



# The Blue Ridge Echo .. Echo .. Echo ..



**Official Transmitter of the Blue Ridge Amateur Radio Club - W4YK -**

## MEETING MINUTES FROM JUNE, 2022

The June 7<sup>th</sup> meeting of the *Blue Ridge Amateur Radio Club (BRARC)* was held in person and streamed online via Zoom, and began shortly after 7:00pm with the Pledge of Allegiance. The minutes from the May meeting were approved by the membership.

### ATTENDANCE

23 Members attended (15 in person and 8 online via Zoom), with no guests.

### TREASURER’S REPORT

May 1 – May 31, 2022

Balance as of 04/30/22		<b>\$ 6,284.73</b>
<b>Plus:</b> Dep: 3x 2022 dues @ \$20	\$ 60.00	
	Total Income	<b>\$ 60.00</b>
	Sub-Total	<b>\$ 6,344.73</b>
<b>Less:</b> Exp: (none)	\$ 0.00	
	Total Expense	<b>\$ 0.00</b>
	<b>BALANCE AS OF 05/31/22</b>	<b>\$ 6,344.73</b>

### ANNOUNCEMENTS

#### *Upcoming Events*

Road Show Swapfest & Fox Hunt. 8:30am Saturday, June 11<sup>th</sup> at Janitzio Mexican Restaurant at 1053 Spartanburg Hwy in Hendersonville.

The Knoxville Hamfest will be Saturday, June 18<sup>th</sup>.

*Field Day!* June 25<sup>th</sup>/26<sup>th</sup> at Jackson Park, near the club shack.

The BRARC will coordinate the Hendersonville Merchants and Business Association’s *Fourth of July Parade* on Monday, July 4<sup>th</sup>. This year the parade lineup area will be on South Main Street and the parade will proceed north to 6<sup>th</sup> Avenue, then toward Grove St, disembarking at Home Trust Bank and Hendersonville Presbyterian Church.

The *WCARS Hamfest* will be July 23<sup>rd</sup> in Waynesville. <http://wcars-club.org/> The BRARC does not plan to rent tables for member sales this year.



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Lee (NC4LM) says the Rotary Club has requested that BRARC and ARES again help with the Labor Day *Tour d'Apple* bike ride, to be held on Monday, September 5<sup>th</sup>.

Ronnie (K2SST) hopes to arrange a BRARC group to tour PARI, the Pisgah Astronomical Research Institute, west of Brevard. The next available dates are in November.

## BUSINESS

### *WNC Flyer*

The WNC Flyer was Sunday, June 5<sup>th</sup>. Coordinator Danny (NA4X) shares this noted from the Blue Ridge Bicycle Club, *"Your team provided the excellent event radio coverage that we have come to rely on. It's always a pleasure to work with everyone. I even remember a few from year to year. The Flyer and Blue Ridge Bicycle Club is very appreciative of the professional service the Blue Ridge Amateur Radio Club provided last Sunday. Your involvement assures a high degree of safety and quick response for this event."* We supported just under 1000 cyclists on 4 different rides ranging from 33 to 100 miles. It's a great way for us to get out and practice communications in less-than-ideal conditions. This year we had to coordinate 16 rider pickups, which was a record for us, and often chaotic. We have ideas for how to track this better.

### *PARI Field Trip*

Ronnie Parham (K2SST) would like to set up a BRARC tour of PARI – the Pisgah Astronomical Research Institute west of Brevard. <https://www.pari.edu/> Members of the club went there during an open house in 2014, but this would be a private tour of all areas now viewable, including some new exhibits. November is the next time dates are available. We need a minimum of 10 for a tour. We may be able to ask the club to help with the cost.

## PRESENTATION

James Reed (KK4JFO) presented tonight's program on *Field Day*. It will be July 25<sup>th</sup>/26<sup>th</sup> at Jackson Park, outside of the house where we meet, on the opposite side from the club shack.

James started by sharing a YouTube overview of Field Day, "An Introduction to the ARRL Field Day - 1<sup>st</sup> in a series", by Tom, ND3N, <https://www.youtube.com/watch?v=ZO40IntiWdk>.

BRARC Field Day setup will start Friday, June 24<sup>th</sup> at 5:00pm, with about four hours of putting up antennas. On Saturday at 9:00am we'll set up the tents, tables, chairs, power, etc, followed by the radios and computers. We'll have designated radios and computers, but members can feel free to bring their own radios and even antennas if they'd like to try them out for a bit as part of our Field Day. (They have to be used as a one of our phone, cw, digital or Get-On-The-Air / GOTA stations so that we stay in our 3A designation.)

At 2:00pm on Saturday, W4YK will be on the air for 24 hours straight. We will try to honor timeslot requests, but we hope all can be flexible. Email James at [jshreed@bellsouth.net](mailto:jshreed@bellsouth.net) with requests, or take your chances and sign up on site! Operating positions can be easier with separate operators and loggers, but one person can do both. Don't be shy – you can pair up with someone who is familiar with Field Day and the equipment to help you, somewhat as a training session. Come learn with us!

Bonus Points have been expanded this year. We plan to promote our operation on our Facebook page at <https://www.facebook.com/groups/2528288280790087/>, the "*Blue Ridge Amateur Radio Club Group W4YK*". Susann Swan (K9FMZ) will be our Safety Officer, as we are inviting the



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public and need to be safe. We will be copying the ARRL Bulletin, contacting elected officials, encouraging youth (18 years or younger) to make multiple contacts, having a Public Information table, using solar power for some contacts, attempting satellite QSOs, having a GOTA station, having an educational activity on using EchoLink, sending ARRL messages to our Section Manager as well as individual messages to our friends, and possibly more! Check out Section 7.3 at <http://www.arrl.org/field-day-rules> and email James at [jshreed@bellsouth.net](mailto:jshreed@bellsouth.net) with ideas, offers or information.

Last, but certainly not least, food! At about 5:00pm Saturday we'll have catered barbecue on the porch, and members are invited to bring desserts. We also need snacks and finger foods to keep the operators, loggers and guests going during the entire Field Day operation. The club will have some, but bring your favorite to share, too!

So plan to take part in this fun event, always the highlight of the year. It shouldn't be stressful for anyone if we have enough volunteers. Make your plans now, and let James know, too!

## MEETING ENDED

The meeting adjourned at about 8:30pm.

Minutes submitted respectfully by Steve Smith (KC5F), Secretary.

## ARES MEETING AND CONTACT CHANGE

The Henderson County Ares/AUXCOMM now meets at the Mountain Area Healthcare Preparedness Coalition warehouse at 518 S Allen Rd, Flat Rock. It meets 6:30 pm on the fourth Monday of the month. All interested hams or individuals wishing to learn more should contact Scott Sutton, Henderson County Emergency Coordinator (EC) at [smat691@gmail.com](mailto:smat691@gmail.com).

## CALENDAR OF UPCOMING EVENTS

Date	Description
Sat, June 18	Informal Breakfast Get-Together – 9am, Ingles 625 Spartanburg Hwy.
Fri, June 24	Field Day Antenna Setup – 5pm-9pm
Sat, June 25	Fields Day Tent and Radio Setup – 9am
June 25 - 26	Field Day! – On the air 2pm Saturday through 2pm Sunday.
Sun, June 26	Field Day Teardown – 2pm-4pm
Mon, June 27	Henderson County Ares/AUXCOMM – 6:30pm. Mountain Area Healthcare Preparedness Coalition warehouse at 518 S Allen Rd, Flat Rock.
Mon, July 4	Fourth of July Parade – Positioning on South Main St
Tue, July 5	BRARC Meeting - In person in Jackson Park. In addition, you can still attend virtually. <b>Latest instructions to login are on the BRARC website.</b>
Sat, July 23	WCARS Hamfest - Waynesville

## FOR SALE

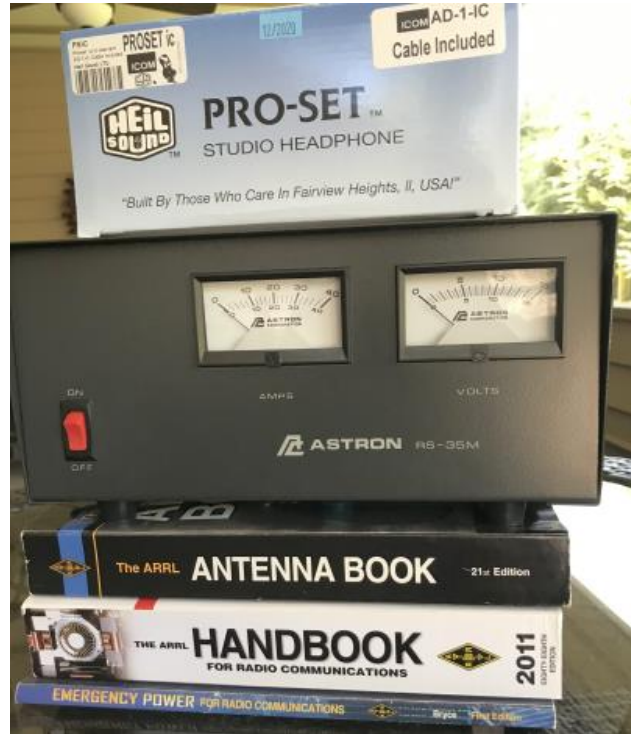
Regrettably, I am now at a point in my life where I must start downsizing and the amateur equipment must go. The pictures show my ICOM 746 HF/VHF all mode transceiver, Astron RS-35M power supply, Heil Sound Proset AD1-IC headphones and a bunch more handbooks



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than are shown. I am hopeful that someone new to the hobby might find this "package" of good value for \$695 or thereabouts.

Regards,  
George Bond, KF4YFK - 828-230-4113



## Ham Shack Wiring (from Bill Brownlow, K4BJW)

Wire – there’s so many choices and so many different suggestions I’m left confused and don’t know what is right. Let’s try to remove a little of the confusion and talk about wire, its size or gauge, insulation types and different standards.

First off, let’s talk about wire size or gauge and its ability to carry the current needed to power our radios to their full potential. There are several different things we need to keep in mind because they are all interrelated. First let’s clear some confusion about the insulation or covering on the wire selected. For our purposes we are going to focus on 6 different wire insulations and their properties. These are not listed in any particular order other than listing them alphabetically.

Insulation	Description
AWM	Appliance wire, Thermoplastic (PVC) 105° Dry locations
MV	MV-90 or MV-105 Medium voltage wire PVC insulation rated for 90 or 105° Dry
RH	RHH or RHW rubber insulation with W indicating used in wet locations
SF2, SFF-2	Silicone insulated fixture wire, flexible strand 600°
TFFN, TFN	Thermoplastic insulation (PVC), fixture wire, 90°C, dry locations, Nylon jacket
THHN	Thermoplastic insulation (PVC), high heat resistant, 90°C rating, dry or damp locations, Nylon jacket





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Each type of insulation has different ratings as to the maximum jacket temperature, flexibility, and abrasion resistance. Thermoplastic or PVC has the poorest abrasion resistance but is an excellent choice for connections that don't route over sharp edges or experience movement. Rubber is a great choice for installations that will experience movement, but its limitations are heat and abrasion. That leaves us with my choice, silicone insulated wire, type SF2 or SFF-2. SF2 is either a solid conductor or one having up to 7 strands. SFF-2 is insulated fixture wire, flexible strand. Most of the silicon rubber covered wire sold is SFF-2. The one additional advantage to silicon rubber insulation is it will withstand heat up to 600 to 650° C before the insulation breaks down.

Perhaps the area of wire selection with the most discussion (and confusion) is in regard to what size wire is needed to carry the current from my voltage source to my radio or load. There are two main areas of differing opinions here. One is focused on the wire size and gauge requirements as found in the Nation Electrical Code or NEC and the ampacity values based on the current carrying capacity of the conductors.

First off, the NEC is based on commercial wiring found in buildings. The purpose of the NEC is to limit the capacity of conductors to prevent heating which can start fire. The NEC is published by the NFPA or National Fire Protection Association and forms the basis for the wiring standards used in construction. The NEC is also focused on higher voltages, those above 90V AC and not the low voltages used to power our radios. That's not to say the NEC is wrong, but only that it should be a guide to your needs.

Ampacity tables are designed to describe how much current can a given conductor pass to raise the insulation temperature to a specific level. This is more in line with our requirements for low voltage use such as powering a radio from a power supply. While both are focused on the temperature of the wire and its insulation their focus is inherently different. Our needs for ham shack wiring are primarily for short (less than 15 feet or about 4 meters) runs of cabling. The NEC assumes you will have longer wire runs as needed for a building. Longer wire runs increase the loss or voltage drop in a wire and that generates heat along the entire length of the wire increasing the fire danger.

In calculating wire size, we need to use both ampacity tables and the NEC. The NEC is the choice to determine the size wire needed to bring the AC voltage to our DC power supply while the Ampacity tables determine the wire size to bring the DC between the power supply and radio. To illustrate, lets calculate the wiring needed for a 360W power supply and a 100W radio.

First, we need Ohm's Law to determine the amount of current required from both sources. Power, or watts, is current times voltage or power divided by voltage to yield current. For my AC side I divide 360 by 117V to yield 3A. My power supply isn't totally efficient, so additional input current is needed to overcome the conversion loss within the supply. Most switching power supplies are around 85% effective, so we need to increase the input current and make up for the losses. This raises my input current requirement to approximately 3.25A. My NEC calculator says the minimum size wire I need for this is PC insulated 14 Ga. Now, we calculate the wire size needed for the DC cable for my radio. Radios having a 100W output normally draw around 28A of DC current. Here, the NEC calculator says I need 12 Ga wire. My ampacity table states I should use either 14 or 12 Ga PVC insulated wire depending on the insulation temperature. Use the smaller wire for insulation temperatures of up to 90° C or 12 Ga to keep the insulation temperature below 60° C. Rubber or silicon insulations will not show any heating.

If you are using a 50W radio I recommend the same size wires as the power supply will probably be the same. You can decrease the wire size to the radio to either a 16 or 18 Ga depending on the



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radio's required draw but I wouldn't as it will be easy to use too small a gauge wire for a radio with a higher draw. For my wiring I use 14 Ga as the smallest with 10 Ga for all but the most higher power radios. Wire sizes for batteries are different still.

My recommendation for wires from a battery to a power distribution block depends on both the capacity of the block and the amp hour rating of the battery. For a 7 to 20 amp hour (AH) battery, 14 Ga silicon would be the smallest with 12 Ga preferred. Twenty-four to 40 AH batteries should use 12 Ga with 10 Ga being the preferred size. Batteries having up to a 100 AH rating should use a minimum of 6 Ga with 4 Ga being the preferred.

## Ampacity Table

SIZE	Insulation Type					
	TW, UF	RHW, THW, THWN	TBS, SA, SIS	TW, UF	RHW, THW, THWN	TBS, SA, SIS
Conductor	Copper			Aluminum		
AWG	60°C	75°C	90°C	60°C	75°C	90°C
14	25	30	35	-	-	-
12	30	35	40	25	30	35
10	40	50	55	35	40	40
8	60	70	80	45	55	60
6	80	95	105	60	75	80
4	105	120	140	80	100	110

## AREA HAM RADIO NETS

<b>FM NETS - 2 METERS</b>		
BRARC Net (W4YK)	146.640 MHz / T91.5 H'ville	Sunday 8:00pm
Slow Scan TV Net	146.640 MHz / T91.5 H'ville	Sunday 9:00pm
Henderson County ARES Net	146.640 MHz / T91.5 H'ville	Wednesday 9:00pm
Anderson Radio Club Net	146.790 MHz Pickens SC	Daily 8:30pm
Blue Ridge Traffic (SC)	146.610 MHz Caesars Head SC	Daily 9:00pm
Good Morning Net	146.910 MHz Asheville	M-W-F 9:00am
WCARS Information Net	146.910 MHz/ T91.5 Asheville	Monday 9:00pm
WCARS Simplex Net	147.525 MHz	Tuesday 8:30pm
Buncombe ARES Net	146.910 MHz / T91.5 Asheville	Wednesday 9:00pm
Transylvania ARC Net	147.135 MHz Brevard	Thursday 8:00pm
6600 Net	145.190 MHz Mt Mitchell	Saturday 9:00pm
Slow Scan TV Net	146.790 MHz (no tone)	Saturday 9:15pm
Oasis Shrine Net	145.190 MHz Mt Mitchell	Sunday 9:00pm
<b>FM NETS - 6 METERS</b>		
6 Meter Net	53.130 MHz / T100 H'ville	Friday 9:00pm
<b>FM NETS - 220 MHz</b>		
Mount Mitchell 220 Net	224.540 MHz Mt Mitchell	Monday 8:00pm
Mount Pisgah 220 Thurs Net	224.260 MHz Mt Pisgah	Thursday 8:00pm



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<b>HF NETS</b>		
NC Morning Net	3.927 MHz	Daily 7:45am
SATERN Net	14.265 MHz	Daily 10:00am
NC Evening Net	3.923 MHz	Daily 6:30pm
Tarheel ARES Net	3.923 MHz	Daily 7:30pm
K4UUQ Morning Net	7.228 MHz	M-Sa 7:00am/Sun 8:00
80 Meter Simplex Net	3.843 MHz	Thursday 9:30pm
Get Up and Go Net	28.350/28.360 MHz	Sunday 9:00pm

<b>DIGITAL MOBILE RADIO NETS</b>		
DMR Net	WNC Local Talk Group	Monday 7:30pm
DMR PRN Net	PRN Local Talk Group	Tuesday 8:00pm
WNC Net	WNC System Fusion YS24157	Wednesday 9:00pm
DMR Net	WNC Net Talk Group	Thursday 8:30pm

## BLUE RIDGE AMATEUR RADIO CLUB OFFICERS

<b>Title</b>	<b>Name</b>	<b>Call Sign</b>	<b>Phone</b>	<b>Email</b>
PRESIDENT	Bill Gunn	KB2GUN	704-934-1950	<a href="mailto:kb2gunb@yahoo.com">kb2gunb@yahoo.com</a>
VICE-PRESIDENT	James Reed	KK4JFO	828-698-3609	<a href="mailto:jshreed@bellsouth.net">jshreed@bellsouth.net</a>
TREASURER	Susann Swan	K9FMZ	828-747-2250	<a href="mailto:susann93@use.startmail.com">susann93@use.startmail.com</a>
SECRETARY	Steve Smith	KC5F	828-489-6637	<a href="mailto:kc5f@arrl.net">kc5f@arrl.net</a>