
SIGNALS

Rockwell Collins Amateur Radio Club

Monthly Newsletter of the

Volume 33 Issue 01

Web Site <http://www.w5rok.us>

October 2011

RCARC
Membership Meeting

Thursday, 27 October 2011
1700 Social 1730 Meeting
Program 1800

Methodist Richardson Medical Center
At Bush/Renner/Shiloh Intersection
Second Floor Conference Room 200

Subject:
Weak Signal CW, SSB and Digital
Communications at VHF and Beyond
by AI Ward, W5LUA

has also received the ARRL's 1999 Microwave Development Award.

AI is currently the President of the North Texas Microwave Society (www.ntms.org) and has a wealth of experience with that part of the spectrum few dare to go. AI makes it easy to understand and shows ways to get involved on a small budget. AI was part of the first successful EME Moon Bounce using 24GHz on August 18, 2001.

RCARC Officer Election Results

OFFICE	OLD OFFICER	NEW OFFICER
President	Ross Terry K5SRT	Ross Terry K5SRT
Vice President	Dwight Ramsey KE5SAS	Ira Blum K5IRA
Treasurer	Bob Diepenbrock KC5UAI	Dwight Ramsey KE5SAS
Secretary	Michael Ketchum K5MDK	Mike Schmit WA9WCC
Activities Manager	Mark Harris KC5FDX	Michael Ketchum K5MDK

Local Club News

Meeting Notice Plan to come to the October meeting of the Rockwell Collins Amateur Radio Club, as we hear from Mr. AI Ward - W5LUA as he presents to us some unusual modes for the VHF amateur bands and above.

AI graduated with a BSEE from the University of Illinois in 1973. He was a System/Circuit Designer at Texas Instruments from 1973 to 1987, and has been a Semiconductor Applications Engineer with Hewlett Packard and now Agilent Technologies since 1987. AI was first licensed as WA9QZE in 1965 and presently holds the Amateur Extra Class ticket. AI operates all frequencies from 1.8 MHz through 47 GHz. AI has WAS on 50, 144, 220, and 432 MHz, WAC on 1.8, 50, 144, 432, and 1296 MHz. and has worked 41 states on 1296 MHz. AI has completed EME QSO's on all bands, two meters through 24 GHz. AI was instrumental in the formation of the North Texas Microwave Society and was President of the NTMS from its formation through 1989. AI has received the Central States VHF Society John Chambers Award, and was the recipient of the 1997 Dayton Hamvention Technical Excellence Award. AI

Rockwell Collins Amateur Radio Club Information Net The W5ROK NET started on Thursday, August 4th. The following are the particulars:

- WHAT** Information Net - **RCARCIN**
- WHEN** Each Thursday night at 19:00 CST
- WHERE** W5ROK Repeater 441.875+ PL 131.8Hz
- WHO** Everyone and anyone.
- FORMAT**
 - (a) announcements
 - (b) Swap
 - (c) Check-in plus updates.

The format provides club and local announcements of interest to Amateur Radio, a swap net time as well as personal updates from net participants regarding their experiences in the hobby. All suggestions for content and format are welcomed. (Submitted by Michael Ketchum K5MDK)

RCARC OFFICERS

PRESIDENT		VICE-PRESIDENT	
Ross Terry 972.562.4266 k5srt@arrl.net	K5SRT	IRA Blum 972.705.1228 iblum1@yahoo.com	K5IRA
SECRETARY		TREASURER	
Mike Schmit 972.705.1394 maschmi2@rockwellcollins.com	WA9WCC	Dwight Ramsey 214.957.9723 Kc4uai@gmail.com	KE5SAS
ACTIVITIES CHAIR-		WEBSITE MANAGER	
Michael Ketchum 972.705.1286 k5mdk@arrl.net	K5MDK	Wayne Hughes 972.705.1406 wa0tqh@arrl.net	WA0TGH 461-258
STATION TRUSTEE		NEWSLETTER EDITOR	
Steve Phillips 972.517.3332 k6jt@arrl.net	K6JT	Jim Skinner 214.535.5264 wb0uni@arrl.net	WB0UNI
CLUB STATION		W5ROK	
972.705.1349		461-290	

VE SESSIONS

Dallas tests are held 4th Sat of each month at 10:00. 13350 Floyd Rd. (Old Credit Union) Contact Bob West, WA8YCD 972.917.6362

Irving tests are held 3rd Sat. of each month at 09:00. 5th and Main St. Contact Bill Revis, KF5BL 252-8015

McKinney VE test sessions are held at the Heard Museum the first Sunday of the month. The address is 1 Nature Place, McKinney TX. The time of the testing is 14:30, ending no later than 16:45. **Note: no tests given on holiday weekends.**

Garland testing is held on the fourth Thursday of each month, excluding November, and begins at 1930 sharp. Location is Freeman Heights Baptist. Church, 1120 N Garland Ave, Garland (between W Walnut and Buckingham Rd). Enter via the north driveway. A HUGE parking lot is located behind the church. Both the parking lot and the Fellowship Hall are located on the east side of the church building, with big signs by the entrance door. Contact Janet Crenshaw, WB9ZPH, 972.302.9992.

Plano testing is on the third Saturday of each month, 1300 hrs at Williams High School, 1717 17th St. East Plano. Check Repeater 147.180+ for announcements.

Greenville testing is on the Saturday after 3rd Thursday, 1000 hrs at site TBA, contact N5KA, 903.364.5306. Sponsor is Sabine Valley ARA. Repeater 146.780(-) with 118.8 tone.

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President's Message

Spider Web Season

October 2011 has been a great month for HF Radio Communications on 10 Meters (and it offers all classes of Amateur's some great long distance contacts). If you're not on the air or short of HF equipment get on the air with a HAM friend or visit a local Amateur Radio club station like ours which always has room for operators (see <http://W5ROK.us> for more information and options). Do you see spider webs in October? More on that later.

Operations I'm aware of included K3NT Bob and myself K5SRT who operated a portable HF station in Kingston, OK making contacts around the world to prepare for the upcoming Ardmore Ham Fest (Big Contest Weekend). We used K3NT's Yaesu FT-100 and a LDG AT-100Pro Antenna Tuner, purchased at a McKinney sidewalk sale, matched to a MFJ-1796 vertical antenna (mounted atop a push up pole that now seems to be a great investment). The construction and installation of this push up pole by myself several weeks earlier is a whole story in itself (don't take on that antenna installation exercise by yourself unless you're very determined). Several 10M lunch time contacts were noted in the W5ROK log book including some to other operational clubs out in CA.

The W5ROK N1MM log listed WA8ZBT - Dennis who operated W5ROK during the recent QRP contest using 1 Watt, making contacts into Canada, and both U.S. Coasts, and as far west as Hawaii. QRP operations from W5ROK is right in line with this months meeting on 27 October where Al Ward (W5LUA) will be presenting a talk on weak signal CW, and SSB Digital Communications.

Also, you don't miss this months installation of your club's officers. We'll also be voting on and attempting to fill a few open positions.

Finally, you should consider October National Spider Web Month. You too can setup a HF Dipole in your front yard and pass it off as a giant spider web as I have for Halloween (version two this year and so far the home owners association has not minded and the kids love it). Now that you know about spider web season just remember to set yours up earlier next year. Operating from a spider web antenna during spider web season or on Halloween is a great way to introduce others to a new form of HF web operations.

Hope to hear you on the air!
73 for now Ross - K5SRT
k5srt@arrl.net

Secretary's Report September 22, 2011

The annual business membership meeting was held on September 22nd at the Methodist Richardson Medical Center – Bush Renner campus on the 2nd floor conference room. Those in attendance were as follows:

1. Ira Blum – K5IRA
2. Michael Ketchum – K5MDK (Secretary)
3. Robert Kirby – K3NT
4. John McFadden – K5TIP
5. Steve Phillips – K6JT (Station Trustee)
6. Dwight Ramsey – KE5SAS (Vice President)
7. Mary Ramsey – KF5BXX
8. Mike Schmit – WA9WCC
9. Jim Skinner – WB0UNI (Newsletter)
10. Bill Swan – K5MWC
11. Ross Terry – K5SRT (President)
12. Paul Veenstra – KC0TEG
13. Joe Wolf – N5UIC (Membership)

This represents 3 Life, 9 Regular and 1 Family member in attendance.

OPENING

1. Club President, Ross Terry – K5SRT opened the meeting at 5:32pm with a pledge.
2. Each attendee was asked to introduce himself and to talk a bit on what they have been doing in the hobby.

OFFICERS REPORTS

1. PRESIDENT'S REPORT:

- a. The strange antenna on the tower for the HF Beam has been reported with some new activity and ropes strewn across.
- b. Storms this past weekend with 45mph winds plus ½" hail.
- c. The coax for the "IT" has been removed due to its sagging condition.

2. VICE PRESIDENT'S REPORT:

- a. Nothing to report.

3. TREASURER'S REPORT:

- a. President Ross Terry reported that Bob Diepenbrock KC4UAI, our current Treasurer, has been laden with many hours at his new job. He was not able to come to night.

4. SECRETARY'S REPORT:

- a. Michael Ketchum –K5MDK, the club Secretary, announced Joe Wolf's birthday.
- b. Michael continued to read the minutes from last month's meeting. Dwight Ramsey made a motion to accept the minutes as read. Bob Kirby seconded this motion. Motion passed by hand vote.

5. TRUSTEE'S REPORT:

- a. Steve Phillips – K6JT, the club station Trustee, has heard more activity on the repeater in recent days. No new issues to report at this time.

6. NEWSLETTER EDITOR'S REPORT:

- a. Nothing to report.

NEW BUSINESS

1. Plano Balloon Festival Special Event Station K5B

- a. President Ross Terry – K5SRT and his daughter were able to do some PSK31 contacts at the special event station, K5B, which was setup near the launch field for this year's Plano Balloon Festival. In addition to working the special event station, they also got to watch the balloon glow afterwards.

OLD BUSINESS

1. Repeater Power

- a. President Ross Terry – K5SRT reminded the club of our current plans to purchase the batteries for the Repeater backup power next month. The approval for this purchase has already been made. We just want the funding to be applied to next fiscal year's funds.

2. Mystery Antenna

- a. The mystery antenna has not moved. However, some additional cords are strewn over the antenna from the base to the edge of the building.

3. EMI Noise from the Air Handlers

- a. No Progress on the EMI noise issue from the Air Handler

4. Coax Switch

- a. We got a 4N coax switch to replace the 3N switch. Work to install this new switch is still pending.

5. Surplus equipment.

- a. Two wire roller racks are removed.
- b. Old PCs (not the club's) still in the area.
- c. Old UPSs also still there.

6. Weather station work

- a. An email was sent to eBusiness in order to get some internet access approved and installed for APRS weather data from the shack. No word on a response yet.

7. Mystery antenna

- a. President Ross Terry – K5SRT, displayed some pictures, which show the mystery antenna and the line that comes from base of tower and up to the antenna and then out to the side of the building. No damage seen.

8. The Old IT Coax Cable

- a. The coaxial cable that was used for the MFJ "IT" antenna was dragging very low to the roof surface due to weathered rope supports. So, the coax and all the supporting ropes were brought down by Ross Terry with the help of Dennis Cobb – WA8ZBT. Pictures were shown for the before and after. Ira Blum asked about signs to contact the club. John McFadden suggested we get Facilities to make the signs. Ross' inspection looked favorable.

ELECTIONS

1. Vice President Dwight Ramsey – KE5SAS explained the election process for the annual officer elections.
2. Dwight continued to introduce the nominations that have been previously submitted. They are as follows:
 - a. For President, Ross Terry – K5SRT, nominated by Dwight Ramsey – KE5SAS.
 - b. For Vice President, Michael Ketchum – K5MDK, nominated by Ross Terry – K5SRT.
 - c. For Vice President, Ira Blum – K5IRA, nominated by Michael Ketchum – K5MDK.
 - d. For Treasurer, Dwight Ramsey – KE5SAS, nominated by Michael Ketchum – K5MDK.
 - e. For Activities Manager, Michael Ketchum – K5MDK, nominated by Ira Blum – K5IRA.
3. Dwight continued by opening the floor for additional nomination.
 - a. Michael Ketchum – K5MDK nominated Mike Schmit – WA9WCC for the office of Secretary. Mike Schmit accepted this nomination.
4. With no further nominations being made, a motion was made and accepted to close the nominations.
5. A motion was made by Bob Kirby – K3NT to accept all non-contested positions. This motion was seconded and passed through hand vote.
6. Since there were two individuals nominated for Vice President, a ballot vote for this office was made.
7. While the votes were being counted, Ross Terry presented certificates of appreciation for the current officers and also those who made presentations throughout the year.

EVENTS

1. The events calendar was displayed from the Teamspace web site.
2. Ross also put in a pitch for the Telecom Corridor Info Yahoo Group.
3. Bob Kirby asked folks to read the article by Steve Phillips. Bob commented on the article and what it meant to him.

ELECTION RESULTS

1. Club Vice President Dwight Ramsey and club Secretary Michael Ketchum tallied the ballots.
2. Dwight announced that Ira Blum won the election for Vice President. The officers for RCARC for FY2012 are as follows:
 - President Ross Terry – K5SRT
 - Vice President Ira Blum – K5IRA
 - Treasurer Dwight Ramsey – KE5SAS
 - Secretary Mike Schmit – WA9WCC
 - Activities Mgr. Michael Ketchum – K5MDK

PRESENTATION

1. The presentation tonight was a 20 minute movie chronicling the last fiscal year in pictures.

APRS for Weather at W5ROK—Part 1

Introduction

Weather is an added bonus to the popular hobby of ham radio. The ability to play a role in Skywarn or other weather related events is very beneficial to society as well. Weather information is also valuable to a facilities manager who needs to know current weather information before making decisions for employee safety at that facility. It is this very justification that the Rockwell Collins Facilities team has assisted the Rockwell Collins Amateur Radio Club with the purchase of a weather station. The weather station is up and operational. However, there is difficulty in getting that information to the facilities leaders, short of them making a personal visit to the W5ROK club station.

This article outlines what it would take to make this goal a reality. Completing this project is allocated in our task list on teamspace. However, we are only partially done. We need to be able to share this weather data with interested parties, which is the challenge addressed in this article.

APRS Overview

If you were to tune your 2 meter radio to 144.390MHz, you would hear a variety of packets buzzing across the air from all over the area. What you have done is tuned into the APRS national frequency. APRS, also known as Automatic Packet Reporting System, is a method of capturing instantaneous data and sending it via packet radio to a centralized network. APRS is used mainly for position reporting and weather data and it is very popular in the North Dallas area as well as across the country. APRS is also used for other purposes, besides position and weather. It is used for text messaging direct to a specific callsign, text to groups¹, email², general CQ frequency information

¹ Global APRS Messaging for Groups - <http://www.aprs.org/cqsrvr.html>

² Winlink 2000 – www.winlink.org

(AFRS)³, APRS Voice Alert⁴, and other experimental applications where real-time packet data needs to be transported over the air in a one-way or two-way fashion. APRS is living, and new uses are being developed all of the time⁵.

APRS utilizes several technologies, such as GPS (Global Positioning System), Amateur Radio, and the Internet. The results are near real-time position and weather information shared over a network. The radio portion of the network is made up of an APRS node (a tracker, weather station, or another mobile device), a Digipeater (Digital Repeater of radio packet data), and an I-Gate (Internet Gateway). The I-Gate provides a means of transporting the packets from the radio network to the Internet network, which is stored on an APRS-IS (Internet Server) server.

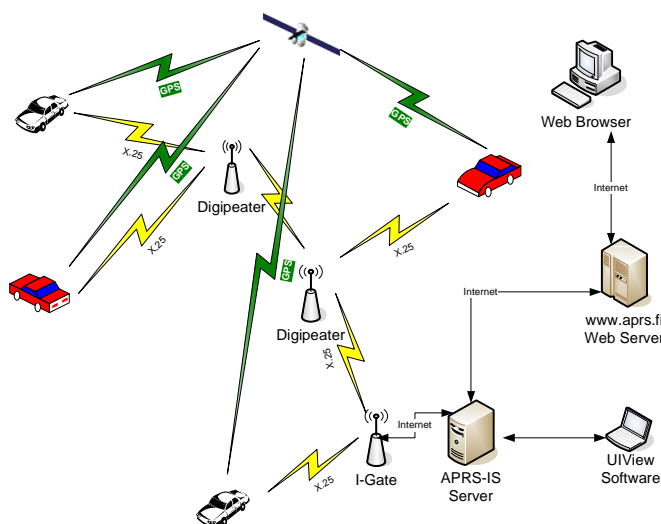


Figure 1 - APRS Network

Here, the GPS system provides positional data to the vehicle. The vehicle will beacon its position out via 144.390MHz. The nearest Digipeater will relay that packet out over a much larger area. An I-Gate will pick up that packet and transfer it to the APRS-IS server via the internet. Any server that is connected into the APRS-IS server that receives this packet data will also get updated on the vehicle's position. Any web browser can be used to connect into a server, such as **www.aprs.fi** to track the vehicle on a map.

There are many APRS-IS servers throughout the world. The below diagram shows the network of most of the APRS-IS servers currently in use. The Green nodes are the CORE servers. The orange are the T2 hubs. Purple are Java based server nodes, pink are the CWOP (Citizen Weather Observer Program) servers, and the rest are

other nodes. Packet information that is received by one APRS-IS is normally distributed to the other APRS-IS servers. The following diagram shows the network topology.

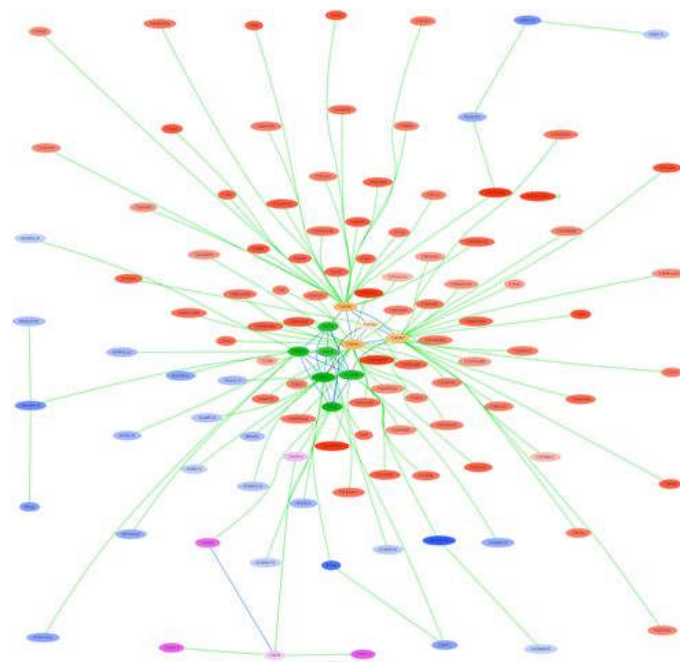


Figure 2 -APRS-IS Servers currently available

It is a goal of the club to provide weather data from our newly installed weather station to the general public and organizations involved with weather, such as the NWS (National Weather Service). Utilizing APRS provides a means of sharing that data with the right individuals in a near-real-time sense.

Next month, we will look at how we can accomplish this task. [Written by Michael Ketchum – K5MDK]

Proper bonding and grounding is a MUST for mobile RF installations

By Larry Essary, K5XG

Ignition noise is not limited to SSB. You can even have ignition noise on FM

To minimize ignition noise the first thing to do is run the power leads directly to the battery.

Next you need to ground the radio itself. Do not assume that the radio mounting screws are in contact with the metal of the chassis. Most times there are screws on the RF unit specifically to be used as a grounding point.

If not, then maybe you can find a hole on the heat sink that you can tap for a screw. You can always use one of the mounting screws as a ground point. Take a piece of braid

³ AFRS – Automatic Frequency Reporting System to help locate other hams on the road. <http://www.aprs.org/afrs.html>

⁴ APRS Voice Alert - <http://www.aprs.org/VoiceAlert3.html>

⁵ APRS Spec - <http://www.aprs.org/aprs12.html>

and make sure you are connected directly to the metal of the vehicle.

To minimize RF noise you need to bond all elements of your vehicle together.

Metal on metal exposed to weather will build up corrosion and you will not always have a good connection.

Use braid to bond together the chassis, bumpers, quarter panels, hoods, trunk lids, etc. together.

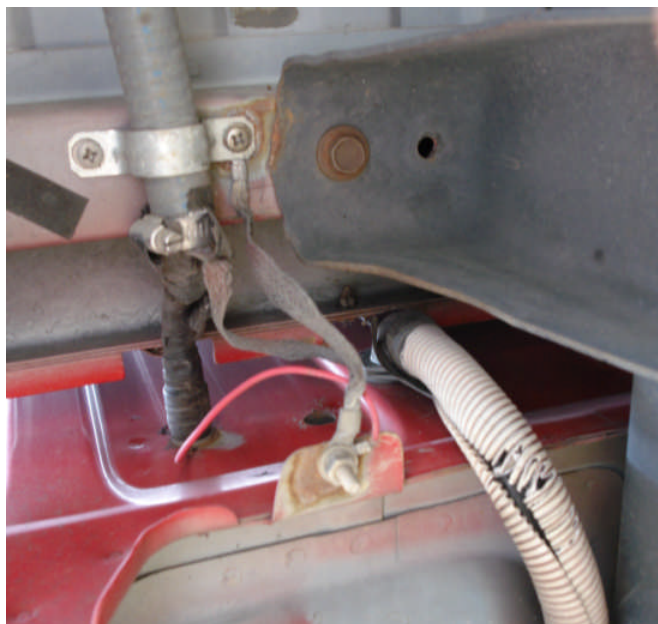
In the first photo below you will see the bumper bonded to the chassis.



In the second photo you will see several things going on.

The truck bed is bonded to the truck cab. The coax from the antenna is run in armor plated "liquid tight". This method not only provides protection to the coax from weather and road hazards, it provides RF shielding as well. The end of the armored liquid tight is connected to metal with a stainless steel hose clamp. Once the coax leaves the liquid tight it enters the truck cab by way of a RF bulkhead feed through. This method stops stray RF noise from entering the truck cab by way of a hole cut to allow the coax inside.

Notice that the paint is always sanded off to give a clean metal to metal connection. ALWAYS, ALWAYS, ALWAYS use stainless steel hardware. While 10 years of exposure to the weather has rusted the vehicle manufacturer's hardware, all of the stainless hardware installed for the radio installation is rust free.



Lots of planning will make for a neat AND efficient installation. FORGET about the idea of "It's good enough." !

Ten Meters: Get In While It Is Hot

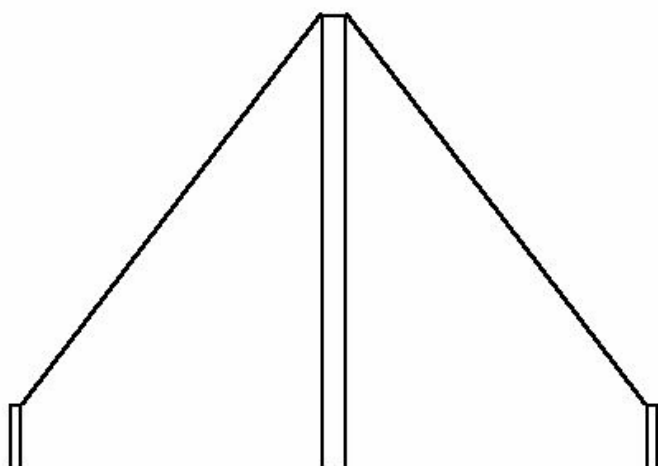
The ten-meter band has been around since 1927, when it was granted frequency allocation to Ham radio operators between 28000 and 30000 kHz. In 1947, 300 kHz of the spectrum was removed as part of the International Radio Conference of Atlantic City. It does not take much equipment to get on ten-meters. When the 23 channel Citizens Band radios were outdated by the FCC in late 1970's, Ham operators modified these for ten-meter use. Today, you can purchase a ten-meter Radio Shack HTX-100 for under \$100.

The ten-meter band is located in a unique part of the radio spectrum, which yields very interesting propagation characteristics. When the solar cycle peaks with many sunspots, the ten-meter band comes alive with wonderful F2 layer skip. F2 layer propagation brings in the long distance contacts, from Europe, South America or Asia. This usually occurs in the daytime hours, when the F2 layer is most effective. However, when there is no F2 layer observed, there is always the occasional and illusive Sporadic E propagation, which can bring in contacts from a few hundred to a few thousand miles away.

In the last several weeks, we have experienced a wonderful F2 propagation. We can see an increase in solar activity, including six CME (coronal mass ejections) within a 24 hour period on September 18th. On October 2nd, a comet hit the sun, causing a reactionary CME. But it is those sunspots that heat up the ionosphere, as we have seen a pronounced increase in the solar flux index.

So, what does one have to do in order to take advantage of this phenomenon? Get on the air! Ira Blum – K5IRA, and I made our way to the club station at lunch, one day. Ira was tired of listening to me complain that I'm always missing the ten-meter DX. By the time I get home, the band is closed down. So, he suggested we take a lunch break and give it a try. We initially heard two very loud stations with French accents. I don't think these were Canadians. Sure enough, we were able to make two QSOs to France in just a couple of minutes. I think that is the first time I've ever done France on ten-meters. I'm sure Ira enjoyed it as well; being it was his first French QSO.

So, what is the prediction for solar activity, going towards the end of October? The forecast is for a slight decline, but by October 19th, we should be getting more activity again. So, get out there and take advantage of the sun, ten-meter action that is. [Written by Michael Ketchum – K5MDK]



An Inverted “V”—An Underutilized Performer

Above is a drawing of an Inverted “V” antenna. A common place antenna in stations from the 50s and 60s; they are inexpensive, stealthy, and easy to install. However, it is little known and/or used by today's newly licensed hams.

For most new hams today their default HF antenna seems to be a vertical. For some a vertical is their only antenna. In my experience a HF vertical antenna is just one step above no antenna at all. But better to be on the air than not.

Consider this—an 80 meter inverted “V” with its apex at 40 feet will be 20 to 25 dB LOUDER than a vertical for contacts 200 to 300 miles away. An inverted “V” antenna will cost about \$10. The cheapest vertical is around \$150.

You can feed a 40 meter inverted “V” antenna at right angles to the 80 meter inverted “V” antenna with both anten-

nas fed off the same piece of coax. That's \$20 for two bands that will be 20 to 25 dB louder than your vertical.

You will find that just about any other reasonable antenna will outperform a vertical 95% of the time. I still use a vertical antenna for that other 5% of the time. And the vertical is also a good reference antenna for testing. A phased array of verticals is a subject for another time.

Think about how an inverted “V” antenna would fit into your station. (Written by Larry Essary K5XG)

Monday Ham Lunch in Plano

WHEN: Each Monday at 11:30 AM
 WHERE: El Fenix in Plano
 WHO: Lots of new and long time hams from the DFW area. Sometimes visitors from other call districts

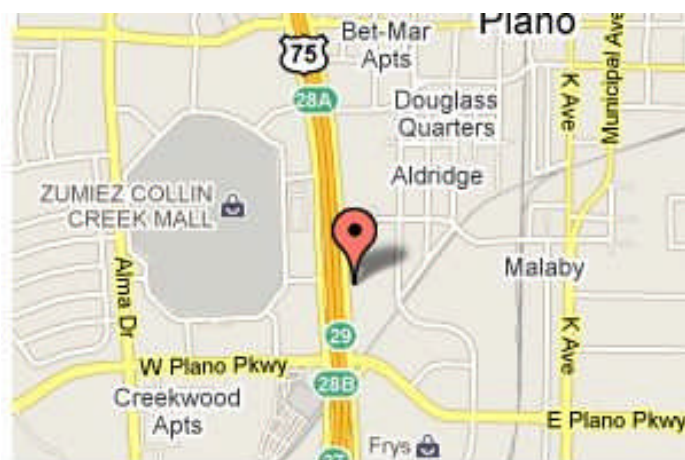
We normally stay from 11:30 AM until 1:00 PM or later... so if you can't get there at 11:30 you can arrive late and we will still be there.

El Fenix is located on the north bound service road of US 75 just a few hundred feet north of Plano Parkway.

South bound on US 75 take the Plano Parkway exit and make the U-Turn over US 75. The restaurant is a few hundred feet up on the right. North bound on US 75 take the Plano Parkway exit and cross Plano Parkway. The restaurant is a few hundred feet up on the right.

We sit at a large table in a back room (most southern) that is better for those arriving at different times. Hope to see you all this week.

QRX Larry K5XG
 972 742-2053 cell



Rockwell-Collins

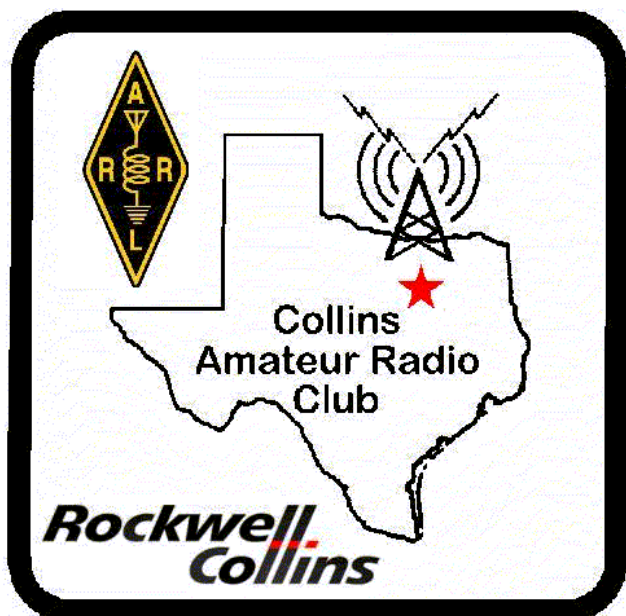
Amateur Radio Club

Mail Station 461-290

P.O. Box 833807

Richardson, TX 75083-3807

TO:



CLUB STATIONS

(972) 705-1349

W5ROK REPEATER

441.875 MHz +5 MHz Input
131.8 Hz PL - RX and TX

W5ROK-1 PACKET BBS ROK Node

145.01 MHz

W5ROK-N1, W5ROK-N2 & W5ROK-N3 HSMM-
MESHNET Nodes 2.4 GHz

Thursday, 27 October 2011

1700 Social 1730 Meeting

Methodist Richardson Medical Ctr
At Bush/Renner/Shiloh Intersection

Second Floor Conference Room 200

NEXT SIGNALS INPUTS DEADLINE:

→→→ 6 November 2011 ←←←