



The TARC Reflector for October, 2012

Hi Folks,

We have a major change for this month, the location and time for the monthly meeting has been moved. We're now going to meet at 6:30pm in the Social Hall at Morningside Methodist Church on the corner of Smith Avenue and Pinetree Boulevard.

Attendance has been dropping at the Plaza meetings, and I think that directly attributed to higher prices for food that's seldom cooked correctly, and general poor service. Having a band playing next door doesn't help matters. From emails I received afterwards, it was easy to tell that no one could hear anything said in the last meeting.

I hate to make this move, as having supper coupled with the meeting probably got a number of folks involved in the club, but with average attendance numbers dropping from 50 to the mid 20's, the handwriting was on the wall.

We'll be meeting at Morningside for the rest of the year, as November brings on the Fish Fry, and we've decided on a Family Christmas supper in December. I've asked about using the Thomas County EOC, where we'd have plenty of room, access to audio visual gear, and the availability of antenna access for programs.

The time move to 6:30pm is to get the meeting over early and allow those of you who looked forward to supper, to have time after the meeting to have supper at a restaurant of your choice. The time should mean that the Saturday night supper rush is over, and you'll be able to get a table quickly and still be home before it gets too late.

We'll discuss this in more detail at the meeting. Do know that I haven't burned the bridge with the Plaza, though it would seem they've set fire to their end with their recent treatment of us.

The ARES folks will be participating in the annual Simulated Emergency Test (SET) earlier on meeting day and as this should be in your hands early, you have time to participate if you'd like. You do not have to be an ARES member to do so, and this would be a good chance to see what it's all about.



The state scenario involves a pandemic, and is somewhat more complicated than the weather related exercises of the past couple of years. A lot of folks had said "Please...no hurricane this time!" so we're opting to work with our healthcare partners this time out.

If you'd like to be involved contact your county EC and their contact info is in an article later in this newsletter.



We'll also be involved again with the Boston Mini-Marathon on October 27th. The event starts at 8am, so it's an early morning. We're usually done with the event by noon. If you can help, please let Wynona know at wsad1@yahoo.com. We'll have our usual tailgate breakfast beforehand, which does make the trip worth it.

I made a trip to the Post Office to check on what could be done with the PO Box, and set it up to forward to Bobby's home address through the end of the year. They suggested getting a box at the Office out on US-19, indicating that they were all key entry, and cheaper to rent than the present one downtown.

We have until Dec. 31st to make a decision on what direction to take.

So enough of me for the moment... I hope to see you all at Morningside on October 6th, and remember, the new time for the meeting is 6:30pm.

73,

Mike



The following Members of our Radio Family have October Birthdays:

Robbie Pitts – Oct. 2nd

Rachel McCleery – Oct. 4th

Bud Scheib – Oct. 11th

Sarah Purvis – Oct. 20th

Cindy Rykard – Oct. 21st

Carmen Lanter – Oct. 23rd

Jerry James – Oct. 27th

Ron McCloud – Oct. 30th

Marilyn Webb – Oct. 30th

Don't see YOUR birthday? – Let us know at w4ucj@arrl.net



Wake UP!!!

Tommy is looking for a few good Kids every Tuesday Night
for the TARC Kid's Net – 8pm on the 145.17 Repeater!



A+ Test Results

The TARC VE Team held a test session at the EOC on September 15th, and we had one person come in to take a test for a new license.

Congratulations to Paul Roddenbery of Cairo for passing his Technician test. His new call is **KK4LUF**.

The October test session will be held at the EOC on the 20th at 10am.

The Test sessions in November and December will be by appointment due to their proximity to the holidays. We don't want to call out our VEs if no one will be there to take a test.

NY4D's Tech Topics

Baluns

There is a lot of misinformation and confusion out there about baluns: what they are, what they do, how they're made, and when they're needed. Maybe we can clear some of that up.

For the purposes of our discussion we'll be talking about HF frequencies, where balun use is more common and more necessary. On VHF the antenna design itself often includes a balancing and/or matching network, while on HF antennas, except for some commercial beams and ground planes, it is usually not included in the design.



First let's pronounce it right: Bal-un. The bal part comes from the word balanced. So it rhymes with pal. The term "balun" is a short way to say "balanced to unbalanced ". And that is basically what a balun does; it makes an antenna system that needs a balanced feed happy with the unbalanced output of our rig's coax antenna connection.

When I say antenna system it is because the balun can be placed in different places in the feed line, from right at the output of your rig or antenna tuner all the way up to the feed point of the antenna itself, and even if needed somewhere in between.

And there is one other thing a specially constructed type of balun can do, which is to transform the impedance ratio of the input to the output, making it possible to feed higher impedance balanced antennas with coax. Many HF antenna tuners have this kind of balun on their balanced line output.

1:1 Balun

We'll talk about simple current balancing baluns first, without the need for an impedance transformation. So let's take a simple case, a center fed dipole. Ideally our coax would feed both halves of our antenna with equal and opposite power. But there is one thing about coax that often is ignored. The shield can act like two conductors at once. The desired current to the antenna flows in the center conductor and the inside of the shield. But if conditions are right, some of the current on the inside shield, once it gets to the antenna, can flow back down the outside of the shield and become a third leg of the antenna. This happens mostly when the outer side of the coax presents a low impedance path (high current will flow) back to ground.

There are other reasons that the current can flow down the outside of the coax, such as ground effects, coupling to nearby objects, the tilt angle to ground (like in inverted vees and slopers), and high standing wave. In many cases the result is RF in the shack, hot mics, hot chassis, rfi, tvi, etc.

So how do we get rid of this unwanted current? Enter the balun. And right now we need to say there are essentially two useful types of baluns. One is a transformer type balun, which can have an air core or a ferrite core, and the other, which is made by putting ferrites around the outside of the coax, we will simply call an RF choke.



In its simplest form, the transformer type balun can be just some coax close wound around a four inch piece of PVC drain pipe. For a typical HF antenna 6 to 12 turns (more turns for lower frequencies) will work as a suitable impedance to keep the RF current from coming back down the shield. The ARRL Handbook and Antenna Handbook have examples of how to make one of these, and how many turns for what frequencies. These coax wound baluns are often called "ugly baluns"

In more elegant form, specialty toroid cores with a dual winding around the core are used and placed in weather sealed housings. These can have extended frequency ranges and can have higher power handling ability. Good examples of these are made by Balun Designs (see their website) and Com-Tek (sold by DX Engineering).

The RF choke type balun is made by adding some ferrite beads around the outside of the coax. This type balun does not have to be coiled. It uses the added inductance of the ferrite beads themselves around the outside of the coax to impede the unwanted RF current flow down the outside of the shield. Palomar Engineers (see their website) and others sell kits for this. They work over a wide range of frequencies and are very affordable.

The 4:1 Balun

But what if we want to transform the impedance at the balun? Enter the 4:1 current balun. This is a transformer type balun, usually with 3 wires wound on a ferrite core and hooked up in a way that the output is across two of the three windings, while the input is a single winding. Since all of the windings are equal, and the impedance change of a transformer is the square of the relationship of the turns ratio, which in this case is two, the step-up on the output impedance is four (two squared) times the input.

These baluns are available commercially. It is hard to find the parts locally but kits can be ordered at Palomar Engineers or pre-made ones from Balun Designs and DX Engineering.

When (and what) to use

So when do you need to use one of these baluns? On a simple dipole cut for one band and hung in the

clear you may not need one at all. Most of my wire dipoles have worked fine without a balun, but I have found cases, especially on multi-band fan dipoles, where using a simple balun will reduce local noise quite a bit. Local noise is essentially vertically polarized so the outside of your coax shield can act like a great noise antenna. If your antenna seems noisy try a simple test by adding a coax wound or bead balun first at the antenna feed point and then perhaps also close to your rig output to see if it helps reduce your local noise.

On a ground plane or ground mounted vertical used on one band, the 1:1 is almost a necessity as the outside of the coax shield can act like an extra unwanted radial with RF coming back into the shack. I've had good results using a 1:1 commercial balun right at the feed point of these type antennas. Most commercial manufacturers either have one in their matching network or specify an "ugly balun" at the feed point.

On a beam antenna whether to use a balun really depends on the type of matching network used on the driven element. Some need them, some don't. Best to refer to the manufacturer's specs to see.

Now on to the impedance transforming balun. Most commonly these are 4:1 ratio and as said before almost every commercial antenna tuner uses one on the output to feed balanced line. Many people solve the problem of bringing balanced feed line into the shack (it doesn't like to be near metal and can't be enclosed in conduit or run along or under the ground like coax can) by mounting a weather-proofed 4:1 balun outdoors, attaching the balanced line to the output of the balun, and running a short length of coax from the input side of the 4:1 balun into the shack to an antenna tuner.

There are antennas that are inherently higher impedance at the feed point, like off center feds, folded dipoles, and some varieties of loops, and the 4:1 current balun can work well at the feed point of these antennas, with coax run all the way back to the shack.

Some antenna designs depend on certain kinds of baluns to work correctly. The Carolina Windom for example uses both a 4:1 balun at its off center apex and a choke type 1:1 at a certain point below the apex to create both vertical and horizontal radiation from one antenna.

What about the Unun?

With the popularity of the "random length" coax fed vertical, like the popular 43 foot ones, the discovery was made that a balun was not the most efficient way to feed one of these for multiband use. So enter the unun. Unun means it is an unbalanced to unbalanced impedance changing device. It isn't a balun at all. But I am mentioning it here as it gets tossed in the "balun" category by most hams and ham sales outfits.

The unun transforms the high unbalanced impedance of the random length antenna to a lower unbalanced impedance, so it can be fed with coax through an antenna tuner. The ununs are commonly available in 4:1 ratios. The 43 foot vertical has proven to be a good multiband vertical, especially on 40 and 20 meters, but on some of the other bands depends on a lengthy coax run (one manufacturer specifies 150 feet) to moderate the SWR so it can be matched. And of course on those hard to match

bands that extra length is there to introduce enough loss in series with the antenna impedance to allow matching through a tuner.

A few end fed wire antennas are now being marketed with a 9:1 unun. These antennas will cover a wide range of HF frequencies, though at some frequencies the coax loss is very high because of the swr in the line. You'll see quite a few of these types of antennas sold as "miracle antennas" (sarcasm intended) online at that auction place. They can be made to work if installed in the clear. They are essentially the end fed random wire adapted to coax feed.

What to buy (or make)

Like a lot of things about antenna systems, it really boils down to "it depends." You may need a balun in your system, you may not. Every antenna installation is different and can create its own set of problems. Make sure you are getting the type of balun (or unun) you need for your particular antenna by doing your homework on the type of antenna you want to install. You can research the "ugly balun" and make one yourself out of locally found items. You can get kits from places like Palomar Engineers. You can buy readymade ones from Balun Designs or DX Engineering. These last two sell baluns that are ready to go and are manufactured inside outdoor type NEMA cases that are weather tight.

What to avoid

From personal experience I would avoid the low power ones sold (and often given away with a tuner purchase) by one antenna tuner manufacturer. They usually work but don't hold up. They aren't even properly weather sealed. I would avoid any balun that says it is a voltage balun and not a current balun. There are many el-cheapo pvc sealed ones on the market but most are eventually doomed to mechanical failure and/or UV damage and will likely leak at some point. Some of these go for pretty high dollars, so you don't always get what you pay for.

Further Information:

<http://www.k1ttt.net/technote/airbalun.html> - this has test results for different "ugly" baluns, different diameters and number of turns for all HF frequencies.

<http://www.hamuniverse.com/balun.html> - many different construction ideas for the "ugly" balun.

ARRL Antenna Compendium, Vol. 1, has a great article by W7EL on current baluns vs. voltage baluns and the poor actual results he got with the voltage type baluns.

Recommended Sources:

<http://balundesigns.com> custom made

<http://dx-engineering.com> (the Comteks here are more affordable than their house brand)

<http://palomar-engineers.com> - kits for both bead and toroid wound baluns

<http://www.kf7p.com/KF7P/Ferrite.html> ferrites - good source for toroids and clamp-ons to make your own

I hope I have shed just a little light on this subject for you. As always, send any questions along to ny4dradio@gmail.com

73 de *Lowell*, NY4D



TARC Minutes, September 8, 2012

Mike, KE4FGF, opened the meeting at 7:30pm, welcoming everyone present and then making the following announcements:

- * The Midmonth Breakfast is Saturday September 15th.
- * The Test Session will be Saturday September 15, 10am, at the Thomas County EOC.
- * The Simulated Emergency Test is October 6th and planning is in progress.
- * Terry, NOTW, did a program on DX from Costa Rica.

Minutes and Treasurer's Reports: Accepted as presented

Old Business

*The 195 Repeater is still the same as last time. John, KE4RWR, has sent many emails and phone calls but has heard nothing from Bill as of this meeting. The Reno machine had similar problems on Thursday night and Virgil, KJ4ZNK, said the air conditioning had failed, causing the machine to overheat. The A/C has been repaired.

* The PO Box is continuing to give problems. Bobby cannot reach it, and several important pieces of mail went unanswered. Mike asked if we want to upgrade it to a newer and lower box, or simply have the mail go straight to Bobby's house. Bobby suggested that we drop it, saving \$65 per year and let it go to his house.

* The Christmas Party is moved to December 8th, and is now a Family supper. The club will provide smoked turkey and ham as the main courses.

New Business

* The Albany ARC is requesting for help with a repeater. They are approaching us to go in with them. Buddy, WD4CJI, wanted to know more about what they want from us. Terry, NOTW, wants to know how well Mike knows these people. Mike is already working on getting more information, and at this point, it is simply a fact-finding mission.

* The Tailgate Hamfest is set up for March 30, 2013.

* The Arrow Antenna order that Steve arranged has arrived and he delivered them at the meeting. Several other people have indicated wanting one, so he is taking information for a new order. So far, he has 4 people and will need 6 more.

* The TARC Online Store presentation by Virgil was very informative. He gave us a tour of the store and what we could buy online and explained how the club made money off the items on the website. The members present again indicated approval to move forward, so the store will be made "live" for everyone.

The meeting adjourned at 8:17pm with 30 members and no visitors.

Respectfully submitted,

Dana Swicord, Secretary



Are you coming to the Ragchew Breakfast?

Why Not “Scare up “some time and join us!

Every Friday morning, 8:30am, at Seminole Wind!

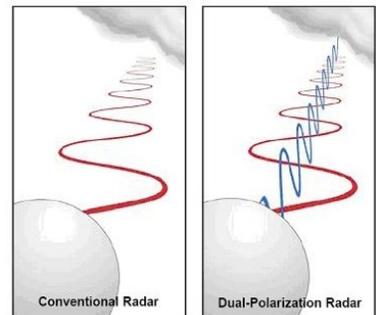


Weather Center

A much awaited event at the National Weather Service in Tallahassee is coming in the month of November. The Tallahassee Radar (KTLH) is scheduled to receive an upgrade to a new technology known as Dual Polarization. This upgrade is slated to begin on November 5th and is expected to take two weeks to complete.

Dual Polarization is considered by many to be the most significant enhancement of the nation’s radar network since Doppler radar was installed in the early 1990’s. The additional information this radar provides will greatly improve the real time information utilized by meteorologist in tracking, accessing and warning the public of high impact weather.

Conventional Doppler radar sends out a horizontal pulse that provides a one dimensional picture of whatever is in the air. With the ability to measure only the width of objects the radar is unable to discern the difference between forms of precipitation such as rain,



hail or snow. Dual-pol radar on the other hand follows the horizontal pulse with a vertical pulse giving a two dimensional view of whatever it sees. The ability to also measure the height of objects provides the additional information needed to allow forecasters to clearly identify rain, snow, hail, or other flying objects like biological reflections or even debris sent aloft by tornadoes.

It will be some time before all the benefits of this new technology is realized by meteorologist. One of the immediate improvements will be their ability to determine where rain is changing to frozen precipitation for winter forecast. A second benefit will be a higher confidence a tornado is actually on the ground due to a debris signal being present. This will particular be true for night events, a rain wrapped tornado, or remote storms where spotter support is not available or is difficult.

There are training opportunities available on the web for radar user to begin to familiarize themselves with the various products available with Dual-pol radar. The National Weather Service Warning Training Branch has training modules for NWS partners at <http://www.wdtb.noaa.gov/courses/dualpol/outreach/>. Depending on your level of interest and understanding, you will find training for that will work for you. There are two levels of training for radar users with modules for meteorologist and non-meteorologist.

During the upgrade period neighboring radar sites will have to be used but the benefits from the upgrade, once completed, will certainly be worth the short term inconveniences this will create. I am very excited to finally have these resources available in our area just in time for a fall severe weather season.

On a different note, we have several spotter training opportunities in October.

Basic Spotter Courses:

Date: Tuesday, October 9th at 7 pm ET (6 pm ET)

Location: Online through Go To Webinar

Register by visiting this link: <https://www1.gotomeeting.com/register/849366953>

Advanced Spotter Courses:

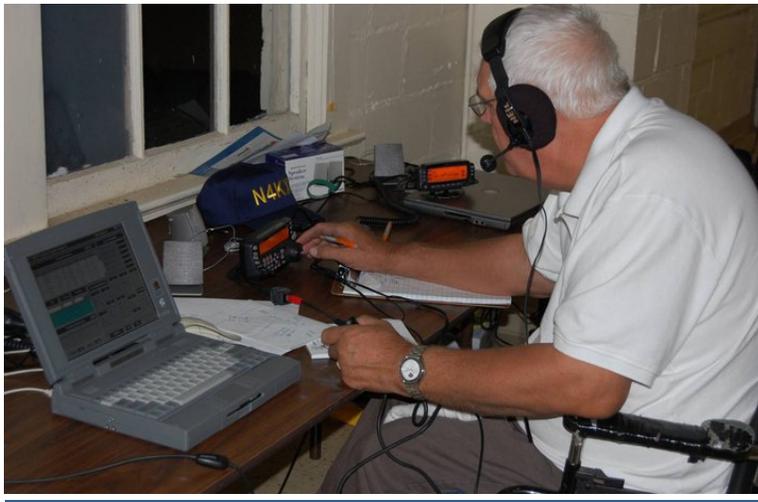
Date: Tuesday, October 23rd at 7 pm ET (6 pm ET)

Location: Online through Go To Webinar

Register by visiting this link: <https://www1.gotomeeting.com/register/745318552>

Stewart Chandler

KJ4GOJ



Thoughts on the SET

I'm sure a number of you are wondering about what you really need to be doing participation wise in the upcoming SET on October 6th. Some of the emails I've seen indicate you may be

suffering a bit of trepidation about what will occur. Hopefully this will help you iron some of that out.

First, the reason we do these exercises is to see where our weak points are. Simply put, an actual emergency is the WRONG time to find what works and what doesn't. In light of that, we do "push the envelope" a bit. If we don't...nothing "breaks." And if nothing breaks, we don't learn anything.

When we first started Thomas County ARES, it was a true "start up from scratch," as no ARES unit had existed in the county for a long time, if ever. There were a lot of questions about what we needed to be able to do, and what equipment we'd need to do it with.

I was also brand new to the ARES concept, so I had as many questions as anyone else.

The first thing I looked at was the "Jump-Kit" of gear I would need for deployment. I had the stuff needed, but was unsure what to take and what would be excess baggage. As some of my gear wasn't really what you'd consider "portable," weeding it out was a task.

In the midst of this, our group got its first "for-real" call out, which occurred on the weekend after a Field Day exercise.

That Friday, an elderly man, suffering from dementia, had walked away from his house and didn't return. At that point we were already working with Thomas County Fire Rescue, and they didn't get called in until Saturday morning, so the man had been missing for about 20 hours.

Chief Jones' assistant gave me a call that morning and said he needed ONE operator at his command trailer as soon as I could get someone there. I asked why they only needed one (who would we talk to?) and she said she wasn't sure but was simply passing the message.

If you're guessing that I was caught "flat footed"...you'd be right

Most of my station was still disassembled from Field Day, and was *still loaded in the truck*. It was cluttered with gear, and there was just enough room for me, with no passengers. I chose to pull two charged HTs, and use my work truck, which also had a mobile radio installed.

I briefly looked at the 4-wheeler, which I knew would be good for a search, but decided it would take too much time to load it up.

On the way in, I started trying to call a few others to alert them to what was happening, and get someone out there with me, so that once we found out what was going on, one of us could go back and get what was necessary to accomplish our task. I caught Buddy at home and he also headed out.

Arriving at the site, we found that there was a ham along with one of the K-9 Search units, and the "one operator" was needed to be in contact with him. As he was on an HT, we needed one of the tripods to get an antenna a bit higher to hear him...guess what we didn't have?

He was also running low on battery, so I handed Buddy one of my Yaesu HTs for him to use. Of course, the first thing to happen was that he reported the battery was low on my HT too. Though I knew that wasn't the case, it was already apparent we were in for a long day...

There was a 4-wheeler search group ready to depart, and I mentally kicked myself for leaving mine behind.

We figured what we'd need and Buddy headed home to get some additional gear. As luck would have it, they found the man while he was gone, and other than being dehydrated and hungry, he was OK. He was found, as you can probably guess, by the 4-wheeler unit.

So ended our first real event, and at best we rated about a "D-" on the report card. But, we now had a LOT of info on what we needed in a deployment kit.

I left thinking "I thought I was better prepared than that." I think most Hams believe they are lot more prepared than they actually are, and sometimes, it takes being handed your butt, along with your pride, to realize it.



So, what does all this have to do with the upcoming SET?

Easy..."it's better to bleed in practice than in combat." We want to have a realistic experience now, so that when you do it for real, you don't react like I did above.

Did you catch my first critical mistake? My personal truck was still loaded from Field Day. That means it had radios, power supplies, coax, and tripod towers already loaded up. Granted it was bulging at the seams, but it had EVERYTHING I needed!

I think the old Army adage is "Lose your Head...your butt will follow shortly."

The HT was also fine and fully charged. He'd simply punched the "WIRES Internet" button and sent it into a funk...mental note – *never hand over complicated radios for people to use.*

Point 1 – Several folks mentioned they don't have the gear available to deploy. That's OK, simply operate from home. We wouldn't all gather at the same place anyway...we'd have too many people underfoot. And, you need to know how your home station performs too. If you have emergency power, this is a good time to check it out, whether it's a backup battery or generator.

The club maintains a hospital station and also has an additional HF and Dual band radio for deployment to where it's needed. You may want to get more familiar with those so you can be assigned to wherever they go.

Point 2 - You're worried about the complicated names on some of the medicines listed in the scenario causing you problems with passing them in formal traffic. Chances are, we won't worry about using those; we simply want you to be more familiar with passing written traffic. Can you spell "we need 30 blankets and cots?"

Point 3 – I don't write fast enough to take written traffic. Here's a simple rule of thumb for those of you sending the traffic. ***Read it at the same rate you'd write it down yourself.*** Doing that keeps you from blowing away someone trying to copy it.

Point 4 – Shouldn't we be doing this from the locations rather than from home? While we'd usually prefer it so that our served agencies can see the response, they most likely won't be on site as it's a Saturday, and they DON'T do overtime for their people. So, if operating from home is all you can do right now, so be it. I'd rather see you get the practice of traffic handling and net procedures, and that doesn't require you to be on location.



Is this a complex SET? Yes, it is somewhat more so than the last ones we've done. But don't let that stop you from participating. What we're after is to get you to the same point I was at after leaving the real event above...knowing where you stand in preparation for a real event.

One final thought...we've done hurricane scenarios for a couple of years and during those exercises, we got a bit lazy about adding the phrase "***This is a Drill***" as often as possible. There was no real harm there as most non-ham people who might be listening to the nets on HF receivers and scanners knew there was no Cat.4 hurricane off the coast.

This scenario however, would be easily misconstrued as an actual event because of its medical nature. There's always the chance someone will hear it on the scanner and go into "Oh My GOD!!" phase.

We do not want a "War of the Worlds" scenario where people take to the streets looking for the triage areas and PODs for inoculations. So use "***This is a Drill***" early and often in your traffic.

Still have questions?...shoot me an email and I'll do what I can to help you along... And again, don't worry, this will be painless, and you'll learn a lot!

de KE4FGF

Don't Forget the Monthly Meeting changes!

6:30pm in the Social Hall at

Morningside Methodist Church!