
SIGNALS

Rockwell
Collins **Amateur Radio Club**

Monthly Newsletter of the

Volume 36 Issue 7

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

April 2015

RCARC Membership Meeting

Tuesday 28 April 2015
1700 Social 1730 Meeting
1800 Program

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

Subject:
**The Role of Amateur Radio in Disaster
Response**
By FEMA Administrator Craig Fugate, KK4INZ

City of Richardson due to inclement weather. The siren testing is performed on the first Wednesday of each month. The sirens are monitored by amateur radio operators and reports made using the Richardson Wireless Klub (RWK) repeater at 147.120 MHz.

Crime Watch Patrol Jim Skinner WB0UNI participated in Richardson Duck Creek Crime Watch Patrol (CWP). CWP members, after successful completion of Richardson Police Department Training, patrol their neighborhoods and report all suspicious activities to the Police Department.

Membership Renewals

It is time for membership renewals for 2015. Please get your renewals in to Joe Wolf N5UIC. Joe's email address and telephone number are on page 2 of this newsletter.

FCC to Reinstate Morse Code Test

April 1, 2015

Washington, D.C. – April 1, 2015 – Today, the Federal Communications Commission Commission (or FCC) approved Report and Order 14-987af which reinstates the Morse Code test for General Class and Amateur Extra Class licensees. "It was a big mistake eliminating the Morse Code test," admits Dotty Dasher, the FCC's director of examinations. "We now realize that being able to send and receive Morse Code is an essential skill for radio amateurs. As they say, it really does get through when other modes can't."

Not only will new applicants have to take the test, but General Class licensees who have never passed a code test will have one year to pass a 5-wpm code test. Similarly, Amateur Extra class licensees that never passed a code test will have one year to pass a 13-wpm test. Those amateurs who fail to pass the test will face revocation of their operating privileges. Materials for administering the examinations will be distributed to Volunteer Examiner Coordinators by the end of April, so that they can begin the testing on May 1, 2015.

"This isn't going to be one of those silly multiple-choice type tests," noted Dasher. "We're (Continued on page 3)

Local Club News

Meeting Notice

At this month's meeting, we are privileged to hear Craig Fugate talk about the role that amateur radio plays in disaster response. A native of Gainesville, Florida, Fugate has headed FEMA since 2009. Under his leadership, FEMA has promoted emergency management as both a community and a shared responsibility. The agency has promulgated a "whole community" approach to emergency management to build sustainable and resilient communities. This tactic emphasizes collaboration with all levels of government as well as with external partners, including volunteer agencies, faith-based organizations, the private sector, and individuals. Sounds like a great meeting, so be sure to be there on Tuesday, 28 April!

RCARC Community Service Activities

Siren Testing Dennis Cobb WA8ZBT, Chris Havenridge KF5GUN, John McFadden K5TIP and Jim Skinner WB0UNI participated in the Richardson emergency siren testing on 4 March 2015. The testing was cancelled by the

RCARC OFFICERS

PRESIDENT Mike Schmit WA9WCC 972.705.1394 maschmi2@rockwellcollins.com	VICE-PRESIDENT OPEN
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Beltline Rd. Testing begins at 1900 hrs in room 12. Enter through the Northern most door on the east side of the church building. For further information contact Dave Russell W2DMR, at 972.690.9894 or E-mail warhog4@tx.rr.com.

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President's Message

THIS SPACE RESERVED FOR PRESIDENT'S AND/OR VICE-PRESIDENT'S MESSAGE

VE SESSIONS

Dallas tests are held 4th Sat of each month at 1000 hrs. 13350 Floyd Rd. (Old Credit Union) Contact Bob West, WA8YCD 972.917.6362

Irving tests are held 3rd Sat of each month at 0900. Fifth 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 1430, ending no later than 1645. **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 at 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.

Richardson The Richardson Wireless Klub (RWK) VE team hold license testing on the third Thursday of each month at St. Barnabas Presbyterian Church, 1220 West

Secretary's Report

24 March 2015

The meeting was called to order by Vice President Mike Schmit WA9WCC at 1738.

The following members were present at the meeting:

Jim Brown	AF5MA
John McFadden	K5TIP
Steve Phillips	K6JT
Mike Schmit	WA9WCC
Jim Skinner	WB0UNI
Joe Wolf	N5UIC

Officers and Committee Reports:

President's Report: There was no formal President's Report.

Vice-President's Report: There was no formal Vice President's Report.

Secretary's Report: The Secretary's Report is in this newsletter.

Treasurer's Report: There was no formal Treasurer's Report.

Website Manager's Report: There was no Website Manager's Report.

Station Trustee's Report: There was no Station Trustee's Report.

Database Manager's Report: There was no Database Manager's Report.

Old Business:

There was no old business.

New Business:

There was no new business.

Adjournment:

The meeting was adjourned at 1802.

FCC to Reinstate Morse Code Test (*Continued from page 1*) going to be sending five-character random code groups, just like we did in the old days. And applicants will have to prove that they can send, too, using a poorly adjusted straight key."

Technician Class licensees will not be required to take a Morse Code test, nor will a test be required for new applicants. "We discussed it," said Dasher, "but decided that since most Techs can't even figure out how to program their HTs, requiring them to learn Morse Code seemed like cruel and unusual punishment."

When asked what other actions we might see from the FCC, Dasher hinted that in the future applicants taking the written exam may be required to draw circuit diagrams,

such as Colpitts oscillators and diode ring mixers, once again. "We're beginning to think that if an applicant passes an amateur radio license exam it should mean that he or she actually knows something," she said.

For further information, contact James X. Shorts, Assistant Liaison to the Deputy Chief of Public Relations for the FCC.

(Contributed by Steve Phillips K6JT)

Understanding Antennas For The Non-Technical Ham - Part 8

Each month for the next year or so, we are including in **SIGNALS** excerpts of a book by Jim Abercrombie – N4JA (SK) on antenna design. This book is available online for free and can be located at <http://www.hamuniverse.com/basicantennas.pdf>. Now, part 8...

Understanding Antennas for the Non-Technical Ham

A Book By Jim Abercrombie, N4JA (SK)

Illustrations by Frank Wamsley, K4EFW

Edited by Judy Haynes, KC4NOR

Copyright July 2005. Second Edition

Edited for the web , N4UJW

X. OTHER TYPES OF DIPOLES (Continued)

9. Coax-Fed Dipoles Operated on Odd Harmonic Frequencies

Antennas fed with 50-ohm coax can be used on other bands for which they are not cut. An 80-meter dipole will have a relatively low SWR and will be resonant at a single frequency on 10 meters and not much power will be lost in the coax even if operated off resonance. A 40-meter dipole will work the same way on 15 meters. Using coax, a dipole will work on its fundamental frequency and on odd-harmonic frequencies and it is not necessary to use ladder-line. The fundamental frequency is the frequency for which the antenna is a half-wavelength long, and the odd harmonics are 3 times, 5 times, 7 times, etc. the fundamental resonant frequency. A frequency of 21 MHz is 3 times or the third harmonic of 7 MHz, and 28 MHz is the seventh harmonic of 4 MHz.

Antennas operated on their odd harmonics will be resonant a little higher in frequency than exact multiples of their fundamental frequencies. Since the odd harmonic antennas input impedance is higher than it is on its fundamental frequency, many amateurs use a series quarter-wave matching section of 70-ohm coax to give it a better match. The 80 meter inverted-V dipole in use here has a 2:1 SWR on 10 meters indicating it has an impedance of around 100 ohms. However, modeling the antenna for 10 meters shows the resonance to be below 28 MHz, probably because the antennas fundamental resonant frequency is 3920 instead of 4000 kHz. A quarter wave 70-ohm matching section should bring the SWR down to a much lower level.

As said earlier, if you try to use coax with a dipole on its even harmonic frequencies, the feed-point impedance will be very high, the SWR will be extremely high, and the coax will absorb most of the power. In addition, when operating a coax-fed antenna on its even harmonics, the tuner may not be able to provide a match. Operating any antenna on any of its harmonic frequencies, odd or even, will work better if it is fed with ladder-line and a tuner.

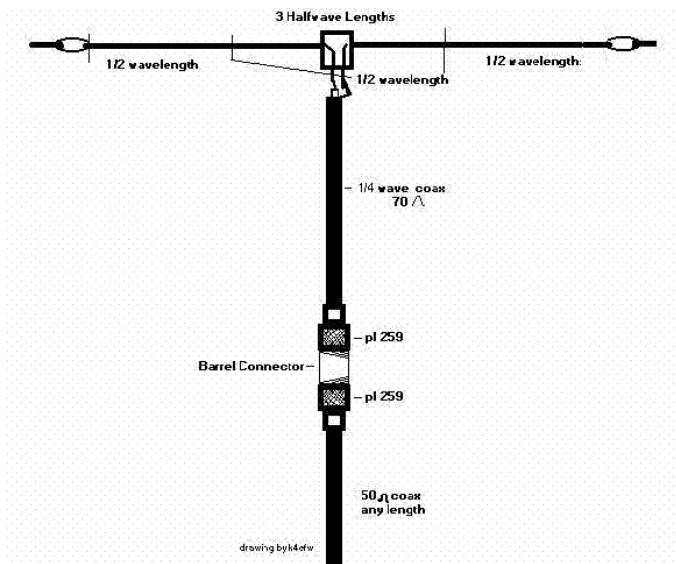


Figure 13. Three Half-wave Dipole

This antenna is matched by a quarter-wave 70-ohm series matching section. Three half waves will resonate higher than you would expect because the center half wave doesn't have to contend with end effects. To calculate the length of a three half-wave dipole, divide 1380.6 by the frequency in MHz. Five half waves is found by dividing 2316.6 by the frequency.

To use a 3 half-wave antenna on 15 meters, the 70-ohm matching section needs to be 7 feet 7 inches and the antenna needs to be 64 feet long for a good match. It will be just a little long on 40 meters. When using a 40-meter dipole with a 15-meter quarter-wave matching section, it will still have acceptable SWR on 40 meters.

The pattern shows 6 lobes, 4 major lobes and 2 minor lobes. The vertical radiation pattern shows low angle radiation.

10. All Band Random Length Dipole

A half-wave antenna radiates perpendicularly to the plane of the wire. As you move to higher bands, this antenna begins to show some gain, and instead of two lobes of radiation, the two lobes split into four lobes and the pattern resembles a 4-leaf clover. As you make the antenna longer, the four lobes move nearer the ends, the gain increases, and there are minor lobes of radiation between the major lobes. These minor lobes make it possible to work in all directions. The longer the wire, the closer the

antennas major lobes radiate bi-directionally toward its ends

MMANA-GAL v. 1.0.0.65

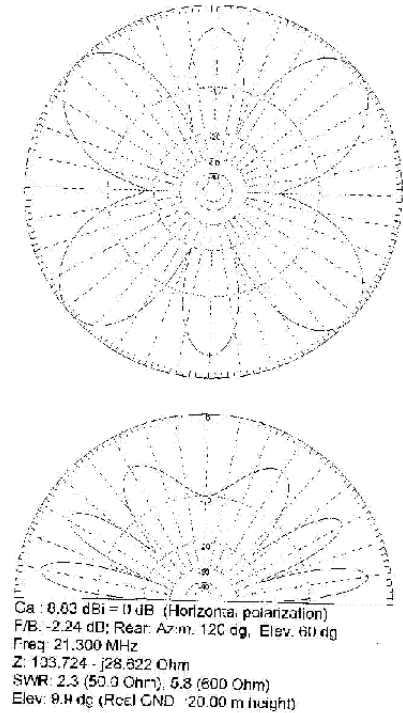


Figure 14. Radiation Pattern of a 15- Meter Three Half-Wave Dipole at 65 Feet

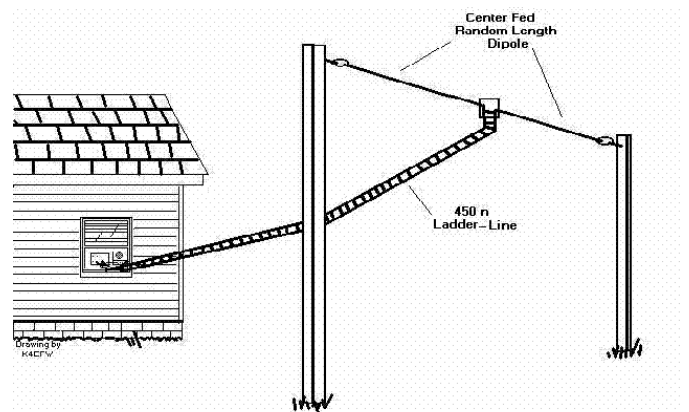


Figure 15. All Band Center-Fed Random Length Dipole

The problem with using a random length of wire for this antenna is you may find that because of limitations of your tuner, you may not be able to tune a particular length of antenna on some bands. Certain lengths will tune all bands and one of those lengths is 135 feet. That particular length will be nearly resonant on all bands of 80-10 meters.

Resonance only makes it easier to tune, but it has no effect on efficiency. A length of 260 feet will tune from 160-10 meters. Lengths of 260 and 135 feet have been used here successfully. Some hams use random lengths of wire without problems. Then some hams have had problems with other random lengths. The ones having the problems solved the tuner problems by changing the length of the dipole wire. If you plan to put up this antenna using a random length of wire, you will need to experiment with various lengths until you find a combination that works.

Tests were performed here using two towers of equal height and spaced 100 feet apart. On one tower, was an 80-meter inverted-V 120 feet long fed directly with coax, and running parallel to it on the other tower was a 135-foot long inverted-V fed with ladder-line and a tuner. At the resonant point of the coax-fed dipole and having tuned the ladder-line fed antenna, it was possible to switch antennas instantly and many hams were asked to look at their "S-meters" while the antennas were switched. All hams that participated in the test said the signals from both antennas were equal. The signals were measured on analog S-meters, not on segmented LCD meters found on most of today's transceivers.

11. A Two-Band Fan Dipole

A two-band dipole can be constructed by connecting together the feed point two dipoles for even harmonically related bands. It is fed with 50-ohm coax with or without a balun. The best example of this is 80 and 40-meter dipoles connected together. Both dipoles are cut for half-wave resonance on each of the two bands. They are fed together and the ends of the wires are spread apart. If the ends are close together, there will be interaction between the dipoles. In such an antenna system, both dipoles must be carefully pruned for lowest SWR one band at a time. The lower band will be tuned first since the shorter dipole will not interact with the longer one. Each dipole has a low antenna resistance on the band for which it is resonant. RF energy follows the path of least resistance, and it automatically selects which dipole will receive power. The remaining antenna will have a high impedance. High impedance will block RF. Such an antenna will have a narrower bandwidth than a single band dipole, but close to the resonant frequency of each dipole, a tuner will not be needed. To connect many dipoles for multiple bands is possible, but it is not recommended because multiple wires are prone to interact and it will be impossible to achieve a low SWR on some bands. However, on the two band model, the 40-meter dipole will resonate close to 15 meters, the 80-meter dipole will resonate close to 10 meters, and working four bands with this set-up is possible. Some hams are using this antenna successfully with a tuner on all bands, although the signal on 20 meters suffers somewhat because of high SWR.

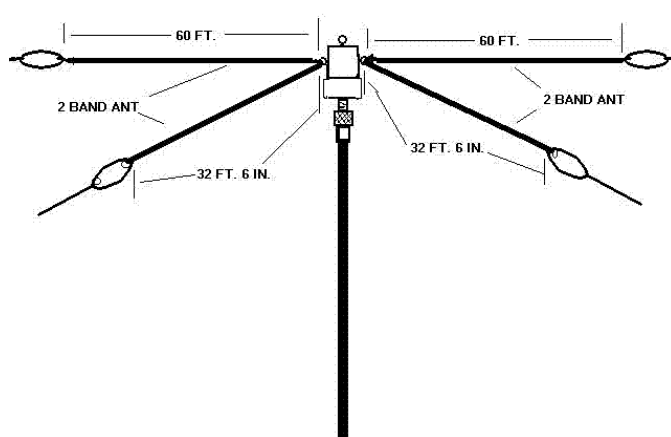


Figure 16. Two-Band Fan Dipole for 40 and 75 Meters

12. Trapped Dipole for 75 and 40 Meters

A trap is constructed from a capacitor and an inductor connected in parallel. It acts as an open switch on the frequency for which it is resonant. A trap is placed on each side of the dipole. For a 75 and 40 meter trapped dipole, the traps must be resonant on 40 meters, and each trap should be placed a quarter wave from the center insulator. The center section between the traps is electrically isolated from the ends of the dipole by the traps on 40 meters, and the center section of the antenna becomes a full-sized half wave resonant dipole for that band. This antenna is fed with 50-ohm coax and an optional balun. Wires connected to the outside of the traps are run to the end insulators and are tuned so the entire antenna resonates on 75 meters. The 75 and 40 meter trapped dipole will be shorter than a 75-meter dipole because the inductor in the 40-meter trap acts as a loading coil on 75 meters. In addition, the ends of the antenna can be tuned to operate on the 80-meter CW band instead of the 75-meter voice band. Several sets of traps can be inserted at the correct points in the dipole to make a multi-band dipole. Multi-band trapped dipoles are being sold, but in many cases they will require the use of a tuner. If a good match is found at a frequency on some bands, the bandwidth without a tuner will be very narrow.

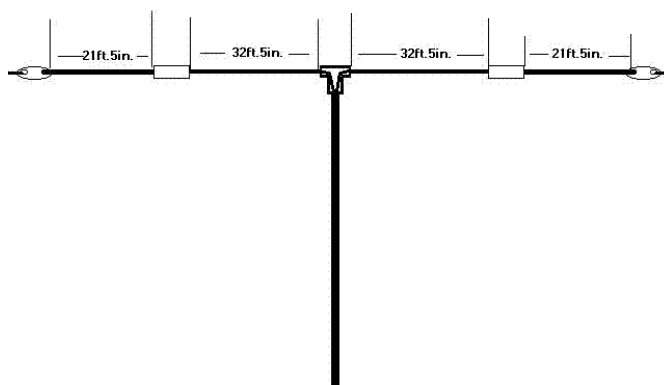


Figure 17. Trapped 75 and 40-Meter Dipole

The antenna is only 108 feet long instead of 120 feet because of the loading effect of the traps on 75 meters. These dimensions are for antennas using the traps made by W2AU. If you use other brands of traps, the length of the end wires will have to be adjusted. What you do in that case is make the wire long, measure its resonant frequency on 75 meters, and prune the ends to resonance at your favorite frequency.

13. The Extended Double Zepp Dipole

An extended double zepp is a long dipole with 3-dBd gain. It is the longest dipole antenna, which will radiate at right angles to the plane of the antenna. To find the overall length of an extended double zepp, divide 1197 by the frequency in MHz. Each leg of the antenna is 0.64 wavelength long and the total length is 1.28 wavelengths. An extended double zepp for 75-meters at 3.8 MHz is 315 feet. Not many amateurs have space for that antenna. The extended double zepp is mostly fed with ladder-line. Another method of matching an extended double zepp is to use tuned lengths of 450-ohm ladder-line as a series matching transformer connected between the 50-ohm coax and the dipole. The length of the matching section of 450-ohm ladder-line can be found by dividing 135 by the frequency in MHz.

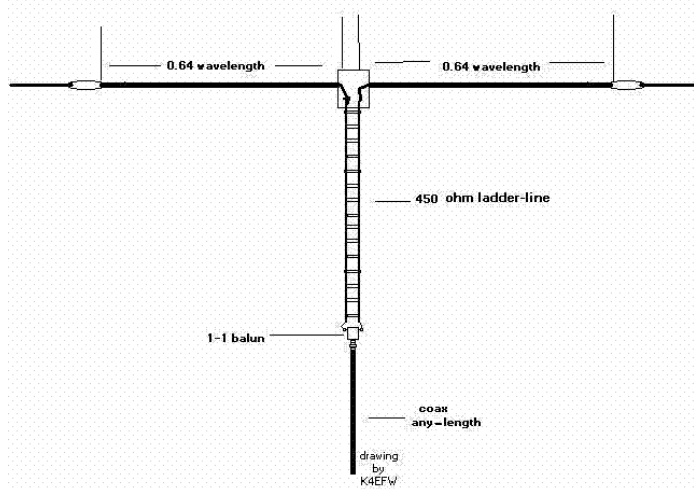


Figure 18. Extended Double Zepp Dipole

Check out these Cool Websites

WWII Radio Heroes: Letters of Compassion.....“a great story untold until now...” <http://powletters.com/>.

Check out this cool site, Sparky’s Blog, to see the latest new equipment. <http://www.cqdx.ru/ham/new-equipment/>.

AA9PW HamMorse: Morse code practice on the iPhone. <http://www.cqdx.ru/ham/new-equipment/aa9pw-hammorse-morse-code-practice-on-the-iphone/>.

(Contributed by Bob Kirby K3NT)

Upcoming Events

JUNE

- 12-13 Ham-Com 2015** Irving Convention Center, 500 W. Las Colinas Blvd Irving, TX 75039. The new facility increased the indoor air conditioned flea market from 60 tables to more than 140 tables. There will be no tailgating. Admission is \$8 advance and \$10 at the door. More information at <http://www.hamcom.org/>.
- 13-15 June VHF** For amateurs in the US and Canada (and their possessions) to work as many amateur stations in as many different 2 degrees x 1 degree Maidenhead grid squares as possible using authorized frequencies above 50 MHz. Stations outside the US & Canada (and their possessions) may only work stations in the US (and its possessions) and Canada. Stations in KH0-9, KL7 & KP1-KP5, CY9 and CY0 count as W/VE stations and can be worked by DX stations for contest credit. Begins 1800 UTC Saturday, runs through 0259 UTC Monday. More info at <http://www.arrrl.org/june-vhf>.
- 21 Kid’s Day** To promote Amateur Radio to our youth. Share the excitement with your kids or grandkids, a Scout troop, a church or the general public! Kids Day is designed to give on-the-air experience to youngsters and hopefully foster interest in getting a license of their own. It is also intended to give older hams a chance to share their station and love for Amateur Radio with their children. Kids Day always runs from 1800 UTC through 2359 UTC. Operate as much or as little as you like. More information at <http://www.arrrl.org/kids-day>.
- 27-28 Field Day** The objective is to work as many stations as possible on any/all amateur bands (excluding 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.arrrl.org/field-day>.

REGULAR ACTIVITIES

- Daily** DFW Early Traffic Net (NTS) at 6:30pm 146.88 – PL 110.9Hz
- Daily** DFW Late Traffic Net (NTS) at 10:30pm 146.72 – PL 110.9Hz
- Daily** Texas CW Traffic Net (NTS) at 7:00pm and at 10pm on 3541 KHz www.k6jt.com
- 1st Wednesday** Richardson Emergency Siren Test. At noon using the Richardson Wireless Klub (RWK) repeater at 147.120 MHz.
- 2nd Wednesday** ARES North Texas HF Net Every month—3860 KHz at 8:30 pm—9:30pm

HAM-COM 2015



**Irving Convention Center
500 W. Las Colinas Blvd Irving, TX 75039
June 12-13, 2015**

New location that can handle the entire event in air-conditioned comfort

- ◆ New & Used equipment
- ◆ Flea Market
- ◆ Presentations and Forums
- ◆ Food
- ◆ Visiting with Friends
- ◆ License Testing

Hotels & Lodging

We provide a list of hotels that offer special discounts for HAM-COM attendees.

Please notify them that you are attending HAM-COM.

Prices and availability are subject to change.

Holiday Inn Express
3333 W John Carpenter Ewy
Irving, TX 75039
V: 972-910-0302

[View Hotel / Check Pricing & Availability](#)

Dallas Marriott Las Colinas
223 West Las Colinas Boulevard
Irving, TX 75039
V: 972-531-0000

[View Hotel / Check Pricing & Availability](#)

Fairfield Inn and Suites
630 W John Carpenter Ewy
Irving, TX 75039
V: 972-550-8800

[View Hotel / Check Pricing & Availability](#)

Hampton Inn
520 W Walnut Hill Ln
Irving, TX 75038
V: 972-753-1232

[View Hotel / Check Pricing & Availability](#)

Hyatt Place
5455 Green Park Dr
Irving, TX 75038
V: 972-550-7400

[View Hotel / Check Pricing & Availability](#)

Ham-Com Prizes for 2015

Online Registration Prize

Kenwood TM-D710G

Sign up on the web to get the registration discount before May 31 2015

<https://www.hamcom.org/attending-gm-purchase.cfm>

Friday Grand Prize = Mystery ?

Saturday Grand Prize = Kenwood TS-590S

Many other prizes ?

**Daily Gift Certificates
From HRO,ARRL,ETC**



Show Hours:

Thursday Setup only 9:00am—7:00pm

Friday 8:00am - 5:00pm

Saturday 8:00am - 5:00pm

Pre-Registration \$ 8.00 (before May 31)

Entry \$ 10.00 at the door

Parking \$5.00 per day

**Parking for high profile vehicles adjacent to
Convention center**

Rockwell-Collins

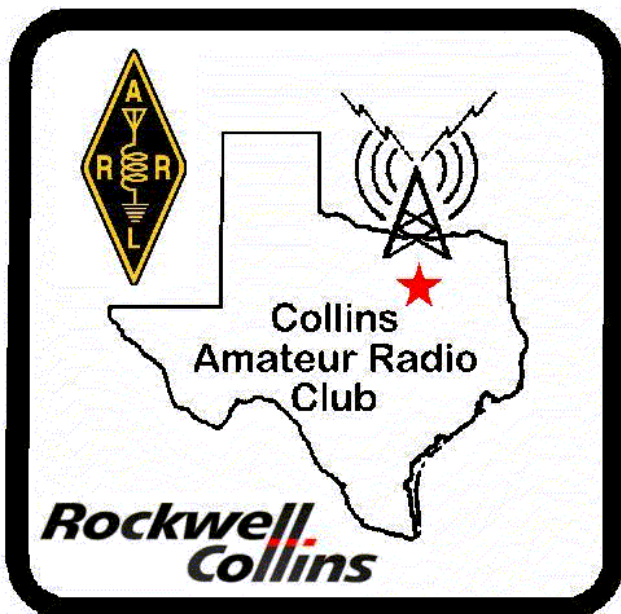
Amateur Radio Club

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

145.05 MHz

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

Tuesday 28 April 2015

1700 Social 1730 Meeting

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

NEXT SIGNALS INPUTS DEADLINE:

→→→ 15 May 2015 ←←←