

# PRINTED CIRCUIT

FEBRUARY 2008

Newsletter of the Joplin Amateur Radio Club

Vol. 18 Issue No. 2

## The World of DX

Several Hams new to HF have asked me what is the best antenna to use, a vertical or horizontal. The answer depends on what distance and what bands you want to work.

For working DX at greater distances, a vertical has a lower angle of radiation which results in better signals both transmit and receive, while a horizontal antenna, unless at least a quarter wavelength high, has a very high angle of radiation. However, one disadvantage of a vertical is that in receive, it picks up more man made noise.

Actually, the best DX antenna for 20 meters and up, is the rotatable yagi beam which has considerable gain over a dipole. A half wavelength on 20 meters is about 33 feet, so that height (or higher) is very desirable for those bands.

Unfortunately, at 40 meters, a half wave is about 66 feet and a full size rotatable antenna is usually not possible. Here, a ground mounted, quarter wave vertical may be the best antenna for working DX, or if space permits, a large two wavelength loop antenna, like Jim, WBØIYC used at Field Day. A half wave dipole on 40 meters, at least a quarter wave off the ground (33 feet), will do a good job and have maximum radiation off the sides and null off the ends. For real long-haul DX on 40 meters, raising the antenna to a half wave, 66 feet or more, will give you a much lower angle of radiation, a good DX antenna.

On 80 meters, a half wave is around 120 to 130 feet, and almost impossible for most hams to put up in order to achieve

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## PL™ TONES What They are, and How They Work

BY DAVID BREAUX, KC5BLY

Hams have used PL™ tones for many years, though few understand how they work. Yet understanding PL™ can improve a Ham's operating proficiency.

PL™ tones are a form of selective signaling. On a shared channel, PL™ can relieve an operator from hearing other users while awaiting a message intended for himself. Community repeaters use PL™ tones to separate user groups, or to

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***PL™ tones are a form of selective signaling which can relieve an operator of hearing other users...***

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prevent the repeater from rebroadcasting noise or intermodulation interference. Tone signaling spans a number of technologies, including Dual-Tone Multiple Frequency (DTMF), Continuous Tone Coded Squelch System (CTCSS), Digitally Coded Squelch (DCS), Automatic Number Identification (ANI), selective calling, status reporting, tone remote control, and paging. Continuous-Tone-Coded Squelch goes by various trade names. Motorola owns the name Private Line (PL)™.

To understand how PL™ (CTCSS) works, let's first consider the transmitter. A PL™ transmitter sends a *sub-audible* tone, which the transmitter sends continuously. Since communications radios use a narrow audio bandpass range from 300 to 3000 Hz, the tones can be any of a selection of

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## ARKANSAS HEALTH DEPARTMENT SPONSORS AMATEUR RADIO TRAINING

**T**he Arkansas Health Department transmitted Amateur Radio training via video conferencing to 13 hospital classrooms across the state on Saturday, January 19. According to John Nordlund, AD5FU, tactical communications assistant coordinator for the Arkansas Health Department, about 30 Northwest Arkansas residents participated in this year's training. The program, offered to participants at no cost, was sponsored by the Arkansas Health Department in cooperation with the Arkansas Amateur Radio Emergency Service. After completing the two-day training course, more than 180 students across the state earned their Technician class license.

Hospital employees, law enforcement officers, doctors and retirees attended the training session. "We've seen interest from an unbelievable number of retired people who are looking to do something good for their community and a way to spend their time," Nordlund said. "Being an Amateur Radio operator enables them to talk with people, make friends and stay in touch."

Nordlund said that in times of very difficult, large-area emergencies, "all the other communication systems we depend on tend to become overloaded or disrupted. During those emergencies, the Amateur Radio people are able to connect a communications network because they're used to doing it on a daily basis."

Amateur Radio operators often act as "unsung heroes" in the face of disaster, he said. "Recently, on the Pacific coast of Oregon, they had a huge flood and all communications were rendered inoperable. During a television news conference, the governor of Oregon stood up and said, 'Do you want to know who the real heroes are?' Then he pointed at a group of guys with ham radios."

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**"Ham Radio - A Dangerous Hobby?"**  
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worldwide DX. In this low part of the solar cycle, both 40m and 80m are our best night time DX bands, especially 40 meters. The 20 meter band has been folding up shortly after sunset. It is now our best daytime DX band, and for a CW only band, 30 meters. Be patient, in a few more years 17, 15, 12, 10, and sometimes even 6 meters will be great DX bands..

Ten meters is a great low power band, and here you can use simple and effective antennas. I recall in 2002, being parked at a motel parking lot in Lebanon MO, running my Kenwood TS670, with only 10 watts on ten meter SSB. The rig was plugged into the cigarette lighter, and I was using a quarter wave magnetic mount antenna on the car. During that ARRL DX contest, I worked about 30 countries in one hour without the car engine running, including Europe, Africa, South America, and even the West Indies. This happens often on ten meters when band is open.

The CW ARRL DX contest is coming up Feb. 16, and the SSB contest in March. You don't have to be a contester, or even send in a report to participate in these events. This is a good time to try out your rig and antenna just see what you can work. The exchange is "59 Missouri" on SSB, and "599 MO" on CW. The "59" report seems to be automatic today with many stations using computer logging.

One thing I should mention, when working a DX station with a quick exchange, you don't have to say "Clear" at the end of transmission. Even though regulations say you should, the FCC gives no violation warning on this type of operation, as a few seconds saying "Clear" at end of the contact will QRM other stations calling. However, the FCC is strict about giving partial calls. If I say "Romeo Papa" it is not my complete call, and this type of operation was commonly used till the FCC issued a warning. You do not have to give the call of the station you are calling.

If you have any questions, email me at w0jrp@earthlink.net.

73 es DX DE John  
W0JRP

## Ham Radio A Dangerous Hobby?

**T**here may not be as many hams getting electrocuted as in previous years but still many things to be careful about.

First, when you put up an antenna, keep it away (as far as possible) from power lines, also be careful when climbing on any tower, roof, or tree. About 15 years ago, Jay Lowe the late KAØRKR was getting ready to put up a wire antenna, and while trimming some trees he fell off a ladder and broke his wrist and ankle.

Today, many Amateurs still use tube type amps with dangerous high voltages, as high as 3000 Volts DC. When I first got my license, I knew several Hams that had close calls. Of course most of us were teenagers then, and we tended to be a *little* careless. Of course we all did crazy things, like touching the plate cap of an 807 tube with our index finger. We would get a slight RF burn, but no DC shock unless we touched a ground. I recall about 1951 in St Louis, my friend Al WØCWZ, was visiting Bob WØBME, who had a nice looking home-built rig with a pair of 812s in the final. The hamshack was in the basement, and he was running about 1500 Volts from the power supply. The rig was mounted on a 6 foot open rack, a very common setup in those days. Al accidentally touched the B+ lead on the power supply while his arm touched the metal rack. It knocked him across the room and through the door in the hamshack. His arm had no feeling for several hours, it was lucky that he hadn't touched his other arm on the metal rack, that could have been fatal.

I remember, when I was first licensed, working on a homemade 600 Volt power supply. Although I had switched the high voltage OFF, for some reason the bleeder resistor was open and filter caps had not discharged. I was carrying it across the room to my work bench to check it out when my hand touched the filter cap under the metal chassis. I almost dropped it, and I fell with the power supply against the work bench. My hand was weak for a hour!

Another thing we used back then was a link coupling to our antenna. Sometimes a variable link controlled from the front panel. In home built gear, sometimes the swinging link might touch the final tank coil, putting high voltage on

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## ARRL Continuing Education Course Registration Information

Registration will remain open through Sunday, February 24, 2008 for these online course sessions beginning on Friday, March 7, 2008:

**Technician License Course (EC-010)**  
**Amateur Radio Emergency Communications Level 1 (EC-001)**  
**Radio Frequency Interference (EC-006)**  
**Antenna Design and Construction (EC-009)**  
**Analog Electronics (EC-012)**

Each online course has been developed in segments - learning units with objectives, informative text, student activities, and quizzes. Courses are interactive, and some include direct communications with a Mentor/Instructor.

Students register for a particular session that may be 8, 12, or 16 weeks (depending on the course), and they may access the course at any time of day during the course period, completing lessons and activities at times convenient for their personal schedule. Mentors assist students by answering questions, reviewing assignments and activities, as well as providing helpful feedback.

Interaction with mentors is conducted through e-mail; there is no appointed time the student must be present - allowing complete flexibility for the student to work when and where it is convenient.

To learn more, visit the CCE Course Listing page at:

<http://www.arrl.org/cce/courses.html> or contact the Continuing Education Program Coordinator by email at: [cce@arrl.org](mailto:cce@arrl.org)

## Join ARRL through the JARC!

ARRL Affiliated Clubs receive a commission for every new ARRL membership and renewal they submit to ARRL Headquarters.

Under the ARRL Club Commission Membership Recruitment Program, clubs retain \$15 for each NEW membership and \$2 for each renewal submitted (regular and senior memberships only).

## Doctor Ray Dio Is QRV!

Dear Dr. Ray, I learned long ago that if I cut my antenna for 80m, it would work fine on all bands 40m and above, but it really doesn't, and always has high SWR. What can I do? Sincerely, Larry M.

Dear Larry, Whoever taught you antenna theory was all wet! I need to report him to the antenna police! Did you ever read the ARRL Antenna Book? It clearly states that dipole antennas on even harmonics of the fundamental frequency appear as a high-Z at the center feed point. That's why some Hams use tuners, which are needed **only** if you have a poorly matched antenna system. **There is no, good, mismatched antenna system.**

Your cheap way out, is to put up a doublet. When tied in parallel, a simple 40m dipole will resonate on 40m and 15m, while the 80m dipole will handle 80m, 30m, and even part of 10m. Of course the patterns of the harmonic bands will have lobes, but they will match! **Remember, Odd Harmonics resonate!**

'73, Dr. Ray

*(Continued from page 2)*

the antenna wire, this was more dangerous than the RF on the antenna!

When I first got my license, many hams could not afford antenna relays and we used a knife switch to switch antenna from transmit to receive. We often used 300 ohm transmission line, and the knife switch was usually mounted on the side of the operating table. You could get a serious RF burn if you weren't careful reaching for it. Open rack transmitters were not shielded and you had to be very careful if you had children or pets around.

Years ago, many transmitters had plug in coils, and I knew several hams that received severe shock or RF burn reaching in to change coils - forgetting that the high voltage was on.

I guess we are lucky today to have commercial rigs that are well shielded and that run off of 12 Volts DC.

You can never be too careful.

73, John  
WØJRP

## The President's Corner

I'd like to show my appreciation to the visitors, guests & members of the JARC who attended the January program meeting. I think the attendance was doubled. The program was presented by Ryan Cell, KCØYLI of Springfield, who volunteers with the regional Red Cross as a Disaster Training Coordinator. He brought with him some students (potential Hams) for the presentation. Ryan, who is also an ARES member, spoke to the group about providing back-up emergency communications for the Red Cross. Larry Sparks NØBHU, "Air Force Mars", and Les Hovland AEØX "Navy Mars" both offered their services.

Is there any interest in having a 2008 Hamfest in Joplin this year? I hear no conversation from the club of any activities other than meals. Is that what we want of our Ham Radio Club?

I have been getting a few operators inquiring about ARES & Emergency Communications of the Amateur Radio Service over the past couple of months.

Finally, we need a chairman to plan the Spring Tailgate, and also someone to make plans for our annual Field Day event.

I'll see you at the next meeting.  
Andy, KAØTUD

*(Continued from page 1)*

standard frequencies below 300 Hertz, hence the name *sub-audible*. The frequency deviation of the sub-audible tone should be plus or minus 0.75 Hz when voice modulation is absent.-, a very tight spec!

The CTCSS receiver is more complex, because it must respond to the correct tone, but reject all others. When the receiver detects the proper tone, it unscelches the audio path to "open" the receiver for the incoming signal. A signal with the wrong tone, or with no tone, *must not activate the receiver.*

A good CTCSS receiver employs a high-pass (filter) just beyond where the subaudible tones are detected. Without that

## ARES Update

Until further notice, the ARES nets will be called on the 145.35 MHz repeater whenever storms are in the area.

Weather spotting classes will begin March 20th this year in the basement at the New City Hall (6th and Main Streets). More details forthcoming.

The Jasper County/Tri-States ARES participates in drills regularly with other area agencies in order to supply a coordinated communications backbone in case of an emergency. All area hams are encouraged to join ARES and become familiar with procedures.

### — MORE ABOUT ARES —

Regular ARES announcements are made weekly at 19:30 on the JARC Monday night net, and at regular JARC meetings.

Andy Gabbert, KAØTUD  
Jasper County/Tri-State ARES EC

Andy can be reached at 417-673-8371, or email at [ka0tud@arrl.net](mailto:ka0tud@arrl.net)

Be sure to visit the ARES website at:  
<http://www.qsl.net/jcmares/index.html>

filter, the radio's user may be able to hear the tones, which could be annoying.

By its very nature, a CTCSS system cannot be perfect. Though a receiver with PL™ unscelches and passes audio only for signals with the correct sub-audible tone, any RF signal, with or without the tone, can tie up the channel.

Also, with PL™ turned on, the operator hears no traffic even when the channel is in use if the tone is not present. That's the PL™ system's purpose. So to avoid interference, an operator must check a channel with (their) own PL™ turned off (or watch the receiver's S meter for a few seconds) before transmitting[[

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"THE CEARC JOURNAL"—GARY HOLLIER, KASHLC, EDITOR.  
USED WITH PERMISSION OF THE AMATEUR RADIO NEWS SERVICE.

## Annual QRP Conference Scheduled

Make plans to attend this year's OzarkCon QRP conference on April 25 & 26, 2008 at Joplin, Missouri. The host hotel is the La Quinta Inn - 3320 Range Line, Joplin, Missouri. This is the same location as the former Ramada Inn.

This year we are expecting more visitors from the United Kingdom at OzarkCon! Come join them and scores of American QRP'ers in April for the biggest and best QRP convention in mid-America.

Pre-registration opens February 1st, and must be received by 4SQRP no later than April 15, 2008. Registrations received after April 15 won't receive the custom made ID badge.

To guarantee your room, please make your motel registrations ASAP. Go to our URL for more information on speakers:  
<http://ozarkcon.com/ozarkcon.htm>  
Sponsored by the 4SQRP GROUP

02/2008

## NEW BEACON OTA

Tommy, WD5AGO, has recently set up a CW beacon transmitter in Tulsa on 222.078 MHz. He would appreciate any and all reports. It has been heard in Oklahoma City already. ¶

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Though Arkansas has yet to suffer a widespread disaster, hospitals across the state are taking steps to prepare. "We had two employees who took the test in June, and this time we have six employees," said Mel Lopes, safety officer for Washington Regional Medical Center. "Four work in emergency services and two work in security. It's a good balance."

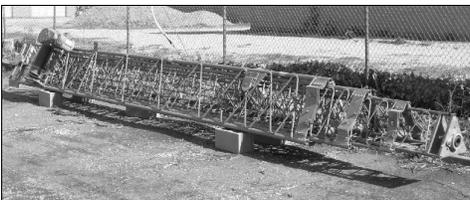
The Arkansas Health Department sponsored this year's training program to increase the number of Amateur Radio operators in the state. "It's not that there's a lack of interest, but maybe there's been a lack of availability," Nordlund said. "I've talked to a lot of people who we wanted to get involved for years, but they've never had an opportunity presented to them."

REPRINTED FROM ARRL LETTER, VOL 27, No 4  
SOME INFORMATION FROM THE NORTHWEST ARKANSAS TIMES

## HAM EQUIPMENT FLEA MARKET

NOTE: INDIVIDUAL LISTINGS ARE \$1 PER MONTH, FREE FOR JARC MEMBERS. FS / WTB SPACE IS ALLOCATED BY DATE RECEIVED. COMMERCIAL AD SPACE IS AVAILABLE FOR A NOMINAL CHARGE.

### For Sale - 72 ft. Motorized Crank-up Tower



Mfg. by US Tower Corporation, this model includes tilt over capability. Rated for over 30 ft<sup>2</sup> wind load to handle large antenna arrays. Weight 1800 lbs. FOB Joplin. \$4000 O.B.O.  
John Stucka, N3JM, 609-653-3021  
jstucka0@yahoo.com

02/2008

### For Sale - iCom 551 6m All Mode XCVR

Nice little 6 meter rig with Passband Tuning Unit, VOX, and FM modules (all are installed). Whopping 10W output, and I will include a cut dipole with enough coax to get you started on the Magic Band. Table top unit 120VAC / 12VDC Clean & good shape w/manuals. Asking \$350  
Jim Scott 417-781-2211, email wb0iyc@arrl.net

02/2008

### For Sale - 1/4W 5% Hobbist Resistor Paks

Carbon Film Resistor Assortments consisting of 10 each of the twelve values within one decade totaling 120 resistors. Value range in package: **1.0, 1.5, 2.2, 2.7, 3.3, 3.9, 4.7, 5.6 6.8 7.5, 8.2, 9.1**

Five ranges of kits available, and each pak is \$2  
10-91Ω, 100-910Ω, 1.0K-9.1KΩ, 10K-91KΩ, 100K-910KΩ Buy all five and postage is free!  
Jim Scott 417-781-2211, email wb0iyc@arrl.net

02/2008

### For Sale - LEXMARK Printer Model 515

In good shape, USB port printer. It may need printer cartridge. Asking \$25 OBO.  
John Tudenham WØJRP, 417-624-8058  
email: w0jrp@earthlink.net

01/2008

**WTB - High Power Dummy Load** - Must be rated for use up to 1kW. Intermittent service is okay, continuous preferred. Can-Tenna or any brand, if reasonable price.

Contact Rob George WØTTM, 417-671-9420  
email: rob.george@scottelectronic.com

01/2008

### Did You Know?

Club members can list items to buy and sell for free! See information in the Classified Ad section.

## Area HAMFESTS and EVENTS

NOTE: LISTINGS ARE PROVIDED AS THEY BECOME AVAILABLE AND ARE NOT VERIFIED FOR CORRECTNESS. SEE BACK PAGE FOR SUBMISSIONS.

**2 Feb 2008 - LaCygne, KS** Mine Creek ARC presents the **LaCygne Winterfest** at the Community Building, on Broadway Street  
Talk-In: 147.285; For tables and info, contact Ron Cowan, KBØDTI Ph: 913-757-3758  
Email: kb0dti@arrl.net  
Mine Creek ARC, PO Box 36, LaCygne, KS 66040

**9 Feb 2008 - Ada, OK** Ada Amateur Radio Club is hosting the **Ada ARC Ham Fest** at the Pontotoc County Agri-Plex Auditorium, 1700 North Broadway, Ada, Oklahoma  
Doors open 8 a.m. Tables \$10, tickets \$5. VE testing at Noon. Talk-In: 147.285+ (114.8).  
Info: Charles Etier, KC5TGA 580-436-4425. 15766 CR 1574, Ada, OK 74820  
Email: kc5tga@yahoo.com  
<http://www.adacomp.net/~jewell/>

**16 Feb 2008 - Arkansas Section Convention**  
Winterfest - Lawrence County ARC  
Hoxie Community Center, SW Lawrence Street  
Hoxie, AR; Talk-In: 147.045/645  
Info: Carl Richardson, KB5FJX  
146 Lawrence Road 2645, Smithville, AR 72466  
Ph: 870-878-0044, Fax: 870-878-0044  
[http://www.cwrnet.com/lcarc/lawrence\\_county\\_arc\\_winter-fest\\_2008.htm](http://www.cwrnet.com/lcarc/lawrence_county_arc_winter-fest_2008.htm)

**1 Mar 2008 - Russellville, AR** Arkansas River Valley Amateur Radio Foundation presents the Russellville Hamfest at the Hughes Community Center (Knoxville & Parkway).  
Talk-in 146.82- (131.8) Adm. \$5; Tables \$10; ARRL sanctioned. DXCC/VUCC/WAS card checking, Forums, Door Prizes, Free Parking, Free Tailgating. Open 8 am, VE testing 09:30  
Margaret Alexander, KC5MCS 479-968-7270  
email: ealexand@cswnet.com  
<http://www.arvarf.com>

**13 Mar - Harrison, AR** North Arkansas Amateur Radio Society Hamfest. 8am-1pm

**19-20 Mar 2004 - Claremore, OK**  
**Oklahoma Section Convention** sponsored by the Green Country Hamfest Committee  
<http://www.greencountryhamfest.org>  
Info: Merlin Griffin, WB5OSM 918-520-7668  
PO Box 470132, Tulsa, OK 74147  
Email: info@greencountryhamfest.org

# FEBRUARY 2008

## Joplin Amateur Radio Club Meetings and Events

<i>Sun</i>	<i>Mon</i>	<i>Tue</i>	<i>Wed</i>	<i>Thu</i>	<i>Fri</i>	<i>Sat</i>
					<b>1</b>	<b>2</b>
			19:30 -20:30 JARC SLOW SCAN NET 147.21 MHz	17:30 THURSDAY NITE OUT - PIZZA INN - S. MAIN, JOPLIN		09:00 BREAKFAST - STEAK & SHAKE
<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>
	19:30 JARC MON NITE NET 147.21 MHz WØIN REPEATER NET CONTROL - NØZPD		19:30 -20:30 JARC SLOW SCAN NET 147.21 MHz	17:30 THURSDAY NITE OUT - PIZZA INN - S. MAIN, JOPLIN		09:00 BREAKFAST - STEAK & SHAKE
<b>10</b>	<b>11</b>	<b>12</b>	<b>13</b>	<b>14</b>	<b>15</b>	<b>16</b>
	19:30 JARC MON NITE NET 147.21 MHz WØIN REPEATER NET CONTROL - NØKMP	19:30 JARC BUSINESS MEETING	19:30 -20:30 JARC SLOW SCAN NET 147.21 MHz	17:30 THURSDAY NITE OUT - PIZZA INN - S. MAIN, JOPLIN		09:00 BREAKFAST - STEAK & SHAKE
<b>17</b>	<b>18</b>	<b>19</b>	<b>20</b>	<b>21</b>	<b>22</b>	<b>23</b>
	19:30 JARC MON NITE NET 147.21 MHz WØIN REPEATER NET CONTROL - WD6FIC		19:30 -20:30 JARC SLOW SCAN NET 147.21 MHz	17:30 THURSDAY NITE OUT - PIZZA INN - S. MAIN, JOPLIN		09:00 BREAKFAST - STEAK & SHAKE
<b>24</b>	<b>25</b>	<b>26</b>	<b>27</b>	<b>28</b>	<b>29</b>	
	19:30 JARC MON NITE NET 147.21 MHz WØIN REPEATER NET CONTROL - NØKMP	19:30 JARC PROGRAM MEETING KEITH STAMMER - CITY OF JOPLIN	19:30 -20:30 JARC SLOW SCAN NET 147.21 MHz	17:30 THURSDAY NITE OUT - PIZZA INN - S. MAIN, JOPLIN		

# Meeting Times, Testing, and other Club Information

**T**he Joplin Amateur Radio Club, Inc., a Missouri *not-for-profit* organization, meets on the second and fourth Tuesdays of each month at the Red Cross Building, in the North room at 7:30 PM. Enter from the West side of the facility. The building is handicap accessible.

The club organizes and participates in annual operating events, assists area agencies with communications, and offers testing and training classes for advancement in amateur radio. It also sponsors the JARC Hamfest each year in August.

The club maintains two 2m repeaters.  
**WØIN** - 147.210+ MHz (open)  
**WØIN** South - 145.390- MHz (91.5 Hz)

Point your browser to the club website for event information, photos of past events, and links to other ham sites.  
<http://www.joplin-arc.org>

Hot topics are discussed at the Saturday morning breakfasts, where members gather about 9:00 a.m. at the Steak & Shake restaurant located on the north outer road at I-44 and Range Line Road, next to the Olive Garden restaurant.

## 2008 CLUB OFFICERS:

President: Andy Gabbert	KAØTUD
Vice Pres. Bill Reynolds	N6HXI
Treasurer: Jim Johannes	NØZSQ
Secretary: Jim Scott	WBØIYC

## VE TESTING SCHEDULE

Volunteer Examiner testing is held on the first Monday of each month except holidays at St. Paul's United Methodist Church, 2423 W. 26th St. in Joplin, MO. Sign up starts at 6:30 p.m. testing begins promptly at 7:00 p.m.

For additional details, or special accommodations contact Martin, WD6FIC (918-919-0188).

## ABOUT THE NEWSLETTER

This club newsletter offers an open forum for the amateur radio community in the four-state area. *Your* comments and contributions are always invited. Items for publication, including classified ads and amateur radio related articles, may be sent to the **JARC Printed Circuit**, P.O. Box 2983, Joplin, MO 64803-2983, or *ascii text* email to: **wb0iyc@arrl.net**

Deadline for submissions is the 15th of the month preceding the month of publication. Non-Commercial Classified ads are run free for JARC members, \$1 each, otherwise. Classified ad space is available at \$12/pg/month, pro-rated for fractional parts to 1/6pg.

All submissions accepted, *email ASCII text is preferred*. All items will be edited for spelling, content, and space limitations as required.

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