RF

ORANGE COUNTY AMATEUR RADIO CLUB, INC.

VOL. L NO. 6 **P.O. BOX 3454, TUSTIN, CA 92781-3454** **June 2009**

The Prez Sez..... by Nicholas AF6CF

QST, QST, QST,

Field Day is here!
Mark your calendar for Friday, June 26, Saturday June 27, and Sunday, June 28 for this fun club event.

Our FD Chairman, Paul W6GMU is organizing the set-up on Friday afternoon.

As usual, all of the Friday afternoon workers will be treated to a steak dinner for their efforts.

Don't miss this OCARC and nation-wide event. Join the thousands of other radio clubs that actively participate this communications event that provides practice in "abnormal situations in less than optimal conditions.". And this year this statement could be truer than ever...

You don't have to stay the entire 24-hours. Come out to FD just for a few hours if that is all you can spare. Be aware that the location of OCARC FD recently changed to the Walter Knott School grounds in Buena Park. See pages 5 and 6 for all the details including a detailed map of the area.

There is always room for everyone to operate for an hour or two. Of course it is greatly appreciated if you can help with the FD set-up and teardown activities.

See you at the meeting and at FD.

73 DE NICHOLAS AF6CF

How to Send an Article to the EDITOR

Do you have an article or picture you found that you think may be of interest to the OCARC members??

Just e-mail the article to

EDITOR@W6ZE.org

JPEG files are best for pictures. Use WORD or .TXT files to send articles.

REMINDER:

The July and September normal board meeting dates conflict with holiday weekends, the new dates will be: July 11th & September 12th.

Members are welcome to attend these board meetings and enjoy the club breakfast.

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The next general meeting will be:

Friday, June 19th @ 7:00 PM

We will be meeting in Room 208
In the east Red Cross Building

ORANGE COUNTY AMATEUR RADIO CLUB
www.W6ZE.org

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Monthly Events:

General Meeting:
Third Friday of the month
at 7:00 PM
American Red Cross
601 N. Golden Circle Dr.
(Near Tustin Ave. & 4th St.)
Santa Ana, CA

Club Breakfast:
Second Saturday of July
at 8:00 AM
Jagerhaus Restaurant
2525 E. Ball Road
(Ball exit off 57-Freeway)
Anaheim, CA

Club Nets (Listen for W6ZE):
7.086 ± MHz CW **OCWN**
Sun- 9:00 AM – 10 AM
Rick KF6UEB, Net Control

28.375 ± MHz SSB
Wed- 7:30 PM - 8:30 PM
Bob AF6C, Net Control

146.55 MHz Simplex FM
Wed- 8:30 PM - 9:30 PM
Bob, WB6IXN, Net Control

VISIT OUR WEB SITE

http://www.w6ze.org

for up-to-the-minute club information, the latest membership rosters, special activities, back issues of RF, links to ham-related sites, vendors and manufacturers, pictures of club events and much much more.

Club Dues:
Regular Members ...$20
Family Members* ...$10
Teenage Members ..$10
Club Badge** ……..$3

Dues run from Jan thru Dec and are prorated for new members.

*Additional members in the family of a regular member pay the family rate up to $30 per family.

**There is a $1.50 charge if you'd like to have your badge mailed to YOU

OCARC General Meeting Minutes

for: May 15, 2009

The OCARC May General Meeting was held at the Red Cross complex in Santa Ana on Friday evening, May 15, at 7 PM. There were a total of 32 members and visitors present A quorum of the club officers was present, absent - Paul W6GMU was attending the Dayton Hamfest and Rich KE6WWK was out of town.

Nicholas asked everyone to introduce themselves,

PROGRAM:
The speaker for the meeting was Skip Freely K6HMS who presented:

"Telegraph Instruments"

Skip was licensed in 1953 and his hobby is collecting all types of telegraph keys. He explained that CW is efficient communications in a simple process. He has perpetuated his collection with keys from many noted individuals among them from the Don Wallace W6AM.

Skip Freely K6HMS describes the many keys he displayed and their history

At the end of Skip's presentation everyone enjoyed the opportunity to touch all the keys Skip brought to the meeting. He has truly a wealth of information regarding the keys and their history.

Part of the 20 keys that Skip-K6HMS brought to the presentation

Thank you Kristin for all the fabulous speakers!

NEW BIZ:
Nicholas AF6CF welcomed George N6VNI as new Director at Large.

David KG6RWU announced that he just upgraded to General.

Bob Eckweiler AF6C announced the club has 84 members, including Dino Darling KX6D who just rejoined at the meeting.

Kris Jacob KC6TOD requested input for the June newsletter. As Field Day Chuck Wagon leader she asked for donations of $20.00 per person for the weekend meals to offset the club costs. A donation can was available and will also be at the June meeting. Kris will also need a few helpers for Field Day dinner Saturday night and breakfast Sunday morning, please contact her if you can help.

Hank W6HTW requested help with the 20 meter station for Field Day.

Dan N6PEQ explained that the sun spot cycle will peak in 2013.

Meeting adjourned!

Respectfully submitted,
Kristine Jacob KC6TOD

Upcoming OCARC Events!!!

(Check the club website for updates and additions http://www.w6ze.org)

"General Meeting"

June 19th (Friday 7:00pm)
"Heil Presents"
Speaker: Chip Margelli - K7JA of Heil Sound will present our June Program. He will be showing us the new Heil product line. He's also an innovative entertainer in his own right.

July 17th (Friday 7:00pm)
"Astronomy"
Speaker: Dennis Kidder W6DQ

August 21, 2009

Brian Thorson, from Southern California Edison, will speak at our August general meeting on power-line noises and interference.

September 18, 2009

The program for the September meeting is tentatively going to be a DXpedition presentation by Bob Grimmick - N6OX

The Orange County
Amateur Radio Club "OCARC"
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Tustin, CA 92781
Web: http://www.w6ze.org
Email: ocarc_info@w6ze.org

The 2009 ARRL Field Day is Fast Approaching!

OCARC 2009 Field Day Information

Field Day Location: The **Orange County Amateur Radio Club** will be holding its 2009 Field Day event, the 24-hour simulated emergency communications operation, at the Walter Knott Elementary School, 7300 La Palma Avenue, Buena Park, CA 90620 (Orange County) The FD site is immediately to the West of Knotts Berry Farm Park.

[See MAP of the school on the following Page]

The location of the OCARC FD site can be reached by driving along La Palma Avenue and turning South at the entrance marked on the image of the site. From that point, head south until you reach the Field Day Site Entrance point. Parking will be available in and around the site. All Hams and visitors are welcome to the OCARC Field Day event. For a map of the 2009 Field Day Site, check out www.w6ze.org

Club Call: We will be operating under the club call **W6ZE.**

Date: The ARRL Field Day is always held on the 4th full weekend in June. This year's dates are Saturday June 27th and Sunday June 28th.

Time: Initial setup will begin Friday morning at 11:00 AM. Final setup will begin on Saturday at 7:30 AM. Operations will begin at 11:00 AM local time (1800 hours GMT) on Saturday and continue till 11:00 AM local time Sunday. Tear-down will start at about 11:15 AM Sunday and should be complete before 2:00 PM

Team Captains: This year we expect to be operating in Class 9A with up to 9 simultaneous stations on the air (plus VHF/UHF) for the 24 hour period. We need all the help we can get in each of the 3 phases (setup, operation and tear-down), even if you can come for only a few hours.

Below are the various Team Captains. They can all use more operators, so please contact them or Paul, W6GMU. Remember, this is a Team effort. Let's show the Amateur Radio community and ourselves what **TEAM OCARC** can do!!

And, above all, **ENJOY** this wonderful activity!!!

OCARC Field Day Coordinator – Paul Gussow, W6GMU (714-624-1717)

ALL CW OPERATIONS: Bob Harrington, AA6PW (AKA "The CW Contest Master") is the team captain.

15M/75M SSB – Kathy Gardenias, K6VC and Hank Welch, W6HTW are the team co-captains for the 15/80 meter station. This station will operate 15 by day and 80 by night as conditions allow.

20M SSB – Dan Corth, AD6HK and Greg Antonucci, KC6PCB are the team co-captains for this band. This station will remain on the air while the band is open.

40M SSB – Larry Mallek, K6YUI is the team captain.

10M + VHF/UHF – Chip Margelli, K7JA is the team captain.

We can get lots of bonus points by performing the actions listed below:

- **Public information table** - 100 points. We need to make hand out sheets and a visitor log.
- **Alternate power** - 100 points. We need to make a minimum of 5 contacts on solar power.
- **Site visitor** - 100 points for a visit to our site by a government official or Red Cross official.

Additional Points: We get 100 points for emergency power, 100 points for each H.F. station (900), 100 points for being in a public place, 100 points for a published newspaper article and up to 200 points for message receiving/sending. Phone contacts count 1 point each and CW/digital contacts count 2 points each. Each station is challenged to make a few CW contacts. We will be using laptops exclusively for logging.

OCARC FIELD DAY SITE AT WALTER KNOTT SCHOOL

NORTH

(This is La Palma Avenue)

Knott's Berry Farm Park

SOUTH

Heathkit of the Month
HD-1420 VLF Converter
by Bob Eckweiler - AF6C

Introduction:

Many amateur radio enthusiasts started with the hobby of shortwave listening (SWLing). Listening to hams converse together around the world created a strong desire to 'join in' for many SWLers. In the fifties most ham receivers were general coverage, receiving from 530 KHz through 30 or even 40 MHz. The sixties and seventies saw the birth of ham equipment that was specific to the ham bands and many hams kept secondary general coverage receivers to continue listening to the non-ham activities on the HF band. During the eighties transceivers began to include general coverage reception of the HF band, allowing hams once again to use their ham equipment for the added hobby of SWLing.

But what about the frequencies below the broadcast band? Most HF receivers don't cover these frequencies. Table One shows the frequency bands from the HF band down.

Notice that each band covers one decade (except for the lowest band). The 160 meter ham band and the AM broadcast band are really in the MF band. Though these bands are well designated, VLF has come to more generally mean the whole radio frequency spectrum below the broadcast band in SWL circles. Hence the VLF in the name for the Heathkit HD-1420 which covers the frequencies between 10 and 500 KHz.

The Heathkit HD-1420 VLF Converter:

The HD-1420 is a converter that takes signals in the range of 10 KHz to 500 KHz and converts them to the 80 meter ham band - specifically 3.510 to 4.000 MHz. It will work with any receiver that covers the 75/80 meter ham band.

The converter is built into a small 5-1/8” x 5-1/8” x 2-1/4” cabinet and weights just one pound. The front of the cabinet has only an LED pilot light and an **OFF - ON** slide switch. The back contains two female UHF connectors marked **Antenna** and **Out**, a power connector for external power, and a ground post. The converter uses an internal 9V battery (NEDA 1604). When the **OFF - ON** switch is in the off position the battery is disconnected and the **Antenna** input is bypassed directly to the **Out** connector. The external power connector is a female 1/8" phone connector, which is an interesting choice as it is easy to short the mating power plug when hot-plugging (inserting or removing the plug with power connected to the plug from the power source). Some sort of external current limiting should be used if the unit is being powered from a high current power or battery supply. External power requirements are 6 to 14 volts DC at a nominal 20 ma. Heath sold a wall-wart battery eliminator, the PS-2350, for $7.95 that runs the HD-1420 as well as other small Heathkit products.

Band	Wavelength	Frequency	Band Nomenclature
HF	100 - 10 meters	3 MHz - 30 MHz	High frequency
MF	1K - 100 meters	300KHz - 3 MHz	Medium Frequency
LF	10K - 1K meters	30 KHz - 300 KHz	Low Frequency
VLF	100K - 10K meters	3 KHz - 30 KHz	Very Low Frequency
ELF	Above 100K meters	DC - 3KHz	Extremely Low Frequency

Table One

The Heathkit HD-1420 was introduced in 1986. It remained in production until late 1991. The kit cost $49.95. It is styled in the brown color of later Heath ham equipment, with white lettering and the Heathkit logo in red. This is the same style as the popular HW-9 QRP transceiver and its accessories.

It's too late to buy a Heathkit VLF converter new. However used ones show up on eBay and at swap-meets occasionally. Palomar manufactures a VLF converter and numerous home-brew designs are available on the web.

The Circuit:

Figure 1 is a block diagram of the Heathkit HD-1420 VLF converter. When on, the signal from the antenna is fed to a low-frequency RF amplifier that uses a general purpose 2N3904 bipolar transistor. The amplifier has a sensitivity of 1 to 5 µV, which is quite adequate for the inherent noise on the low bands. The amplifier is followed by a seven-pole low-pass filter that removes the strong broadcast signals that can play havoc if they reach the mixer stage as well as any regular 75/80 meter signals. A crystal oscillator generates a 3.5 MHz injection signal for the mixer. The oscillator uses an MPF-105 JFET. The amplified signal and the 3.5 MHz injection frequency are mixed in an MC-1496 balanced modulator IC. The output of the modulator is a band of signals between 3.510 and 4.000 MHz that is the converted 10 to 500 KHz frequency band and represents the sum of the band and the 3.5 MHz injection frequency. The balanced modulator has another output that is the difference between the input band and 3.5 MHz (3.490 to 3.000 MHz) that is also present at the output. Normally these signals are rejected by the tuning of the receiver.

What's Below 500 KHz?

So what is there to listen to below the broadcast band? Kevin Carey, WB2QMY is the author of a book titled *Listening to Longwave - The World Below 500 Kilohertz* *. In it he describes what you can hear on these frequencies by band section. Below the broadcast band you will find numerous navigational aids including non-directional beacons (NDBs), military FSK and CW (highly encrypted) used for blanket global coverage, differential GPS data, WX info, ship calling frequencies, and - yes - hams and unlicensed, but legal, hobbyists.

Radio hams are active below 500 KHz. Experimental ham stations operate at 73 KHz, 136 KHz and in the 160 - 190 KHz free band. Be sure to check the rules before transmitting on any of these bands. Special licenses are often required, and there are power and antenna restrictions. Check the ARRL and FCC websites for the latest rules. The 160 - 190 KHz band allows non-licensed operation under FCC part 15 rules. Here you will find hobbyist beacons, coherent CW and even BPSK experimentation; many of these stations are operated by licensed hams.

The NIST WWVB time signal that synchronizes those “atomic clocks” can be found at 60 KHz. Don't expect to hear anything like WWV on the HF bands however; WWVB is strictly an amplitude and phase modulated carrier that is modulated at a one hertz rate.

At, and slightly above, 500 KHz are additional signals. 500 KHz was, for a long time, a maritime distress frequency. While it has been replaced by newer systems (namely GMDSS - Global Maritime Distress Safety System) and is no longer required to be monitored by maritime law, it is still sometimes used as a calling frequency to establish other ship communications. NAVTEX (Navigational Telex) operates on 518 KHz using the equivalent of ham radio's AMTOR mode. It is a weather and bulletin service transmitted by the US Coast Guard. To tune up to this frequency you may need to use a receiver that covers up to 4.02 MHz. Locally NAVTEX operates from Long Beach, CA; Cambria, CA; and Pt. Reyes, CA. A schedule of transmitting times can be found by searching for NAVTEX on Google.

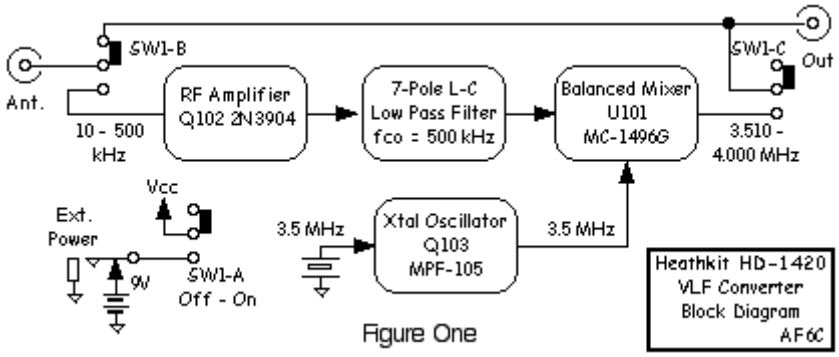


Figure One

Between 190 and 435 KHz are numerous non-directional beacons - NDBs. These are used for direction finding by ships and airplanes. Older airway beacons are mostly gone today, but many NDB beacons still remain, especially those associated with Instrument Landing Systems. On 337 KHz a beacon sending ***NA*** marks the approach end of runway 19R at Orange County’s John Wayne airport. Other local beacons are: ***CPM*** (Compton) at 378 KHz, ***EMT*** (El Monte) at 359 KHz and ***SB*** (Petis) at 397 KHz, just to name a few.

Conclusion:

The Heathkit HD-1420 VLF Converter does all it is supposed to do. Sensitivity is such that the typical band QRM and QRN are the limiting factors in receiving signals. Serious VLF SWL’ers often build low-frequency loop antennas to reduce interference and noise. Man-made pulse noise is often present at these frequencies so a receiver with a good noise blanker is a must. I've used the converter with my Kenwood TS-440S transceiver (you have to be careful not to transmit through the device), my old Heathkit SB-301 tube receiver, a fifties Collins 51J4 receiver and a Kenwood R-2000 general coverage receiver. All the local beacons could be heard as well as some DX and unknown ones. Trying to identify them can be a fun challenge, though today’s Internet provides a lot of lists. Many hours of enjoyment can be had finding identifying and listening to signals that hide below the AM broadcast band.

****Listing to Longwave - The World Below 500 Kilohertz***. By Kevin Carey - WB2QMY. Published by: Universal Radio Research, 2007.

de Bob - AF6C

TechTalk #75

Planning a Digital-ATV Station

by Ken W6HHC
&
Robbie KB6CJZ

In the May 2009 newsletter, TechTalk presented an introduction to D-ATV called: **"ATV – the Digital Fork in the Road"**. This month, TechTalk will cover planning to create our own D-ATV station. But to a certain extent (especially in the US), Digital-ATV seems like a maze. There are plenty of decisions that need to be made to plan for a D-ATV station:

- Some decisions could be very expensive
- Some decisions may lead to an obsolete design
- Some decisions could have major technical issues

I am pleased to be joined by fellow OCARC club member Robbie-KB6CJZ for the creation of this month's TechTalk article. Robbie is the club guru on analog ATV and commercial satellite receivers and ham microwave communications in general.

What Band Should I plan for D-ATV?

Robbie explained that the view of ham radio bands for ATV and D-ATV in Southern California looks like this:

- **440 MHz** – very crowded - looks like a difficult band for D-ATV, but RF amps are cheaper
- **920 MHz** – presents a tight fit for D-ATV, plus lots of noise from "part 15" devices.
- **1,200 MHz** – more room for simplex D-ATV, probably no room for a D-ATV repeater-pair. RF amplifiers get more expensive.
- **2,400 MHz** – RF amplifiers get even more expensive. But, probably has room for a D-ATV repeater.

The decision we made is to plan for ham home/portable transmitters on the 1.2 GHz band as a good compromise. Later if we can put up a D-ATV repeater...the repeater will output on 2.4 GHz.

ATSC or DVB-S Modulation Scheme??

TechTalk #74 explained that Europe/Asia/Pacific was using the DVB-S commercial standard for D-ATV, using QPSK modulation for video and MPEG-2 for audio. But, in the US (and Canada), the terrestrial commercial HDTV standard is called ATSC and uses a modulation scheme called 8-level-VSB for video and AC3 (Dolby) for audio. Because of band-plan limitations in US, we have selected 1.2 GHz band for doing the planning for D-ATV. What D-ATV modulation standard should we choose for our station?

Possible DVB-S and ATSC Transmitters

- First let's look at DVB-S

So far, we have seen that while there are several ham designs in Europe for DVB-S D-ATV boards, especially AGAF and SR-Systems, both in Germany...the lion's share of units appear to be made by Stefan-DG8FAC of SR-Systems (see the link/URL at the end). The block diagram in **Fig 1** uses a SR-Systems MiniMod-DVB-S board and a MPEG-2 board as the heart of a D-ATV transmitter.

The MiniMod board and will produce about 1 mWatt RF output. I will need a small RF amplifier to get that power up to about 25 mWatts to drive the 10 Watt RF. All Digital RF modulations require very linear Class A power amplifiers. We plan to run a 30W 1.2 GHz linear amp at about 10 watts or so. Note that the SR-Systems datasheets caution that the RF output of the MiniMod board is UNFILTERED. Stefan-DG8FAC of SR-Sys explained this note means that we need to

Continued on Pg 11

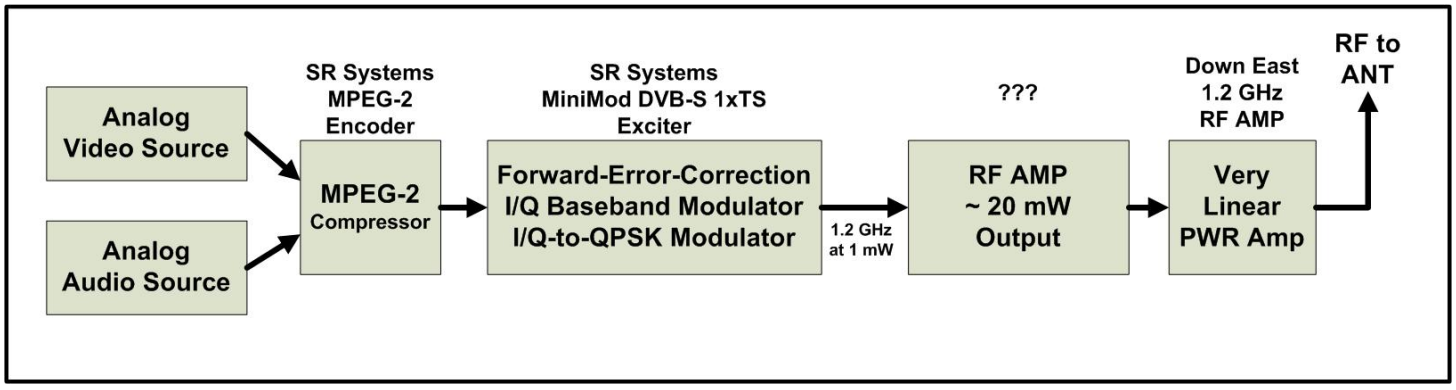


Fig 1 - Block Diagram of DVB-S Transmitter for D-ATV

suppress the second harmonic and the third-harmonic a little. Following the RF output of the MiniMod with two 1.2 GHz amps provides the required harmonic suppression. The DVB-S 1xTS D-ATV signal will be about 2 MHz wide. **Table 1** below looks at an estimate of costs for a DVB-S transmitting station.

- Next let's look at ATSC

While there are several ham designs in Europe for DVB-S D-ATV boards...there is only one ham design that we can find for an ATSC D-ATV transmitter. Again Stefan-DG8FAC of SR-Systems in Germany produces a board for the US 8VSB terrestrial video standard. Block diagram in **Fig 2** uses the SR-Systems MiniMod-ATSC board and MPEG-2 board as the heart of a D-ATV transmitter. There is one "quirk" with MiniMod-ATSC design. The US ATSC standard calls for transmitting audio in AC3 format (Dolby), but the Dolby licensing fees for AC3 are very expensive. SR-Systems elected to pair up the 8-VSB video with MPEG-2 audio to avoid the AC3 licensing fees. This 8-VSB/MPEG-2 combo works in many receivers in US as we will see later in this article, but is not compatible with the plentiful and really cheap ATSC Terrestrial SetTopBoxes.

The ATSC transmitter block diagram looks almost the same as the DVB-S. The MiniMod ATSC board will also produce about 1 mWatt RF output. I will need a small RF amplifier to get that power up to about 25 mWatts to drive the final 10 Watt RF amplifier. All Digital RF modulations require very linear Class A power amplifiers. We plan to run a 30W 1.2 GHz amp at about 10 watts or so. Note again that the SR-Systems datasheets caution that the RF output of the MiniMod board is UNFILTERED. What this means is that we need to suppress the second harmonic and the third-harmonic a little. Following the MiniMod output with two 1.2 GHz amps provides the required harmonic suppression. The 8VSB signal will be about 5.5 MHz wide. **Table 2** (on next page) looks at an estimate of costs for an ATSC transmitting station.

Possible D-ATV Receiving Station

Now we will look at possible choices for the D-ATV receiving station. The video can be displayed on an old analog TV, a new HTV, and computer or a notebook computer. In **Fig 3** on the next page, we show nine possible alternative configurations: four configurations are aimed at receiving ATSC ham signals and five configurations are aimed at receiving DVB-S ham signals.

Continued on Pg 13

Item	Description	Manufacturer	Model	Cost Est Low end	Cost Est High end
1	MPEG Encoder Board	SR-Systems	MPEG Encoder	$290	$360
2	1.2 GHz FEC & IQ Modulator for DVB-S	SR-Systems	DVB-S 1xTS MiniMOD	$470	$540
3	First RF amp	??	(about 50 mW)	$25	$50
4	RF Power Amplifier 30W (very linear)	Down East Microwave	Part Number 2330PA	$240	$240
	TOTAL			**$1,025**	**$1,190**

Table 1 – Cost Estimate of DVB-S Transmitter

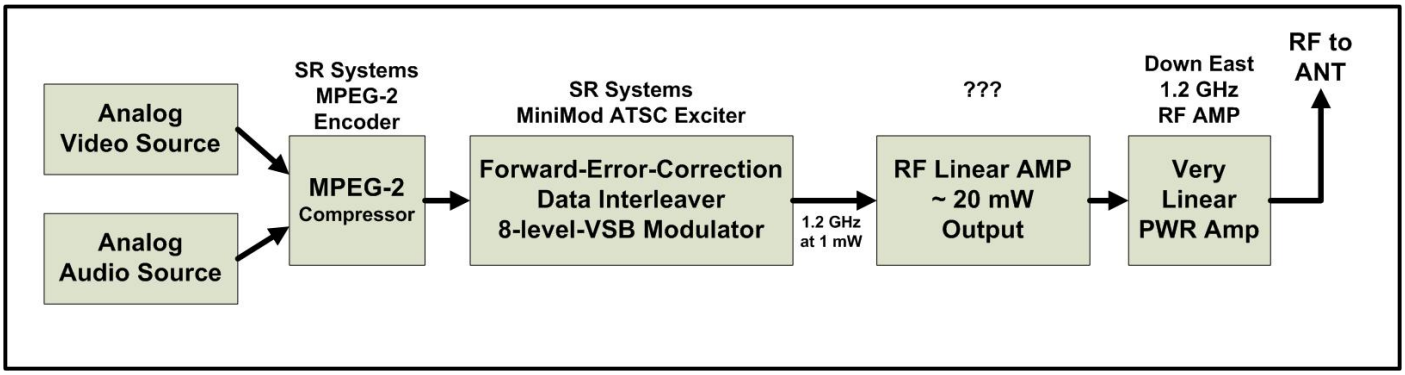
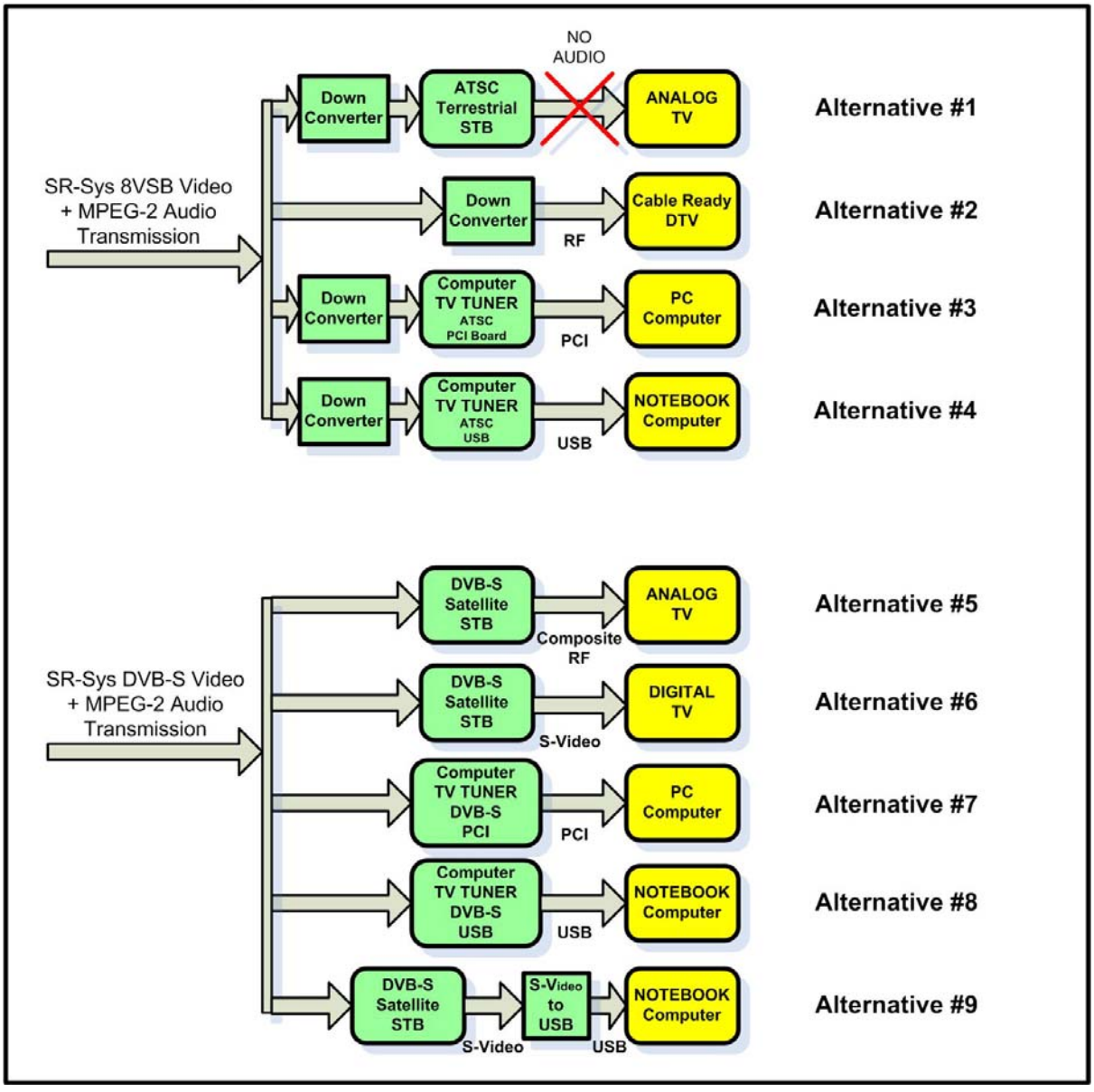


Fig 2 - Block Diagram of ATSC Transmitter for D-ATV

Item	Description	Manufacturer	Model	Cost Est Low end	Cost Est High end
1	MPEG Encoder Board	SR-Systems	MPEG Encoder	$290	$360
2	1.2 GHz FEC & IQ Modulator for ATSC	SR-Systems	ATSC Mini-MOD	$852	$925
3	First RF amp	??	(about 50 mW)	$25	$50
4	RF Power Amplifier 30W (very linear)	Down East Microwave	Part Number 2330PA	$240	$240
	TOTAL			**$1,407**	**$1,575**

Table 2 – Cost Estimate of ATSC Transmitter

Fig 3 - POSSIBLE D-ATV RECEIVER CHOICES



TechTalk - Continued from Pg 11

Now we will walk through each of the receiving station alternatives that are shown in **Fig 3**...starting with receiving ATSC ham signals.

Alternative 1 – Using a Terrestrial ATSC STB
The first approach for receiving ATSC is to use the cheap ($50 new) ATSC terrestrial SetTopBoxes that have been made common by the US government preparations for eliminating commercial analog TV broadcasts. The MPEG-2 audio compression from the **Fig 2** transmitter appears to create a real problem for this approach. The STB is expecting the AC3 format (not MPEG-2) for audio. We have found no US hams who have succeeded in receiving the intended ATSC D-ATV transmission from SR-Systems MiniMod on these ATSC terrestrial SetTopBoxes.

Alternative 2 – Using Cable-Ready DTV
In the second approach, some models of "cable-ready" digital TVs can receive QAM (for cable) as well as ATSC (for terrestrial) and will correctly handle the MPEG-2 audio OK. Nick-N6QQQ in Santa Clara has reported he tested this approach with the MiniMod ATSC board and it does work well. This approach needs a front-end down-converter to take the received 1.2 GHz signal and bring it down to perhaps the 480-to-700 MHz range of US ATSC DTV tuners. Perhaps some cable-ready DTVs may not work?

Alternative 3 – Using Computer PCI ATSC Tuner
In the next approach, we use a PCI board designed to add an ATSC TV tuner to a PC. Nick-N6QQQ has reported MiniMod success with using computer peripheral tuners, simply because all they do is take the 8VSB and put out the MPEG-2 transport stream. The computer winds up doing the rest of the work by decoding the MPEG-2 video and the MPEG-2 audio. The Hauppauge WinTV-HVR-1600 PCI TV Tuner Card – 1101 covers analog (NTSC) and DTV (ATSC) for under $100. Another interesting approach for a computer is the Silicon Dust HD HomeRun box that networks to the computer. Again, we need a down-converter to take the incoming 1.2 GHz signal and bring it down to the range of US ATSC DTV tuners.

Alternative 4 – USB ATSC Tuner for Notebook
In this approach, we use an ATSC tuner with a USB output that can deliver to a Notebook computer (no room for PCI card). The notebook will again accept the MPEG-2 transport stream output and provide for the presenting the video and audio. The Hauppauge WinTV-HVR-950Q TV Tuner Stick can be purchased on the internet for around $70 new. Again, we need a down-converter to take the incoming 1.2 GHz signal and bring it down to the range of US ATSC DTV tuners.

Alternative 5 – Using a Satellite DVB-S STB
Our first approach to receiving DVB-S transmissions uses a DVB-S satellite box (commonly called Free-To-Air or FTA). A "composite RF" output from the STB can go straight into an old analog TV set. The frequency range of the DVB-S STB tuner range for satellites will include the 1.2 GHz ham band, so no down-converter is needed. The Viewsat VS2000 Xtreme is an example of a DVB-S FTA STB that can be purchased new for about $100.

Alternative 6 – Using DVB-S STB with DTV
This approach is the same as #5 above, except it takes the S-Video output of the Free-to-Air DVB-S SetTopBox to provide the input to a HDV set.

Alternative 7 – Computer PCI DVB-S Tuner
In this approach, a PCI DVB-S tuner board is installed in the PC computer. The Hauppauge WinTV Nova-s PLUS DVB-S PCI Card costs less than $100.

Alternative 8 – USB DVB-S Tuner for Notebook
This approach uses a DVB-S USB tuner box (for example: the SkyStar USB2 model costs about $100) to output directly to the USB port on the notebook computer.

Alternative 9 – Using DVB-S STB with Notebook
This approach is very similar to #6 above except we add an S-Video-to-USB converter to take the STB output to the USB input on the notebook computer. A typical S-Video-to-USB converter is the Startech.com USB 2.0 and costs about $50 through Radio Shack (in addition to the STB cost).

Selecting Our D-ATV Station

Robbie and I had both hoped for an ATSC approach for D-ATV because of the easy availability of low-cost terrestrial STBs in the US. But, neither of us wanted to deal on a trial-and-error basis to see if equipment we purchased for receivers would really work with the current "MPEG-2 audio quirk" of ATSC D-ATV transmissions. So our decision is to plan for a DVB-S D-ATV station here in Southern

TechTalk – Continued from Pg 13

California. Also, by comparing the cost estimates in **Table 1** and **Table 2**, you can see we will save almost $400 by choosing a DVB-S transmitting station instead of an ATSC station. As a note...if it was possible, both of us would had gladly paid an extra US$50 or 50EUR for an AC3 Dolby license charge to avoid the "MPEG-2 audio quirk" situation that would allow us to go to the ATSC route with full compliance.

Now that we have chosen our D-ATV transmitting station, any of the D-ATV receiving station approaches ALTERNATIVE #5 through ALTERNATIVE #9 in **Fig 3** will work well. The costs of each of these five receiving approaches are reasonable. So the reader can choose the approach that appeals to him. I will choose ALTERNATIVE #8 because I want to use my notebook computer (instead of a TV set) for my home D-ATV station. Robbie-KB6CZJ prefers to go with ALTERNATIVE #5, because he prefers the wide-availability and feature-rich-capability of a DVB-S FTA SetTopBox.

There are still a few details to sort out for our station, but hopefully you can see that this top-down approach to planning a D-ATV station provides a "big picture" of alternatives...allows us to understand the trade-offs....and allows a direction to be chosen.

More D-ATV Links

- AGAF D-ATV components (Boards) – see **www.datv-agaf.de** and **www.AGAF.de**
- SR-Systems D-ATV components (Boards) – see **www.SR-systems.de**
- Typical Internet store for FTA DVB-S Receivers – see **www.GoSatellite.com**
- British ATV Club - Digital Forum – see **www.BATC.org.UK/forum/**
- Nick-N6QQQ blog on putting together an ATSC D-ATV station – see **http://nsayer.blogspot.com/search/label/ham**
- OCARC newsletter article "ATV – the Digital Fork in the Road" – see **www.W6ZE.org/TechTalk-74_D-ATV.pdf**
- Rob-MØDTS D-ATV site including details of F4DAY-design – see **www.M0DTS.co.uk/datv.htm**
- Ultimate Resource for Digital Amateur Television – see **www.D-ATV.com**

Three OCARC Members Recognized for ARRL 2008 Sweepstakes Phone Contest

Submitted by Arnie-N6HC

Three members of the OCARC have earned award recognition for their efforts in the

N6QQ participated in the single operator, unlimited category and made 789 QSOs in 79 sections for a score of 124,662 points. He was the Southwestern Division leader and plaque winner in his category.

AA6PW participated in the single operator, low power category and made 557 QSOs in 80 sections for a score of 89,120 points. He won the first place certificate for the Orange section in his category.

N6HC participated in the single operator, high power category and made 1,282 QSOs in 80 sections for a score of 205,120 points. He won the first place certificate for the Orange section in his category.

The Southern California Contest Club was the first place finisher, medium club size (44 logs submitted) in the Affiliated Club competition.

A HISTORY OF THE ORANGE COUNTY AMATEUR RADIO CLUB - Part 16

by Bob - WB6IXN, Club Historian

***** THE MODERN ERA – cont'd *****

1998

Bob Buss, KD6BWH, received the Club El Presidente gavel for 1998. Bob later received the call KØBWH when he moved to North Dakota. The monthly Club Board Breakfast moved from the Wildflower Cafe to Coco's Restaurant on N. Tustin Ave. in Orange.

The OCARC obtained the www.W6ZE.org domain name, and our new website was up and running with Ken-W6HHC being the third Webmaster! OCARC had two earlier web sites without our own domain. Club internet-pioneer, John-KJ6TK, set-up the first OCARC web site on the early "GeoCities.com" servers around 1994/1995. Then, Phil-N7PA and his UCI-student son set-up the second OCARC web site on his own domain and server at "www.BlackHawkUSA.com/OCARC" in 1997.

In 1998 OCARC club members were active in many events. Nine club members helped at Pahrump, Shoshone, and Las Vegas, providing communications for the Baker-to-Vegas Race in April. The 3rd Not-So-DXpedition was held at the Black-Rock Campground in Yucca Valley in Joshua Tree National Park in May. Dave-W7KTS, was in charge of the Ham Booth at the Orange County Fair. Rich-KE6WWK and Bob-KD6BWH helped with communications for the Mojave 250 Death Race. Bob-KD6XO thanked many members for providing communications at the California Classic Marathon horse event on Aug. 8. The 4th 'Not-so-DXpedition' took place on Oct.30-Nov. 1, at El Mirage Dry Lake near Adelanto.

The Orange County Field Day was held in a field across from the Irvine Civic Center. The Club had 1,439 QSOs for a total of 3,270 points. Three Ops were eligible for "N6UC FD Awards" from Field Day: Chris-KJ6ZH assembles a beam antenna incorrectly; Frank-WA6VKZ blows the muffler off the generator; and Larry-K6LDC sends a tower skyward with no guy ropes!

The Annual Club Auction was held in Oct. with the Club earned $70 from the Auction. The Christmas Dinner was held at Mimi's Café on 17th St. in SA. Ken-W6HHC received the "W6NGO-For the Good of the Club Award".

1999

Bud Barkhurst, WA6VPP, was elected president in 1999, bringing with him the Y2K scare that the year 2000 would foul up computer date-keeping programs! The CW requirement for maritime operations was eliminated.

The 5th 'Not-so-DXpedition', April 23-25, was held at El Mirage Dry Lake near Adelanto, but had only two participants: Larry, K6LDC, and Art, WA6WOX. 12 club members participated in the Baker-to-Vegas Relay Race. The CA. Classic Event, held Aug. 7, at Rolling Hills Estates,

When the USMAC base in Tustin closed in 1999, FD sites became difficult to obtain. GPS units used 34 deg.12.267 min. N, 116 deg. 22.845 min. W, to pinpoint the Field Day location in Yucca Valley, about 120 miles away that was located about 3 miles ESE of the epicenter of the 1992 Landers Earthquake!. Chris-KJ6ZH, was Field Day Captain with 11 other club members in the hot hot hot desert. The 'Desert Dozen' amassed 2,033 QSOs for 4,122 points.

OCARC member David Mofford, W7KTS, was again the OCCARO Chairman for the Ham Radio Booth. The Orange County Fair Amateur Radio Booth was a Special Events Station, W6F, and got 5 ribbons: a red ribbon for Theme & Decoration; a blue ribbon for Interaction-with-the-Public; a blue ribbon for Personnel; a blue ribbon for Educational Purposes; a blue ribbon for Best of Show.

On Sept. 15, KJ6ZH & WA6VPP & son had finished audio taping for the upcoming Wouff Hong ceremony for the ARRL Convention. Wouff Hong actors were:

The Old Man	Bud Barkhurst, WA6VPP
Novice	Cori Terando, KE6WIU
Crystal	Jim Winn, KE6UCH
High Potential	Bob Buss, KD6BWH
QRM	Ken Konechy, W6HHC
QRN	Bob Eckweiler, AF6C
Page	Jane Breller, KC6TAM
Stage crew	Tom-WA6PFA & Steve-KE6NAH
Director	Chris Breller, KJ6ZH

ARRL Southwestern Div Convention was held aboard the Queen Mary Oct 1-3. OCARC had charge of the Wouff Hong Ceremony at which FCC Enforcer, Riley Hollingsworth, K4ZDH, was inducted into The Royal Order of the Wouff Hong by our club. A CD recording of the Wouff Hong Ceremony has been placed in Club records.

The Club Auction was held on Oct. 15th with a profit of about $30. The 1999 Christmas Dinner was held at Mimi's Café in Fountain Valley on Sat., Dec. 11. The "1999 W6NGO - For the Good of the Club Award" was presented to Chris Breller-KJ6ZH

(The History Series will be concluded next month
…Bob Evans, WB6IXN, Club Historian)

Attention Members!!!

Do you know a fellow ham that would be interested in joining OCARC? Do you have a friend that is curious about ham radio and wants to learn more about our hobby? Why not invite him or her to one of our exciting monthly meetings?!?! The meetings are fun, informative and entertaining. Check out the upcoming events page in this newsletter to see the exciting speakers we have lined up for the next couple of months. Don't forget about the great raffle prizes too. So bring a visitor to one of our meetings, and help **your** club expand!

Make sure to inform your friends of our club's website, which is always kept up to date. Information on club meetings, activities and our newsletter archive make it a worthwhile site to surf! http://www.w6ze.org

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To all the DXER's in the Orange County Radio Club.

This coming October 2009 there will be a DXpedation to Midway Island which is a National Monument. Midway is an Island in the Hawaiian chain of Islands.

There is a Website available to view at the present time, with a lot of good information about Midway WWW.MIDWAY2009.COM The article I enjoyed reading was Proclamation 8031.

Since Midway Island is a National Monument, there are rules and regulations that govern this island. Proclamation 8031 is the document that covers it all.

Take a few minutes to read this proclamation, and find out what it takes to preserve this national treasure.

De George Jacob N6VNI

You don't need to write like William "Bill" Shakespeare in order to write an article for the RF Newletter. In fact, we prefer articles without the words "Thy", "Whilst", "'Tis" and "Oft".

Do you have an idea for a newsletter article? Maybe you have acquired a new piece of equipment, designed or constructed a new antenna, took a trip focused around ham radio, want to share an amateur radio related experience or discuss a technical topic. Why not write an article for the monthly RF newsletter? The article can be short or long, simple or elaborate, and can even include pictures!

The RF newsletter relies on articles from our members. So why not give it try? Write an article and send it to the newsletter editor. It's fun, and at the same time, your contribution helps support our club and hobby!

If you want you can also try your hand as the newsletter editor. We have a rotating editor monthly and would love to have someone new give it a try. There is a template and it is easy and fun!!

OCARC
Board Meeting Minutes

2009-06-06

The ORARC Board meeting was held at the JagerHaus Restaurant, 2525 East Ball Road, Anaheim, at 8:15AM Saturday, June 6, 2009. There were a total of 15 members and visitors attending. There was a quorum of directors present, with the following directors absent: Dan N6PEQ and Rich KE6WWK.

DIRECTOR REPORTS:

- Treasurer Paul W6GMU reported $4438.77
- Bob AF6C said that the membership is 83
- Ken W6HHC will be busy coordinating publicity for Field Day 2009.
- Kristin K6PEQ said speakers were covered through the end of the year, she also mention since Rich KE6WWK was absent that the Potluck will be in the fall to coordinate with the weather.

OLD BUSINESS:

- **RF Newsletter " Rotating" Editors**
  - July – Kristin K6PEG
  - August – Bob AF6C
  - September – Paul W6GMU
  - October – Nicholas AF6CF
- **QSL Printing and Mailing –** the QSL cards have been sent to Lee Barrett, he also offered a photo QSL with same cost. Kristin suggested a Field Day picture..
- **Guest Speakers –** Kristin has the remainder of the year covered and is looking into speakers for the first quarter 2010 to help incoming VP. Our speak for July is Chip Margelli KJ7A of Heil Sound.
- **Morse code Class Kristin** K6PEQ and Larry K6YUI will have a second class in July.
- **Field Day June 26th-28th, 2009**
  - Larry K6YUI will be safety officer for Field Day
  - Paul W6GMU reported that the plans have run into a slight problem with the Los Alamitos Joint Forces Base, at the last minute they want to charge us $600.00 for the use of the base. A back up plan is in process presented by Dino Darling KX6D to use the Walter Knott School in Buena Park.
  - There will be a Field Day meeting, Friday night June 12th, location TBD.
  - Discussed chuck wagon – Kris KC6TOD. Friday night's steak dinner will remain the same for the hard work of those volunteers. Kris has suggested that a $20.00 donation be made per person for the food for the entire weekend. A contain will be circulated again at the June meeting. Kris also asked for YL volunteers to help – for the weekend and also for Sunday morning to bring electric skillets and griddles. Please contact Kris to volunteer.

NEW BUSINESS

- 2009 Field Day Web page will need to be updated with change of location – Paul to provide information
- Change of venue for Field Day to Walter Knott School in Buena Park
- Ken W6HHC mentioned that CORA will participate with Field Day and do a demonstration of ATV.
- Kristin asked for volunteers for the Orange County Fair. Please contact Kristin if you can help – Sat. July 18th and Wed. Aug. 5th

Motion to adjorn by Hank W6HTW & seconded by Paul W6GMU
Meeting adjourned 9:05 AM
Respectfully submitted: Kristine Jacob KC6TOD

Renew Your OCARC

Membership

It's that time of the year again. Time to renew your OCARC membership for 2009, if you have not already done so.

Help continue to support your growing club. There are many entertaining monthly meetings, speakers and events planned for this year. But it can't happen without your support for OCARC.

Dues can be paid at the monthly club meetings, club breakfasts or via snail mail. Regular dues are only $20. Additional family members are $10 (Total). Membership for teenagers is only $10 as well. What a deal!

OCARC
P.O. Box 3454
Tustin, CA 92781

PLEASE SUPPORT OUR SPONSORS

The following organizations support our club's events in numerous ways. Please consider them when making your Amateur
Radio and Electronics purchases:

A&A Engineering
http://www.a-aengineering.com/
ADI / Pryme Radio Products
http://www.pryme.com/
Burghardt Amateur Center
http://www.burghardt-amateur.com/
The DX Store
http://www.dxstore.com/
Elecraft
http://www.elecraft.com/
Ford Electronics
http://www.fordelectronics.com/
Ham 4 Less.com
http://ham4less.com/
Ham Radio Outlet, Anaheim, CA
http://www.hamradio.com/
Hamstore.com
http://www.hamstore.com/
Heil Sound
http://www.heilsound.com/
Hobby Radio stop
http://www.bearcat1.com/scanners.htm
ICOM Elmer.Com
http://www.icomelmer.com/
M2 Antenna Systems
http://www.M2inc.com/
MFJ Enterprises
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Nifty Ham Accessories
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