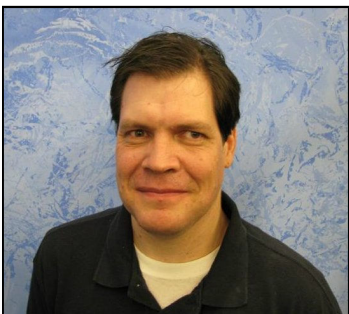




YAVAPAI SIGNAL



The Yavapai Amateur Radio Club • Prescott, Arizona • DM-34 • Volume 27 - No.8 • August 2012



Hello once again!

Summer storms remind us all to properly ground our antennas and to be mindful of lightning danger when working up high. Heavy rains can also make travelling hazardous when water collects in

low lying areas. Be sure to stay aware of the changing weather as conditions warrant. The National Weather Service office in Flagstaff provides automated weather information on 162.565 for those of you with radios that are able to receive that frequency.

Operators seeking license upgrades may want to take advantage of the upcoming Extra Class to be held on consecutive upcoming Saturdays (July 28th and Aug 4th) at Granite Mountain Middle School – Room 404. See www.w7yrc.org/classes for more information.

Also on the 28th, one of our operators, KF7R XR will be working to improve the Granite Mountain Middle School grounds as part of an Eagle Project beginning at 8AM. That group will be meeting in front of the gymnasium.

This month's presentation will be a series of short films on Amateur Radio. These are:

Amateur Radio Today: Hosted by the late Walter Cronkite, providing an overview of some of ham radio's capabilities and highlighting some of the emergency work done during hurricane Katrina.

Ham Radio: Ancestors of the Internet: Detailing some of the technologies that Ham Radio developed that was later used in connection with the development of the Internet

The World of Amateur Radio: A 'vintage' film covering a gambit of ham topics with brief appearances by some celebrity hams including a phone patch from Barry Goldwater's home.

These short films remind us of our place in the history of

Amateur Radio and some of its best moments. There will be time for ham radio related questions afterwards as we give those in attendance a chance to 'ask the experts' the questions they may have about the hobby.

Creighton, AD7YR

August Program

There will be a series of three short documentary films on Amateur radio featuring some very famous hams! These films should be educational for new hams and entertaining for all members as well..



There also will be a question and answer session on ham-related subjects. Questions can cover all aspects of the hobby. If possible, please submit questions in writing, prior to the meeting, so that they can be organized and answers prepared if needed.

Submit your question(s) to Creighton, AD7YR at president@w7yrc.org on or before August 1st.

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Welcome to the Yavapai Amateur Radio Club

The Yavapai Amateur Radio Club (YARC) is an ARRL affiliated Special Service Club. The club participates in many activities in the tri-city area by providing communications for local events, emergency communications, and promotion of the hobby throughout the community.

Membership in the YARC is open to any interested amateur or non-amateur alike. Dues are \$20.00/year (Full-time students \$15). The YARC meets at 7:00 p.m. local time on the first Thursday of every month in the Technology Room 404, at the Granite Mountain Middle School, 1800 Williamson Valley Road in Prescott. It is about ½ mile north of Iron Springs road, and all amateurs and non-amateurs as well are invited. Programs of interest are included as part of the meeting.

The weekly Net is held every Wednesday at 7:00 p.m. local time on 146.880- repeater. All amateurs are invited to participate, and visitors are always welcome.

The Yavapai County ARES/RACES Net is held on Monday nights approximately at 7:00 p.m. local time on the 145.290- repeater on Mingus Mountain. A PL of 127.3 is required.

Club Repeater

The YARC 146.880- repeater is located on the hill above Willow Creek road and requires a PL of 100.0 Hz. Our deepest gratitude to Bill Kafka, W2YAV for allowing us to acquire the original club repeater.

Minutes of June 28, 2012 Board Meeting



In attendance were: AD7YR, KE7NAP, WN7E, K6VVR, K7SEN, KV8TD, and KE7KEV,

with guests WB6ODR and KA7LKW. N7GLH was excused.

WB6ODR reported that some radio equipment had been donated to YARC by KD7UUR, on 25 June 2012, and which is being evaluated. **AD7YR** will send a letter of thanks.

AD7YR read parts of a letter from **WB7TPH** about contesting on FM Simplex and the concept will be presented at the next General Meeting.

K6VVR is in charge of the nomination committee for electing a new President and Treasurer for next year. Suggestions may be given to him.

KE7NAP suggested having more Nets to more efficiently utilize existing repeaters and awarding prizes for special participants. It was suggested to have Fox Hunts on Saturdays and to invite local Boy Scouts to participate.

Having a CW class after a YARC business meeting was discussed.

KE7NAP reported a great first Field Day with good radio contacts made and new member ap-

plications accepted.

K7DF, will be our featured speaker in September with **K6VVR** taking the mike in July.

It was brought up that the Club has a lot of radio equipment loaned out and we need someone such as an *equipment coordinator* to take inventory and keep track of it.

AD7YR now has a list of radio equipment for sale from a recent silent key for those interested.

The meeting was adjourned at 7:00.

Respectfully submitted

Barbara Ashley ~ KE7KEV
YARC Secretary

Minutes of July 5, 2012 General Meeting

AD7YR opened the meeting at 1900 with the Pledge of Allegiance. Visitors were then introduced and welcomed. **New members KF7VUI and KE7ODO** were welcomed and voted in as per a motion by **WB9VGJ** and seconded by **KB7TRE**.

A motion to approve the **Secretary's Notes and Minutes** was made by **AD7YR** and seconded by **KV8TD**. The **Treasurer's Report** was amended and a motion to approve the new balance of \$6551.83 was made by

AD7YR and seconded by K6VVR.

AD7YR reminded us that the next license exams will be given on 11 August and more information is on the Club website: www.w7yrc.org.

K6VVR said Club shirts are available in yellow rather than goldenrod and he is taking orders.

AD7YR then mentioned that Hams who work all Arizona counties can contact WN7L for more information and a certificate.

AD7YR then commended AC6AA for the splendid job of doing the monthly Newsletter!

KF7MAU said she is now taking orders for badges via e-mail at badges@w7yrc.org.

K6VVR reported that the repeater is scheduled for routine maintenance soon.

KB7TRE reported that Field Day with the young Hams was a success!

K6VVR mentioned the Fox Hunt the following Sunday.

KE7KEV expressed the gratitude of the Yavapai County Food Bank for donations of 17# and \$5 cash.

K6UWV said that KI7JZ had brought in goodies for refreshments.

AD7YR then asked for someone

to be the Equipment Coordinator to keep track of loaned out Club equipment. Interested Hams can contact any Board Member.

AD7YR mentioned that he has a list of CB (Citizen's Band) equipment for sale and interested parties can contact him.

AD7YR then read from a letter from WB7TPH regarding the possibility of having a Simplex Contest. Interested Hams can contact the Board.

Various experiences of Field Day were expressed next.

KD5VRW said that the new Extra Class Manual Questions are in effect and a class is forth coming. Information can be obtained by going to the web at www.w7yrc.org. He also asked for and got \$100 of Club funds to pay for materials for the Extra Class, with AD7YR making a motion which was seconded by K6VVR and passed as a vote.

KF7RXR asked for help cleaning the school grounds of Granite Mountain Middle School for his Eagle Project. This will happen on Saturday, 28 July, at 0800.

KB7TRE then suggested that when the Williamson Valley Road work is done, a new school sign will be put up with the addition of YARC signs from Club member donations. A motion to proceed as suggested was made by KE7KEV and seconded by

K6VVR, with an affirmative vote.

A motion to adjourn the meeting at 1943 was made by AD7YR and seconded by K6VVR.

The 50/50 drawing of \$31 was won by WA7YUL.

James Greenough, no call sign, was voted in and welcomed as a new member.


Respectfully submitted by

Barbara Ashley ~ KE7KEV


YARC Secretary

Membership Count:

1st Thurs. in	
June.....	164
Gain/Loss.....	+8
1st Thurs. in	
July.....	172



Wednesday Evening Net



Every Wednesday at 7:00 p.m. the club net is held on YARC's 146.880 repeater. All radio amateurs are welcome and encouraged to check-in.

If you are interested in being the Net Control for an evening(s), contact Neil Vance, K7SEN at: net.manager@w7yrc.org.

YAVAPAI AMATEUR RADIO CLUB

July 2012 Treasurer's Summary - Tom Griswold WN7E

Income

Date	Callsign	Name	Code	Check #	Amt. Paid	G. F. Amt.	Rep.Fund	ARRL
07/05/12	KF7MMQ	Donald Martin	R	2484	\$35.00	\$18.00	\$17.00	
07/05/12	KF7PQV	Daniel Durocher	R	4656	\$20.00	\$18.00	\$2.00	
07/05/12	KF7VUI	Chris S. Byram	N	3430	\$25.00	\$18.00	\$7.00	
07/07/12	KJ6TRN	Bill Byram	N F	"				
07/05/12	KB2WPN	John McArthur	R	3481	\$20.00	\$18.00	\$2.00	
07/07/12	N7JCD	John Dibble	R	2002	\$40.00	\$36.00	\$4.00	
07/07/12	KF7IZX	Connie Dibble	R F	"				
07/05/12	KE7JEQ	James Elzey	A R	4056	\$47.00	\$2.00	\$0.00	\$45.00
07/05/12	KE7JGM	Brent Elzey	A F	"				
07/05/12	K7IOG	Ernie DeLeon	R	cash	\$20.00	\$18.00	\$2.00	
07/05/12	W7IOG	Mary DeLeon	R F	"				
07/05/12	anonymous	Field Day expenses - donation		cash	\$30.00	\$30.00		
07/07/12	WA6YUL	Bob Ower	R	cash	\$20.00	\$18.00	\$2.00	
07/07/12	KE7ODP	Daine Dutkevitch	R	cash	\$20.00	\$18.00	\$2.00	
07/07/12	AD7WW	Will Taylor	R	5197	\$20.00	\$18.00	\$2.00	
07/07/12	KD5VRW	Roger Nash	R	cash	\$20.00	\$18.00	\$2.00	
07/07/12	W7JLC	Jack Crabtree	R	7336	\$20.00	\$18.00	\$2.00	
07/07/12	N0GUT	Sue Crabtree	R F	"				
07/07/12	KE7ODO	Michael J. Siavelis	N	cash	\$20.00	\$18.00	\$2.00	
07/07/12		James A. Greenough	N	cash	\$20.00	\$18.00	\$2.00	
07/07/12		James A. Greenough - sign donation		cash	\$20.00			
07/07/12		50/50 Raffle		cash	\$62.00			
Income Totals					\$459.00	\$284.00	\$48.00	\$45.00

Expenses

07/07/12	K6UWV	David Passell - refreshments		1118		\$15.47		
07/07/12	WA7YUL	Bob Ower 50/50 winner		cash		\$31.00		
07/07/12		Allegra - newsletter		1119		\$25.45		
Total Expenses						\$71.92		

Beginning Balance	\$6,551.83	June. repeater balance	\$1,621.90
Mar. Income	\$284.00	June interest	\$0.13
		July. 2012 Repeater Fund	\$48.00
Sub Total	\$6,835.83	Repeater Fund Bal.	\$1,670.03
Expenses	\$71.92		
General Fund Balance	\$6,763.91	ARRL Check Payments	1120
Net Loss/Gain	\$212.08		\$45.00
		July Income	\$459.00
		Cash out 50/50	\$31.00
		Deposit	\$428.00

Monthly Fox Hunt

By John Broughton, WB9VGJ

The monthly foxhunt was held July 7th. Diane, KE7ODP, and Jim, WB7UZV, were the foxes and they hid the transmitters at Yavapai College.

There were two teams hunting: Jeff, WB7RFY, and I, WB9VGJ; Pete, K6VVR, and Roger, KD5VRW. Dave, N7GLH, hunted by himself.



It did not take long for the hunters to show up at the hiding location; I guess experience is helping. Dave, N7GLH, was the first one to find the primary transmitter with Jeff, WB7RFY, coming in second. Diane presented Dave with first prize – two chocolate bars.

The hunt for the secondary transmitter was interesting due to Diane's deviousness, and another trip to Home Depot for a fence post. She had made a former hunt interesting hiding the secondary transmitter in a large PVC pipe she bought at Home Depot.

It was a hot day and Diane and Jim were very comfortable with their lawn chairs and cold drinks sitting under a canopy in the shade while they watched the hunters look for the transmitters.

All the hunters found both transmitters and all enjoyed the hunt and thought the foxes had done a good job.

We all had our usual enjoyable social get-together after the hunt at Denny's.

We would encourage more folks to get involved in the hidden transmitter hunts. They are really fun and help develop direction-finding skills.

I didn't take a lot of pictures as Diane took several of the hunters. My pictures of the hunt can be seen at <http://tinyurl.com/6pdhx9r> and Diane will be providing more pictures for me to add at a later date.

73,

John, WB9VGJ

Club contacts - At a Glance

President - AD7YR	president@w7yrc.org
Vice President - KE7NAP	vice.president@w7yrc.org
Secretary - KE7KEV	secretary@w7yrc.org
Treasurer - WN7E	treasurer@w7yrc.org
Board Member - KV8TD	kv8td@w7yrc.org
Board Member - K6VVR	k6vvr@w7yrc.org
Board Member - N7GLH	n7glh@w7yrc.org
Board Member - K7SEN	k7sen@w7yrc.org
Arizona WAC Administrator	az.wac@w7yrc.org
Ask Elmer for Help	ask.elmer@w7yrc.org
Badges	badges@w7yrc.org
Field Day Chairman	field.day@w7yrc.org
Fox Hunts	fox.hunt@w7yrc.org
License Classes	classes@w7yrc.org
Membership Application	membership@w7yrc.org
Net Manager	net.manager@w7yrc.org
Newsletter Editor	newsletter@w7yrc.org
Program Inputs	programs@w7yrc.org
Public Information Officer	pio@w7yrc.org
Public Service - DEC	public.service@w7yrc.org
Repeater Trustee	repeater@w7yrc.org
Special Events	special.event@w7yrc.org
VE Test Liaison	testing@w7yrc.org
YARC Party Coordinator	yarc.party@w7yrc.org
Information	info@w7yrc.org
Webmaster	yarc@w7yrc.org
Webmaster	w7yrc@w7yrc.org
Webmaster	webmaster@w7yrc.org

YARC Officers for 2012

President

Creighton Grotbeck, AD7YR
president@w7yrc.org

Vice President

Ellis Rackoff, KE7NAP
vice.president@w7yrc.org

Secretary

Barbara Ashley, KE7KEV
secretary@w7yrc.org

Treasurer

Tom Griswold, WN7E
treasurer@w7yrc.org

Board of Directors (includes Club Officers)

Doug Freeman -- KV8TD
Pete Morrison -- K6VVR
Neil Vince -- K7SEN
David Hansen -- N7GLH

Newsletter Editor: Joe Oliver, AC6AA
newsletter@w7yrc.org

PUBLIC SERVICE COMMUNICATIONS.....

By Lloyd, WA6ZZJ

Upcoming Public Service Event Communications.....

September is promising to be another busy month for YARC Public Service Communications. Most of these events are good 'starter' events for those who want to get involved for the first time. If at all possible we will assign 'first timers' to a position with a 'seasoned' operator.

Saturday, September 8, 2012 March of Dimes March for Babies

For this event a minimum of 5 and preferably 9 operators are needed with 1 being able to go mobile in the MOD van.

Sunday, September 16, 2012 Skull Valley Loop Challenge

For this event a minimum of 7 and preferably 11 operators are needed with 3 being able to go mobile in the SAG vehicles and 1 roving mobile.

Saturday, September 22, 2012 Tour de Pee Vee 1/2 Marathon

For this event a minimum of 9 and preferably 16 operators are needed.

Friday and Saturday, September 28 and 29, 2012 Prescott Rally

Sign up at: http://prescott rally.com/index_volunteer.htm

Saturday, September 29, 2012 Groom Creek Classic 1/2 Marathon

This event is the same day as day two of the Prescott Rally. It will be a good event for the people not involved in the rally to participate in. 10 operators will be needed with at least one being a quad mobile unit.

Patti, KD7VBG, will be the communications lead on this event.

To sign up for Groom Creek email Patti at: kd7vbg@cableone.net

Saturday, October 20, 2012 Step Out Walk to Stop Diabetes

John, WB9VGJ, will be the communications lead on this event.

Check your calendars and be ready. Signups for these events should begin with the August YARC meeting or you can email direct to: wa6zzj@arrl.net to get your name on the list.

Some of the events will fill quickly so sign up early. Alternate sign up from the YARC website under 'Contacts' Public Service-DEC public.service@w7yrc.org ■

License Testing

By Mary Vince, AB7NK

Amateur Radio Testing for all license classes will be held Saturday, August 11, 2012 at 9:00 A.M. at the Jeep Posse Bldg in Pioneer Park off Commerce Drive, behind the hockey rink.

We highly recommend you take a few minutes to pre-register. If you are planning on taking the technician exam, please visit this website to get your FRN (Federal Registration Number) http://ireless.fcc.gov/uls/index.htm?job=about_getting_started

Once you have that number, send an email to testing@w7yrc.org with the following information.:

- FRN Number
- Name as you'd like it to appear on your license
- Address
- City, State, Zip
- Phone number (to be used in the event I need to reach you after testing & prior to the paperwork being sent in)
- email address

If you plan on taking either the general or extra class exam, please check that your information is correct on the FCC website. <http://wireless2.fcc.gov/UlsApp/UlsSearch/searchLicense.jsp>

If changes need to be made, send any new information along with your call sign, phone number and email address to testing@w7yrc.org

The cost for the exam is \$15.00, if paying cash, correct change would be appreciated. Checks are to be made payable to ARRL/VEC.

Questions or comments can be emailed to testing@w7yrc.org

The deadline for pre-registration is Thursday, August 9, 2012. You may still take the exam on the 11th, however, those who pre-register will be tested first. ■

That was then - this is now...

By Joe, AC6AA

Nothing has come close to the conditions on the HF bands as those experienced during Solar Cycle 19. Those fortunate to have been on the air at that time, tell of working the world with 50 watts on 10 meters AM using a dipole and with 5 x 9 signals. 20M was open 24 hours a day and DX was commonplace.

Unfortunately, I had let my license expire and was no longer on the air at that time due to severe problems with television interference (TVI) as well as being busy raising our family.

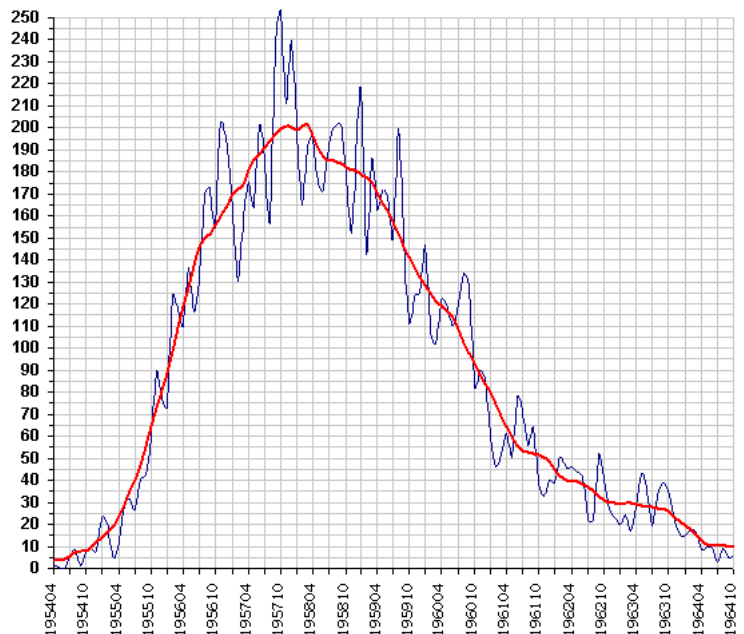
Having been licensed in 1947, and having operated on 10 meters AM during the peak of Cycle 18, some great band openings were experienced during that solar cycle as well. However, there also were times when HF band conditions and great sunspot numbers were not my primary concern.

When I first got on the air, most hams in our city did not have to worry about shielding equipment to prevent TVI, since television would not be arriving in the San Francisco Bay area until 1949.

One of the main problems for hams in those days was broadcast interference (BCI). There was an abundance of many poorly built AM radios that were susceptible to nearby radiation from amateur radio stations. The most frequent cause of interference, when operating above 21 MHz, was rectification of a signal that by some means got into the audio system of a radio. To make matters worse, with an amplitude-modulated signal (AM) a person's voice could be heard with reasonably good quality -- not jumbled as would occur from interference with a single-sideband signal. Therefore, if you were causing interference to others, it made it easier to deduce that the interference was coming from your station.

While operating on 10 meters, my past experience with BCI was limited to radios in our own house or at the next door neighbor's. One day I received a call from an irate individual who said he was hearing me loud and clear on his bedroom radio. However, this was rather puzzling, since this fellow lived more

Solar Cycle 19



Cycle 19 began in April 1954 with a smoothed sunspot number of 3.4 and ended in October 1964.

Graph prepared by Jan Alvestad based on data from SIDC, Brussels.

than a block away from our home. Reluctantly, I agreed to pay him a visit, try to determine why he could hear me at such a distance, and if possible take care of his complaint.

When arriving at his home he led me into his bedroom where his radio was located. Upon examining the back of the radio I noticed a cable with a phone plug inserted into the chassis. Asked him what that was for? He replied "that was so he could listen to his phonograph which was located in his living room". Someone had installed a jack on his radio with a connection to the detector-1st audio tube. The line from the phonograph to his radio ran under the house and acted as an antenna capable of picking up my 10 meter signal. Unplugging his "antenna" took care of any more calls from this gentleman.

Broadcast Interference became less of a concern with the advent of television. With distant TV stations and neighbors resorting to huge antennas on 40 or 50 foot masts in an attempt to watch a snowy TV picture, operating a ham radio station without causing some interference, became a real challenge.

Now, 60 years later, with the era of cable TV, Single Sideband, and FM radios, most of us may be concerned more with our current solar cycle 24's lack of sunspots and HF band openings, than with problems due to TVI and BCI. ■



Why Join the ARRL?

By Don Bauer, WB7TPH

Nobody knows when Amateur Radio operators were first called “hams”, but we do know that Amateur Radio is as old as the history of radio itself. In 1912, Congress passed the first laws regulating radio transmissions in the US. By 1914, amateur experimenters were communicating nationwide, and setting up a system to relay messages from coast to coast (that’s how ARRL got its name, the American Radio Relay League).

ARRL – Devoted Entirely to Amateur Radio

Founded in 1914, the American Radio Relay league is the national association for Amateur Radio in the USA. Today, with more than 156,000 members, ARRL exists:

To promote and advance the art, science and enjoyment of Amateur Radio.

ARRL not only reflects the commitment and enthusiasm of American hams, but also provides leadership as the voice of Amateur Radio in the USA, whether in dealings with the **Federal Communications Commission**, the **World Radio Communication Conference**, the **International Amateur Radio Union**, or with the general public. The ARRL is the primary source of information about what is going on in the ham radio world. It provides books, news, support and information for individuals and clubs, special operating events, all sorts of continuing education classes and other benefits for its members. Being a member of ARRL is important for hams! The ARRL is devoted **entirely** to Amateur Radio.

At ARRL headquarters in the Hartford suburb of Newington, Connecticut, a staff of 100 help to serve the needs of members. ARRL is also the **International Secretariat for the International Amateur Radio Union**, which is made up of similar societies in 150 countries around the world.

On a personal note, I am a life member of ARRL for the same reason that I am a life member of the National Rifle Association. That reason is advocacy. I cannot represent myself before Congress or the FCC. I cannot speak with authority about spectrum, or about land use restrictions, or about DX entities. ARRL can and does represent all amateurs in these things and they do it well.

Is ARRL a perfect organization: of course not! They have flaws, as do we. QST, the ARRL premier magazine seems to have lost some of its flavor. That isn’t always the fault of the publisher. Sometimes it is our tastes, or interests that change. So be it! But remember;

No matter what aspect of Amateur Radio attracts you, ARRL membership is relevant and important. There would be no Amateur Radio as we know it today were it not for the ARRL.

ARRL membership benefits the Yavapai ARC as well. We are an ARRL affiliate and Special Service Club. The affiliation means that we are expected to maintain a solid level of League membership, and demonstrate a level of community service as representatives of the organization. And, when you join or renew through the club, YARC receives a portion of your membership fee, to help support our activities. ■

Need Cards Checked for ARRL Operating Awards?

Jim Zimmerman, N6KZ can check your QSL cards for DXCC, WAS, VUCC, WAC, etc.

For information contact Jim at: (928) 713-0542.

Jim’s QTH is at: 778 Grapevine Lane,
Prescott, AZ 86305.

Upcoming Events

- **September 8, 2012** - March of Dimes March for Babies.
- **September 16, 2012** - Skull Valley Loop Challenge.
- **September 22, 2012**—Tour de Pee Vee 1/2 Marathon.
- **September 28 - 29, 2012** - Prescott Rally.
- **September 29, 2012** - Groom Creek Classic 1/2 Marathon.

YARC Field Day 2012

By Joe, AC6AA

At a previous YARC club meeting it was decided that a traditional Field Day would not be held this year. However, a group did get together at Granite Mountain Middle School on Saturday, June 23rd, and they had the opportunity to operate phone and cw , to enjoy each other's company, and to participate in a potluck lunch.

Thanks to Terry (KB7TRE) for obtaining the use of GMMS facilities. Thanks also to Ellis (KE7NAP), Bryan (W7BNW), and to everyone else who pulled the event together. A good time was had by all those attending. ■



Loren Singh, AE7CG at the Field Day CW station at attempting to copy a call through the background noise in the room. Yes -- he finally put on some earphones.



Wallace Ashcroft, KF7RXR working the HF Field Day station on 20 meters with Creighton, AD7YR overseeing the operation.



Creighton Grotbeck, AD7YR operating on 20 meters with his assistant maintaining the log.



XYLs relaxing in a cool classroom environment while socializing prior to the potluck lunch.

Dodgy* ducks and whacky whips

Reprinted from the "PCARA Update", June 2003 issue, courtesy of Malcolm Pritchard, NM9J

Not too long ago I was taking part in a PCARA event, guiding a sports parade across the streets of Yorktown. I was having a terrible time getting a good signal into the 146.67 W2NYW repeater with my handi-talkie - even with full power and an extended after-market antenna.

Later on I found out that the after-market antenna was not performing very well, so I went back to the original "stock" Icom rubber duck.

More recently, I realized that I've accumulated quite a collection of after-market antennas for dual-band HTs over the years, so I thought it might be interesting to compare their performance. For a first test I simply used my MFJ-259 antenna analyzer to find the resonant frequency of each whip. I plugged each antenna into the connector on top of the MFJ-259 then adjusted the frequency for minimum SWR, noting the frequency from the built-in counter.

Antenna	Resonant freq
Base loaded monoband duck	137 MHz
Icom IC-Z1A stock	145 MHz
Icom IC-W32A stock	146 MHz
Generic half-wave telescopic	146 MHz
MFJ-1712 ¼-wave telescopic	148 MHz
Pryme RD-98	156 MHz
Opek HR-12	160 MHz
Diamond RH77CA	161 MHz
TSC-2301 (Taiwan)	163 MHz
Comet SH-55	168 MHz



SWR check

The two stock Icom antennas and the telescopes are the only ones resonant in the 2 meter band. The remainder are from 7 to 17 MHz off-frequency. (Your 2 meter HT may reduce power when operating into an antenna so far from resonance.)

The next step was to measure the SWR of these antennas in an HT-like situation. I connected each antenna directly to a small SWR bridge through an angle adapter then connected the bridge to an Icom handi-talkie. The coaxial feeder between the SWR bridge and the

HT was isolated with ferrite chokes so as not to become part of the antenna system. Results are shown in the following table.

Antenna	SWR 146	446
Base loaded duck	1.2:1	3.0:1
Icom IC-Z1A stock	1.3:1	2.0:1
Icom IC-W32A stock	1.8:1	2.5:1
Generic half-wave telescopic	1.1:1	3.0:1
MFJ-1712 ¼-wave telescopic	1.8:1	2.8:1
Pryme RD-98	2.5:1	2.0:1
Opek HR-12	4.0:1	2.0:1
Diamond RH77CA	3.0:1	1.7:1
TSC-2301 (Taiwan)	4.0:1	1.6:1
Comet SH-55	6.0:1	1.8:1

For the most part, the further the antennas are from resonance, the higher the standing wave ratio.



A selection of ducks and whips. Left to right: base loaded monoband duck, IC-Z1A stock antenna, generic half-wave telescopic, Pryme RD-98, Opek HR-12, Diamond RH77CA, TSC-2301.

The final test was to measure the field strength produced by each antenna. I don't have any fancy equipment for accurate field strength measurements in volts/meter... just a couple of absorption wavemeters tuned to 146 MHz and 446 MHz. The relative field strength readings below are for each antenna plugged into an IC-Z1A handi-talkie on high power, running from a 7.2 volt battery:

*Note: "Dodgy" = British slang for "risky, doubtful"

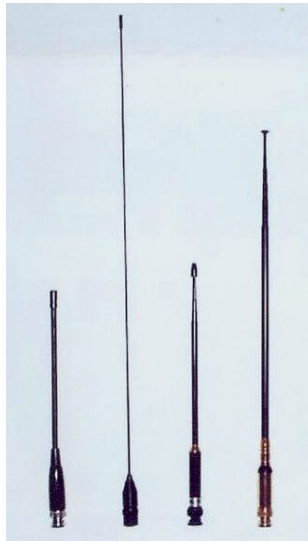
Antenna

Base loaded duck	8	0
Icom IC-Z1A stock	5	4
Icom IC-W32A stock	4	4
Generic half-wave telescopic	11+	0
MFJ-1712 1/4-wave telescopic	10+	0.1
Pryme RD-98	7	2
Opek HR-12	4	0.1
Diamond RH77CA	4	2
TSC-2301 (Taiwan)	4	0.5
Comet SH-55	3	5

Field strength

146 446 MHz

The best combined performance on both 146 MHz and 446 MHz came from the two stock Icom antennas. The after-market dual-band antennas generally produced similar signal strengths on 146 MHz but were worse on 446 MHz. When you think of the price, the longer length and the way they make the radio top-heavy, these after-market dual-band antennas are a poor bargain in my view.



The four best antennas; L to R: IC-Z1A stock, Pryme RD-98, MFJ-1712 1/4-wave telescopic, generic half-wave telescopic.

The only antennas to improve 146 MHz signal strength over the stock Icom antennas are the “base loaded” duck and three physically long antennas: the RD-98, the generic 2 meter telescopic half-wave and the MFJ telescopic quarter wave. Compared with 8 inches for the stock Icom antenna, their lengths are: 17 inches, 19 inches and 42 inches. This isn’t exactly convenient if you keep the radio in a coat pocket or clipped to your belt. Still, it could be worth packing one of these antennas with the radio for emergency use when the standard antenna is insufficient.

Most of the antennas show inferior performance on 440 MHz compared with the stock Icom antenna. For the telescopic antennas only, you may be able to improve matters by shortening them slightly. Incidentally, when the telescopic antennas are fully collapsed, the 2 meter performance collapses as well.

Conclusions: your mileage may vary depending on the handi-talkie and type of stock antenna you are substituting... but I found that most of the commercial after-market dual-band (146/440 MHz) antennas are not resonant in the amateur band, show a high SWR and perform poorly. The only antennas worth buying in my view are the physically long Pryme RD-98, the MFJ-1712 telescopic quarter wave for 2 meters and the generic half wave for 2 meters. ■

Heathkit Educational Systems Discontinues Kits

Source: <http://www.arrl.org/news>

For the second time since 1992, Heathkit Educational Services (**HES**) has shuttered its doors. In August 2011, Heathkit announced it was **returning to the kit building business**, and in September, that it would once again be **manufacturing Amateur Radio kits**.

Tom Ferriter, of Technical Education Products, is an outside sales representative for HES, based in Hampden, Massachusetts. “Heathkit is telling us that they have temporarily closed, but that they are hopeful that they will be able to reorganize,” he told the ARRL. “While they’re not telling us too much, they did say that they were having poor sales for a myriad of reasons and are hopeful that they will be able to refinance the company and negotiate with the bank to refinance some of the debt.” ■

Need a Hand?

If you need assistance, we want to help you. If you are just starting out in ham radio, or simply have run across something that you could use a hand with... technical assistance or answers to questions about the Yavapai Amateur Radio Club, are available from knowledgeable club members.



Don't Hesitate to Ask for Help!!

CALL:

Neil Vince, K7SEN (928) 775-2158

Bud Semon, N7CW (928) 771-8267

Area Repeaters

Weekly Breakfasts



Wed. Morning Breakfast:

7:00 a.m. at

Iron Horse Restaurant

(Hwy 89 in Chino Valley)

(N 34°43'56.5" W112°27'15.4")

informal – all are invited

Breakfast at Masonic Lodge: 3rd Saturday of each Month at 9:00 a.m.

(1280 Willow Creek Road,

2nd Floor; above Bank of America)

informal – all are invited

* Location data (per WGS84) provided

by Fred Zimmermann, N7PJM

Freq.	PL	Location	Owner/ Club	Auto- Patch	Links	Vo IP	Notes:
52.560-	100.0	Mt. Union	N7NGM			IRLP	Node 3301
144.390	Simplex						APRS- www.aprs.fi
145.290-	127.3	Mingus Mtn.	K7YCA				ARES/RACES
145.350-	162.2	Wildflower	W7QHC				Dawn
145.600	Simplex					Echo	Node 266053
146.760-	131.8	Hayden Peak	N7SKO				WECOM INC
146.780-	91.5	Bill Williams Mtn.	K7NAZ			IRLP	BWMRC LITZ, 3178
146.880-	100.0	Prescott Heights	W7YRC				YARC
146.920-	162.2	Mount Ord	W7MDY				ARA
146.980-	162.2	Mt. Elden	W7ARA				ARA
147.000+	162.2	Mingus Mt.	K7MRG				MMRG
147.140+	162.2	Mt. Elden	W7ARA				ARA
147.220+	162.2	Mingus Mtn	W7EI				VVARA LITZ
147.260+	103.5	Mt. Union	K7YCA				ARES/RACES
147.260+	127.3	Mt. Francis	K7YCA				ARES/RACES
147.360+	162.2	Mt. Ord	W7MDY				ARA
224.080-	156.7	Mt. Union	KJ7DX				Desert Intertie
442.150+	100.0	Mingus Mtn	WA7UID				MMRG
448.475-	100	Mt. Elden	W7ARA				ARA
448.875-	100.0	Mt. Elden	W7ARA				ARA
449.250-	192.8	Chino Valley	K7POF				
449.675-	88.50	Prescott Airport	WB7BYV		Linked to P Mtn.		
449.750-	123.0	Bill Williams	K7NAZ		Linked to Win-Sys		
927.0875-	151.4	Mingus Mtn	WB7BYV				
927.3875-	151.4	Prescott	WB7BYV			Echo	ARA

Y.A.R.C. IRLP NODE

Node Number 3182

146.100 MHz No PL Tone



T-Hunt Frequencies:

Primary - 145.100 MHz

Secondary - 146.565 MHz

For more Repeater Information & Listings refer

to:

- www.w7ara.org/Web/
- www.azrepeaters.net
- www.azfreqcoord.org/listings.htm

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Many thanks to Dick Hughes, W6CCD, our Webmaster

