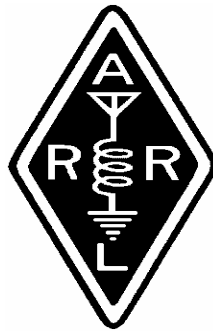


# Nacogdoches Amateur Radio Club

Pres: Lon Glaze - AE5BN

VP: Tom Atchison - W5TV

Sec/Treas: Army Curtis - AE5P



## OCTOBER MINUTES

### 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.

The October meeting of the Nacogdoches Amateur Radio Club (NARC) was held as scheduled on October 6th. **President Lon, AE5BN**, opened the meeting at 7:00 p.m. in the Parish Hall of Christ Episcopal Church. Twenty-five members and four guests were present. Each person present introduced himself. Minutes of the previous meeting were approved as published. The Treasurer's report was read.

#### Reports:

1. Several members participated in the September ARRL VHF

contest, and they gave a brief report of their operations.

2. Several members also participated in the Texas QSO Party. Conditions on 40 meters were much better this time than in previous years.

3. Several members went to Belton for the fall swap meet. **Army-AE5P** reported that he actually sold some things this time.

#### Unfinished Business:

1. The antenna still needs to be installed at the Nacogdoches Recreation Center.  
2. The Telpac Node needs some work at the Fredonia Hotel.

#### New Business:

President **Lon-AE5BN**, appointed **Army-AE5P**, **Tom-W5TV** and **Mark-W5TXR** to be a nominating

committee, and to report back at the next meeting with their nominations for club officers for the year 2010.

**Jerry-K5JLW** announced that there will be Skywarn training at the Lufkin City Hall on November 12, beginning at 6 p.m.

#### Show and Tell:

1. **Mark-W5TXR** passed around some QSL cards he has recently received.

2. **John-N5AIU** showed off his first place plaque for the November 2008 Sweepstakes contest. This is the 4<sup>th</sup> year in a row that the McMichael Middle School Club has won first place in the school club division. Congratulations to John and his students.

Meeting Adjourned at 7:30.

**Program: Army-AE5P** presented a program on various digital modes used in Amateur Radio. Unfortunately, the bands were completely dead that evening, so no live demo could be completed.



## HAMMING IT UP

Wow, October is near about gone. Haven't been on the radio much this month. I think I have talked to KC5MIB John Chapman one time this month while on the way home. I guess I've been slacking.

My mother is still in the hospital. She doesn't seem to be improving much. I think it's been four weeks now and she still hasn't been walking around yet. I'm still not quite sure exactly what to say. I appreciate all of your prayers and support during this time. She seems to complain about a lot of the stuff that they try to get her to do. She complains about the cpap they put on her at night and complains about having to take her breathing treatments. Stuff like that. I just hope and pray that she hasn't given up hope.

I have been super busy last couple of weeks getting prepared for our year end inventory at work. Amazing how much there is to do in preparation for those. I guess we must have done a good job. It went off pretty much without a hitch. Our regional manager said that he has been doing these for twenty three years and has never done one that went this well. He was only there actually working on it for two hours. Normally used to take us about four hours to double check everything.

Dr. Tom tells me we won't have a program this month but I'm sure we can use the extra time since we will be electing our new officers and discussing the Christmas Party this month.

Please bring any show and tell items you may have.

73, this is AE5BN Lon.  
email: [ae5bn@arri.net](mailto:ae5bn@arri.net)

**VP's CORNER**

The next meeting of the Nacogdoches Amateur Club is on Wednesday, November 4, at 7:00 p.m. at Christ's Episcopal Church. There will not be a formal program at this meeting. I believe President Lon plans to discuss details of the Christmas Party since that will be our following meeting.

If you have 'Show and Tell' items, please bring them to the meeting. Folks are always interested in what is new around the club.

I will be having back surgery on October 27; therefore, I will not be able to attend the November meeting. I do plan to be at the December meeting to check out the White Elephants. Please keep me in your prayers. Thanks.

73, Tom W5TV

email: [w5tv@arrl.net](mailto:w5tv@arrl.net)

**VE TESTING**

Our next VE testing is scheduled for Wednesday, November 18th 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](mailto: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 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 November 4th 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. If you have items for show and tell, please bring them. Hope to see y'all there.

## BASIC ANTENNAS

### PART 12

by

Thomas Atchison W5TV

I stated at the end of Part 11 that we would discuss transmission lines; however, I did address transmission lines beginning in Part 4 and continuing in Part 5. At this point I would like to introduce a different idea, beam antennas.

Think in terms of a flashlight bulb out in the open. Its light goes out equally in every direction. If we put a properly shaped reflector near the flashlight bulb as in a flashlight, then the light is focused in a particular direction and it appears brighter than the open bulb. The reflector does its job of receiving the light from the bulb and reflecting it in a narrow beam of light that has more illuminating capability.

Now let's consider radio signals. These too can be focused into a narrow beam. Depending on the frequency of our radio signal, this focusing is accomplished in different ways. In frequencies above about 1000 MHz we are able to use a parabolic reflector like a flashlight. We may want to talk about these later, however, for now I want to discuss lower frequencies. On the lower bands the focusing is done by combining the individual radiations from several dipoles. The waves from the dipoles are timed so that they add together when going in the desired direction. In other directions they tend to cancel one another decreasing the signal intensity. The total power in the antenna system remains the same since an antenna cannot manufacture power itself.

If we have several dipoles in an antenna system, each dipole is called an element and the combination is called an array. We can have every element connected to the transmitter through a system of transmission lines. This is called a driven array. It isn't necessary, however, to have every element connected directly to the transmitter. We may have a single element (driven element) connected to the transmitter and a second element 'close to' the driven element, but not connected to the driven element. If this second element is approximately parallel to the driven element, some of the power in this second element will be coupled with the first through the electromagnetic fields. Elements that get their power like this are called parasitic elements. Arrays that are constructed in this manner are called parasitic arrays. Note that one or more

of the elements of a parasitic array must be directly coupled to the transmitter by a transmission line before any electromagnetic field coupling can occur.

We will now talk about a Yagi antenna. This antenna has a driven dipole, usually resonant, and one or more parasitic elements. The simplest Yagi has two elements, a driven element and a reflector. The reflector receives energy from the driven element and reradiates it in such a way as to reinforce the radiation from the driven element in a particular direction something like the light beam from a flashlight. Only a fraction of the energy in the parasitic element is lost in heating the element, therefore, almost all of the power received is reradiated to enhance the signal in one direction and to reduce the signal in other directions.

We now ask, what determines the preferred direction? There are two factors, the distance between the driven element and the reflector (spacing) and the length of the reflector. The spacing is usually about 0.15 wavelength for close spacing. A spacing of about 0.25 wavelength is used for wide spacing. The length of the reflector is about 5% longer than an electrical half wavelength. Let's select a frequency and put numbers to these statements.

Suppose we want to operate our array at 14.1 MHz. An electrical half wavelength at 14.1 Mhz is

$$\frac{1}{2} \lambda (\text{in feet}) = \frac{468}{14.1 \text{ MHz}} = 33.2 \text{ feet}.$$

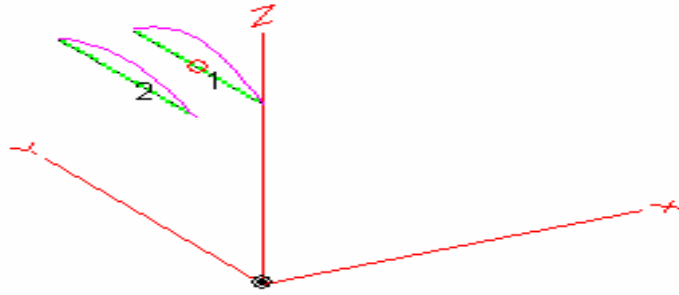
So the length of the reflector should be 5% longer. That would be about 34.9 feet. Close spacing should be about

$$0.15 \lambda = 0.15(66.4) = 9.96 \text{ feet}.$$

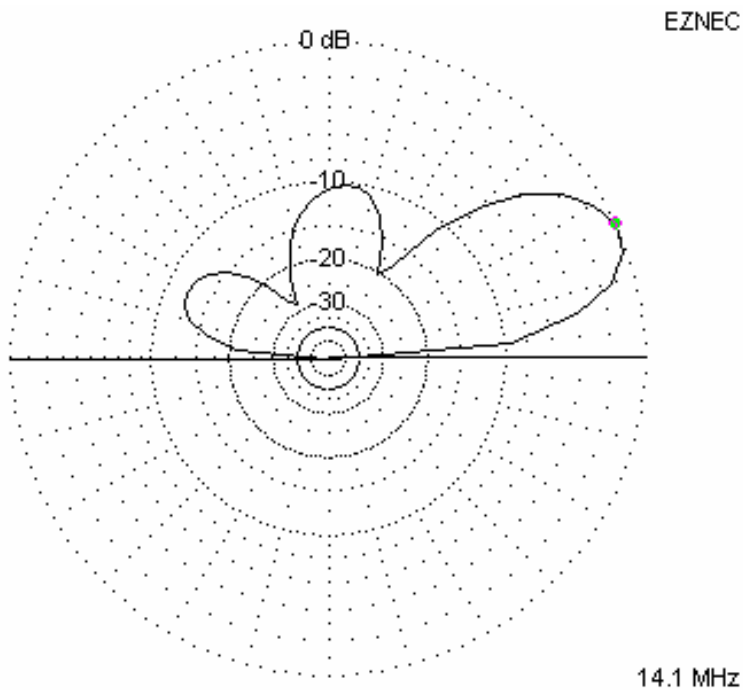
Wide spacing would be about

$$0.25 \lambda = 0.25(66.4) = 16.6 \text{ feet}.$$

Suppose we look at modeling the close spaced two element yagi using EZNEC. The antenna is modeled at 40 feet in height as



The green lines are the elements with 1 denoting the driven element and 2 denoting the reflector. Radiation takes place to the right away from the reflector. The radiation pattern is as follows:



Here we have an elevation slice with maximum radiation at about  $25^\circ$  in a direction away from the reflector. Notice the much smaller radiation on the reflector side. This will require further examination.