
SIGNALS

**Rockwell
Collins**

Monthly Newsletter of the

Amateur Radio Club

Volume 37 Issue 12

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

September 2016

RCARC Membership Meeting

**Tuesday 27 September 2016
1700 Social 1730 Meeting
1800 Program**

**Methodist Richardson Medical Center
At Bush/Renner/Shiloh Intersection
*Conference Room A in Hospital Building***

Subject:

***NTX - AREDN Overview
by Paul Newman, KA5TYW and Local
AREDN NETWORK Members***

K5RWK Repeater Adds 110.9 Hz PL Tone

Don Bowen K5LHO has notified the users of the K5RWK repeater that a PL tone of 110.9 Hz is now required to access the 147.12 MHz repeater, which is normally used for the siren test.

The next test will be on October 5. Before that date, if you haven't already done so, please add the 110.9 Hz PL tone to your radio, and check to make sure you can access the repeater.

RRI Article Later in this Edition

Be certain to read the article later in the newsletter about Radio Relay International (RRI) contributed by Steve Philips K3JT.

NTX – AREDN Overview

Bill Richards, KM5VZ

07 SEP 2016

North Texas – Amateur Radio Emergency Data Network (NTX – AREDN) is an ad-hoc group of ham radio operators in North Texas exploring the use of commercial-off-the-shelf (COTS) WiFi equipment with open source software that expands the capabilities of the equipment beyond the FCC (Federal Communications Commission) Part 15 (Unlicensed Consumer) into our Part 97 (Amateur Radio) licensed portion of the microwave bands.

AREDN is an offshoot of the HSMM-MESH (High Speed Multi Media) / Broadband-Hamnet Amateur Radio WiFi networking software developed by some hams in Austin, Texas. The AREDN group is expanding the capabilities of MESH Networking by utilizing radios from multiple vendors and exploring server-independent services to provide a robust, expandable, self-discovering, self-healing environment for use before, during and after any catastrophic event that overloads normal communication channels.

NTX-AREDN is in the final stages of our Phase I plan. We have developed a standard portable node configuration that can be deployed by an individual to provide reliable text, voice and/or video from remote locations independent of commercial power. We call these nodes the Last Mile *(Continued on page 3)*

Local Club News

Meeting Notice

This month's program will be a presentation on the North Texas – Amateur Radio Emergency Data Network (NTX – AREDN). An article follows that provides an introduction.

Location: RCARC has RESERVED Methodist Richardson Medical Center Conference room A or B for the RCARC monthly meeting (fourth Tuesday of each month) from April, 2016 through August, 2017. Each reservation is for 5PM to 8PM. We are welcome to stay longer if the room has not been reserved for a later time.

Directions: The new meeting location is in the hospital. No longer will we be meeting in the Doctors Building; we now meet in the main hospital building. To find your way for the first time enter by the main entrance on the south side of the hospital. Stay on the first floor, turn left at the entrance and go down the hall to where it just turns to the right heading for the emergency room; do not continue. Turn left and go into Conference Room A.

RCARC OFFICERS			
PRESIDENT OPEN		VICE-PRESIDENT Gene Duprey 319.270.8159 geneduprey2015@gmail.com	K1GD
SECRETARY Jim Brown 972.495.2209 jhksbrown@verizon.net	AF5MA	TREASURER Mike Montgomery 972.705.1498 dmmontgo@rockwellcol-	WD5TX
ACTIVITIES Bob Kirby 319.360.0500 k3nt@arri.net	K3NT	WEBSITE MANAGER Mike Hollingsworth 972.571.6060 w5qh@arri.net	W5QH
STATION TRUSTEE Steve Phillips 972.517.3332 k6jt@arri.net	K6JT	NEWSLETTER EDITOR Jim Skinner 214.535.5264 wb0uni@arri.net	WB0UNI
MEMBERSHIP Joe Wolf 214.202.2757 n5uic@arri.net	N5UIC	W5ROK CLUB STATION 972.705.1349 461-290	

VE SESSIONS

Dallas tests are held on the fourth Saturday of each month at 1000 hrs. 13350 Floyd Rd. (Old Credit Union) Contact Bob West, WA8YCD 972.917.6362

Irving tests are held on the third Saturday 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 week-ends.**

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 the third 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 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.

SIGNALS is the monthly newsletter of the Rockwell Collins Amateur Radio Club, published by and for its members. The entire contents of this newsletter are copyright © 2016 by the Rockwell Collins Amateur Radio Club. Permission is hereby granted to any not-for-profit amateur radio publication to reprint any portion of this newsletter provided both the author and Rockwell Collins Amateur Radio Club are credited.

President and VP Messages

Summer is coming to an end, Yea? Back in Iowa, this was nice, although fall was very short, and then the long winter would set in. That meant long cold hours where no outside activity, as far as antennas or other outside ham radio repairs, could be done. But it was also good, for hours of operating were in order. Here in Texas, it means we have cooler fall temps to do work on antennas, towers etc. For me this means I need to get my antenna masts ordered, so I can get my ODF dipole up. For others here, we still have chances to do special events, contests etc. For RCARC, we have officer elections, which gives our members the opportunity to put their stamp on the future of the club. So if you would like to have more input in what we are doing, please step forward and let's make the club even more effective.

We are also looking to make some station changes, by updating/adding to the station capabilities. We need member opinions and experiences to make these updates, so come to the meetings and give us your input. We want to make the station more attractive, bring more of our members into the station and put W5ROK on the air more. On this note, we would like to see more participation by our retirees at the station and in club meetings. There is a list of retirees at the guard station, and you can sign in and get un-escorted badges, so you can go to the club station. This has been one of the perks our club has enjoyed for quite some time. Many of our sister clubs do not have this capability, so we need to take advantage of this.

I hope to see you at the meeting this month, and hope you have a great fall and maybe get up a new antenna.

See you at the meeting, 73's
Gene, K1GD

Secretary's Report

23 Aug 2016

The meeting was called to order by Gene Duprey K1GD at 1744.

The following were present at the meeting:

Jim Brown	AF5MA
Dennis Cobb	WA8ZBT
Gene Duprey	K1GD
John McFadden	K5TIP
Mike Schmit	WA9WCC
Jim Skinner	WB0UNI

Officers and Committee Reports:

There were no formal reports other than the Secretary's Report, which is contained in this newsletter.

Old Business:

The discussion begun at the last meeting on purchase of a new transceiver continued. The tradeoffs between K3 and Flex radio lines were expanded, but no decision was reached. It was agreed to table further discussion until a larger group could participate.

Discussion will continue at subsequent meetings as further data is acquired.

New Business:

There was no new business.

Adjournment:

The meeting was adjourned at 1802, followed by brief "show and tell" presentations by Dennis Cobb WA8ZBT (CW transceiver) and Jim Skinner WB0UNI (transceiver vehicle installation).

NTX – AREDN Overview

(Continued from page 1) Nodes, as they provide point-to-point communications to and from the affected area to a centralized location such as an EOC (Emergency Operations Center), or ICP (Incident Command Post).

Phase II of our plan will be to expand our MESH Network with fixed nodes deployed throughout the urban area on ham friendly sites. These nodes will be called our Mid-Mile Nodes, as they provide an independent infrastructure for the Last-Mile Nodes to utilize. We are currently seeking ham operators with towers who would be willing to install an AREDN node. We are also exploring other venues that are willing to assist us with the Phase II expansion. The initial cost of a node will depend on the radio and antenna selected, with a range from \$100.00 to \$350.00. The radios we use are self-contained, weather proof, and only require a hardened (UV/shielded, outdoor) Cat5 cable and PoE (Power over Ethernet) to operate. The power consumption of these radios is minimal. Software maintenance, upgrades and configuration changes can be done over the air.

For more information on NTX–AREDN, please visit our Google Group site at: <https://groups.google.com/forum/?hl=en#!forum/ntx-aredn>.

For more information on AREDN, please visit their web site at: www.aredn.org

73, Bill KM5VZ

(Contributed by John McFadden K5TIP)

5 GHz to 10 GHz Lunar Transponder Mission

From the AMSAT News Service, ANS Bulletin No. 255, dated 12 Nov 2016

AMSAT-NA plans 5 GHz to 10 GHz transponders on a spacecraft expected to launch in September 2018 into a Lunar orbit.

Heimdallr is a 3 axis stabilized 6U CubeSat with a mass of approximately 8 kg. It will have a cold gas thruster for inertia dump and a star tracker for navigation. Deployable, gimbled solar panels will produce up to 100 watts of DC power; electric propulsion will be used to achieve lunar orbit.

There will be a combination of omni and directional patch antennas on one side of spacecraft.

The first part of the mission is to provide telemetry, tracking, and command (TT&C) to obtain lunar orbit. The second part is to perform the data downlink experiment while the final part is to provide a two-way regenerative repeater and analog repeater in lunar orbit for lifetime of satellite.

Proposing these downlinks:

- Omni transponder: 10.451 GHz +/- 0.5 MHz
- Directional transponder: 10.4575 GHz. +/- 3.5 MHz
- Analog transponder: 10.4665 GHz. +/- 2.0 MHz

For the first part of the mission (TT&C), 300 bps BPSK 1/2 rate viterbi Ranging 1.5 Mbps BPSK DSSS will be used. For the second part of mission, 4.5 Mbps QPSK 1/2 rate DVB-S2 will be used. For the final part of mission, 25 kbps BPSK 1/5 rate DVB-S2 will be used.

Proposing these uplinks:

- Omni transponder: 5.651 GHz +/- 0.5 MHz
- Directional transponder: 5.6575 GHz. +/- 3.5 MHz
- Analog transponder: 5.665 GHz. +/- 2 MHz

A link budget is available at <https://drive.google.com/folder/view?id=0B3u-mSOWBMISYnZyZGJpeThKeU0&usp=sharing>.

It is anticipated that a 1 or 2 meter dish will be required using the AMSAT-designed ground station equipment.

Source IARU Satellite Frequency Coordination Status pages <http://www.amsat.org.uk/iaru/>.

[ANS thanks AMSAT-UK and the IARU for the above information] *(Contributed by Frank Krizan K5HS)*

RCARC Community Service Activities

Siren Testing Dennis Cobb WA8ZBT, John McFadden K5TIP and Jim Skinner WB0UNI participate in the Richardson emergency siren testing. The testing on 7 September 2016 was successful with the exception of a couple of anomalies. The siren testing is performed at 12:00 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. Siren testing occasionally uses the University of Texas at Dallas (UTD) repeater at 145.430 MHz, which is designated as the backup repeater.

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.

Presentations for Monthly RCARC Meetings

RCARC has an urgent need for presenters to present a short topic on Ham Radio at our monthly club meetings. 45-60 minute presentations may include, but are not limited to:

- Set-up, Building or Modifying Station Equipment (Antennas, Audio, Dummy Loads, Desks, Lights, ...)
- Operating a Radio Station (Listening & Transmission tips, Ham Logo decrypted, Popular Frequencies, ...)
- My Radio Broke (Possible Alternatives before using the Sledge Hammer, ...)
- Different types of Digital Operation (APRS, Packet, PSK 31-64, RTTY, ...)
- Software Defined Radios (Commercial, Kits, Remote, Internet, ...)
- Software used for Ham Radios (WSPR, PSK-31, ...)
- Emergency Radio Equipment (Go Kits, Batteries, Solar power, Easy-Up Antennas, ...)
- Ham Radio Activities (MARS, RACES, MARC, Contests, Satellites, Mobile, Portable, Remote, Field Day, SWL, ...)
- Radio Reference (On-line manuals, theory, how to books & Videos, ...)
- Social Mingle (With light snacks? Ham and cheese crackers? ...)

If you would like more information on a particular topic, and would like someone to do a presentation on it, you may suggest it as a topic. Please email Bob Kirby K3NT, Jim Skinner WB0UNI or Gene Duprey K1GD to present a topic or to suggest a topic for presentation.

Let's try this out while supply lasts. Any RCARC member who presents a program or lines up and follows through

with a speaker/presentation (including timely advanced bio and program description to Mr. Skinner) will receive a VHF (or UHF) commercial grade antenna along with a commercial grade magnetic mount with coax cable for each completed program. The speaker will also receive like antenna and magnetic mount/coax cable.

Please note: Simply passing along program prospects or leads, while highly appreciated by your radio club, does not count towards the antenna and magnetic mount with coax offer. However, you may be eligible for a hunk of pre-RF'ed feed line for your pet to chew on. In the absence of said pet, it just could become your "Pet Coax".

"Significant river flooding will persist this week across portions of southern Louisiana," FEMA said in its August 17 Daily Operations Briefing. "Major to record flooding will continue along portions of the Amite, Vermilion, Mermentau and Calcasieu rivers."

Noting the "desperate need" for ham radio volunteers in Louisiana, ARES volunteers in Mississippi have been asked to provide assistance. Mississippi Prospective Mississippi should not self-deploy to Louisiana, but coordinate through Mississippi Section Manager Malcolm Keown, W5XX.

Primary operating frequencies at this time are 444.950 MHz (107.2 Hz), 146.940 MHz (107.2 Hz), and 146.790 MHz (107.2 Hz). Louisiana ARES HF Frequencies now designated for use are 7.255 MHz and 3.873 MHz LSB. Digital operation is on 3.595MHz. These frequencies should be kept clear of non-emergency traffic. More repeaters may need to be designated, and the frequencies will be posted when they become available. *(Reprinted courtesy of <http://www.arrl.org/news/>)*

Plano Balloon Festival 23-25 September

The 2016 Plano Balloon Festival Volunteer registration is now open.

Welcome back if you've joined us before; if not, what's holding you back?

As in the past, the Yahoo Group {click underlined link below} will be used for general announcements and Q&A. If you are a new volunteer, please join this Yahoo group.

The 2016 Plano Balloon Festival webpage <https://sites.google.com/site/pbfcmmssupp/> is the collection point for most everything you need to know and where you will be able to register. There is a large amount of information contained within the website. It is not intended to overwhelm you or prohibit this from being a fun event by having so many "rules". With any event, you need some procedures and the "best practice". New volunteers and seasoned individuals are encouraged to look over the information and ask questions about anything that might not seem clear or is confusing.

Be sure to sign up early, particularly if you wish to work the field. There are a limited number of positions available each shift. Only select the "Staff" option in the registration if you have already been designated so. Yes, you do need

to select a value for each option, with a choice or the optional value "None".

Sign up only once. If you feel you have made an error or need to make a change, a link will be provided to you at the end of the sign up process that says "Edit my responses". Please keep that link just in case you do have to make changes. If you don't know how to 'save' that link, you can right click on "Edit my responses" and save the link as a file for later use. Of course if all else fails, feel free to contact the Volunteer Liaison (click link above).

We thank you for your time and resources in advance!
73, PBF Comms Team



Hella Hams Amateur Radio Unit 1st Annual Hamfest

October 15, 2016
7:00 am – 2:00 pm

2121 Rowlett Road, Garland, Texas 75043

Directions: I-30 to Bobtown Rd exit north to Rowlett rd
Left on Rowlett rd, turn right into Hella Temple Parking lot

Hourly Door Prizes
Lots of Fun
FREE Parking!!

Admission Donation - \$2.00 **
Table Donation - \$10.00 **
(parking space w/ table)

Outdoor
TAILGATE SALES

Talk-in Frequency: 147.39 – 85.4

For more information, contact:
Bill AC5BC Caldwell
214.500.3472
ac5bc2@verizon.net

Upcoming Events

SEPTEMBER

- 23-25 Plano Balloon Festival** See the article in this newsletter for details.
- 24-25 EME - 2.3 GHz & Up** Objective: To work as many amateur stations as possible via the earth-moon-earth path on any authorized amateur frequency above 50 MHz. Full 48-hour period (0000 UTC Saturday through 2359 UTC Sunday). Details at <http://www.arrl.org/eme-contest-1>.

OCTOBER

- 15 Hella Hams Amateur Radio 1st Annual Hamfest** See the article in this newsletter for details.
- 17-21 School Club Roundup** Objective: To exchange QSO information with club stations that are part of an elementary, middle, high school or college. Non-school clubs and individuals are encouraged to participate. The 5-day event runs Monday through Friday from 1300 UTC Monday through 2359 UTC Friday. A station may operate no more than 6 hours in a 24-hour period, and a maximum of 24 hours of the 107 hour event. Details at <http://www.arrl.org/school-club-roundup>.
- 22-23 EME – 50-1296 MHz** Objective: To work as many amateur stations as possible via the earth-moon-earth path on any authorized amateur frequency above 50 MHz Full 48-hour period (0000 UTC Saturday through 2359 UTC Sunday). Details at <http://www.arrl.org/eme-contest-1>.
- 31-1 Nov Amateur Radio-Military Interoperability Exercise** The event will begin at 1200 UTC on October 31 and continue through 2359 UTC on November 1 on 60 meter channels 1-4 —5.3305 MHz, 5.3465 MHz, 5.357 MHz, and 5.3715 MHz, respectively. During this exercise, military stations will attempt to make radio contact with stations in as many of the 3143 US counties as possible. Radio amateurs providing "county status" information will receive a US Department of Defense "interoperability QSL card." For more information, contact the Military Auxiliary Radio Service (MARS).

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 at 7:00pm on 3541 KHz 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

EMERGENCY COMMUNICATIONS

Radio Relay International is:

- Survivable
- Diverse
- Decentralized
- Professional

RRI offers a new vision for the 21st Century Amateur Radio Service. Our program includes:

Digital Traffic Network:

A robust, redundant High Frequency automated PACTOR digital network operating independent of the Internet.

Inter-Area Traffic Network:

A highly survivable basic network using common denominator modes designed to support universal access.

Infrastructure:

Radio Relay International supports both individual and organizational emergency communications preparedness.

Professional standards support accountability, message tracking management and ensure message integrity.



Radio Relay International

The rapid growth of the Internet and commercial wireless services, particularly in North America, has promoted a sense of invulnerability. Both the average citizen as well as many government and relief agencies have developed their response planning around the assumption that the Internet and cellular infrastructure will always be available.

What if?

Commercial telecommunications common carrier infrastructure is extremely dependent upon a complex, distributed infrastructure including both the power grid and the public switched telephone network. This infrastructure remains vulnerable to significant natural or technological disasters, terrorist attacks or similar events.

The Amateur Radio Service:

Amateur Radio has been the traditional answer to significant telecommunications disruptions. However, no single organization has effectively articulated a vision for developing a systematic, professional approach capable of supporting basic messaging between widely dispersed disaster operations.

Radio Relay International is designed to accomplish this goal. Built on a solid foundation of traditional methods, RRI adds a solid modernization program utilizing robust digital technology and software capable of automatically forwarding message traffic via the survivable High Frequency radio spectrum.

RRI STATUS

**Radio Relay International
status as of September, 2016:**Digital Traffic Network (DTN):

- Fully operational in Pacific, Central and Eastern Areas as well as selected locations overseas.
- BPQ-32 software implementation complete.
- Equipment bank operational.
- 24-hour operation implemented.

Inter-Area Traffic Network (IATN):

- Radiotelegraph networks fully operational in Pacific, Central and Eastern Areas.
- Radiotelephone networks now operational in limited areas.
- Cycle 4 routine nets now operational on daily basis.

Standards and Training:

- Draft operations manual under review. Formal publication due late 2016.
- Other training and reference material under development for release in 2017

**Professional Standards:**

Radio Relay International supports the development of a base-line of consistent, professional standards. The goal is not to force these standards on local emergency communications programs, but rather to create a foundation, which facilitates the exchange of message traffic and information in a systematic, standardized fashion. In keeping with our infrastructure approach, RRI is current revising and developing a wide variety of training material and standards, which will be made available to all Amateur Radio Service volunteers.

Emergency Communications Exercises:

RRI personnel participated in the recent “Cascadia Rising” exercise under the auspices of the American Radio Relay League’s National Traffic System[®]. With the development of RRI, these personnel will utilize the lessons learned from Cascadia Rising to implement broad-scale improvements to the national messaging layer.

RRI plans to conduct periodic disaster communications exercises, which will be conducted both internally and, when practical, with our served agency partners.

Inclusive:

Radio Relay International is a 501(c)(3) nonprofit public service corporation. Participation is open to any licensed radio amateur with an interest in maintaining systematic and professional operating standards. At the local and state level, RRI infrastructure is also open to all local emergency communications organizations affiliated with emergency management or relief organizations.

Rockwell-Collins

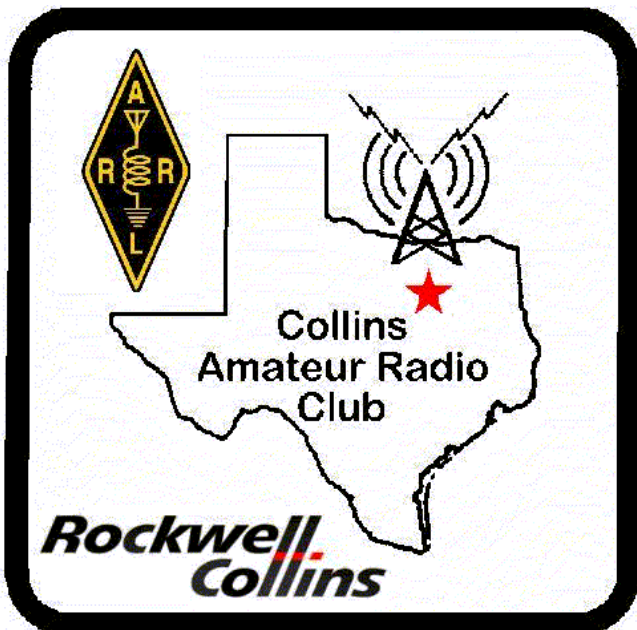
Amateur Radio Club

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 27 September 2016
 1700 Social 1730 Meeting

**Methodist Richardson Medical Ctr
 At Bush/Renner/Shiloh Intersection**

Conference Room A in Hospital Building

NEXT SIGNALS INPUTS DEADLINE:
→→→ 14 October 2016 ←←←