

# THE SIGNAL

Newsletter of the  
Bella Vista Radio Club



Vol. 1, No. 3 – June 2018



Weekly Nets: 3820 KHz Roundtable, Sundays @ 4 p.m. • 147.255 Repeater Net, Wednesdays @ 8 p.m.

Monthly Meetings: 1<sup>st</sup> Thursdays @ 7 p.m., Highland Christian Church, 1500 Forest Hills Blvd, Bella Vista

Club Call: N5BVA • Repeater: 147.255 +offset, pl 162.2 • Website: [www.bellavistaradioclub.org](http://www.bellavistaradioclub.org)

## IN THIS ISSUE

- *BVRC Field Day*
- *RB Audio Modulation*
- *In The News*
- *From The Desk of the Pres.*
- *Smith Charts Can Be Fun – Part 2*
- *Special Announcement: BVRC Special Event Station K5A*
- *Women In The Signal Corps*
- *Why Ham Radio Endures*
- *Member Spotlight – KK5II*
- *BVRC Repeater Etiquette*
- *Member's Corner*

**NEXT BVRC MONTHLY MEETING****Thursday, June 7, 2018 – 7:00 pm****Highland Christian Church****1500 Forest Hills Blvd.****Bella Vista, Arkansas****June Program:*****BVRC Field Day 2018***

Fred – K5QBX will have this month's program on Field Day preparations, materials, schedules, other related information, and of course.....

**VOLUTEERS!**

The annual ARRL Field Day is the biggest amateur radio event of the year in the United States and Canada. Be sure and attend this very important June meeting as Fred relates all club arrangements regarding this huge event.

See [www.BellaVistaRadioClub.org](http://www.BellaVistaRadioClub.org)  
for the location, a Google Map, and more.

**BVRC Officers:****President – Glenn Kilpatrick, WB5L****Vice-President – Chris Deibler, KG5SZQ****Secretary – Wayne Patton, K5UNX****Treasurer – Marc Whittlesey, WØKYZ****Technical Officer – Steve Werner, K5SAW****Repeater/Club Call Trustee – Fred Lemley, K5QBX****Public Information Officer – Gregg Doty, KF5ZIM****Board Member At Large – Ken Mummery – K6RLA****Appointed Chair Positions:****Social Media Committee – Jen Kessler, KG5WOC****Repeater Committee – Fred Lemley, K5QBX****VE Testing Committee – Glenn Kilpatrick, WB5L****Membership Committee – Ron Evans, K5XK****Newsletter Committee – Don Banta, K5DB**



# Hear Ye, Hear Ye.....

From BVRC's  
Honorable Field Day Chairman,  
Fred Lemley, K5QBX



**TO CONTACT FRED FOR MORE INFORMATION:**

**E-mail:** [flemley@swbell.net](mailto:flemley@swbell.net)

**Phone:** 972-358-1050

The Bella Vista Radio Club would like to invite amateur radio operators, their families, and the general public to come by Metfield Park in Bella Vista, Arkansas to visit and/or participate in the annual ARRL Field Day event. There will be paved parking, new restroom facilities, shade, water, a very nice park, and “eyeball” QSOs available.

The plan is to have 3 stations operating; Digital, SSB, and CW. There are also plans in the works to have a GOTA (Get on the Air) station if logistics can be arranged. This will enable those without an amateur license (under a control operator licensee) to try their hand at making contacts on the ham bands.

There will be a supper meal for those participating in operations and any guest with them. Jen Kessler, KG5WOC, will be coordinating the meal provisions utilizing the same online sign-up app (SignUpGenius) that worked out so well for our January meeting.

Construction of antennas and stations will begin at 8 a.m. (local time) on the 23<sup>rd</sup> and plans are to be on the air by noon. Operations will continue through the evening and night and into the next day if there are enough operators available. Disassembly of the stations will commence in the afternoon at approximately 1 p.m. Those interested in the operating one of the stations or assembly/disassembly of the field day operation should give the field day coordinator a call or email by June 18<sup>th</sup> so that assignments can be made.

**Thanks in advance for your participation ...**



## BVRC MEMBER'S CORNER

**KK5II** – Paul is closing-in on attaining his first DXCC. Actually, Paul already has 100 different countries/entities 'worked.' He's sweating/waiting on his last QSL confirmations. Congrats, Paul!

**K5DB** – Don found a deal he says he couldn't refuse, and traded his Ameritron AL-80B amplifier for an Ameritron ALS-1300 solid state 1.2 kW amp. He also traveled around 425 miles, covered 16 counties, and made close to 400 contacts with very poor propagation in the Arkansas QSO Party.

**K5XK** – Ron's plans to enter the Rover category of the Arkansas QSO party fizzled out upon encountering noise and RFI issues while operating on the Sebastian/Crawford County line. After 32 CW QSOs, Ron QSY'd to the K5BAT multi-operator station to assist with their phone and CW entry. Watch for a feature on K5BAT in a future SIGNAL.

**KG5ANT** – Frank has constructed a new antenna with the assistance of K5SAW and K5QBX. Hope you have a lot of success with it, Frank!

## BVRC VE REPORT

**BVRC VE test session, April, 2018:**



## CONGRATULATIONS!!!

**Stanley Elmore, KG5ZOX – New General !**

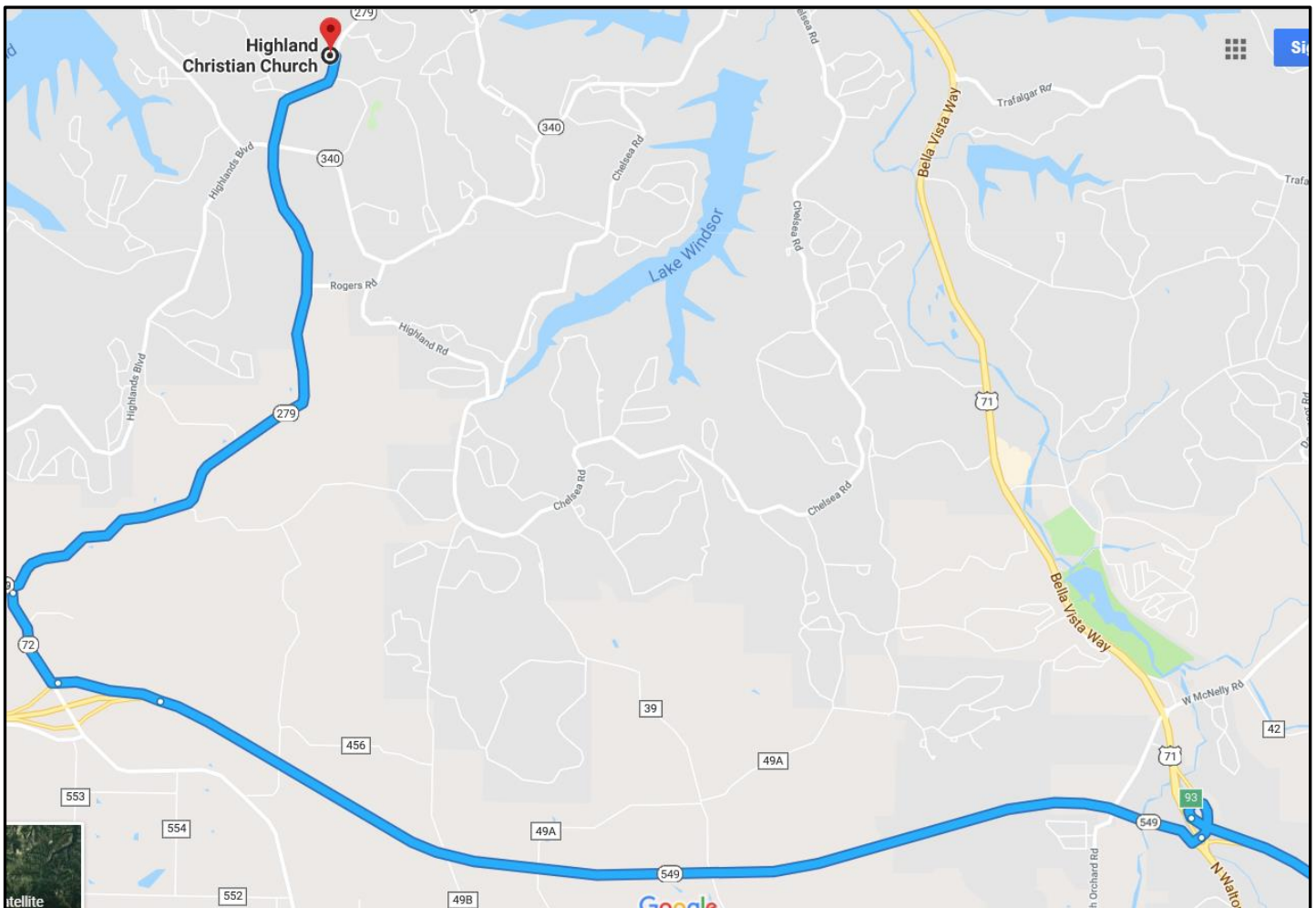
**Westley Grant – New Technician !**

**Test sessions are each 2<sup>nd</sup> Saturday of the month, 2 pm,  
at the Highland Christian Church in Bella Vista**  
***Help promote the availability of the Club's monthly  
test sessions. Tell your friends and acquaintances!***

# Attention BVRC Members Who Live To The South Of Bella Vista

When attending the BVRC monthly meetings and you are coming North from the South – If you have been taking I-49 through Bella Vista to the Lancashire Blvd. exit, try this easier, less congested (and less curvy) route:

Northbound on I-49 coming into Bella Vista, take Exit 93 (sign will say “US-71B / N. Walton Blvd”). The exit ramp will curve sharp right, you’ll go back under I-49 and then come to a traffic circle. Bear right on the west edge of the traffic circle, then turn right onto AR-549 west (this is the new Bella Vista bypass). Then, stay on AR-549 to the first exit (this will be about 5 miles from I-49), which will be the exit for AR-72. At the end of the exit ramp, turn right onto AR-72 west and follow for about ¼ mile to the Jct. of AR-279. Bear right onto AR-279 North, and follow to the first traffic light (this will be the Jct. of AR-279 and AR-340). Arvest Bank and Casey’s General Store will be at this junction. Go through the light, crossover AR-340, and continue north on AR-279. Highland Christian Church will be about 1 mile on left. See map below.





**BVRC Member  
Spotlight****PAUL DIXON  
KK5II**

By Ron Evans – K5XK

One of our recent new members is Paul Dixon, KK5II, of Springdale.

Paul is one of our more active, seasoned hams with more than 55 years in the hobby. Paul was first licensed in 1961 as a teenager, with the "Novice" call, WN5BDD. As a student at Fayetteville High School, Paul enjoyed the school radio club, call sign K5TQC, one of very few school radio clubs in the country.

While serving in the military, Paul was licensed with the German call DL5DW in Frankfurt, Germany, and enjoyed after-hours access to the

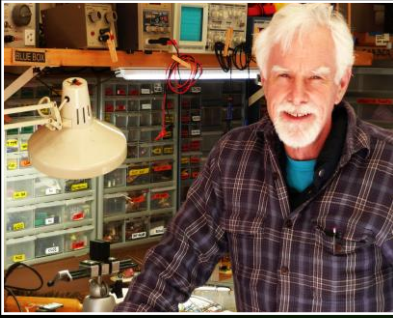
big DL4RM club station at Rhein-Maine AFB. To say their antennas were big is an understatement. The station featured a huge 26 element Log Periodic beam and 900 foot long Rhombic antennas for high transmit and receive gain with the States. When not conducting official military traffic back to Langley, the station was used on 'MARS' (Military Affiliate Radio Station) frequencies for "phone patches" between airmen and their loved ones back home in the U.S.

Today, Paul's well-appointed station features a Kenwood TS-590SG, a Dentron 'Clipperton L' HF amp, and a Cushcraft A3S tribander on a fold-over Rohn 25G tower. His interests include DXCC, PSK digital, and contesting. His other hobby is model trains, and Paul has a collection of Lionel trains and tracks, which come alive at Christmas time displayed around the tree.

Like most of us, Paul married-up when he found his XYL Earline many years ago. Welcome Paul!



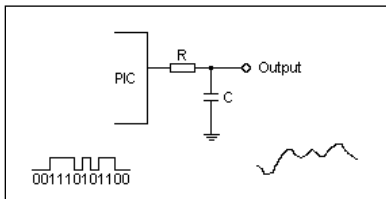
# RB AUDIO MODULATION



By **TOM CARROLL · KE6UWB**

Years ago I found a guy on the web who really did elegant design. I am impressed with all his work. His name is Roman Black. It is a shame that his most recent work is several years old now; I would like to see what he has been up to.

The work he did with sound compression is what first caught my eye. He started with what is called Delta Modulation, which is pretty rough sounding, and improved it. He came up with some very innovative ideas which changed Delta into a practical, voice-grade channel. It stores a sound file compressed at 8:1 and plays it back with only 2 or 3 components. Across the nerdnet this became known as "Roman Black Sound."

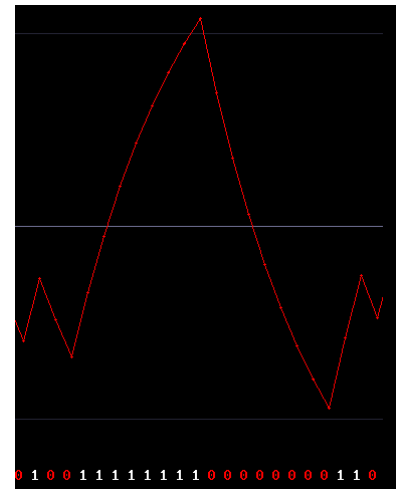


This diagram shows a bitstream being low pass filtered into a replica of the original sound. The source here is a PIC microcontroller.

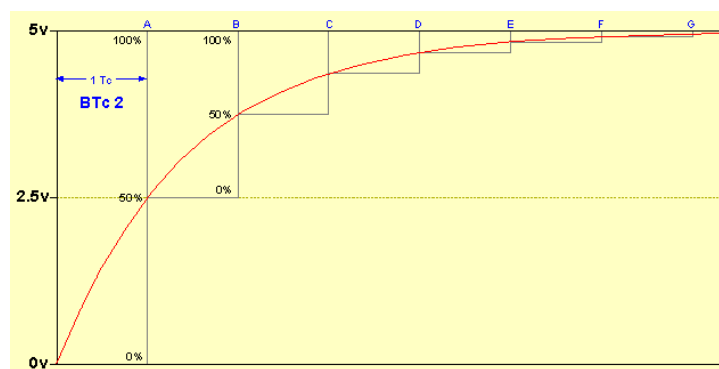
The waveform on the right shows a standard capacitor charging and discharging with the bits. A "1" in the bitstream charges and a "0" discharges.

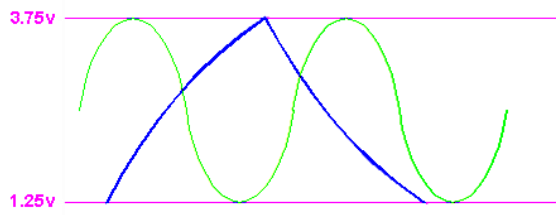
A problem with Delta is that chopping the original wave into smaller and smaller pieces requires floating point math which is slow and cumbersome on simple, cheap hardware.

The problem with the math is that the cap does its charge and discharge at a rate of 63.2% per time period. Black's big breakthrough was to overclock the bit rate compared to the RC time constant so that the cap could only charge to the 50% point. That luxury allows a simple division by 2 with nothing more than an easy, fast, right bit-shift.



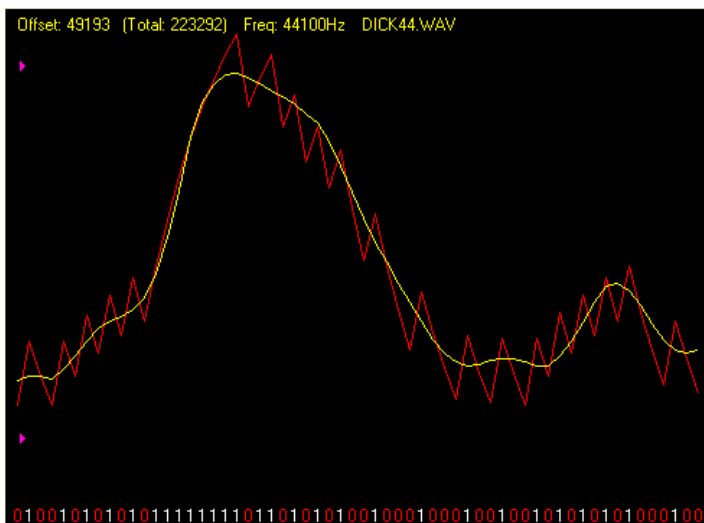
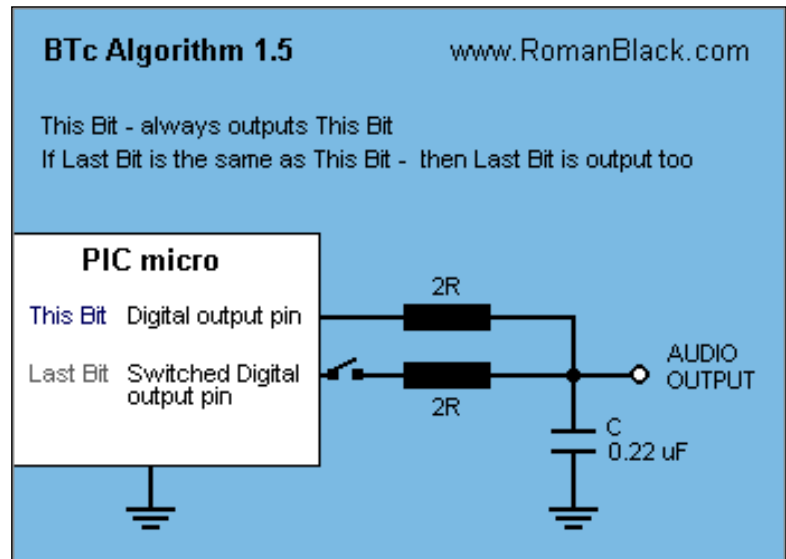
The waveform at the right shows what a 50% charge rate on a cap looks like.





After digitizing the original wave, Black cuts it in half and offsets it so that it is in the middle of his rails. In this diagram it is centered at 2.5V in a 5V system. He does this to use a more linear part of the charging curve of the cap. That helps the sound quality.

He added one more resistor to the low pass and used one more port of the microcontroller. The new algorithm cuts the second resistor in and out to get a sort of a weighted average. This makes the output smoother.



This is what the real thing is supposed to look like. Not too bad! Once the bit rate gets up to around 40 or 50k bps Black says the sound is quite good.

“So what’s this got to do with Ham Radio?”, I hear you ask. A scheme like this allows a phone band to be frequency division multiplexed. The bits are sent via FSK. Each voice channel has different FSK tones. At the receiving end, a bandpass or tone decoder pulls the desired bits out of the bit clutter and regenerates the voice.

A trip to [romanblack.com](http://romanblack.com) is worthwhile to get the best picture of how Roman Black Sound works. All the images are from his website.

See you next time!

73 – Tom



**WHAT WAS AMATEUR RADIO LIKE A FEW DECADES AGO? CLICK ON BOB HEIL, K9EID'S EARLY SHACK BELOW FOR AN AMAZING VINTAGE PHOTO ALBUM!**



Thanks to W9RAN for taking the time to illustrate the magic and legacy of amateur radio with this amazing vintage photo album.

<https://plus.google.com/photos/115747543308902188110/album/5129541384093615921/5167003201962213842>

If you're a seasoned ham, send us some vintage photos of YOU in your stations from years gone by! Include some info on your gear, antennas, your age, location, etc.

BVRC President Glenn-WB5L presents Don Banta-K5DB the BVRC Certificate of Appreciation for his May meeting program on "Ambitious Radio Operating", which consisted of the main topic of contesting.



# BVRC Monthly Programs

**Would you like to present a  
radio-related program at a club meeting?**

**Or would you just like to suggest an  
interesting topic for a presentation?**

**Contact [K5XK@arrrl.net](mailto:K5XK@arrrl.net) or call Ron at (479)  
270-5584**



## FROM THE DESK OF THE PRESIDENT

We took a major step forward last month with the passing of the new Bella Vista Radio Club Constitution and By-Laws. These were modeled after the suggestions from the ARRL. Thanks to all who helped, and we now have a first-class document! We have checked, and we are greater than 51% membership who are in the ARRL! We can now make application to become an ARRL affiliated club and will do so after approval at the next meeting. Let me encourage you to check out the Amateur Radio Relay League. They are our go-to resource for all things about Ham Radio and our national organization representing Ham Radio to the rest of the world. Please consider becoming a member and support our wonderful hobby. An ARRL affiliated club not only gets national attention, but we can take advantage of many opportunities provided, such as affordable insurance.

The Arkansas QSO Party is now in the books, and I am sure all had a great time! At next year's AQP our club and its new callsign N5BVA will grace the airwaves as one of the ARQP Co-Bonus stations. This means EVERYONE will want to work N5BVA for the extra points. What an awesome opportunity to shine some light on the club, Bella Vista and the whole Northwest Arkansas and surrounding states region. Be there!

Field Day is coming up June 24<sup>th</sup>, we are planning a fun and exciting day of radio activities. Stop by the Metfield pavilion and say hello. Thank you for allowing me to lead this wonderful club, it's an honor to get to know you and let's have a great Field Day!

73 - Glen, WBSL





## **Repeater Etiquette & Protocol**

### **A General Guide for the Bella Vista Repeater**

As a general rule, use the same common courtesy when in conversation with someone face to face and if children were present. It's much the same on a repeater, with a few caveats.

When accessing the repeater (after ensuring you have set the proper frequencies and PL {or CTCSS} tone), LISTEN for a few seconds, and then LISTEN again to ensure the repeater is not already in use. "Kerchunking" or dead keying the repeater is not necessary and just adds to the wear of repeater components.

When keying up a repeater, pause one second before speaking. For instance, if the repeater is not in use and you want to announce your availability for a conversation, depress your mic button, wait a second, then say "(Your call sign), listening (or monitoring)." If others are listening and want to engage you in a contact, they will respond with their call sign and a possible greeting.

If you would like to call a specific station, key the repeater waiting a second, say his or her call sign followed by your call sign, e.g., "WB5L from K5QBX." Wait a reasonable amount of time and if no response, repeat the call you just made. If there is no response and you want to let others know you're available, then say "(Your call) listening (or monitoring)." If you don't want to remain on the repeater, then say (Your call), clear," which clears you from the repeater.

When in conversation, be mindful of the timer which stops the repeater transmitter after 2-3 minutes. During a contact and after completion of your thought, release the mic and the repeater will send a 'courtesy tone.' This is an indicator for the other party to wait 2-3 seconds before continuing their side of the conversation. This pause allows anyone with emergency traffic or others wanting to make a quick call to another station to interrupt briefly. When the repeater is busy, you and your party should move to a simplex frequency, if possible. This frees the repeater for others to use.

As indicated, the 2-3 second pause also allows anyone needing to report an emergency to break-in and say "Emergency," or "Emergency Traffic," and wait for a response. The use of the word "Break" is not recommended, as not all would understand why you are trying to get a response from someone on the repeater. Emergency traffic (or communications) on the repeater should normally be handled by the first to respond, and supported by any others that may be on frequency to assist by making phone calls, etc.

If there are any questions concerning repeater protocol, feel free to contact the trustee, or consult with ARRL website, for answers.



## BVRC SPECIAL EVENT STATION

# K5A

## SATURDAY – AUGUST 11, 2018

Mark your calendars, BVRC members, for Saturday, August 11<sup>th</sup>, for what will be a rewarding and super fun experience!

Bella Vista Radio Club is happy to announce that we have partnered with the Shiloh Museum of Ozark History to join them in their 50<sup>th</sup> Anniversary celebration with amateur radio via Special Event Station K5A, on this special date. We will be operating from the General Store on the museum grounds (which is air conditioned).

Two stations will be in operation, SSB and CW.

The address for the museum is:  
118 West Johnson Avenue  
Springdale, AR 72764

K5A will go on the air from the SMOH General Store on Saturday, August 11, at 1300Z (8:00 am local time) and will conclude at 2300Z (6:00 pm local time).

All BVRC members are invited and encouraged to stop by and visit the

# Shiloh Museum



# of Ozark History

**50 YEARS**  
1968–2018

station, and *operate and/or log* if you so choose.

To avoid confusion and promote fairness in operating time with this all-day event, an Operator Schedule is being arranged. Any and all BVRC members who wish to operate or assist in logging, are heartily welcomed to do so, but you must get on the Operator Schedule. The schedule will be divided into 1-hour shifts.

If you are interested in getting on the schedule, send an e-mail to Ron-K5XK at: [k5xk@arri.net](mailto:k5xk@arri.net) and include the following information to Ron:

\*\*\*Time slot(s) you desire to operate

\*\*\*Mode you would like to operate –  
SSB and/or CW

\*\*\*If you would like to help by logging  
only: YES or NO

**SEE YOU AUGUST 11<sup>th</sup> !!!!!!!!!!!!!!!**



# WELCOME NEW BVRC MEMBERS!

Andy Wittenburg  
KG5SMX

David Baker  
KEØMWG

Steve Gibbs  
K5OY

# BVRC SWAG!

To order personalized BVRC Name Tags, Coffee Cups, Mouse Pads, Key Tags, License Plate Holders, etc., they're incredibly inexpensive for \$10 each. Click on the items on the front page of the website. The link takes you to Greg Doty, KF5ZIM's website where you make your selection and pay via PayPal.

# BVRC GROWS...

As of early May, your radio club has almost 60 'family memberships.' Of those, we have 8 husbands (or "OMs") and 8 wives (YLs or XYLs, in ham vernacular) who are also licensed. In a family membership, there are multiple hams in the same household, but only one 'primary' who is a voting member. We also have 3 members who are prospective radio amateurs.

It's not about 'the numbers,' but we are pleased that so many of you have made BVRC the largest radio club in the NW Arkansas region.



**Steve, AB9YN**, a director for BCTV –has offered to train club members to video club meetings using the TV studio's H.D. cameras, lighting, mikes and other field gear. The raw video footage will then be edited and produced into a professionally finished video for playback on the Bella Vista community channel and uploaded to YouTube. Club videographer volunteers are Bob Rainwater (WBOAUQ), Frank Majdan (KG5ANT), and Marc Whittlesey (WØKYZ). BCTV can be viewed throughout the NW Arkansas area on Cox Cable Ch 222 and AT&T U-Verse Ch 99 (see <http://bellavistatv.org/>).

**Member Donations** – at the May 3<sup>rd</sup> meeting, two BVRC members made these generous donations to the club:

-**Joe Hott, WD9AEN**, donated a Kenwood TS-430S HF transceiver with mike, power cord and manual—and loaned the club a matching Kenwood antenna tuner.

-**Dan & Linda Lewis, W5CG / KB7PNK**, donated a Moseley TA-33 triband HF yagi.

These items will be put to great use at Field Day and special events, along with the new club call, N5BVA. Thanks a million Joe, Dan & Linda!

May Door Prizes: ICOM IC-28H & AC Voltmeter, donated by WBOAUQ...Solder Station Kit and accessories, donated by KG5SZQ...and 4 tasty assortments of Lynda's Nuts, donated by Gregg & Lynda Doty (KF5ZIM). Thanks everyone for your generosity and helping make our monthly meetings so attractive!

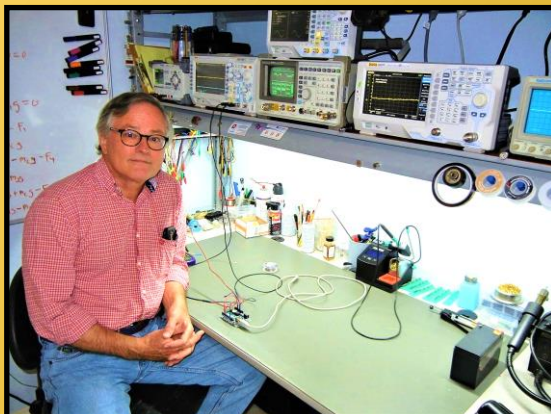
Note: If you would like to donate gear, equipment or antennas to the club, or assist with providing radio-related items for our monthly Door Prizes, please contact VP Chris Deibler (KG5SZQ) at [chris52@cox.net](mailto:chris52@cox.net), or President Kilpatrick, [WB5L@arri.net](mailto:WB5L@arri.net). Thank you!

# SIMSMITH

## (MAKING THE SMITH CHART FUN TO USE)

**By Steve Werner – K5SAW, BVRC Technical Officer**

*(This is a continuation of the stellar discussion from last month's issue of The Signal)*



A Smith Chart is a wonderful tool to simplify the design of radio frequency systems, but most ham radio operators are not familiar with a Smith Chart beyond the questions asked on the license exam. Questions such as:

E9G01 (A)

Which of the following can be calculated using a Smith chart?

- A. Impedance along transmission lines
- B. B. Radiation resistance
- C. Antenna radiation pattern
- D. Radio propagation

E9G02 (B)

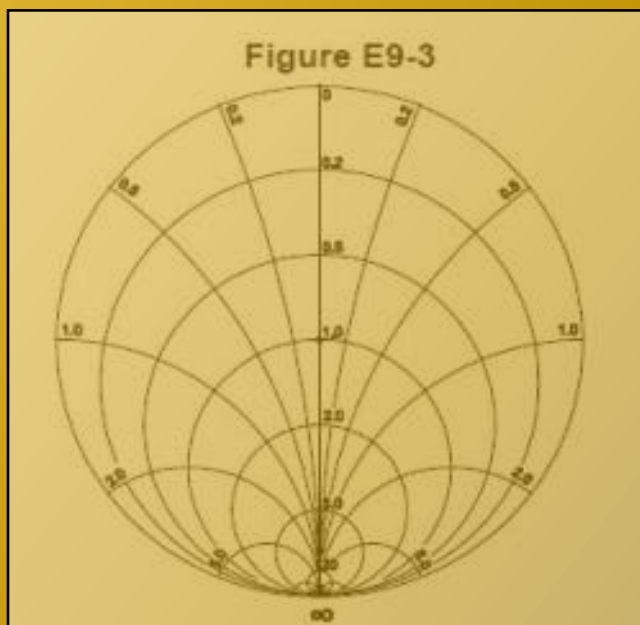
What type of coordinate system is used in a Smith chart?

- A. Voltage circles and current arcs
- B. Resistance circles and reactance arcs
- C. Voltage lines and current chords
- D. Resistance lines and reactance chords

E9G03 (C)

Which of the following is often determined using a Smith chart?

- A. Beam headings and radiation patterns
- B. Satellite azimuth and elevation bearings
- C. Impedance and SWR values in transmission lines
- D. Trigonometric functions



These questions probably left a bad taste in the mouth for most people taking the ham license exam, but the Smith Chart can be fun to use while helping you get the most from your antenna system.

SimSmith by Edward S Harriman, Jr AE6TY is a fabulous and free program [http://www.ae6ty.com/Smith\\_Charts.html](http://www.ae6ty.com/Smith_Charts.html) that provides Smith Chart capabilities on steroids.

This program will take most all the work out of using the Smith Chart, and it provides simulation and analysis way beyond what would normally be done on a Smith Chart. In addition, there is a great youtube channel [https://www.youtube.com/channel/UCKSyLSu4fm\\_1RH03Jvk4YQ](https://www.youtube.com/channel/UCKSyLSu4fm_1RH03Jvk4YQ) by Lawrence Benko W0QE that explains everything about using the program from very basic to extremely complex.



### Some fun things to do with SimSmith:

- Calculate the impedance at the antenna input using the measurements taken by an antenna analyzer at the bottom of the coax
- Easily find the value of inductors, capacitors and coax length needed to match your antenna
- Predict the power delivered to the antenna as well as the power dissipated in antenna matching components and coax
- Model and tune a stub matching system
- Predict the antenna impedances that can be matched with an antenna tuner
- Import the data from an antenna analyzer to provide the actual antenna impedance as the load (i.e. frequency dependent load data for the Smith Chart)

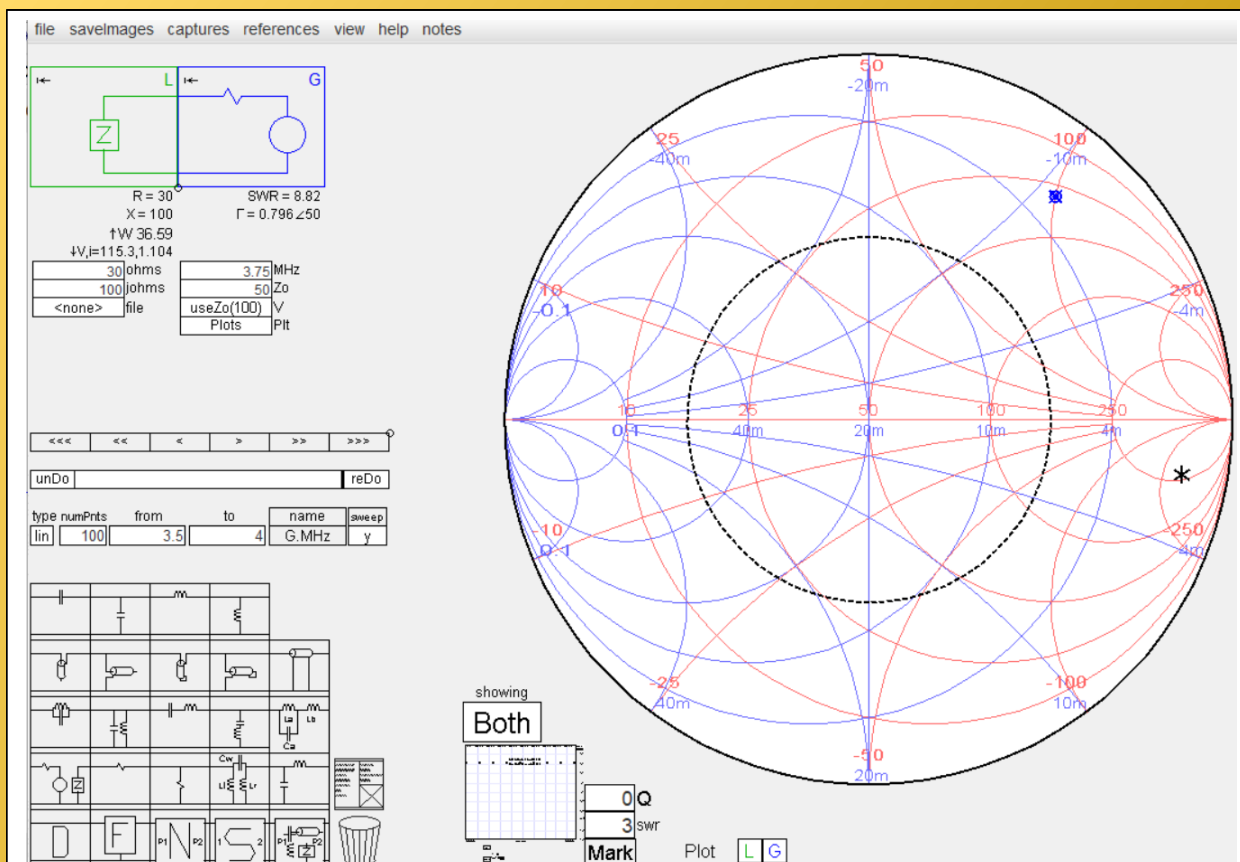


Figure 1. The SimSmith screen.

The SimSmith application (Figure 1) shows the Smith Chart on the right side, the load/generator in the upper left corner, and the circuit elements in the lower left corner (shunt/series inductors, capacitors, stubs, automatic Pi/L circuits and control blocks). To build a circuit for SimSmith, simply drag and drop the circuit elements into load/generator circuit. When the circuit elements are placed between the load and generator, the circuit values can be adjusted with the mouse wheel and the results will be displayed in the Smith Chart on the right.

A simple example of SimSmith is to see what happens when you change the length of a coax that is terminated with a load that does not match the coax impedance like the circuit in Figure 2 where a 50 Ohm transmission line is terminated with a 10 Ohm resistor. This circuit is created by dragging and dropping the coax line between the generator and the load. The load impedance is changed to 10 Ohm resistance / 0 Ohms reactance, and the starting point is automatically plotted on the Smith chart (the pink dot on the left side of the chart).

This Smith Chart shows red circles for the constant resistance values and red arcs for the constant reactance values.

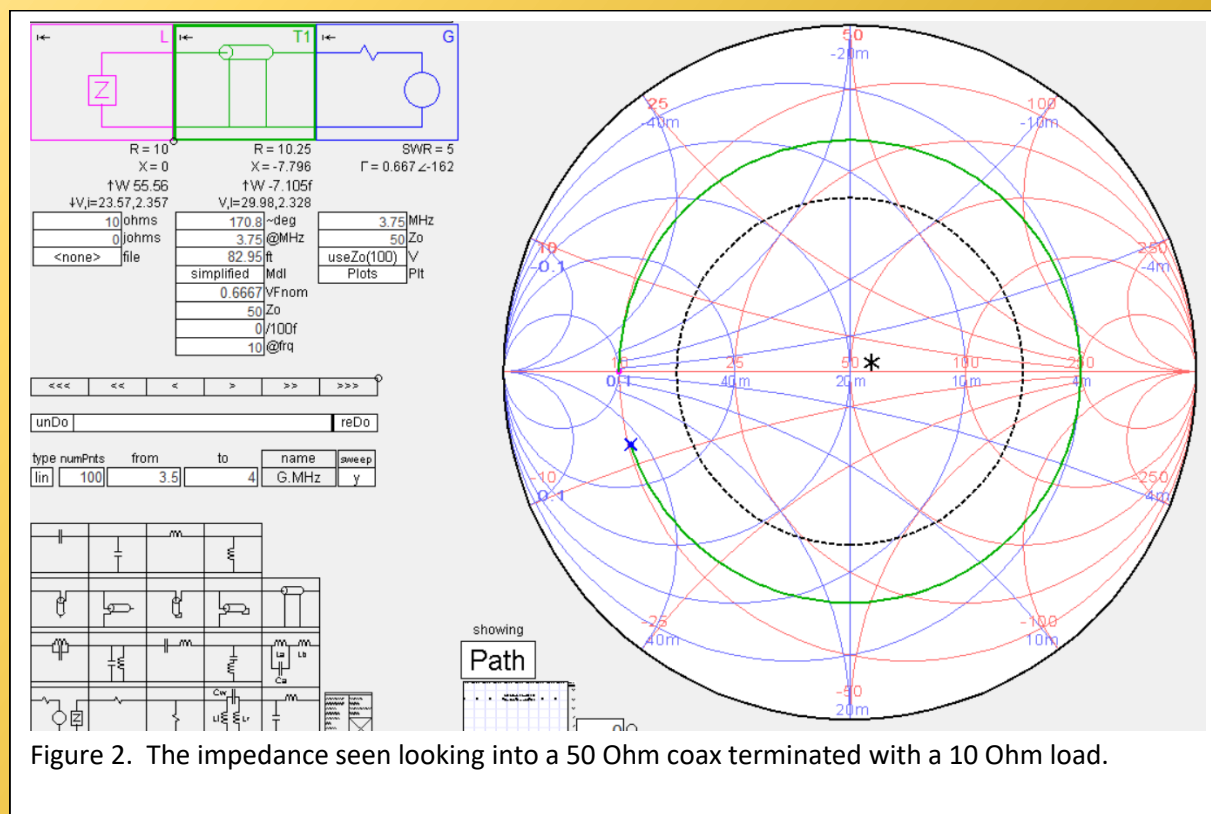


Figure 2. The impedance seen looking into a 50 Ohm coax terminated with a 10 Ohm load.

As the length of the coax is changed with the mouse wheel while hovered over the coax length field, the impedance coordinates make a clockwise circle (the green line) around the Smith Chart. One half rotation around the circle is a one quarter wavelength of coax, and a full rotation is a half wave length of coax. Since the upper part of the Smith Chart indicates an inductive reactance (positive) and the lower part of the Smith Chart indicates a capacitive reactance (negative), the coax input impedance will go in a circle from purely resistive to inductive to purely resistive to capacitive to purely resistive. This Smith Chart tells you the following about the input impedance of a coax terminated with a short circuit or resistive load less than the coax impedance.

1. 0 to  $\frac{1}{4}$  wavelength = inductive impedance.
2.  $\frac{1}{4}$  wavelength = open circuit or high resistance.
3.  $\frac{1}{4}$  to  $\frac{1}{2}$  wavelength = capacitive impedance.
4.  $\frac{1}{2}$  wavelength = back to the impedance of the terminating load on the coax.
5. Step 0 to 4 continue to repeat as the coax gets longer than  $\frac{1}{2}$  wavelength.

If the coax load impedance is open circuit or higher resistance than the coax impedance, the new starting point would be on the right-hand side of the Smith Chart, and the impedance would move clockwise in a circle as length of the coax is increased.

Perhaps you remember some of the extra class ham radio exam questions where they asked the input impedance of a shorted or open coax that was a quarter wave, half wave or in between a quarter and half wave long. If you learned the following things about the Smith Chart, you could answer any question about coax input impedance terminated with any load on any length of coax.



1. The center point of the Smith Chart is a 1:1 impedance match for the coax (50 Ohms)\*
  2. Resistance increases to the right of center and decreases to the left of center.
  3. The top half of the Smith Chart is inductive and the bottom half is capacitive.
  4. One trip around the Smith Chart is  $\frac{1}{2}$  wavelength.
  5. Clockwise rotation on the Smith Chart moves down the transmission line away from the load toward the generator.
- Note: Some Smith Charts are normalized to set the center point to 1 so they will be easier to use with transmission lines of any impedance.

Hopefully the extra class ham questions about coax input impedance should be much easier to answer with this simple understanding of the Smith Chart instead of the brute memorization of these answers. The coax with a shorted end will start at the far left side of the Smith Chart (0 Ohms) and the coax with an open circuit end will start at the far right side of the Smith Chart (infinite resistance). If you then rotate clockwise around the circle with  $\frac{1}{2}$  wavelength per revolution, all the answers will pop out for any of the questions about coax input impedance with an open or short circuit termination.

# **BVRC NEEDS YOU!**



# **FOR FIELD DAY 2018**

## **JUNE 23-24**

# Women in the Signal Corps

During World War I, it might surprise you that women were key to Signal Corps communications. Some were proficient in Morse Code; others served the Corps as telephone operators and are the subject of an [interesting story in the Kansas City Star.](#)



Many are unaware of the World War I Museum and Memorial in Kansas City, a 5-star attraction, three hours to our north. The museum has a very active radio club, which memorializes several events throughout the year with their special event call, WW1USA. All licensed amateurs are invited to schedule a time to operate during these activities.

For more information, see:

<https://www.theworldwar.org/>

<https://www.qrz.com/db/ww1usa>

<https://www.theworldwar.org/amateurradio>





## Why Ham Radio Endures



Somehow it makes little sense that amateur “ham” radio continues to thrive in the age of Twitter, Facebook and iPhones. Yet the century-old communications technology — which demands such commitment that you must generally pass an exam to receive a license — currently attracts around 350,000 practitioners in Europe, and a further 800,000+ in the United States, some 60 per cent more than 30 years ago.

What is it about a simple microphone, a transmitter-receiver and the seductive freedom of the open radio spectrum that’s turned a low-tech anachronism into an enduring and deeply engaging global hobby?

For a start, there is that thrill in establishing a magical person-to-person long-distance radio conversation that no commodified internet communication can compete with. In a world of taken-for-granted torrents of e-mails, instant messages and Skype video-chats, there is a purity and a richness in the shared experience of exchanging “73s” during a live “QSO” with strangers on another continent.

Why, the very ham slang that defines the community — 73 translating as “best regards”, and QSOs as two-way conversations — tells practitioners that they belong to a special, mutually curious and highly courteous club. And the fact that DXers (long-distance amateur operators) take the trouble to acknowledge received transmissions and conversations by sending their new contacts custom-designed postcards through the analog postal service ... well, that is charm itself in a world where it’s considered excessive to end a communication with anything more effusive than a “bestest”.

You only need study a handful of these cards to understand, even today, the old-fashioned excitement of connecting with a stranger who might be many thousands of miles away. The postcards — known as QSL cards — can be as quirky and personality-filled as the senders themselves. At times humorous and characterful, at others terse and geographically factual, they have naturally inspired their own subculture that has spurred DXers to collect and display them much as they would colorful foreign postage stamps.

The cards invariably display as a minimum some basic factual information about the sender. This will generally include the radio operator’s individual call sign, his (there are not too many “hers”) location, and a few details about the signal detected. And just to show that the Twitter generation did not invent the linguistic contractions exemplified in text-message speak, QSL cards to rely on slang and abbreviations to pack information into a tight space.

So cards will display the “RST” — the received radio station’s readability, signal and strength; perhaps details of the sender’s “XMTR” (transmitter) and “ANT” (antenna); and occasionally a request to reciprocate, expressed as the shorthand “PSE QSL TNX” (please send an acknowledgement card, thanks) or the more chatty “hw abt a crd om?” (How about a card, old man?) Old man, by the way, is not a reference to the recipient’s age — just as, on the rare occasions when the DXer is female, she is referred to as a “YL”, a young lady, whatever her chronological age. (Cont. next page)



DXers have been exchanging QSL cards since at least 1916, when Edward Andrews of Philadelphia — call sign 3TQ — recorded the receipt of a card from 8VX of Buffalo, NY. Over the next decade, the hobby took off — so much so that, by 1928, Paul Segal (W9EEA) had formulated an “amateur’s code” setting out six key qualities to which practitioners must adhere: “The radio amateur is considerate... loyal ... progressive ... friendly ... balanced ... [and] patriotic,” Segal specified, always ready for service to country and community.

Since then, the hobby has captivated royalty and celebrities alike. Among the most celebrated DXers have been the late King Hussein of Jordan (call sign JY1). And if monarchs have never appealed, you could instead have shot the breeze with Marlon Brando (FO5GJ), prime minister Rajiv Ghandi of India (VU2RG) or the CBS anchorman Walter Cronkite (KB2GSD) — not forgetting the singers Cliff Richards (W2JOF) or Joe Walsh of The Eagles (WB6ACU).

It’s little wonder that collectors describe the buzz of receiving a new exotic foreign card as akin to that of philatelists discovering a rare commemorative stamp. That explains why the late Jerry Powell, a New Jersey ham between 1928 to 2000 (W2OJW), proudly displayed the 369 cards he had gathered from Okinawa to Papua. (In modern times, electronic QSLs have come into play due to the high cost of international postage, the extended time period involved, and the discontinuance of International Reply Coupons. However, hard copy QSLs still play a significant role in DXCC confirmations.)

Plus, of course, the chance to be a genuine real-life hero – Days after a magnitude 7.3 earthquake devastated Haiti, amateur radio operators were busy at work connecting rescuers within the country and contacting survivors’ families. When a magnitude 8.8 earthquake hit Chile, and the phone network collapsed, a radio operator named Alejandro Jara broadcast the first information from the ground.

Hams stepped-in on September 11, 2001, and during Hurricane Katrina. Then there was Tony Pole-Evans, a bird lover with a short-wave radio on Saunders Island, who famously risked his life during Argentina’s 1982 invasion of the Falkland Islands to radio the first news back to Britain that 1,000 soldiers had landed on Goose Green.

How exciting it must have been to intercept that particular radio call. And boy, what a QSL card to top one’s collection. You can tweet all you like, but this is the way to communicate.

**THE SIGNAL** newsletter is published monthly for members of the Bella Vista Radio Club. BVRC disclaims any responsibility for the accuracy or the content of articles published herein. The opinions expressed are solely those of the authors. BVRC neither necessarily endorses nor opposes said opinions, brand names, products, businesses, organizations, etc. As the pursuit of excellence of amateur radio related news, items, articles, and material in this newsletter is ongoing, suggestions or requests as to how to improve its quality are welcomed. BVRC members are encouraged to submit articles to the editor, Don Banta-K5DB, 3407 Diana St., Springdale, AR 72764 (or E-mail to: [arsk5db@gmail.com](mailto:arsk5db@gmail.com)) for publication in this newsletter. The deadline for articles is the 10th of each month.