

Nacogdoches Amateur Radio Club

2012 CLUB OFFICERS

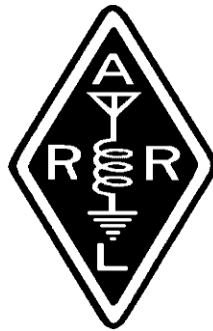
Pres: Rusty Sanders - KD5GEN

VP: Mike Brown - KF5KEY

Sec/Treas: Army Curtis - AE5P

MISSION STATEMENT

The Mission of the Nacogdoches Amateur Radio Club is to support and promote Amateur Radio by public service, offering training to unlicensed interested parties and licensed Amateurs, mutual support of other Amateurs, engaging events that promote Amateur radio to the general public and other Amateur radio operators, and continuing fellowship by regularly scheduled organized meetings and events.



JULY MINUTES

The July meeting of the Nacogdoches Amateur Radio Club (NARC) was held as scheduled on July 11th. **President Rusty KD5GEN**, opened the meeting at 7:00 p.m. in the Parish Hall of Christ Episcopal Church. Thirteen members and two guests were present. Each person present introduced himself. Minutes of the previous meeting were approved as published. The Treasurer's report was read.

Old Business:

Rusty KD5GEN spoke of the Silent Key website done by the Society of

Wireless Pioneers and suggested we might consider doing something similar to honor the local hams who have passed on.

New Business:

Bob K5ME reported working Indonesia on 40 meters.

The Lufkin Hamfest is now set for October 20th. Houston Amateur Radio Supply is now an official sponsor of the Hamfest and is providing the Grand Prize. Information at <http://lufkinhamfest.com/>

Joplin Missouri is having their 23rd annual Hamfest on August 24-25 and have sent us fliers for the event.

The CQVHF contest is coming up the weekend of

July 21. Contest covers 6 and 2M only.

The IARU HF contest is coming up the weekend of July 14. Both phone and CW modes are allowed.

Meeting adjourned at 7:20.

Show and Tell: **Marshall K5QE** showed off his DXCC on 2M plaque.

Program: **Marshall K5QE** presented a slide show on the recent 6M grid dxpediton to DL88 in the Big Bend National Park. Conditions there are extreme to say the least.

OUR NEWEST HAMS

Congratulations to our newest hams:

Jonathan Erbey KF5RGL

Daniel Wills KF5RHH

And a belated congratulations to **Russ Morgan KC5UKK** on his upgrade to General.

If you meet these folks or hear them on the

repeaters, please make them feel welcome.

OSCILLATIONS FROM THE CHAIR

August is approaching quickly along with the hot weather. Our climatic conditions have been a lot better this summer than last and hopefully, the rain will not stay away too long.

In the latest QST, there is mention of PRB-1. This is action to allow amateur radio operators, who are restricted from putting up appropriate antenna systems due to local subdivision regulations, to install an antenna system whether it is a tower or wire antenna.

This was a major problem that I faced in the subdivision where I reside. The old CC & R for my area says there are to be no outside antennas along with a long list of other no - no's. After discussion with people in the "know", I discovered that after many years, many times the CC & R's basically

become null and void when there are a large number of previous violations which have not been addressed by the "Architectural Committee". I looked at all the 'violations' that had not been addressed, the fact that there was no "Architectural Committee" and never had been, and that the developer was now 6 feet under, and I decided what the heck. I went forward with antenna systems. If anyone has complained, I did not know about it. The person over inspection services was in the neighborhood the other day and he has no problem. He is an avid supporter of our ham radio community and what we do for the citizens.

Many, many years ago, the late John Jinkins, W5MAW, had sold his house and was going to purchase a lot on the east side of the city and put up a tower for his equipment. Someone in the city government told him that this was prohibited and he did not question their answer. Instead, he

moved far out in the county and up went the tower. Living that far out of the city was a real inconvenience for Mr. John but he wanted his ham radio (a BEAUTIFUL MATCHED SET OF COLLINS gear) and a big beam.

I dropped into the city offices this morning and visited with the Inspections folks along with the Planning department. Both of these officials indicated they have no problem with ham operators installing systems within the city. If anything develops, one might have to get a special use permit thru the planning department. It would be reviewed and then taken to city council where it would probably not face any problems.

Planner Larissa Philpot told me that if PRB-1 passes, be sure to let them know so they could rewrite that law into the planning rules and regulations showing where federal law would supersede local laws and

especially any CC & R restrictions.

Our local city and county officials support amateur radio and this positive attitude is a direct result of what our NARC and SKYWARN members have done in the past by turning out and volunteering to keep the communication links open during times of need. Thank all of you that have taken the time to be a part of this group effort.

Hope to see you at the Wednesday meeting.

KD5GEN- Rusty

email:

rusty.sanders@att.net

FROM THE VICE PRESIDENT

Hello, all. It seems like it's that time again, but unfortunately, nothing of any consequence, radio-wise, has happened to me. My XYL and I have been traveling down memory lane in celebration of our 50th wedding anniversary. We traveled to Garner

State Park, 90 miles west of San Antonio, to visit the place where I proposed to her some 51 years ago. We were married on Friday, July 13, 1962. We celebrated our 50th on Friday, July 13, 2012, there at Garner State Park with a big round of hiking, swimming, mountain climbing and dancing each night at the pavilion. We had a great time. Unfortunately, being some 50 years older than the first time, all that hiking, swimming, mountain climbing and dancing resulted in a lot of aches and pains...so much for trying to be kids again....

I have been having a great deal of fun learning to use my new Flex radio. It took me a while to get all the paraphernalia needed to get it up and running, but it was well worth the effort. The receiver in this rig is not to be believed, and it has been really challenging to work through all the menus, sub-menus and sub-sub-menus that are available with a software defined radio, but it is truly worth

the effort. Everyday brings something new that I wasn't aware of, and that pushes me to find out more and more. In the event that any of you are considering getting one of these in the future, just a hint here: Get a lot of RAM on the motherboard of the computer that you use to run it (at least 6 gigabytes), and the faster the CPU, the better for this type of radio. I got one with 8 gigs of RAM and a quad-core processor, and it works beautifully and fast, fast, fast. The FLEX systems currently available interface with the computer via a 4 MPS Firewire, and the majority of computers currently available don't have a Firewire card, so you're going to have to find and install a Firewire PCI card. There are a world of them out there, but the people at Flex say to try to get one with a Texas Instruments chip, as they tend to work better. And one more thing about PCI cards....there are PCI cards and PCI Express cards. An older computer will probably use a regular

PCI card, while the newer models will require the PCI Express cards. You can save yourself a lot of time and effort by researching these two types of cards via the internet. Anyway, enough about the Flex radio...I've probably bored you already.

As I said previously, I haven't had a lot of time for radio-related things this month, and I'll try to do better in the future.

But with 50 years of experience with marriage, I've learned that if you don't pay a lot of attention to your XYL on your anniversary, the future can be a little rocky....

73 to all....

KF5KEY - Mike

Email:

michaelleebrown@hotmail.com

VE TESTING

Our next VE testing is scheduled for Wednesday, August 15th at 7:00 p.m. in the Parish Hall of Christ Episcopal Church. Applicants should bring a picture ID, the original and a copy of their current Amateur license, the original of any CSCE's and \$15 to cover the cost of the exam(s). Correct change is always very much appreciated. 73 de AE5P

email: ae5p@arrl.net

CLUB NETS

Remember to join us each week for the 2-meter nets sponsored by NARC. Each **MONDAY** is the **NARC ARES/RACES** net, at 8:00 p.m. on the club's 146.84 repeater (PL 141.3). Second, on **THURSDAY** evenings at 8:00 p.m. is the **Deep East Texas Skywarn Emergency Weather Net** on the 147.32 repeater (PL 141.3). Please join us for one or both. We are always looking for folks who would like to become net control operators. If

you are interested, please contact any of the existing net controls. We will be pleased to help you in any way we can.

NEXT MEETING

The next meeting will be on **Wednesday August 1st** at 7:00 p.m. in the Parish Hall of Christ Episcopal Church. The church is at the corner of Starr and Mound Streets in Nacogdoches. Please come join us and bring a friend.

BASIC ANTENNAS

PART 45

by

Thomas Atchison W5TV

As we stated in Part 43, a connecting wire is considered a transmission line if it is longer than $\lambda/8$, where λ is the wavelength of the AC being carried by the line. We do this because the behavior of the line carrying the AC current depends on the length of the line and the frequency of the alternating current passing through the line. At low frequencies, such as 60 Hz AC, transmission lines don't affect power transfer. At high frequencies, even short lengths of transmission lines will affect the power transfer. When we discuss transmission lines we must realize that our analysis is dependent on the frequency of the signal we plan to send down the transmission line. For amateur use we want to use a transmission line over a range of frequencies therefore we must realize that there are compromises that are made in selecting the length and type of transmission line to use to feed a particular antenna. Your amateur radio system consists of your transceiver, your transmission line, and your antenna. Each piece is important! Said another way, you may have the best antenna made and the best transceiver money can buy, however, if you do not pay attention to the transmission line you use you will not have much signal radiated from your antenna and, conversely, you will not receive the strongest signal from your receiver that you could.

As we discussed previously, if a transmission line has infinite length then an RF signal traveling down the line will continue indefinitely. If a lossless line is terminated by a load that has the same resistance as the characteristic impedance of the transmission line then an RF signal will be completely absorbed by the load (antenna). In either case, only one value of impedance is measured at the input terminals and this value is the characteristic impedance of the line.

If the far end of a finite transmission line is terminated with a load that has an impedance that is not equal to the characteristic impedance of the line, then there is a discontinuity at the termination point. This discontinuity causes a reflection of the energy back down the line toward the source. The amount of energy reflected back along the line depends on the frequency of the signal and the transmission line used. Suppose we send a single period of a wave of energy from the input end of the

transmission line toward the load. This is an incident wave. If the line is open at the load end then the current will collapse to zero. The collapsing current causes the associated magnetic field to collapse and this creates an electric field which generates a new current equal to the incident wave but traveling back along the line toward the input end. This reflected current is equal in amplitude to the incident current but of opposite phase. The incident voltage lags the current by 90 degrees so it is a maximum at the open end of the line. As the reflected current builds there is a reflected voltage that lags it by 90 degrees so we have a reflected voltage that has the same amplitude and the same phase as the incident voltage.

If we generate a continuous signal at the input end then both incident and reflected waves of current and voltage exist on the line simultaneously. These waves will interact with one another to create a standing wave along the transmission line. That is, the incident and reflected waves will combine to create a third wave. This wave remains fixed in position as long as the incident frequency is not changed. The RF power at any point along the line is constant, regardless of the variations of current and voltage of the standing wave. Maximum current points of the standing wave are separated from maximum voltage points by a quarter wavelength. This pattern is repeated in half-wavelength intervals.

Now suppose we have a short at the end of a finite length of transmission line. With a short, the voltage will be zero at the load end of the line (the short) and the current will be a maximum. The reflected voltage is 180 degrees out of phase with the incident voltage and the reflected current is in phase with the incident current. This is the opposite of conditions that existed with an open end. Once again the incident and reflected waves of current and voltage will combine to create a standing wave.

The open end transmission line and the direct short represent the two extremes of a load that can be placed on the line. The open end is an infinite load and the short is a zero ohm load. Any other load will create standing waves that are somewhere between these two extremes. For a given load we can measure the maximum value and the minimum value of either the voltage or the current of the standing wave. As we said before, the Voltage Standing Wave Ratio (VSWR) is the ratio of the maximum voltage, V_{\max} , to the minimum voltage, V_{\min} , in the standing wave. The ratio of the maximum current to the minimum current is the same number.

The voltage component of a standing wave in a uniform transmission line consists of the forward wave (with amplitude V_f) superimposed on the reflected wave (with

amplitude V_r). We introduced the reflection coefficient in Part 43. Another way of describing the reflection coefficient is

$$\Gamma = \frac{V_r}{V_f}$$

Let $\rho = |\Gamma|$. If there is no reflection then the amplitude of the reflected wave is 0 and $\rho = 0$. In this case all the power is transferred to the antenna. On the other hand, if all the power is reflected from the load then

$$V_r = V_f$$

and $\rho = 1$. This means that $0 \leq \rho \leq 1$.

We can connect the VSWR to the magnitude of the reflection coefficient by the equation

$$VSWR = \frac{V_{\max}}{V_{\min}} = \frac{1 + \rho}{1 - \rho}$$

When $\rho = 0$ then $VSWR = 1$ as we would anticipate. As ρ increases from 0 we see that the VSWR increases toward infinity and the power reflected increases toward total reflection.