

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

Presidential Message, by Bob Wilson, KK4XA

Dear SMARC Members,

I hope this message finds you all in good health. After much consideration, I have decided to step away from my availability to be President of SMARC in this coming new year of 2024. This decision was not made lightly, but it is necessary for me to attend to personal matters that require my full attention at this time.

It has been an honor and privilege to serve as your President over the past years. During this time, our club has grown in numbers and strength, making strides in our shared passion for amateur radio. The dedication, enthusiasm, and support of our members have been truly remarkable, and it is these qualities that have made my time as President so rewarding. Ham radio isn't just radio it is the people who make up the amateur radio hobby itself. It is certainly family to me and I'm sure many of you.

While I may be stepping down from the official role of President, I want to assure you that my commitment to SMARC remains steadfast. I am not bidding farewell to the club but rather transitioning into a new role as an advisor and supporter of the incoming President. I will be readily available to provide guidance, share my experience, and lend a helping hand whenever needed.

Our club has a strong foundation, thanks to the dedication of our members and the collective passion for amateur radio. I have every confidence that the new President, along with the other officers, will be a team of successful and rewarding leadership that takes SMARC to even greater heights. They have a passion and enthusiasm for amateur radio and that is what it takes!

I want to express my deepest gratitude to each and every one of you for making my time as President an unforgettable experience. The friendships, the shared experiences, and the passion for ham radio have enriched my life in ways I could never have imagined. I look forward to continuing our journey together as an active member of the club.

Thank you for your understanding, support, and camaraderie. The Smoky Mountain Amateur Radio Club will always hold a special place in my heart, and I am excited to see what the future holds for our vibrant community.

I am also an ARRL Technical Specialist willing to help anyone. I am just a phone call away. You can reach me a 865-755-3810.

73 and the best of best regards,
 Bob Wilson
 KK4XA
 Advisor to SMARC



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

NOVEMBER

- *November Sweepstakes - Phone*: Third full weekend in November, 2100 UTC Saturday through 0259 UTC Monday.
- *EME – 50 to 1296 MHz- NOV 25-26: 0000 UTC on Saturday through 2359 UTC Sunday*

DECEMBER

- *160 Meters – Fist Full Weekend in December. 2200 UTC Friday – 1559 UTC Sunday*
- *10 Meters – Second Full Weekend in December. 0000 UTC Saturday – 2359 Sunday.*
- *Rookie Roundup – CW – December 17. 1800 – 2359 UTC*

Upcoming Hamfest's

<u>DATE</u>	<u>NAME</u>	<u>CITY, STATE</u>
February 9-11, 2024	Hamcation	Orlando, FL
February 24, 2024	42nd Annual Dalton Hamfest	Dalton, GA
March 16, 2024	Sevierville Hamfest	Sevierville, TN
April 20, 2024	Greenville Hamfest	Greenville, TN
May 17-19, 2024	Hamvention 2024	Dayton, OH
June 15, 2024	Knoxville Hamfest and Electronics Convention / ARRL Delta Div. Conv.	Knoxville, TN
August 17-18, 2024	Huntsville Hamfest	Huntsville, AL

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

So, in this installment, we will be discussing basic microwave communications. The ARRL, and those of us using the microwave bands, generally consider them to start at our 900 MHz band and continue on up to light frequencies. It's not a hard and fast rule, but we need to pick somewhere for the beginning of "the microwaves" and 900 MHz is as good as any.

We'll start with antennas. There are basically two types of antennas we use. One style is called a horn antenna (shortened form of "feedhorn" I presume). The other, which is no doubt familiar to just about everyone is called a parabolic reflector or "dish" antenna. A dish used for satellite TV can be used at 10 GHz with some minor modifications.

The Horn antenna is dead simple. You feed RF into the small end and the signal is radiated out from the big end. The bigger the horn, the larger the gain. The beamwidth of the horn antenna is quite broad, so aiming is not as critical as the dish style. Horns are good for beginners since they are easy to make and with the broader beamwidths, you have an easier time aiming toward the far end station.



Horn Antenna



Dish Antenna

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VHF, UHF, and Microwave Musings continued on page 6

ARRL Membership

Get the tools and
resources you need to
do more with your
Amateur Radio license.

Learning
Services
Community
Leadership



GET MORE FROM AMATEUR RADIO

When you join ARRL, you'll have access to information, learning, programs, & services to help you get and stay on the air.

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".

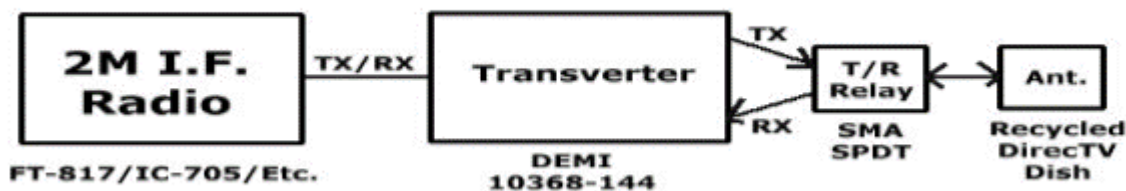


Continued: **VHF, UHF and Microwave Musings, by Scott Littfin, N0EDV**

The dish antenna provides much more gain than the simple horn. A converted satellite dish has a beamwidth of about 3 degrees. Aiming is much more critical than the horn type. With a dish, close does NOT count as it does with horseshoes and hand grenades. My dish has a measured gain of about 33 db. This is why we can routinely make 300+ mile contacts with 3 Watts of output power.

Microwave operation is simpler than ever. There are a few manufacturers making turn-key systems. Downeast Microwave in Florida and Kuhne Electronics from Germany are two examples. It's also pretty easy to homebrew stuff as well. Filters for 10 GHz can be made with ½ inch copper pipe caps that are quite sharp and effective to make sure we put out clean signals!

The heart of most microwave stations is the transverter. In a nutshell, all a transverter does is take a transmit signal, what we call the I.F. frequency (usually 144 or 432 MHz) and "up-convert" it to the band of interest (902 MHz, 1296 MHz, 10 GHz for example). It works the opposite on receive, down-converting the higher band back down to the I. F. frequency. Many rigs can act as the I. F. radio, such as the Yaesu FT-817, Icom IC-705, etc.



Believe it or not, there is a fair number of operators on the microwave bands, you just may not be aware they are around. There are special interest groups out there and several of them hold annual conferences every year. The premiere annual conference is called Microwave Update. This is where microwavers gather to give talks about the state of the art in microwave equipment, new operating modes that allow us to talk further and further with the same equipment or maybe even about one of their memorable portable operations. Of course, there is a LOT of socializing that goes on at these conferences. Groups.io has several groups dedicated to various microwave bands or regional operation areas. A simple search on group.io will yield several groups covering just about any microwave interests.

Next time, we'll talk about my favorite UHF band. 902 MHz!

SKYWARN RECOGNITION DAY, by Greg Williams, K4HSM



This December 2nd will be the latest installment of SKYWARN Recognition Day, conducted by the ARRL and the National Weather Service (NWS). Our local office in Morristown will be participating as WX4MRX.

WHO: The National Weather Service, in partnership with the ARRL, will be conducting their annual event

WHAT: SKYWARN Recognition Day

WHEN: December 2nd 2023 (UTC) from 0000z to 2400z (7PM ET Friday December 1 until 7PM ET December 2)

WHERE: On most all the bands from 160m - 70cm (except 12m, 17m, 30m, and 60m). Repeater contacts are allowed, using almost any mode. Also, the NWS office in Morristown will be open for amateurs to visit and operate as WX4MRX in Morristown. Other NWS offices across the country may have different operation plans in place, so if you are viewing from another area than served by Morristown TN, contact your local SKYWARN group to find out their plans for this event.

WHY: SKYWARN Recognition Day serves to celebrate the contributions to public safety made by amateur radio operators during severe weather events of the past year. The exchange is typically callsign, name, location, signal report, and a brief weather report (e.g. "Sunny", "Partly Cloudy". Etc.). You can be as specific or as general as desired, including a temperature reading. A participation ID is optional. More on this later.

SRD started in 1999 and has been popular with amateur operators involved in weather spotting. Ham radio has been prominent in the SKYWARN community for its reliability in relaying spotter reports in a timely manner to the NWS during severe weather events.

Anyone can participate, either by making contacts with NWS stations or by going to the NWS Morristown office and getting on the air! You can also monitor NWS Morristown on Facebook or X to find out more on SKYWARN Recognition Day.

COMPARING THREE POPULAR HF RADIOS, by Carroll Peabody, W4PCA



This article is about my using and comparing my three rigs I have setup in my shack. I won't get into a lot of technical stuff, just my opinions on how they work out for me in my operating.

The three rigs I have are the Kenwood TS-590SG, the Icom IC-7300 and the Yaesu FTDX-10. I am mostly a CW operator but do some SSB and PSK operating.

OPERATING:

I have a SSB sked two days a week with a buddy in Florida and occasional SSB QSO with another buddy in KY when he is not out on his farm hunting or with his son rebuilding a 1969 Plymouth Roadrunner. I have used all three rigs with the supplied hand mikes on SSB but mostly use the Yaesu.

My CW operations are a 6 days a week sked on 40 meters with a buddy in Arkansas. We go along around 30 words per minute for about a half hour to 45 minutes. I also do a lot of slower CW, mostly on 40 meters on the SKCC frequencies where the speeds are 20 WPM or less by most of the SKCC operators. (SKCC is the Straight Key Century Club). I have used all three rigs on CW but mostly the Yaesu and Kenwood

Occasionally I operate PSK using an older model laptop PC with FLDIGI software installed. Back in 2001 PSK-31 became a popular digital mode and I built my own interface to try it out. Later I got a Signalink unit to use with an older model Icom 735 rig. I sold the 735 along with the Signalink and bought the ICOM 7300 which I use for that mode. I have not tried any other digital modes.

CHANGING BANDS:

The Kenwood has 12 panel pushbuttons that handle band or frequency selection. There are 10 for 1.8 to 50 MHz and a button marked ENT for entering a frequency and a button marked CLR. The TS-590SG does not use a touch screen. The Kenwood has the band stacking feature where three frequencies can be selected for each band. You scroll the three frequencies by pushing the appropriate band button.

Continued: **THREE HF RADIOS, by Carroll Peabody, W4PCA**

Changing bands on the Icom 7300 involves touching the most significant digit on the touch screen. A table will pop up showing the 10 band choices along with a choice marked GENE. The Icom also has band stacking and touching the same most significant digit will toggle through the frequencies that you have stored. To enter a non ham band frequency on the Icom, you touch GENE and use the tuning knob to dial in the frequency.

The Yaesu is like the Icom in that it has a touch screen. The Yaesu has a button on the panel marked BAND. Pressing the button causes a table to pop up on the screen where there are 12 choices, the 10 bands along with the 60 meter band which is not shown as a selection on the Icom or Kenwood. The Yaesu also has band stacking and using that feature requires going back and forth between the BAND button and touching the screen to toggle through the three choices.

SELECTIVITY:

The Kenwood uses the "traditional analog setup with two roofing filters, a 2.7KHz and a 500Hz. It also has IF DSP which allows narrowing the bandwidth to aid in eliminating QRM. Two concentric knobs adjust 'shift' and "width' to adjust bandwidth. The values pop up in the corner of the screen when turning the knobs and disappear once set. The 500 Hz roofing filter is automatically in the circuit when in CW mode. There is a button on the panel marked IF FIL where you can program a narrower DSP filter bandwidth when the button is pressed. The bandwidth is adjusted with the Shift and Width knobs. The Kenwood also has both auto notch and manual notch filter choices.

The Icom is strictly SDR "Software Defined" and incorporates concentric knobs marked "Twin PBT". A FIL number and a graphic indication of bandwidth is shown at the top of the screen. Touching FIL will enable you to toggle between three filters each of which can be adjusted with the PBT knobs. The shape of the filter selection is graphically shown next to FIL. Touching and holding FIL on the screen will pop up information in graphic form on the filter mode selected and you can see the effect of changing the PBT knobs. The ICOM also has both auto notch and manual notch features.

The Yaesu is a combination of traditional analog using roofing filters and SDR. According to the screen when you touch R. FIL a pop up table shows three choices: 500Hz, 3Khz and 12Khz. A 300 Hz CW filter is an extra cost option. The Yaesu also has the SHIFT and WIDTH concentric knobs. The effect of those controls is shown on the screen. The Yaesu also has audio filtering which is controlled with a concentric knob combination marked CONT/APF. The APF (audio peaking filter) is available in CW mode to peak the CW note. CONT (contour) shapes the audio for voice mode cutting back some higher pitch noise. The Yaesu also has a notch filter which is engaged by pressing the NOTCH button on the panel and the notch is graphically shown on the screen and is positioned by turning the notch knob.

CHANGING MODES:

Changing modes of operation on the Kenwood is accomplished by pressing the appropriate button on the panel. There are three mode buttons: LSB/USB, CW/FSK and FM/AM. There is also a button marked DATA which when in CW mode allows the rig to display the text being received, scrolling from right to left as the CW is being received. Data mode can be used when that mode is selected in either LSB or USB Data.

On the ICOM, the mode being used is shown on the screen in the upper left corner. Touching the screen on the mode being shown will cause a pop up table showing the available modes which are: SSB, CW, RTTY, AM, FM and DATA. You select the desired mode by touching the screen.

The Yaesu has a MODE has a button on the panel marked MODE. Several choices are shown in the pop up table on the screen. You make your choice like on the Icom by touching the desired mode.

Continued: **THREE HF RADIOS, by Carroll Peabody, W4PCA**

LIKES AND DISLIKES:

The TS-590SG is the easiest to use since just about everything is available with buttons and knobs. You rarely need to get into the menu system to make any changes. The NR noise reduction on the Kenwood is not as good as the NR on the Icom or Yaesu. It tends to give a "watery" sound to the CW note if a higher level is chosen. Using a minimum setting on the NR the CW note is nice on the Kenwood. I think it is due to the filtering.

The Yaesu DNR is the best of the three rigs. The CW note is good on the Yaesu, I suppose due to the filters. The Icom CW note seems a bit "metallic" especially if using narrow filters.

The pop-up screen tables on the Yaesu don't display very long before they drop out so you have to be quick making your selections or you will miss out. The pop ups on the Icom stay until a choice is made then disappear. As indicated before, there are no pop-up screens or touch screen on the Kenwood like the ones on the Yaesu and Icom.

The screen presentation on the Yaesu is really good in that a lot of information is shown during operation. The scope on the Yaesu is very helpful although the available 3DSS "waterfall feature" to me is useless and just fills the bottom of the screen with in my case blue grass so I don't select the 3D scope mode. Being somewhat of a traditionalist, I like the meter needle display on the Yaesu rather than the segmented bar graphs like the Kenwood and Icom. The Yaesu meter shows two scales, the S scale shows all the time, even during transmitting. The second scale under the S scale can be changed by touching the meter and selecting other parameters like SWR, PO, ALC etc. from the pop up table.

The metering on the Icom is nice though that you can see a lot of info besides signal strength as it shows power supply voltage, current and temperature of the rig all on one screen. I use the "METER" mode when using the Icom.

Using the Yaesu panel controls can be a bit tricky as the knobs are clustered around the main tuning knob and you have to be careful to not bump the main knob and move off frequency when reaching for those controls. In order to keep the display screen clean on the Icom and Yaesu, I use a stylus when touching the screen. That avoids fingerprint smears like you get on your cell phone. Using the stylus is a little inconvenient when operating the Yaesu due to the quickness of the pop-up screens. I have to be ready with the stylus in hand to make my choice before the screen drops out.

BOTTOM LINE?

If asked which rig would I keep if I had to part with two of them? It is a difficult choice. The Yaesu is the first HF rig of that brand that I have tried. I have had several Kenwoods and Icoms over the years. They all have been good and didn't go down except the Kenwood TS-870 I had for years that I pretty much gave away when it came back unfixable from a service place that supposedly specialized in Kenwoods. I have only had the Yaesu for a few weeks and I am still on a learning curve for that one. So, I am really not in a position to make that kind of a choice at the moment.