



Smoky Signals

Smoky Mountain Amateur Radio Club

Summer 2023

Editor - Josh Marler, WX4KXT - info@w4olb.org

OFFICERS

Bob Wilson, KK4XA - President
Mike Foley, K4MJF - Vice President
Bob Loving, K9JU - Secretary
Dave Kahn, N9KMF - Treasurer

Nets

SMARC Weekly Net.
Thursday 1900 hrs
146.655 & 443.075

KK4XA Morning Net
M-F 0900 hrs
146.655 & 443.075

Club Meetings

4th Monday Monthly*
1900 hrs
USW Union Hall
339 Hall Road
Alcoa, TN 37701
*Excludes June and Dec

Typical Gatherings

Tech Lunch
Thursdays @ 1130hrs.
TC's Grill
2514 Old Niles Ferry Rd.
Maryville, TN

Eyeball Net (Breakfast)
Friday's @ 0830hrs
TC's Grill
2514 Old Niles Ferry Rd.
Maryville, TN



Field Day 2023 was a Huge Success

I want to say thanks to everybody who come out this field day at Smoky View Baptist Church. Special thanks to Smoky View Baptist Church for allowing us to participate there, it's a great facility. Special thanks to Karen and Mike Foley (K4MJF) for heading up the food with Buddy's BBQ. Also special thanks to Josh Marler (WX4KXT) our public information officer reaching out to Local media about the event and to WFIV 105.3 FM for the live interview with them. Thanks to Jordan Webb (K4AVG) for taking care of our I.T. needs and taking care of the logs and Paul Gallantine (W4LSM) for collecting those logs and getting those off to the ARRL. Finally, Greg Williams (K4HSM) for heading up the GOTA Station using East TN Skywarn (WX4TYS).

Planning has begun for 2024 Field Day with Jordan (K4AVG) and Josh (WX4KXT) co-chairing next year's event.

73
Bob Wilson, KK4XA
SMARC President



ARRL Membership Dues Increase

For only the second time in 22 years the ARRL has raised membership (ARRL, not SMARC) dues. Beginning January 1, 2024, one year dues will be \$59 and three year dues will be \$174. This is an increase of \$10/year.

The other noticeable change will be to QST and On The Air Magazine. Beginning January 1, 2024, printed and mailed magazines will require additional payment to the ARRL of \$25. However all ARRL magazines will still be available free of charge to members of ARRL though the ARRL app or website.

ARRL President Rick Roderick, K5UR says "The cost of doing business goes up every year. During the last couple of years, the costs associated with printing and postage have increased significantly. We've cut and delayed hiring for some positions on our professional staff - one of the smallest teams we've had staffing our headquarters in Newington, Connecticut, in years. We are also continuing to examine other cost-saving measures, but we cannot go further without reducing or eliminating benefits and programs which our members have told us are important to them."

Contesting Roundup

SEPTEMBER

- *September VHF Contest:* Second full weekend of September, 1800 UTC Saturday through 0259 UTC Monday
- *10 GHz & Up Contest - Leg 2:* Third full weekend of September, 6:00AM local time Saturday through 11:59pm local time Sunday.

OCTOBER

- *School Club Roundup:* Third full school week of October

NOVEMBER

- *November Sweepstakes - CW:* First full weekend in November, 2100 UTC Saturday through 0259 UTC Monday.
- *November Sweepstakes - Phone:* Third full weekend in November, 2100 UTC Saturday through 0259 UTC Monday.

Upcoming Hamfest's

<u>DATE</u>	<u>NAME</u>	<u>CITY, STATE</u>
8/19-8/20/23	Huntsville Hamfest, ARRL Alabama State Convention	Huntsville, AL
8/26/23	Cedars of Lebanon Hamfest	Lebanon, TN
9/1-9/3/23	Shelby Hamfest, ARRL North Carolina Section Convention	Shelby, NC
9/9/23	Vintage Radio Flea Market	Asheville, NC
9/9/23	Letcher County Hamfest	Whitesburg, KY
9/9/23	Greater Louisville Hamfest 2023	Shephersville, KY
9/23/23	East Tennessee Hamfest	Dandridge, TN
10/20-10/21/23	Hamfest Chattanooga 2023	East Ridge, TN

VHF, UHF and Microwave Musings, by Scott Littfin, N0EDV

As there may be some club members who are new to amateur radio, let me invite them to accompany me on a journey through some discussion on VHF, UHF and Microwave frequencies. As most hams know, radio is broken up into broad frequency ranges. For example, frequencies from 3-30 MHz are classified as High Frequencies, or HF. 30-300 MHz makes up the Very High Frequencies, better known as VHF. UHF, or Ultra High Frequencies, consist of radio frequencies between 300 and 3000 MHz.

As frequency increases, the wavelength decreases. This is why antennas get smaller as we go up in frequency. While some hams with small yards may struggle to erect antennas for the lower HF bands such as 80 meters, they would have no trouble putting up an antenna for the 10M band. A simple dipole for 80M is around 133 feet long! A similar dipole at 10M is only about 16 feet long.

Most hams know that these HF frequencies are the backbone of very long-distance communications. Worldwide, in fact. This is what initially draws many people into ham radio in the first place...the ability to communicate with people in Antarctica, Argentina, Germany, Australia and the Congo!

Now let's move up to VHF. Technically, there are 3 bands allocated to hams in the VHF band - 50, 144 and 222 MHz. 50 Mhz (6M) shares some properties with HF. It is possible to have world-wide communications, but it is not as common as on the HF bands. 144 and 222 MHz typically have much shorter range than HF frequencies. Some hams have fallen for the notion that VHF frequencies are "line of sight" bands out to 30-40 miles perhaps. While that may be generally true on FM since FM is a wide bandwidth mode. The wider the signal's bandwidth, the stronger the signal must be to be received. An FM signal may be 10 KHz wide and thus may only be received out to say 30 miles (without using a repeater). If one switches to the SSB mode, the bandwidth drops to around 3 KHz. For the sake of argument, let's say that cutting the bandwidth by a factor of 3, the distance of successful communication increases by 3, or out to 90 miles.

Now let's go to CW. If the bandwidth decreases by a factor of 3 again, to a bandwidth of 1 KHz, the effective range over SSB triples again and we are out to 270 miles. I bet you can guess what happens when you go to a 50 Hz bandwidth by using FT8. That would be 1/20 of the bandwidth of a CW signal, pushing our range to 20 times that of CW, or 5,400 miles. This exercise has been somewhat exaggerated, but you get the idea!

At UHF frequencies (300-3000 MHz), some other interesting things start happening. Reflections! In fact, this is how radar works. Signals bounce off of a distant target and get reflected back to the receiver and converted into bearing and distance information so that users like air traffic controllers know which direction a plane is from the airport as well as how far away it is. We'll save this discussion for offline if anyone is interested in radar, but reflections are what make 440 MHz a better choice in urban areas or even mountainous regions. Lower frequency signals that would be blocked by buildings or mountains can reflect around them. In fact, many hams use reflections off aircraft to increase the range of their radios!

We'll leave it here for this installation of my VHF, UHF and Microwaves musings. Next time, I'll have the basics of microwave communications. Until then, if you have one of these fancy-shmancy HF/VHF/UHF radios such as the Yaesu FT-991, think about buying or building a simple Yagi antenna and trying SSB or CW. You may be pleasantly surprised at just how far you can talk.



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Join today by visiting arrrl.org/membership or call 1-860-594-0200

SMARC is an ARRL affiliated club.

The World of DX by Bob Loving, K9JU

Hello fellow SMARC members. I am Bob Loving, K9JU, and my QTH is just east of Maryville in Blount County on Walland Gap Drive. I've been continuously licensed since September 1957 although there have been a few periods of low activity. I probably became interested in DX by accident when I worked a KP4 as a Novice and asked my parents, "is Puerto Rico the same as Porto Rico?" A few years later, a CQ on 15M CW was answered by KP6AL on Jarvis Island. In retrospect, if I had known and become interested in DXing, those were the days of solar cycle 19, the "BIG one."

I really started chasing DX in earnest in the late 70s but bicycling took over my interest in 1987. At the time, I had 270 "countries" confirmed for DXCC. After retiring from Motorola in 2001, I slowly returned to the hobby. The fire of chasing DX lit again around 2008. Since then, I have added to the DXCC totals. As of 2023 August 01, my Mixed total is 331 "countries," just enough to get onto the DXCC Honor Roll. The CW total is 322, Phone is 118 and Digital is 265. These numbers represent active components of the DXCC list.

I am not bragging as there are others in our midst with totals greater than mine including at least one member with "all of them," 340 active entries in the DXCC listing known as Number One Honor Roll. At the other end of the spectrum are those who are just now expressing an interest in DX. Remember, each of us who has DXCC and high totals all started with that first QSO between us and someone outside of the USA.

So, what do the terms associated with DX mean? To start with, "DX" is CW (Morse Code) shorthand for "distance." It can mean different things to different operators and frequency bands. At microwave frequencies, DX might be another station a few miles away. What I am referring to in this discourse is communication between our stations and stations in countries outside the borders of the USA. The frequencies typically used are from 1.8-MHz to 30-MHz although one can include 50-MHz as being a DX band. I am also not including bands where "moonbounce" is required for intercountry communication, typically 144-MHz and up.

What is DXCC? DXCC stands for DX Century Club, administered and offered by the American Radio Relay League, the ARRL. The word "century" means 100; therefore, the minimum number of confirmed contacts with other "countries" is 100 in order to qualify for an award.

Why have I put the word "countries" in quotes? Because not all locations in the DXCC List are what you and I would consider a country. At least one is a group of rocks that pops out of the water at low tide. Therefore, the DXCC List refers to the components as "entities." At one time, the Canal Zone was an entity (it counts now as Panama). There were two areas known as Neutral Zones in the Middle East that were entities. The United Nations building in New York is itself an entity, 4U1UN. Granted, the vast majority of the entities are countries as defined by Merriam Webster.

Presently there are 340 active entities on the ARRL DXCC List. In this context, active means legitimate, as defined by a set of rules, and workable regardless of whether being populated. Entities come and go as the rules are refined or geopolitical events dictate. The former Yugoslavia collapsed into its constituent parts, giving us seven entities instead of only one. The latest DXCC entity from the former Yugoslavia is the Republic of Kosovo, Z6 prefix. Although the country obtained its independence from Serbia in 2008, a recent rule change to DXCC was necessary to recognize the Republic as separate from its former parent country.

The World of DX continued...

The DXCC award program, administered by the ARRL, is broken into categories depending upon the mode or modes of operation used for contact. "Mixed" is the total number of entities contacted using any legal mode of transmission. Contacts can use a combination of CW, phone, digital modes or even Slow Scan TV, for example. There is even a DXCC award for contacts made using Amateur Radio satellites. The other DXCC awards are obvious by the title, CW, phone, etc, for contacts using a single mode.

In all cases, the contacts must be confirmed with either a paper QSL card or from LoTW. Ok, so what is LoTW? It is the "Logbook of The World," an electronic means for confirming contacts. When the operator of the other station registers and uploads his/her log and you register and upload your log, both of you receive credit for the contact. You must register with LoTW at the ARRL website in order to use the system. Registration and upload of contacts are free. Charges only occur when you wish to credit contacts toward an award. It may seem expensive but it is less expensive than paper confirmations. The downside is you don't have a pretty, full color card showing an exotic DX location!

Ah, but wait, there is a relatively inexpensive method of paper QSL called "OQRS," the Online QSL Request System. Some DX operations may not be interested in your card. For a few dollars, you can request a card through OQRS after you provide information about the contact (your call, date, time, frequency and mode). In most cases, multiple contacts on different bands and/or modes may be combined on one card although each operation will set the limit on contacts per card. With OQRS, there is no card to fill out, no envelope to address, no self addressed envelope to include along with "green stamps" (US dollars) and no trip to the Post Office.

Some of you may have heard talk about "DXpeditions" and "Most Wanted" entities. "DXpedition" seems to be a play on words and a contraction of DX and expedition. In essence, it is an expedition to a DX location.

"Most Wanted" is exactly as it looks. There are a few lists but the most up to date is compiled by ClubLog.org. As one might expect, number one is North Korea. Number two is Bouvet Island. Did you hear chatter on the SMARC repeater about Bouvet from yours truly? There were three DXpeditions to the island in the last three years, none answering the hopes of the DX population. The first two couldn't even make it onto the island. The third did land some equipment but turned out to be a bust due to sea conditions and location on Bouvet relative to the North America.

We will delve deeper into this fascinating part of Amateur Radio in following columns. For now, "73 ES GUD DX."

Bob K9JU, SMARC Secretary

Please email any comments or suggestions to "k9ju@arrl.net".



SMARC - Now a 501(c)(3) Corporation by Dave Kaun, N9KMY

Two years ago the membership made the decision to pursue a change from being a 501(c)(7) corporation to becoming a 501(c)(3). With the extensive help of David Andrews the change was completed earlier this year. As a reminder, this change also required the creation of two new documents: Articles of Incorporation and Bylaws, plus a \$600 processing fee. Ok, now what does this change really mean?

Special note: Please don't get tied into knots relative to some of the words such as charity and corporation. SMARC is a club consisting of members and has been defined as a 501(c)(3) corporation for years, thus following its rules and regulations. Charity is the word used by the IRS to define a unique type of corporation.

The Good: There are three really positive outcomes of the change.

1. SMARC can make some purchases where no sales tax is owed.
2. SMARC can accept donations that may be tax deductible to the giver.
3. SMARC can pursue grants for some specific kinds of projects.

Negatives: Probably the single biggest negative is the requirement to maintain more extensive and complete records which falls mostly on the Secretary and Treasurer. Also, SMARC must carefully insure decisions stay with the requirements as defined by the adopted Articles of Incorporation and club bylaws. Records of a year's actions must be kept for three years after the end of each year.

Gotchas: Just as with all 501(c)(3) corporations, SMARC must make sure that "No part of the net earnings ... will inure to the benefit of, or be distributed to its members, officers, or other private persons..." and "No substantial part of the activities be involved in ... propaganda, or otherwise attempting to influence legislation..."

Opinion: These changes will take a bit of getting used to but in time will become standard. SMARC is now officially considered a "charity" by the IRS and the State of Tennessee. Our mission is defined by our Articles of Incorporation as: "...organized exclusively for charitable and educational purposes..."

Financial: The Treasurer must maintain a operational budget plus any special project budgets. SMARC has a General Operation budget funded by dues plus a Repeater Upgrade budget funded by donations. Dues are not considered tax deductible, though some donations can be made be tax deductible to the giver.

Bottom Line: Members will not see much of a change to SMARC.

> All club decisions will still be made by the membership via voting that follows Robert's Rules of Order. This has always been our SOP.

> A club budget is required to be developed by the officers and be presented to the membership for approval at the January meeting each year as a requirement of the bylaws.

> Potential tax deductible donations can be made to SMARC.

> Tax free purchases are possible for items that are considered furthering the club's mission and not financially benefit individual members.