gen \_\_\_ Adv \_\_\_ Ex \_\_\_ ARRL Member : Yes \_\_\_\_\_ No \_\_\_\_\_

**Second Family Member** (For more family members please duplicate)

Name: Last \_\_\_\_\_ First \_\_\_\_\_ MI \_\_\_\_\_

Phone: Home \_\_\_\_\_ Work \_\_\_\_\_ License Expire Date \_\_\_\_\_

Novice \_\_\_ Tech \_\_\_ Tech Plus \_\_\_ Gen \_\_\_ Adv \_\_\_ Ex \_\_\_ ARRL Member : Yes \_\_\_\_\_ No \_\_\_\_\_

TOTAL \$ \_\_\_\_\_

**DO NOT DETACH**

**BADGE ORDER**

**DO NOT DETACH**

The club badge shows your Amateur Call, your Name and Sierra Amateur Radio Club. It will identify you at club meetings and public service events. To order a badge, provide the information below and, include \$11.00, for *each* badge in Membership Application total above or with this form and mail to SARC, POB 1442, Ridgecrest, CA 93556-1442 or give it to the Treasurer at a meeting.

**First Badge**

Name to put on my badge is \_\_\_\_\_ (What you like to be called)

Amateur call for my badge is \_\_\_\_\_

**Second Badge**

Name to put on my badge is \_\_\_\_\_ (What you like to be called)

Amateur call for my badge is \_\_\_\_\_

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**RACES, ARES and INDIAN WELLS VALLEY  
EMERGENCY NET MEMBERS**

**THE AIRWAVES NEWSLETTER  
October 2007**

In case of impending or current emergency, monitor the SARC translator on 146.64/04 MHz or the backup simplex frequency of 146.52 MHz. W6PM, Mike or AI6A, John, the local RACES ECs, will coordinate mobilization. An Emergency Net Control Station will direct radio communications. Check in. State your capabilities. Be prepared to go outside the IWV for at least three days. An E-Pac should contain: your RACES card, radios and accessories, batteries, charger, paper, pen, clipboard, flashlight with spare batteries, timepiece, headgear, sunglasses, spare glasses, your medications, your medical history, first aid kit, severe weather clothing, non-perishable food, 3 gal. water, sleeping bag.

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**SIERRA AMATEUR RADIO CLUB  
POST OFFICE BOX 1442  
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