
SIGNALS

Rockwell Collins Amateur Radio Club

Monthly Newsletter of the

Volume 31 Issue 9

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

June 2010

RCARC Membership Meeting

Thursday, 24 June 2010
1700 Social 1730 Meeting
Methodist Richardson Medical Center
At Bush/Renner/Shiloh Intersection
Second Floor East Conference Room

Subject: All About Field Day—Final Planning and a very interesting Video

June 2, 2010 included: James Skinner - WB0UNI, Dennis Cobb - WA8ZBT, Mike Ketchum - K5MDK, and Ross Terry - K5SRT. Of the 22 listed sirens, three (3) had trouble reports filed. Two of the troubled units, one at 3499 Brand Road and the other at 2005 East Renner Road, are not far from our location. Please consider supporting this public service event at the beginning of each month. A list of participants is put together during the week before the test. This equipment might help warn you, your friends, or even co-workers of pending weather or other emergencies. If you are interested in participating in future tests, contact Don Bowen, K5LHO, at don_bowen@sbcglobal.net. (Submitted by Ross Terry K5SRT)

ARRL June VHF QSO Party Results. W5ROK Operated in the June VHF Contests. There were 4 Hams that participated: K5SRT, Ross; KF5HHA, Sydney; K3NT, Bob; and WA8ZBT, Dennis. W5ROK had a total of 825 Contacts during this event. A total of 799 were on 6 Meters, in 196 different grid squares. KF5HHA, Sydney, operated the radio during this contest—it was her first day on the air as a ham radio operator. Congratulations, Sydney. Below is the reply back from the Contest Robot at ARRL.

Callsign: W5ROK
Limited Multioperator
Operator(s): K3NT K5SRT KF5HHA WA8ZBT
Category-Operator: MULTI-OP
Category-Station: FIXED
Category-Transmitter: LIMITED
Category-Power: LOW
Category-Band:
Location: North Texas - NTX
Club: Rockwell Collins ARC
Name: Rockwell Collins ARC
Address: 3200 East Renner Road
Richardson, TX 75082
USA
Log Deadline: 2010-07-15 03:00:00 UTC
Received at: 2010-06-17 07:59:36 UTC
Reported QSOs: 826
Confirmation #: 4105750.arri-vhf-jun

Thank you for entering the contest and submitting your log in Cabrillo format. Please review the information listed above and, if necessary, resubmit the log to make any corrections.

73.
ARRL Contest Branch

Local Club News

Meeting Notice. At This month's meeting, we will finalize this year's Field Day planning after the short business meeting. Also, we have a video about another club's Field Day 2009, as reported by the local television station.

Club Meeting Talk-In. Each month, on the night of the membership meeting we have a Talk-In on the club repeater. The Talk-In this month is 1630 to 1700 hours, prior to the meeting.

Emergency Sirens Test Conducted. Rockwell Collins Amateur Radio Club (RCARC - <http://w5rok.us>) volunteer members of the Rockwell Collins Richardson Facility Emergency Response Team helped to support the city of Richardson in its lunch time Siren testing on June 2, 2010. The city conducts a test of the sirens at noon on the first Wednesday of each month provided the weather is good (to prepare and ensure alarms are ready when needed). Typically, testing is done by volunteers headed up by the Richardson Wireless Klub <http://k5rwk.org/> (Lead coordinator Don Bowen K5LHO) who provide coordination of area Amateur Radio personnel making use of the Richardson Wireless Klub repeater at 147.12+. The basic plan is to locate observers at each of the Richardson Texas twenty-two (22) public alarm sirens during the testing period. A little before noon the net control asks for check-ins from each location, a count down is then given, sirens are then triggered by the city personnel, observers make sure the sirens both sound and rotate as planned, reports are then taken in net control fashion, and the city is notified of the results from the field. Those from RCARC at sites on

RCARC OFFICERS

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CLUB STATION 972.705.1349	W5ROK 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 Bill Reynolds, K8DNE, 972-475-3854.

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

No column this month—watch this spot for a July article.

Mike Schmit, WA9WCC
wa9wcc@arrl.net

Vice-President's Message

Welcome New Member – Please join me in a warm welcome to RCARC license class graduate Ira K. Blum, KF5GUR. Ira went straight to general at our last VEC session. He lives in White-wright, TX and is also a member of the Fannin Radio club. Ira is a Senior software engineer and has offered to help with the PC and LAN setup for RCARC Field Day operations.

Welcome Sydney D. Terry, KF5HHA – Please join me in a warm welcome to the daughter of Sidney Ross Terry, K5SRT, who received her FCC call sign while Ross and I were at Ham-com. It did not take long for Sydney, KD5HHA, to take to the airwaves, causing the only pile-up that I have ever witnessed on our W5ROK 441.875 Mhz repeater. Her first contact was her dad, K5SRT, followed by other club members and a number of calls never or seldom heard on our repeater. Again, a real pile-up!

Sydney then joined Dennis, WA8ZBT, Ross, K5SRT and K3NT at the W5ROK station and proceeded to work the VHF contest and then a long contact on 10 meters before she had to leave for work. How many new amateurs do you know who started to use their FCC license within hours of receiving their call-sign? And working a contest?

Sydney, KD5HHA plans to join us in operating at the RCARC 2010 Field Day. Good thing, as I understand she has had a gaggle of on-the-air requests from other clubs.

Hey Ross, K5SRT. Please sign-up your daughter for RCARC family membership soon. RCARC needs more active members like Sydney.

2010 VHF Contest: It was a great pleasure to operate this contest with Dennis, WA8ZBT at our club station. I was impressed by his smooth, cool operating style and his patience with inexperienced contest stations. Not one QSO entered the log with out the call and grid square being confirmed. He always noted 'W5ROK' after the exchange so no one had to guess who was calling CQ contest. Dennis used the logging run counter and knew when to call CQ or do search and call and when to switch between SSB and CW. Of note was the number of stations who knew Dennis and exchanged greetings during the contest. If you ever have a chance to operate with Dennis, my advice is to not pass up the opportunity. You will learn how to contest correctly and have fun at the same time.

10 Meters: Michael - K5MDK has been working 10 meters from both the club station and from his home QTH (Plano). Here is his report. *"First contact on 10 meters ever from home QTH station! I finally got a contact on 10m, not that I've been working that radio for hours on end. But I got off the national calling frequency and heard a strong contact off the beaten path. 06/01/10 0130 W4WRL 28.388 USB When he was finishing up with another*

conversation, I CQed him and he came back! It sounded like he was contesting to get every grid square, so I don't know if I helped him or not. I entered a QSL on QRZ.com and I'll be sending him a card in the snail mail."

ENIAC (Electronic Numerical Integrator And Computer): The first real computer and a electronic innovation. Without this thing, that modern computer which you are all using to e-mail and write all those SIGNALS articles would not exist. The most remarkable thing about ENIAC was its size and complexity. ENIAC contained 17,468 vacuum tubes, 7,200 crystal diodes, 1,500 relays, 70,000 resistors, 10,000 capacitors and around 5 million hand-soldered joints. It weighed 30 short tons (27 t), was roughly 8.5 by 3 by 80 feet (2.6 m × 0.9 m × 26 m), took up 680 square feet (63 m2), and consumed 150 kW of power. It's processing power is now outdone by most hand held calculators!

Field Day — Mike, K5MDK; John, K5TIP; Ira, KF5GUR; Ross, K5SRT; Steve, K6JT; and Bob, K3NT continue working hard to ready 2010 W5ROK RCARC field day radio operation for June, 26-27. Want to join in the fun? If so, please contact John, K5TIP at k5tip@arrl.net

AIA announces TARC winners — The Aerospace Industries Association (AIA) announced the winner of the Team America Rocketry Challenge (TARC), the world's largest rocket contest. Teams from across the United States participate in TARC, and Rockwell Collins is one of several corporate partners.

The winning team was from Penn Manor High School in Millersville, Penn., and earned the title of national champion. This year, student teams were challenged to design, build and launch a model rocket to an altitude of 825 feet with a flight time of 40-45 seconds, as well as return a raw egg payload to the ground unbroken without a parachute.

The goal of the contest is to bolster student interest in science, technology, engineering and mathematics (STEM) fields and attract more young people into aerospace careers, which is consistent with our company's commitment to STEM education efforts.

Final rule mandates ADS-B equipage by 2020 — The U.S. Federal Aviation Administration (FAA) last week unveiled a final rule requiring the use of automatic dependent surveillance-broadcast (ADS-B) Out in airline cockpits and on the ground by 2020.

A crucial component that will help the transformation of the National Airspace System, ADS-B technology relies on the aircraft locating its position using satellites (GPS) and broadcasting it rather than using radar technology. This affords pilots and ground controllers access to the same information.

The rule requires that by 2020 aircraft flying in certain airspace broadcast their positions via ADS-B. Nationwide rollout of ADS-B ground stations is to be completed by 2013. Airlines will have until 2020 to equip fleets with the avionics required under the new rule. According to Rick Heinrich, director of strategic initiatives for Commercial Systems at Rockwell Collins, this ruling is an important milestone because it helps lay the foundation for the NextGen airspace system.

"ADS-B Out is a critical component of the performance-based airspace," said Heinrich. "It's a building block in the new methods of

separating aircraft and ensuring increased safety, capacity, and flexibility in NextGen airspace."

Rockwell Collins was one of many aerospace companies that worked with the FAA to develop the ADS-B rules. Our company also is developing ADS-B solutions for the air transport and business and regional jet market segment, and is presently involved in several ADS-B initiatives in the U.S. and Europe.

Roster Changes — Looking for some radio help? A reminder that the RCARC Membership Roster is available in the 'for members only' (FMO) section of our website. <http://www.w5rok.us> Joe, N5UIC, (n5uic@arrl.net) has requested that members note any changes or updates in their information

FY2011 Officers Needed — Please advise the current officers if you are interested in running for a RCARC FY2011 office. Elections will take place at the September, 2010 meeting.

Till next month, 73 from Bob, K3NT
k3nt@arrl.net
<http://w5rok.us>

Secretary's Report

Mike Schmit, WA9WCC, opened the meeting at 1735 on 27 May 2010, in the Methodist Richardson Medical Center Conference Room with the Pledge of Allegiance. Present at the meeting were:

Greg Armstrong	KF5GUQ	Bob Ashby	K5JHR
Charles Beis	K5UWD	Don Bowen	K5LHO
Forest Cummings	W5LQU	Bob Diepenbrock	KC4UAI
Hernando Garcia	KC5FDW	Joe Henchal	KF5G
Mike Hollingsworth	W5QH	Michael Ketchum	KF5FFT
Bob Kirby	K3NT	John McFadden	K5TIP
Ken Piletic	W9ZMR	Steve Phillips	K6JT
Michael Schmit	WA9WCC	Jim Skinner	WB0UNI
Ross Terry	K5SRT	Paul Veenstra	KC0TEG
Joseph Wolf	N5UIC		

1. Officer Reports

- a. **President's Report:** Mike Schmit, WA9WCC, starting the meeting, thanked all who helped prepare for and participated in Fun Days. He also thanked the Wild Ride participants.
- b. **Vice-President's Report:** Bob Kirby, K3NT, and Mike, WA9WCC, reported that Bob K3NT and Bob Diepenbrock, KC4UAI, are working on an HSMM capability This was used during the Wild Ride and Balloon Festival. It would probably be mounted on the tower..
- c. **Secretary's Report:** The Secretary's report is in the newsletter.
- d. **Treasurers Report:** There was no Treasurers report. However, Bob Diepenbrock, KC4UAI, commented that there is about \$1000 in the club account—we haven't spent much so far this fiscal year.
- e. **Station Trustee's Report:** The repeater is working well.
- f. **Activities Chairman Report:** There was no Activities Chairman report.

2. Old Business

- a. **RFI Problem:** It was reported that the noise is still there, but there may be some upcoming action to resolve it, since it is now interfering with some company projects.
- b. **Field Day:** Mike ketchum, KF5FFT, provided an update on Field Day plans. Mike has accepted the leadership role for this event. It will be conducted at John McFadden's house.

He has two radios and a beam antenna to support 10/15/20 meter operation. Some of the club's radios will supplement John's equipment. Personal radios are also welcome. Power cords, strips and adapters will be needed. Other comments include the following:

- PR person is needed to advertise the event around the company and meet and greet visitors to the event.
- Operators are needed—Mike is creating a sign up sheet.
- Steve, K6JT, will take care of message traffic.
- Jim, WB0UNI, will take care of snacks and drinks.
- The Saturday evening meal will consist of a cookout (burgers, etc) and potluck side dishes.
- A generator and fuel will also be needed.
- A banner advertising the club will be designed and bought to advertise the club and its activities, such as this Field Day event.
- Setup and teardown help will be needed.

3. New Business

- a. **Elecraft K3 Transceiver:** It was reported that Dennis Cobb, WA8ZBT, has updated the radio.
- b. **Club Purchases:** It was stated that the club needs to hurry up and make purchases for FY2010, so the company stipend can be received. Mike, WA9WCC, suggested a laptop computer. Bob, WC4UAI, suggested more bandpass filters be bought.
- c. **Richardson Emergency Siren Testing:** Don Bowen, K5LHO, a guest from the Richardson Wireless Klub, requested that some RCARC members volunteer to help with the monthly Richardson Emergency Siren testing. He provide information on which sirens are currently unattended and accepted the names and contact info of volunteers.

The business meeting adjourned at 1830 for the program. Forest Cummings, W5LQU, talked about "Impedance Transformation." He presented a novel method of calculating impedance and stated that it was a very significant method that he learned when he first came to work for Collins Radio. He showed how to calculate both mathematically and graphically. The presentation can be viewed on the RCARC website, <http://www.w5rok.us>.

Joe's Trip to Dayton Hamvention. Sorry to say that I did not take any pictures in Ohio. I got there and went on my first day on Saturday. Was sunny, however with the bus ride from Salem Mall decided not to take my cameras. I did not want to have to lug cameras all day without being near my car. Then on the second day it was raining and cold and I spent most of the day inside the convention centre.

The first day I bought a sweat shirt, with the information of the Dayton Hamvention on it. Met up with a couple of our club members on the second day, by chance. I did not win anything at the drawings and I did not buy anything other than that sweat shirt. I did spend money at the local Home Depot and Wal-Mart there in Dayton. I was buying things



that I needed for my Travel Trailer that I had just paid cash for in Houston. So you see this was just a fact finding trip for me, since this was the first time for me to be pulling a trailer half way across the Country.

You will find attached a picture I took of my trailer at my Brother-in-law and Sisters place near Springfield, MO on my way back to Texas.

73, Catch you all later.
Joe Wolf - N5UIC

ICOM to Support RCARC Kids Day Effort. Thank you to Jesse Skipton from ICOM, for shipping us materials, related to Amateur Radio, for the Rockwell Collins Amateur Radio Club <http://w5rok>. to hand out.

The Rockwell Collins facility in Richardson, TX is having a bring-your-child-to-work day on July 23, 2010. Planning committee meetings are starting now so that the event will be a big success. We are expecting 200 kids and their parents. The event is designed to expose kids to technical jobs which they may pursue in the job market and to encourage them to continue their education.

We plan to open the Amateur Radio Club station during the event and now have materials which might also encourage them to learn more about Amateur Radio as well. ICOM has decided to support us once again this year and is sending us a selection of Comics (Zack N Max), Band Plans, Bumper Stickers, IOTA Stickers, Some Amateur Radio Catalogs, and maybe some T-Shirts (we look forward to seeing the material that has shipped).

You can see some of the materials that ICOM is providing at http://www.icomamerica.com/en/amateur/comic_book. We also need several Radio Operators willing to help on the air and in the room at this year's event. This event normally runs from 8 AM till around lunch time. We are still looking for ideas to make this event fun for the kids and parents who visit the Radio Club. (Submitted by Ross Terry K5SRT)

Events and Public Service Ops

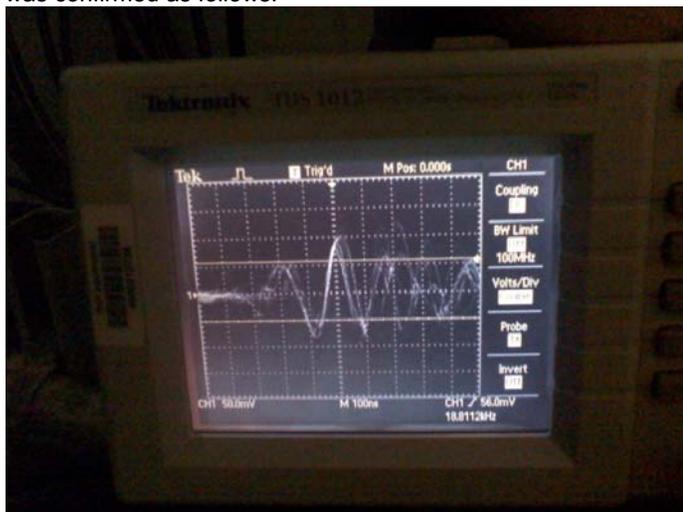
26-27 June 2010: ARRL Field Day. The objective of this event is to work as many stations as possible on any and all amateur bands (excluding the 60, 30, 17, and 12-meter bands) and to learn to operate in abnormal situations in less than optimal conditions. Field Day is open to all amateurs in the areas covered by the ARRL/RAC Field Organizations and countries within IARU Region 2. DX stations residing in other regions may be contacted for credit, but are not eligible to submit entries. More info at <http://www.arrl.org/field-day>.

10-11 July 2010: IARU HF World Championships. The objective of this event is to contact as many other amateurs, especially IARU member society HQ stations, around the world as possible using the 160, 80, 40, 20, 15 and 10 meter bands. The dates are the second full weekend of July, beginning 1200 UTC Saturday and ending 1200 UTC Sunday (July 10-11, 2010). Both Single and Multi operator stations may operate the entire 24-hour period. More info at <http://www.arrl.org/iaru-hf-championship>.

Air Handler EMI Problem. Bob Kirby and I did some EMI investigating yesterday and I believe that we have a simple solution to recommend to facilities. Before we sent this to facilities, I would appreciate a review for a sanity check.

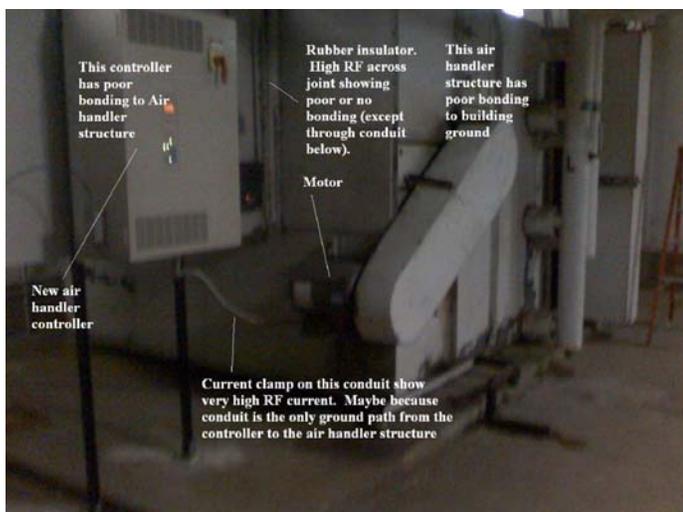
Problem: Several Air Handlers on the roof are causing EMI (Electromagnetic interference) in the VLF and HF frequency ranges, interfering with several RCI programs and with the Rockwell Amateur Radio Club station.

Investigation results - Bob and I took an oscilloscope to measure noise at several mechanical junctions of the air handler with the new controller in Doghouse 6. My theory was that the huge metal structures that make up the air handler were not properly electrically bonded together and were acting as antennas. This fact was confirmed as follows:



This is the waveform that was found at various places on the air handler.

Notice that the damped sinusoid is primarily ringing at 5 MHz but has components at higher and lower frequencies. This same waveform is seen at any point on the air handler but the amplitude reaches a maximum of 2 volts peak to peak around the mechanical joints of the controller.



This is the part of the air handler that has the new and noisy controller.



This is the part of the air handler closest to the building structure.

Premature motor failures - This is a link to an book on Variable Frequency Drives and it does have a section on EMI.

http://books.google.com/books?id=gMIZHvBrw4MC&pg=PA79&ipg=PA79&dq=%2BEMI+%2B%22air+handler%22+%2Binterference&source=bl&ots=0ipSPkclQB&sig=jTpKtYHvuf16hZapYch5ApABLvq&hl=en&ei=IkcJTij9AZT0NYSKrLUE&sa=X&oi=book_result&ct=result&resnum=6&ved=0CBkQ6AEwBQ#v=onepage&q=%20EMI%20%20%22air%20handler%22%20%20interference&f=false
Read pages 78-89. It has some good ideas on the source and cures. The EMI filter not only lowers emissions but it REDUCES PREMATURE MOTOR FAILURES.

Recommendations - Of course adding EMI filters to all of the new controllers would be the first recommendation, however the easiest and cheapest recommendation would be to add electrical bonding straps across all junctions especially the ones with rubber insulators. A minimum of 4 for each junction should work. The straps should be at least 1/2 inch braid, 1 inch would be preferred. The lengths should be the shortest possible to allow the necessary movement. No more than 6 inches. Use 1/4 inch bolts and nuts with washers and appropriate terminal lugs. There should be a continuous bonding path from each metal structure to the building structure. Do not rely on conduit or power wiring ground wires for a bonding path. Mark Harris suggested that bonding straps be used to lower the impedance. This would be preferred but bonding wires that are a maximum of 6 inches would still do some good at LF and HF if the bonding straps are not practical. As a quick calculation using 14 MHz, 20 nanoHenries per inch for 18 AWG wire for four 6 inch wires: $2\pi fL = 2\pi * 14 \times 10^6 * 20 \times 10^{-9} \times 6 / 4 = 2.6 \text{ Ohms}$. A 5:1 length to width ratio bonding strap would be 3-10 nanoHenries per inch. The same calculation would yield 0.4 Ohms using 3 nH. This is roughly a 16 dB improvement over an 18 AWG wire. The wires would be a good experiment to see if we are going in the right direction. Of course, Facilities would need to do the work. If the additional bonding wires do not help enough, then the EMI filters will be needed.

(Submitted by Mike Hollingsworth, W5QH)

Rockwell-Collins

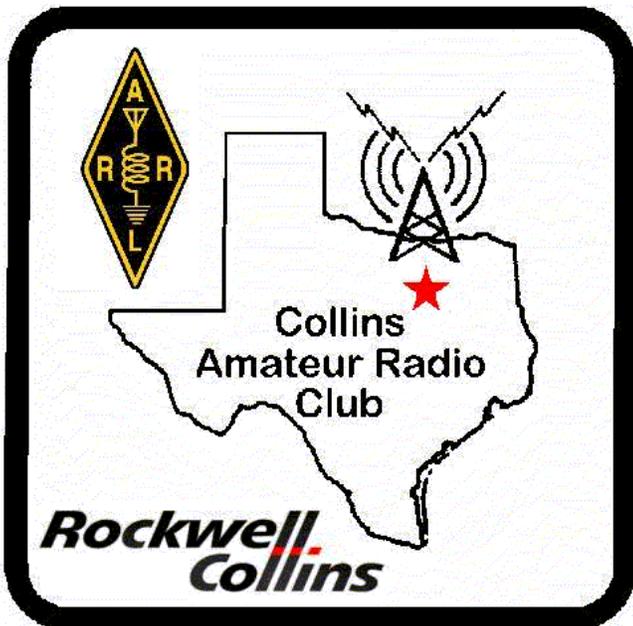
Amateur Radio Club

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

Thursday 24 June 2010

1730

Methodist Richardson Medical Ctr
At Bush/Renner/Shiloh Intersection

➔ *Second Floor Conference Room* ←

NEXT SIGNALS DEADLINE:

➔➔➔ 12 July 2010 ←←←