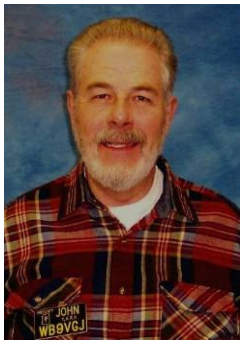
YAVAPAI SIGNAL

The Yavapai Amateur Radio Club ● Prescott, Arizona ● DM-34 ● Volume 21– No. 9 ● September 2006

From the President's Desk



If you attended the August meeting, then you know the club is acquiring the club repeater. I finalized the purchase from Bill, W2YAV, Friday, August 4th. YARC now owns the 146.88 MHz repeater. Bill's offer to the club was an extremely generous one. It was a great deal for the club and Bill expressed his happiness at the repeater staying "in the family," in his words. This was a real 'win-win' deal. Bill was given a lifetime membership in the club for his generosity. He was very happy when I presented the lifetime membership card to him. We are currently planning a presentation of appreciation to Bill at the September meeting. I hope we can have a good turnout for the meeting. If you'd like to see some pictures taken when Doug, KB6TWC, and I visited the repeater site on July 22nd, go to *http://tinyurl.com/q6xf6*. You don't have to sign in to view the slideshow.

I'd like to extend a personal and club thank you to Bob, WB6ODR, for taking on yet another job responsibility. As the club call sign trustee, he has agreed to become the repeater trustee and chair of the repeater committee. The committee will be responsible for operation and maintenance of the repeater and will make recommendations and suggestions to the club through the board of directors. The board will then make a recommendation and the issue will be brought before the general membership for a vote, as appropriate.

We are now entering a busy and demanding two months for public service communications. I am asking all members who are able to do so to consider helping out with one or more of the events. This is one way we can practice and hone our communications skills, provide service to the public and get excellent public relations for the club. Two of the events, the Groom Creek Run for the Red and the first day of the Prescott Valley World Arts Festival fall on the same day, providing a real challenge for us. I'd be very pleased to see more members involved in these public service events. Outside all the listed advantages, they are just lots of fun.

You will find links to the Web sites for several of the public service events on the ARES/RACES Web site at *http://www.k7yca.org/public_service.htm*. The club Web site also has a link to this page at *http://www.w7yrc.org/other_links.htm*. ■

73,

John, WB9VGJ

Inside This Issue ...

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. 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. If you hear a 1400 Hz pulsing tone, the repeater is on backup battery power and usage should be limited to necessary communications. Our deepest gratitude to Bill Kafka, W2YAV for allowing us to acquire this repeater.■

YARC Officers for 2006

President	*Vice President*
John Broughton, WB9VGJ	Dick Hughes, W6CCD
wb9vgj@arrl.org	w6ccd@arrl.net
Secretary	***Treasurer***
Pat Oliver, K7DUC	David Passell, K6UWV
joliver@commspeed.net	davidrex@northlink.com

YARC Board of Directors (includes Club Officers)

Rex Mauldin – N7NGM

Ken Severance – WA6AQK

Richard Bozeat – KE7DTR

Walter Schumann – KF6SPS

Newsletter Editor: Joe Oliver, AC6AA

Membership Count:

1st Thurs. in July.....**98**

Gain/Loss……..……**+1**

1st Thurs. in Aug.... **99**

Minutes of August 3, 2006 Board Meeting

A Board meeting was held at 1815 on July 6, 2006. Present were John, WB9VGJ; Pat, K7DUC; Dave, K6UWV; Dick, W6CCD; Richard, KE7DTR; Ken, WA6AQK, Rex, N7NGM and Walter, KF6SPS.

Discussion was held to ascertain reimbursement to Jack, W7JLC for equipment damage to the IRLP, due to a lightning strike. John discussed this with Jack, who felt that since all the equipment was donated and consumed only a small amount of electricity, there was no need for reimbursement.

Next Month we will form a committee to accept nominations for President, Treasurer, and Board members.

John next discussed the Repeater purchase. He sent an agreement to the station manager of KTMG/KNOT, who will submit it to the CEO for an OK. If we don't have the agreement from the station at the point that we actually purchase the repeater from Bill Kafka, W2YAV, we will ask for a one paragraph letter from the station confirming that the repeater is at their site and they will allow it to remain there until the regular agreement is finalized. John has all the information for the coordination application. He will pick up Bill tomorrow for finalization of the sale. John will give Bill $250 for the purchase and both will complete the paperwork in the presence of a notary public.

Once the station agreement has been finalized, John and Bob, WB6ODR, who will be the repeater trustee, will go to the station to sign the final agreement.

A Repeater Committee now composed of Doug, KB6TWC and Bob, WB6ODR is being formed to let us know of repeater needs.

John will present pictures of the repeater to the membership and take a vote on whether to proceed with the purchase.

The Board then discussed what we could do for Bill Kafka to demonstrate our appreciation. It was determined that we would award Bill a lifetime membership and present him with a plaque expressing our appreciation.

Further discussion was held regarding future programs. A few suggestions were made and John will work on this.

The meeting was adjourned at 1840.

Respectfully submitted,

Pat, K7DUC, Secretary

Minutes of August 3, 2006 General Meeting

John, WB9VGJ called the meeting to order at 1900. The Pledge of Allegiance was recited and members introduced themselves.

Visitors: Vi Hughes; Jeff Hendricks, KE7HME; Colleen Perkins, KE7GNR, and Lois Diddams.

New Members: Bud Sumner, K6ALV was voted in by the membership.

Meeting Minutes: A motion to approve the Board minutes of July 6, 2006 was made by Ken, WA6AQK and seconded by Pete, K6VVR. A motion to approve the General Meeting Minutes was made by Terry, KB7TRE and seconded by Neil, KA7JAS. Both were unanimously approved by the membership.

Treasurer's Report: David, K6UWV reported a balance of $3206.70. A motion to approve the report was made by Richard, KE7DTR and seconded by Bob, WB6ODR.

Committee Reports:

- ***ARES/RACES/Public Service:*** Lloyd, WA6ZZJ stated that a training meeting is coming up on Saturday, August 5th.
- Lloyd sent an article in to QST and it will be published in the front section.
- Upcoming events will be the Groom Creek run for the Red on Saturday, Sept. 16, Prescott Air Show, Sept 30, the Prescott Road Rally, Oct. 6 & 7, and the Walk for Diabetes, on Saturday, Oct 21.
- ***County Fair:*** Doug, KV8TD stated that the date for the County Fair will be Sept. 21-24. Signups are still needed.
- ***IRLP:*** Is up and running, after one week of down time due to a lightning strike on Jack's, W7JLC house.
- ***One Day License Class:*** Scheduled for Sept. 23, at Embry Riddle.
- ***Patches/Shirts/Badges***: David, K6UWV has club patches for $3.00; Dick, W6CCD has club shirts for $19, without a name, and Bob, WB6ODR has badges for $5.75.

- ***License Class***: Bob, WB6ODR will be starting a General license class on Aug.7th. CW practice also will be given.
- ***VE Testing***: Mary, AB7NK indicated that the date for testing will be held Oct. 14, at 9:00 a.m. at the Masonic Lodge.
- ***FM Simplex Contest:*** Bob, W7YUL stated that September 10th is the date for the contest, and contest information is on the YARC website.
- ***Elmer/Technical Specialist:*** Neil, KA7JAS said he had a few calls, which he took care of.

Old Business:

- ***146.880 Repeater:*** John, WB9VGJ gave a slide presentation of his visit to the 146.880 repeater site. Bill, W2YAV has made an offer to sell the Repeater to the club for $250. Bill would like the Repeater to remain "in the family". The Board recommended that the club buy the Repeater. A motion to that effect was made by Terry, KB7TRE and seconded by Lloyd, WA6ZZJ. Some discussion followed. There may or may not be a small monthly amount for electricity. Bob, WB6ODR will be the Repeater trustee. Bob will send in the application when all the paperwork details have been completed. It will always be an open repeater. A Repeater committee is presently being formed to make recommendations. A vote was held and the vote was unanimous to buy the Repeater.

New Business:

- ***Boy Scouts:*** Jim, N5RO has sent around a letter asking for some volunteers to work with the Boy Scouts. John, WB9VGJ stressed that it was very important that the scout work continue.
- ***Club History:*** John, WB9VGJ received an e-mail from David, KE7IOU, who lives in Williams. David was one of the original members of the Prescott Amateur Radio Association, and wrote about the early ham radio activity in this area. A vote was taken and passed, to give him a years membership.

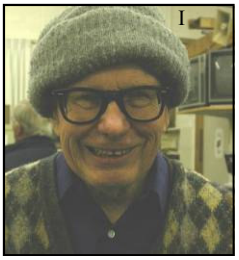
A motion to adjourn the business portion of the meeting at 2000, was made by Ken, WA6AQK and seconded by Terry, KB7TRE. The motion carried.

The 50/50 drawing was held, and Rich, N9CEX won $22.00.

The Program for the evening was to be given by Lee, KC7CBK on "Grounding", but he was gone due to a death in the family. John, WB9VGJ showed a PowerPoint presentation on Field Day in Glen Ellyn, Illinois. N5RO's TV interview also was shown.

Respectfully submitted, .

Pat, K7DUC, Secretary



YARC Treasurer's Report for August 2006

By David Passell, K6UWV, Treasurer

INCOME

New Members (see applications for additional information)

David E. Garlock	KE7IOU	08//07	08/03/06	cash	20.00
Bud Sumner	K6ALV	08//07	08/03/06	cash	20.00

Renewals (Update Roster)

George Miller	W7GWM	07//07	08/03/06	4760	20.00
Bud Semon	N7CW	09//07	08/03/06	3645	20.00
Neil Vince	KA7JAS	09//07	08/03/06	cash	20.00
Mary Vince	AB7NK	09//07	08/03/06	spouse	00.00
William Kafka	W2YAV	LIFE Service to YARC			00.00

ARRL

Gene Bochman	AB7XW (new)	08/31/06	08/03/06		39.00
James J. Grimm	KD7RMV	10/31/07	08/03/06	2369	36.00
David W. Passell	K6UWV	10/31/07	08/03/06	3348	36.00

Other

50/50 drawing	44 tickets	08/03/06	cash	44.00
Mary Vince	T-shirt	08/03/06	3002	19.00
Doug Nicholson	T-shirt XXL	08/03/06`	cash	23.00
anon	T-shirt XL	08/03/06	cash	19.00
anon	3 T-shirt XL N/C	08/03/06	cash	63.00

Total Income ……**379.00**

EXPENSES

50/50 winner	Rich Strick, N9CEX	08/03/06	cash	22.00
ARRL	K6UWV & KD7RMV Renewal	08/03/06	889	68.00
David Passell	Ice, cookies	08/03/06	890	12.70
YCFA Fair Association	Community Booth at Fair	08/03/06	891	90.00
William Kafka	Repeater Purchase	08/03/06	892	250.00
ARRL	Gene Bochman (new)	08/03/06	893	24.00
Insty Print	July Newsletter 32784	08/03/06	894	32.72

Total Expenses……499.42

Cash Flow (Income - Expenses) ……(-$120.42)

Deposits 08/16 /06……..340.00

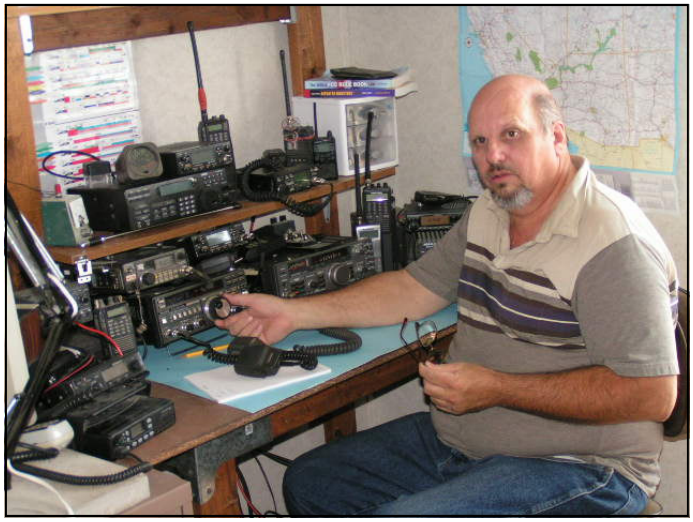
Total Deposits……**$340.00**

PREVIOUS REPORTED CHECKBOOK BALANCE……..$3206.70

CURRENT CHECKBOOK BALANCE……..$3069.28

This Month's Featured Ham

By Pat Oliver, K7DUC



Rex Mauldin, N7NGM

September's Featured Ham is Rex Mauldin, N7NGM.

Rex became a ham operator in April of 1983, earning his Novice license and upgrading to Technician class about a year later. Since that time, FCC rule changes allowed him to upgrade to General class, which was done about a year ago at a test session in Flagstaff. Since Rex's license was grandfathered within the period allowed by the FCC, Rex was upgraded without having to take the written test.

Most of the time, Rex operates on 6 meters, both SSB and FM, 1 ¼ meters, 70cm and 33cm whenever possible. Aside from these bands, he also enjoys occasional 2-meter SSB operation, which is slowly catching on in our area. Not much into contesting or HF operation, Rex enjoys repairing equipment, tinkering with radio related projects and maintaining the 52.56 repeater on Mt. Union, of which he is the trustee. The owner of the repeater and long time friend of Rex's, Dan O'Connor, N6BKL, installed it up on Mt. Union in late September of 1994, and it has operated nearly trouble free all these years.

Last December, Rex added Echolink capability to this wide coverage repeater and has enjoyed many contacts via Echolink. He, Dan and others are currently studying the feasibility of adding IRLP along with Echolink as some of his friends in Phoenix have already done.

Rex's father, a former NAVY communications officer in World War II in the Pacific, let Rex play with an oscillator and bug while a young child. Rex learned to operate the bug with some skill prior to becoming a ham.

Not until the February 9, 1971 San Fernando, CA earthquake did Rex realize the importance of radio communication. Along with his sister and parents, they had to flee their home with little warning, due to the potential breakage of the Van Norman dam located about 4 miles north of their home.

Afterwards, Rex realized that up-to-date radio communication and listening to emergency services radio traffic would have been helpful in determining his families' course of action . It was a very stressful time that he remembers clearly to this day. The 1971 earthquake was only one factor among many that urged him to become a ham operator.

Years later, Rex, now a seasoned radio operator, helped the Red Cross contact people after the Whittier-Narrows quake, and assisted other volunteers.

Shortly after becoming a ham, Rex helped with the L.A. Marathon races as a communications assistant to various Red Cross administrators. Later on, once moved to the Prescott area, Rex has helped with the Air Shows, Triathalon/Biathalon events, Road Rally and a couple balloon flights sponsored by the Arizona Near Space Research group.

Rex doesn't rag chew and much prefers tinkering with electronics, computers, astronomy and learning bass and acoustic guitar. He is also trying to improve his drawing ability.

Like many other hams, Rex started out with CB radio. No longer much into CW, he prefers to listen to short-wave broadcasts, his scanner and ham traffic. As for equipment, he owns commercial and ham grade gear; Midland, Micor radios are what he uses for 6 meters, while for most of his ham contacts, he uses Kenwood, Icom, Motorola, Azden and Yaseau equipment.

Prior to moving to Arizona in the spring of 1989, Rex obtained a certificate of completion in electronic repair from Edison Tech in Van Nuys California.

Currently, Rex works for a local engineering company, which designs lighting and power systems for commercial buildings where he uses AutoCAD to draft the engineer's specifications and is learning design. In the past, he has worked as a machinist, managed a family owned map and copy store here in town, and also did aerial photography within the area. Rex went on to earn his Bachelor degree in Urban Planning from NAU. He is in the process of finding work in this field.

As for the future, it is Rex's hope that the club stays afloat, that more people volunteer their time by being club officers much as he has done by being the President for 2004 and serving as a Board of Director's member since that time. He sees the club as a means to allow younger people to become involved and socially interact with other hams.

We are fortunate to have him around to help make the club what is has become. ■

By Lloyd, WA6ZZJ

ARES/RACES…

The ARES/RACES 3rd quarterly training meeting was held on Saturday, August 5, 2006 at the Yavapai County Public Works Facility (also the County EOC) in Prescott. There were 28+ members in attendance. The topic covered was "Using the ICS-213 Message Form". This is the message form we will be using while communicating for our served agencies.

The next scheduled training meeting will be held in Cottonwood on Saturday, November 4, 2006.

SOME RANDOM EMMCOM TIPS…

- **Take the ARECC Course**

The ARRL's Amateur Radio Emergency Communications Course Level I contains almost all of the basic information you'll need to become an effective emergency communicator. If you are unable to take the course itself you should still get the book and study it. Obtaining the emergency communications knowledge is important.

- **Organization is vital**

Picture a random group of volunteers trying to handle a communications emergency. They don't know each other, have different ideas about what should be done, and half of them want to be in charge. The result is chaos. This is why training alone is not enough. There has to be an organized structure from which to work. That is the purpose of ARES/RACES.

- **Why exercises are important**

Every exercise that we hold exposes new flaws in plans, preparations, and readiness. So why hold them at all? The first reason is to find and correct those flaws. They can never be entirely eliminated, but the more of them that we identify and correct ahead of time, the fewer we will have to worry about when disaster strikes. The second reason is to acclimate the emergency communications operators to the unexpected. Operators who have participated in lots of exercises become accustomed to failures and surprises. They tend to adapt to the unexpected more quickly and are less likely to panic than operators who have never participated in exercises.

- **Learn to handle formal traffic**

It's not as difficult as you might think, and there's a very good chance that you'll need to know how to do it during a deployment. Information about message handling can be found in the Training section of our Web site (www.k7yca.org).

- **Never alter a message**

Do not alter a message, even to correct a typographical error. What you think is right may actually be wrong. Moreover, any change you make might subtly alter the meaning of the message. Send or write it exactly as you receive it.

- **Push THEN Talk**

Pause for a second after keying up your transmitter. It may be slower to react than you realize.

- **Talk slower**

The biggest cause of errors during voice communications is one of the operators talking too fast. The receiving operator either misunderstands or misses parts of the message.

- **Write it down**

Keeping a proper log is an important part of ANY station operation, but it is absolutely essential for an emergency station. You cannot rely on your memory alone, especially in the stressful environment of a disaster scene. Things may be happening fast, but you should still make the effort to log your messages and significant events.

- **No Q-signals, please**

Q-signals are very useful if you are sending Morse code, but often lead to confusion when used verbally. The idea that "everyone knows" certain Q-signals is a fallacy. Do .
not use them on voice channels during emergency communications.

- **Take care of yourself**

The ARECC Level I manual says that your personal safety comes ahead of the mission. Don't put yourself at risk. You cannot help the emergency relief efforts if you allow yourself to become sick or injured.

- **Take your ID with you**

If you are responding to a disaster scene, you'll find that the first thing you're going to need is identification. Be sure to take your ARES/RACES ID with you. It is also be a good idea to have a copy of your amateur radio license.

- **Keep a copy of the operating manual with your field transceiver**

Your field radio may do something unexpected. You may need to use one of its special features. Your relief operator may not be familiar with how it works. There are dozens of reasons for keeping a copy of your field transceiver's operating manual nearby, preferably in a waterproof wrapper.

- **Mark your equipment**

Be sure that every piece of your equipment is marked with at least your name and call sign. After the emergency, you'll want any property you left behind to find its way back to you.

- **Volunteer to work at Public Service Events**

Working at events such as the Whiskey Row Marathon, Prescott Road Rally and other events we provide communications for gives you valuable field experience. You learn to work within a team structure and what it's like to serve another organization. You will probably also get a taste of the unexpected. It gives good experience toward emergency communications.

- **Your family comes FIRST**

Make sure to take care of your family's needs before responding to a deployment. You should develop a preparedness plan for them as well as for yourself. If your family is going to need you, don't leave.

- **(Continued next month)**

PUBLIC SERVICE COMMUNICATIONS…

Upcoming Public Service Communications Events are:

Saturday, September 16, 2006 will be the Groom Creek Community Classic (formerly the Groom Creek Run for The Red) 10K, 5K and 2 mile fun run/walk. Lee, KC7CBK , will be handling this event.

Saturday, September 24, 2006 is the Skull Valley Loop Bike Rally. Lee, KC7CBK, will be in charge of this event.

Saturday, September 30, 2006 will be the Prescott Air Fair. Mary, AB7NK, will be handling this event.

Friday and Saturday, October 6 & 7, 2006 will be the Prescott Road Rally. Bob, WB7RRQ, is spearheading this event. He will need a lot of operators so please plan to volunteer.

Saturday, October 21, 2006 is the America's Walk for Diabetes. John, WB9VGJ, will be handling this event.

Remember, Public Service Communications is good practice for Emergency Communications and it puts the Yavapai Amateur Radio Club and Amateur Radio in the public eye……

Lloyd, WA6ZZJ

Newsletter Changes

Michaels Restaurant is no longer listed under the "Weekly Breakfasts" on the back page of this newsletter. The Back Burner Café, in Prescott Valley replaces Michaels as the new meeting place for hams to enjoy a Tuesday morning breakfast in Prescott Valley.

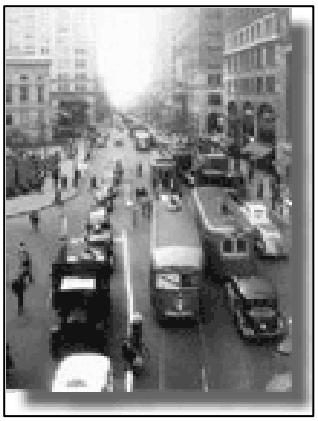
The "Area Repeaters" chart also has been modified to show YARC as owner of the 146.880 Repeater.

Please submit any additional changes needed to update the "Area Repeaters" chart.

Thanks.

Joe, AC6AA, Editor

Just what did Thomas Edison have to do with naming the Brooklyn Dodgers?



Brooklyn Trolleys

Electricity came to New York City during the 1870s, in the form of Edison's favored direct current. Exposed electrical wiring was a constant danger. Electric trolleys crisscrossed Brooklyn, and people who lived in that borough became accustomed to avoiding the dangling wires and the charged tracks. As a result, residents of Manhattan took to calling anyone from Brooklyn a "trolley dodger." In 1891, the name Brooklyn Trolley Dodgers stuck to Brooklyn's minor league baseball team. It was soon shortened to Brooklyn Dodgers to accommodate the limited space available in newspaper headlines.

Radio Trivia from the American Museum of Radio and Electricity

Static Electricity

By Joe, AC6AA

What is Static Electricity?

Static electricity means an unbalance of electric charge, i.e., when different materials come into close contact, electrons may be transferred from one material to the other, resulting in one material having an excess of electrons and the other material becoming positively charged. This accumulation of unbalanced charges on materials results in a phenomena known as static electricity.

How is it Generated?

Static electricity is not caused by friction, however, it can be increased by rubbing together two materials and then separating them. An example of this is when a person walks across a carpet or tile floor, a triboelectric charge builds up in the body due to the friction between the shoes and floor material. A very high voltage can be produced on the body, as shown in Figure 1. Fortunately, the current is very low.

Means of Static Generation	RH 10-20%	RH 65-90%
Walking across a carpet	35,000 V	1,500 V
Walking on a vinyl floor	12,000 V	250 V

Figure 1.

Note that relative humidity (RH) has a significant effect on the induced charge. The effect literally changes with the weather.

"Static Cling" in a clothes dryer is another common occurrence. The dryer provides a low-moisture environment that rotates and allows the clothes to continually contact and separate from each other. The charge can be high enough to cause material to attract and stick to oppositely charged surfaces (your body or other clothes).

Electrostatic Discharge (ESD)

Electrostatic discharge is defined as a transfer of electrostatic charges between two bodies at different electrostatic potentials caused by direct contact or by an electrostatic field.

We have all experienced electric shocks when getting in and out of a car, or walking across a carpet and touching a doorknob. This electrostatic discharge can be painful, but in some cases static electricity can cause more serious ESD problems.

Lightning is a form of static electricity that can be life-threatening . With a flammable atmosphere present, such as gasoline vapor, ESD can produce a spark to ignite the vapor and cause an explosion. Not as dramatic, but very important is the damage ESD can cause to sensitive electronic components, destroying them or affecting their reliability. Transistors and integrated circuit (IC) devices are extremely sensitive to ESD.

Controlling Electrostatic Discharge

The Military and Industry have established elaborate programs to prevent and control ESD, including: Static-safe workstations, air-ionizers, topical antistats, antistatic smocks, static protective bags and containers, antistatic floor tiles, special footwear and wrist straps, and trained personnel.

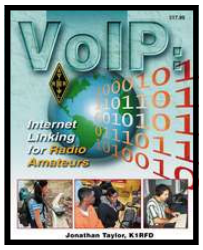
Some suggestions that can help most of us prevent or minimize the effects of ESD often encountered are:

- Raise the humidity in the room. Usually, above 50-60% RH static electricity will vanish.
- Spray carpets, floors, and chairs with an antistatic coating. (Make your own solution - mix 1 tsp of fabric softener with a quart of water.)
- Wear shoes with conductive soles - leather is much better than rubber soles.
- Hold a key, coin, or other metal and touch it to grounded metal objects (doorknobs, light switches, etc.) to discharge the spark from the metal instead of your finger.
- Knock your knuckles against doorknobs before grabbing the knob - the spark will be less painful.
- Grab the metal car door or frame when you climb from your seat.
- Do not re-enter your vehicle during refueling. If you cannot avoid re-entering your vehicle, discharge any static build-up ***before*** reaching for the nozzle, by touching metal -- such as the car door -- ***away from the nozzle.***
- Wear a wrist strap that is grounded when working on sensitive electronic equipment. If you need to work on a computer and don't have a wrist strap, touch the metal chassis which is grounded through the power cord to drain off any static charge on your body. Before removing a circuit board from an anti-static bag, hold the bag in one hand and touch the chassis with the other.

Electrostatics Used in Technology

While static electricity can cause all sorts of problems, it also can be harnessed in technology to achieve otherwise difficult effects to achieve, such as found in these and other applications:

- Electrostatic paint spraying.
- Electrostatic precipitation (in air filters).
- Photocopiers and laser printers.
- Electro-osmotic dewatering (to settle fine particles in suspension).
- Corona treatment of plastic surfaces.
- Electrostatic separation (to sort or purify materials). ■



Node Talk

By Rex Mauldin, N7NGM

How to Find a Node Number

A recent contact by Marv, KK5ML, lead me to this month's article, the subject of which is, how to find out the node number for an Echolink or IRLP station in an area you plan to visit or drive near while en route to your destination.

In Marv's case, he was recently visiting family members in Georgia and while there, he used a local Echolink system to attempt a connection to the Mingus 147.22 repeater, which has a node number of 147220, with the intent on joining the morning 7 a.m. net that takes place on this repeater, which is called the Knobby Knee net.

For an unknown reason, the Echolink system was unavailable recently and since Marv knew about my node, number 266090, he decided to give me a call and ask for news in our area and to know if I knew why the Echolink node was offline to the 147.22 repeater.

I told him that we had thunderstorm activity in the area and that was the most likely reason why the system was off. I figured Stu, N7NEO, had disconnected his computer and radios much as most of us do during a thunderstorm, although I do notice this node off much of the time even on non-stormy days for reasons unknown to me.

In Marv's case, he was able to look up my node number from a list that is present while operating Echolink from your computer. Although this list is handy, it only shows stations that are currently active and not those that exist but are currently offline. For those of you who want to use Echolink or IRLP during your next trip somewhere, the information must be obtained from a web site whereby node numbers, station location, frequencies used and PL tones can be obtained.

Fortunately, there are such web sites for both of these methods of linking. Echolink information can be found at: //www.echolink.org. Select 'link status' then check the box 'show links near:', place the name of the city, state and/or country you are heading to then press 'find'. Either print or write the information you are looking for. With IRLP, the web address is: //www.irlp.net. In this web site, select 'node info' from the list on the left hand side. Then select 'connected nodes and reflector status.'

From here, you can browse for the places you want and can write down the information needed. Naturally, you will want to know the node number for the local Echolink or IRLP stations back home so that you can in effect, call home and talk with your local friends while on the road.

By providing them with the node numbers for the route you take or the place you plan to be at, they can contact you as well using the convenience of a hand-held radio or mobile radio as you travel.

As much fun as it would be to make the contact via one of these two modes and then switch to an HF frequency, the thought of dragging your radio gear on board an aircraft these days might put you on someone's list in a hurry and delay your travels.

I do not travel much these days by commercial aircraft, so if someone else does and has had no problems thus far, please let the rest of us know what problems, if any, you may encounter. In the meanwhile, if we do not hear from those of you who do take your radios with you, maybe the rest of us will know why. ■

Program Speakers

September:

Earl Burden, W9GRX, Radioman on the Lexington.

"Carrier USS Lexington and the Battle of the Coral Sea "-- plus, a "low frequency radio project".

October: ***Lee Cunningham, KC7CBK***
"Grounding"

November: ***Jack Crabtree, W7JLC***
"Ham Radio Deluxe" - a FREE multifunction ham radio software package (Talk covers PSK31).

BEACONS, 'LOWFERS' IN THE 150 – 450 kHz BAND

- by Paul Lukas, N6DMV

Difficulties of VLF-LF Work in the City

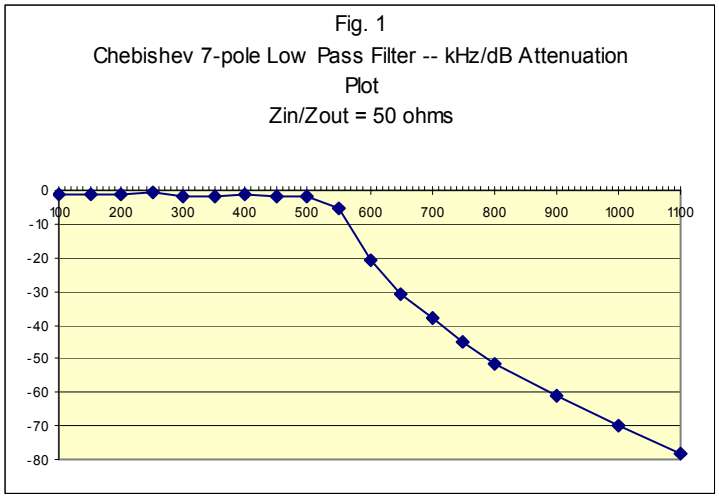
The other day after I could not hear a single station on the 21 MHz band (my present favorite band after 10 meters, which is mostly defunct at the moment), I decided to look around in the VLF – LF band. I started listening to the band and found signals in Morse code. I had to listen quite a bit until I could lift out some signals from the incredible noise-cloud surrounding my house. The reasons for the noise: at the end of my small yard, a pole is to be found with a transformer on top which feeds 5 houses, including mine. The transformer provides 120 volts from a 12,000 volt feeder line. This fact allows noise propagating on the line to develop a standing wave with maximum strength. Since I am living a relatively short distance from the ocean, as the air cools in the evenings, the salt-laden dew collects on the insulators and the noise-symphony starts. In the daytime, the average noise level is 'only' S-5/7 or so.

Considering that the power poles in my neighborhood are made of wood, in time they become somewhat spongy, and the one-time tight, metal structures supporting the insulators, etc. become loose and create noise intermittently. Apparently the power company has not discovered as yet the benefits of spring-washers, Belville-springs, etc. Or perhaps it would be too expensive to install them on every pole.

For some time now, another even stronger noise comes on. It wipes out radio stations in the broadcast band, which are not in the vicinity. The noise, in this case, reaches the S-9+10/15 dB level across the band, and its apparent flat resonant frequency is at 235 kHz. At the peak, the noise level can reach 30-35 dB over S9. It even gets into the television channels – 100 MHz range. This intermittent, horrendous noise was not observed in daytimes or in summer (just the 'normal' S-7/8 average). I noticed that the phenomenon is closely geared to temperature. As the temperature reaches the 12-10 degree Celsius downward range in the evening, the noise starts. The duration and the frequency of the noise cycle duration is a direct function of the outside temperature: as the evening temperature further sinks, the noise worsens. At times like this, the noise cycles get longer, and the gap between them gets shorter. On an average cold night, the noise periods last for a minute or longer; the gap between them for about 10-12 seconds or shorter! Before I contact the power company (again), I will conduct a survey of the neighborhood with a portable radio to try to get a fix on the offending pole(s). Probably the metal hardware on the poles, which are submerged in the 12,000 volt electric field make metallic contact with each other at higher temperatures, but when the temperature sinks, the metal objects contract, creating a gap between themselves and sparking commences. As the sparking starts and continues, the metal parts get warmer and expand, bridging the gap – the sparking stops, until they cool again – and the whole process repeats.

And if this is not enough, I have in sight a 50 kW broadcast station tower, KNX at 1.3 air miles from me at 1070 kHz. I can pick up even its 10th harmonic easily. To add insult to injury, there is another 50 kW station not too far from me, KFI at 640 kHz. The two big stations – with the help of some smaller ones in this area – happily combine and create intermodulation products even way below 100 kHz.

I decided, however, that in shear defiance, not to give up despite these problems. The first order of the day was to calculate and build a filter to cut out the noise over 500 kHz, thus removing, or at least significantly reducing, the intermod producers. I chose a Chebyshev 7-pole low pass filter, see figures.1,2, and 3.



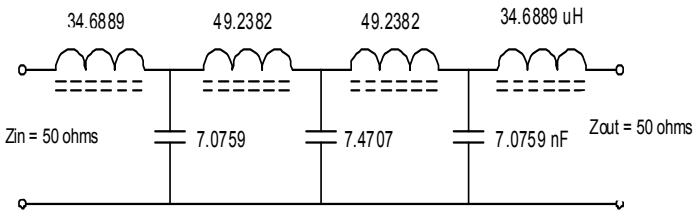


Fig. 2

See **Beacons**, *Page 10*

- **Beacons** *(Continued from Page 9)*

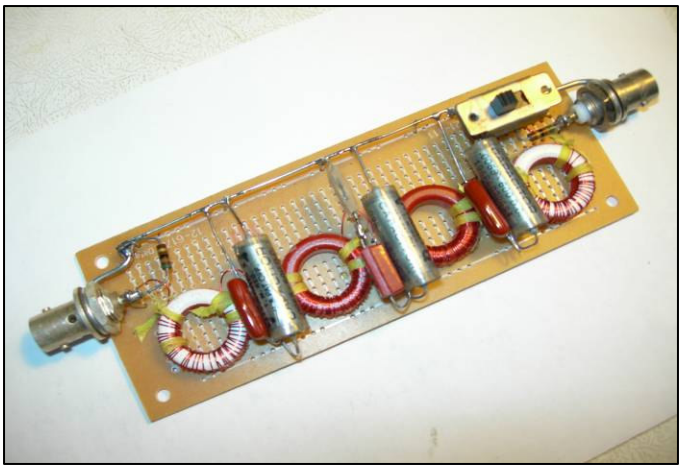


Fig. 3

This type of filter has the steepest skirt in cutting down the out-of-band noise. I took a curve of the filter and as you can see, the offending KNX is down below -70 dB. I managed to set the filter coil and capacitor values to within +/- 0.5% of the specified values. This is important if one wants a steep cut-off band and low ripple in the pass band. I knew that the filter worked, because the intermod products and other noise dramatically dropped. In fact, I had to replace my desk lamp bulb, because the new economical fluorescent type created a bad noise. Back to the old Edison filament lamp! Before I had the filter, I did not notice the noise created by the bulb, due to the extremely high noise level around me!

My receiving setup for VLF-LF is shown in Figure 4. In order to extract the maximum results from my setup, I incorporated a step-down impedance transformer between the wire antenna and the filter, in addition to a wave trap suction circuit to be able to filter out any offending signal in or out-of band – see picture. This arrangement matches the antenna to the filter's 50 ohm input impedance, while the wire antenna impedance wildly varies as one tunes through the VLF-LF bands. The proper match can be set by the switch.

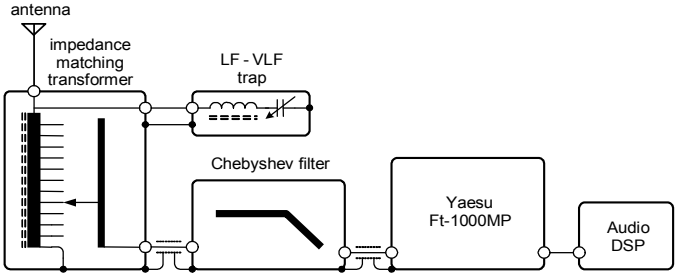


Figure 4

Listening on the VLF-LF Bands

Signals found on these low frequencies are predominantly for airplane and ship navigation purposes. This is great, because hams living inland, far away from the big waters can also 'fish' around and hear stations.

Not long ago, while tuning on LF, I heard: 'PLI PLI PLI', and giving a house address. I wrote to the address and found out that the operator is a LowFer – Low Frequency Experimenter. I got educated on the Internet about the subject and found out that the FCC issues 2-5 year permits to individuals or companies for research and technology innovation purposes. They can transmit on certain frequencies and times. Once in possession of the license, they have to send periodic notes to the FCC documenting the progress of the projects they are involved in. After 5 years, one can request an extension.

I continued tuning and picked up a station in Tampa, Florida. 2333 miles away. A few days later another long distance station in Hawaii – 2558 miles away! Needless to say, I was quite surprised and listened for a long time to be sure I heard the DX stations correctly. Considering the relatively low transmitter powers, it must have been a tropospheric duct responsible for the feat.

I found an interesting article on the Internet announcing that an old VLF transmitter was going to be re-activated for short times on February 19th this year to see if anybody can receive it. The transmitter is based on the Alexanderson system, located in Sweden. This is the only operational unit which survived the rigors of time. The transmitter was to operate on 17.2 kHz. This caught me unprepared, since I had only 2 days before the test, I had to forgo the event – too bad – I have no frequency converter for this purpose. The transmitter consists of a 'C'-shaped stator made of transformer-style laminated sheets of steel. In the open gap is the rotor, with similar construction with pole-pieces, driven by an electric motor. The 'C' has two coils: one for magnetizing dc current, the other is for the frequency output. Thus, the number of poles and the rotor speed determines the transmitter frequency. It was said that the machine was capable of delivering 200 kW (not bad!) and was usable up to 100 kHz. I am curious to find out the results of the test. Actually, the US military used several of these transmitters, one in particular was operating 7-24 to relay messages to our submarines in World War II. These low frequencies are able to penetrate the salt water. The military found that this transmitter was the most reliable. Another operational unit was disassembled and donated to the Smithsonian Institute in Washington, D.C..

See **Beacons**, *Page 11*

CQ DX de YARC – SEPTEMBER 2ØØ6

By Dick Diddams, W7QHE

DATE		DXCC ENTITY	CALL	QSL VIA	REPORTED BY	INFORMATION
START	END					
Now	2ØØ6 Nov25	**Haiti**	**HH**	PS7EB	PY2HS 2ØØ6Ø4Ø5	All HF bands; CW SSB + digital; multiband vertical
Now	2ØØ6 SepØ1	**Corsica**	**TK**	IK1RAC	OPDX 2ØØ6Ø717	HF + 6m; QRP; 12ØØ-14ØØz + 2ØØØ-22ØØz
Now	2ØØ6 SepØ6	**Iceland**	**TF**	DARC Buro	DL2RMC 2ØØ6Ø715	HF; CW SSB digital; 4ØØw; vertical; spare time operation
Now	2ØØ6 SepØ5	**Kyrgyzstan**	**EX15ID**	EX8AB	425DXN 2ØØ6Ø812	By the Amateur Radio Union of Kyrgyzstan
Now	2ØØ6 SepØ1	**Jersey**	**GJ5XW/p**	G5XW Direct	OPDX 2ØØ6Ø71Ø	By G5XW fm EU-Ø13; HF; SSB
Now	2ØØ6 Sep12	**Canary Islands**	**EA8**	DARC Buro	DH5JG 2ØØ6Ø816	By DH5JG as EA8/DH5JG; 4Ø-1Øm; CW SSB RTTY PSK31
Now	2ØØ6 SepØ6	**Vietnam**	**XV3**	Home Call	425DXN 2ØØ6Ø812	8Ø-6m; CW SSB SSTV; QSL OK via JARL Buro or direct
Now	2ØØ6 Sep11	**Mayotte**	**FH**	Home Call	DJ8NK 2ØØ6Ø726	As TX5T and TX5NK; 16Ø-6m; CW SSB RTTY PSK
2ØØ6 SepØ3	2ØØ6 Sep12	**Lesotho**	**7P8**	DL7JAN	F5NQL 2ØØ6Ø816	As 7P8WO 7P8DJ 7P8JF; 8Ø-1Øm; CW SSB RTTY PSK31
2ØØ6 SepØ8	2ØØ6 Sep1Ø	**Luxembourg**	**LX**		OQØA 2ØØ6Ø623	OQØA OP7A OO7A ON6RJ OR9Q as LX/homecall; 8Ø-1Ø
2ØØ6 SepØ8	2ØØ6 Sep14	**Market Reef**	**OJØLA**	LA9VDA	LA9VDA 2ØØ6Ø7Ø3	By LA5UKA LA8AJA LA9DFA LA9VDA LB8IB fm EU-Ø5
2ØØ6 Sep15	2ØØ6 OctØ6	**Namibia**	**V5**		F5NQL 2ØØ6Ø5Ø4	By G3RWF as V5/G3RWF
2ØØ6 Sep21	2ØØ6 Sep27	**Dominica**	**J79**		425DXN 2ØØ6Ø812	J79MD fm NA-1Ø1; QRV for CQ WW DX RTTY as J7R
2ØØ6 Sep21	2ØØ6 OctØ4	**Dodecanese**	**SV5**	GM3YOR	OPDX 2ØØ6Ø7Ø3	By GM3YOR fm Halki (EU-ØØ1) as SV5/GM3YOR; CW
2ØØ6 Sep27	2ØØ6 OctØ9	**Crete**	**SV9**	G8VHB	VA3RJ 2ØØ6Ø62Ø	As SV9/G8VHB fm EU-Ø15; 2Ø-1Øm; 1ØØw; rotary dipole
2ØØ6 Sep3Ø	2ØØ6 OctØ7	**Luxembourg**	**LX**	PA1K	425DXN 2ØØ6Ø617	As LX/PA6Z; 16Ø-1Øm + 136 kHz experimental station

- - - MONTHLY HIGHLIGHTS - - -

NAMBIA – V5

Less than 5Ø amateurs reside in Namibia and yet it is not in the 1ØØ Most Wanted Countries due to the many DXpeditons to this small African country. This country is the size of Texas and Louisiana combined with a population of 1.8-million. The country is rich in diamonds, copper, lead and uranium. Yet it is poor with $2,37Ø per capita annual income and 22.3% of the population infected with HIV/AIDS.

Namibia, officially the Republic of Namibia, is a country in southern Africa on the Atlantic coast. It is bordered by Angola, and Zambia to the north, Zimbabwe to the north-east, Botswana to the east, and South Africa to the south. It gained independence from South Africa in 199Ø and its capital is Windhoek. Namibia is a member state of the Southern African Development Community (SADC), the African Union (AU), and the Commonwealth of Nations.

The dry lands of Namibia were inhabited since early times by Bushmen, Damara, Namaqua, and since about the fourteenth century AD, by immigrating Bantu who came with the Bantu expansion. The region was not extensively explored by Europeans until the 19th century, when the land came under German control as South-West Africa -- apart from Walvis Bay under British control. South Africa occupied the colony during World War I and administered it as a League of Nations mandate territory until after World War II, when it unilaterally annexed the territory.

It was not until 1988 that South Africa agreed to end its administration of Namibia.

• Beacons *(Continued from Page 10)*

I am using only a piece of wire for an antenna on LF – it is resonant at ¼ lambda on 160 meters and is horizontally oriented on my roof top, held up by my short tower's 4 anchor ropes. It constitutes an almost closed loop. My future plans include an octagonal, about 1 square meter area, shielded rotatable loop with a preamp and a Chebyshev filter located right under it. The descending coax should provide protection from the noise floating around. I like resonant antennas, and the remote tuning details still have to be worked out. I also made a graph of the geographical locations of the heard stations centered around my QTH. This gives me some information of the prevailing band conditions in terms of propagation directions.

Under very bad receiving conditions, sometimes I had to listen for several hours, more than one day, until I could extract some of the call signs. At certain frequencies, 2 on one occasion, or 3 stations were operating on the same frequency. Since the call sign timings are not synchronized, there is a progressive shift between the Morse code letters between the stations. So, I had to wait for a long time for the small time gap between two of the stations' codes to hear the 3rd station's letter, or letter fraction and painstakingly assemble the whole call sign. The beacons operate at a slow 5 wpm. If someone has no patience, I do not recommend the VLF-LF fishing, unless he lives in a pristine, noise-free area. Another antenna possibility is an active vertical antenna, with a low-noise preamp built in.

So, if you hear nothing on HF, go LF – you will hear a lot of things - mostly noise for sure! ■

Weekly Breakfasts

Tues. Morning Breakfast –
7:00 a.m. at
Back Burner Cafe
8400 E. Long Mesa Drive
& N. Robert Road
Informal – all are invited.

Wed. Morning Breakfasts:
7:00 a.m. at
Iron Horse Restaurant
(Hwy 89 in Chino Valley)
(N 34º43'56.5" W112º27'15.4")*
informal – all are invited

8:00 a.m.
Masonic Lodge
(1280 Willow Creek Road,
2nd Floor; above Bank of America)
informal – all are invited

* Location data (per WGS84) provided by Fred Zimmermann, N7PJN

Area Repeaters

Frequency	PL	Location	Owner/Club	Auto-Patch	Rem. BaseOr Linked	Vo IP	Notes:
52.560-	100.0	Mt. Union	N7NGM			Echo	-500KHz Offset
53.040-	None	Prescott Airport	WB7BYV				-1MHz Offset
145.290-	127.3	Mingus Mtn.	ARES/RACES				
146.780-	91.5	Williams Mtn.	BWARC			IRLP	
146.880-	100.0	Prescott	YARC				
146.980-	162.2	Flagstaff	CARC				
147.000+	162.2	Mingus Mtn	MMRG				
147.040+	100.0	Prescott Heights	W2YAV				
147.140+	162.2	Flagstaff/-Mt. Elden	ARA		Linked to Mt. Ord 147.360-		
147.220+	162.2	Mingus Mtn	VVARA				
147.260+	103.5	Mt. Union	ARES/RACES				
442.150+	100.0	Mingus Mtn	W1OQ/Northlink				
442.350+	100.0	Glassford Hill	N7KPU			IRLP	
448.475-	100.0	Flagstaff-Elden	ARA	Yes			
448.500-	100.0	Prescott	KB6TWC	Yes	RB to White Tank 146.940		E-mail owner for instructions
448.875-	100.0	Flagstaff-Elden	Northlink		Linked		
449.175-	100.0	Towers Mountain	Northlink		Linked		
449.675-	88.50	Prescott Airport	WB7BYV		Linked to P Mtn. 927.3875		
927.3875-	151.4	Prescott	WB7BYV	Yes	Yes	Echo	Be Nice

Y.A.R.C. IRLP NODE
Node Number 3182
442.350+ MHz with a PL of 100.0 Hz

For more Repeater Information & Listings refer to:

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

YAVAPAI AMATEUR RADIO CLUB

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PRESCOTT, AZ 86304

Visit us on the web at http://www.w7yrc.org

Many thanks to Bob Smith, WB6ODR, our Webmaster