

# Nacogdoches Amateur Radio Club

## 2011 CLUB OFFICERS

Pres: Rusty Sanders - KD5GEN

VP: Clarence Riddle - KC5UBP

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.



## FEBRUARY MINUTES

The February meeting of the Nacogdoches Amateur Radio Club (NARC) was held as scheduled on February 2nd. **President Rusty, KD5GEN**, opened the meeting at 7:00 p.m. in the Bailey Library of Christ Episcopal Church. Fifteen members and three guests were present. Each person present introduced himself. Minutes of the previous meeting were approved as published. The Treasurer's report was read.

## Contest Reports:

Reports were given on the ARRL VHF contest in January, and the NAQP SSB and CW contests, also in January.

## Shuttle Columbia Special Event Station:

In light of the rather nasty winter weather we are experiencing, it was decided to not hold the Columbia Special Event Station at the International Church of Nacogdoches on the Southwest Loop. Rather, two existing stations will be used: AE5P will make his station available for operation on 40 meters, and N5YA will make his station available on 20 meters. Logs from the two operations will be combined, and QSL duties will again be handled by John, W5FWR.

Meeting adjourned at 7:22.

**Program:** Army presented a program on RF transmission lines, with emphasis on open wire feed lines that you can make yourself.

## Oscillations From The Chair

Hello from EM21pn or the southwest side of the city. It is time for another article for the newsletter and I have had writer's block for 4 days.

We have Field Day coming up before long along with some other events like the Neches River Rendezvous (June 4), Belton (April 1 & 2), and possibly some fun run events. If you can plan ahead in your family scheduling, try to take in or participate in one of the events.

At our next meeting, I would like to go over information regarding the volunteers for the two

local nets and what their 'net nights' are. Please consider volunteering to handle one of the nets or be the co-net controller for a specific night.

There was a particular article in QST that made me start thinking of the history of Amateur radio in this community. I have wondered who the first Amateur radio operator was in the county, when was the first club started, what the call signs were and what type of equipment did they utilize. I have emailed ARRL to determine how far their membership database goes back and if we can utilize such to obtain names of operators in the community.

My father-in-law has told me stories about one operator in the 1930's, who had a service station or store somewhere on East Main near Shawnee street. He was a Texan but of German descent. In the back room or office of his place of business, he had his 'shack' and when not busy, apparently

worked a lot of CW. Remember, there was no such thing as air conditioning during that time, so windows were open and people walking by could hear what was occurring inside a place. During the times leading up to WWII, many people were rather curious about this guy, always in his back room, doing this code stuff. Could he be sending coded messages to Hitler? Could this be a German spy right here in the Piney Woods? His hobby had many folks in the community leery of what he was doing.

It would be interesting to obtain a local history of Amateur radio and even better to have some pictures of the hams and their equipment. If anyone has any ideas on how to develop this or someone who might still be around that we could glean information from, please come forward. Such stories and pictures would be a great asset for the website.

It has been a long time since we have had a fox hunt. I would like to find out at the next meeting if anyone would like to participate.

Hope to see all of you at the next meeting.

KD5GEN- Rusty

email:

[rusty.sanders@att.net](mailto:rusty.sanders@att.net)

### VP's CORNER

Well, not much to say radio wise. I have been busy getting ready for spring fishing.

Maybe someday I'll install a radio in one of my boats.

73 de Clarence KC5UBP

email:

[clarence404@hotmail.com](mailto:clarence404@hotmail.com)

### VE TESTING

Our next VE testing is scheduled for Wednesday, March 16th 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 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 March 2nd 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. A special program by Tom, W5TV on computer modeling of antennas is planned. Hope to see all of you there.

### CONTESTING

At the urging of Bill, N5YA, and with some guidance from an old RTTY contesting friend of mine up in Chicago, I have decided to switch my contest logging from the various programs written by N3FJP to the one by N1MM. It is an incredibly versatile program, which is another way of saying it's rather complex and definitely (at least for me) has a learning curve. It's a free download and will cover phone, CW, and digital contesting. You can find it

at

<http://n1mm.hamdocs.com/tiki-index.php?page=homepage>

Complete pdf manuals are also available there, and it is rapidly becoming the defacto standard of the contesting world. I used it for the first time in the ARRL International DX CW Competition, and then again this weekend in the NAQP RTTY Contest. Yes, it takes a little study and work to get it all setup correctly, but the results are definitely worth the effort. You might want to give it a try.

Coming up the weekend of March 5 and 6 is the ARRL International DX phone competition. For those of you who don't speak CW, this is a fantastic contest, in that US and Canadian Amateurs work the rest of the world. There will be tons of DX stations on the air, all trying to contact North American stations. A suggestion for operators of modest stations is to check out

the action on 15 meters, and also 10 meters if it opens.

It can be a lot of fun playing around in these contests, especially on Sunday afternoons when activity tends to lessen, and the big guns are really anxious to work any new stations they might hear. That is the perfect time for someone rather new to contesting and looking for new countries to work, to get on the air and have a ball.

For a complete listing of the many, many contests going on during the year, check out the web site at <http://www.hornucopia.com/contestcal/contestcal.html>

It's incredible how many contests there are almost every weekend of the year. Check it out and get on the air. If you have questions or need assistance, give me a shout.

73 de AE5P

## BASIC ANTENNAS

### PART 29

by

Thomas Atchison W5TV

We now turn to an idea that was mentioned to me by Jerry, K5JLW. The idea he mentioned involved Near Vertical Incident Skywave (NVIS) antennas. These are antennas that deliver the majority of their radiation at a very high angle, usually between 75 and 90 degrees from the ground. The idea is to attempt to communicate with those amateurs who are within 150 miles of your location on a regular basis. The amateur bands that are most often used are 160 meters, 80 meters, and 40 meters. We will focus on 40 meters.

We will consider several variables to try to determine which antenna would be best for NVIS communication. Some people suggest a simple dipole located approximately  $1/8$  of a wavelength above ground. Others suggest that a one-wavelength loop antenna cut to the frequency of operation and located  $1/8$  wavelength above the ground is the best choice. Some suggest that the height should be around 7 or 8 feet regardless of frequency and others say more like 10 to 15 feet. We will use EZNEC to model several combinations to see what happens.

We will simulate a dipole cut for 7.2 MHz and consider several different heights above ground. Fig. 1 shows the 3-dimensional radiation pattern with a 2-dimensional elevation pattern in red. The height of the dipole above ground is 7 feet.

EZNEC

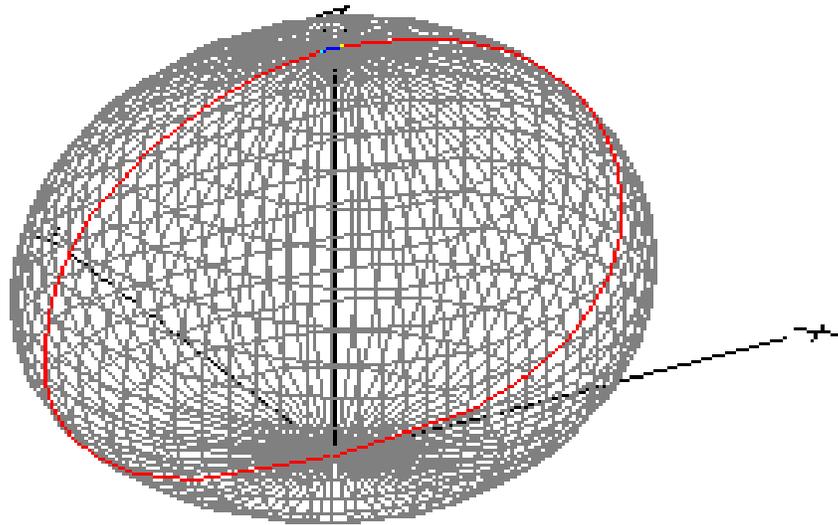
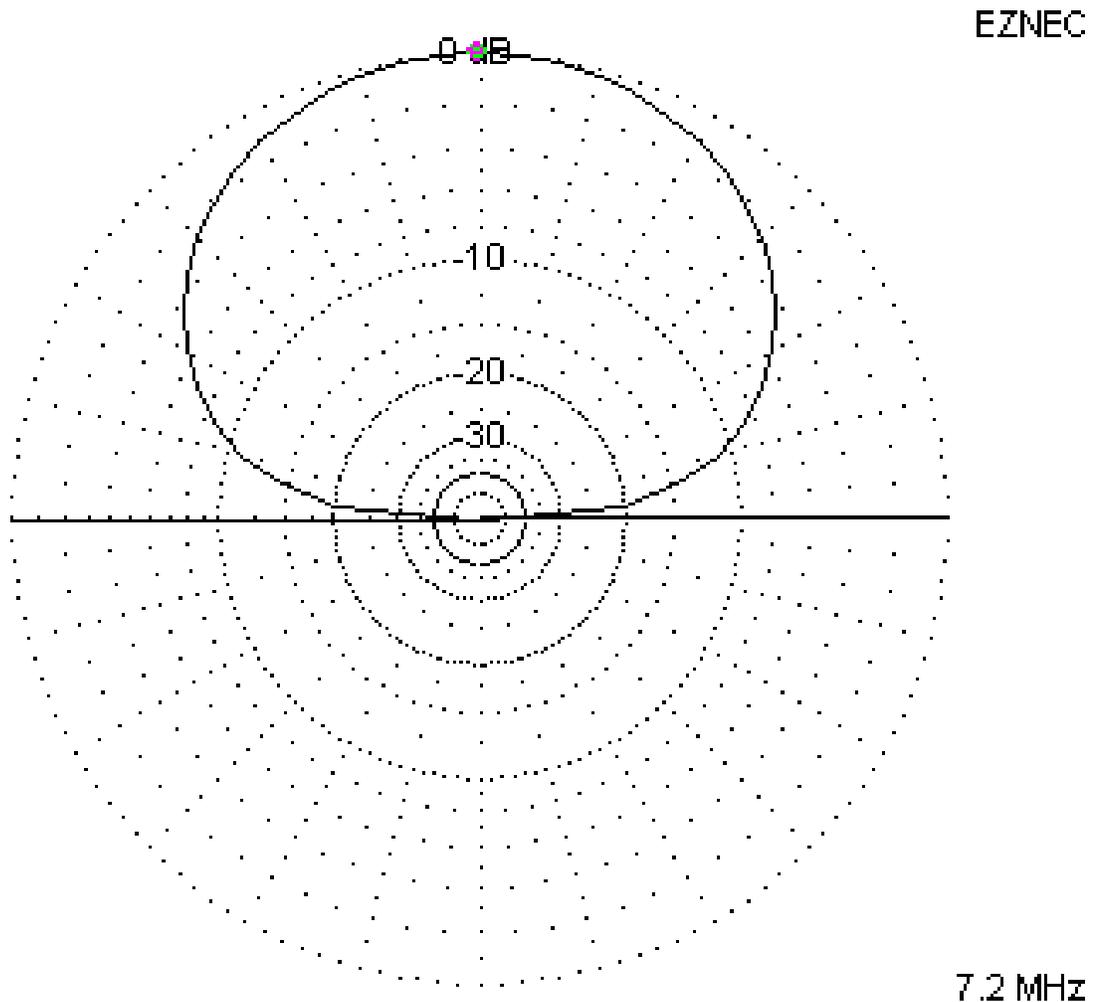


Fig. 1

The 2-dimensional elevation pattern is shown in Fig. 2 with corresponding data.



Elevation Plot		Cursor Elev	90.0 deg.
Azimuth Angle	0.0 deg.	Gain	10.05 dBi
Outer Ring	10.05 dBi		0.0 dBmax

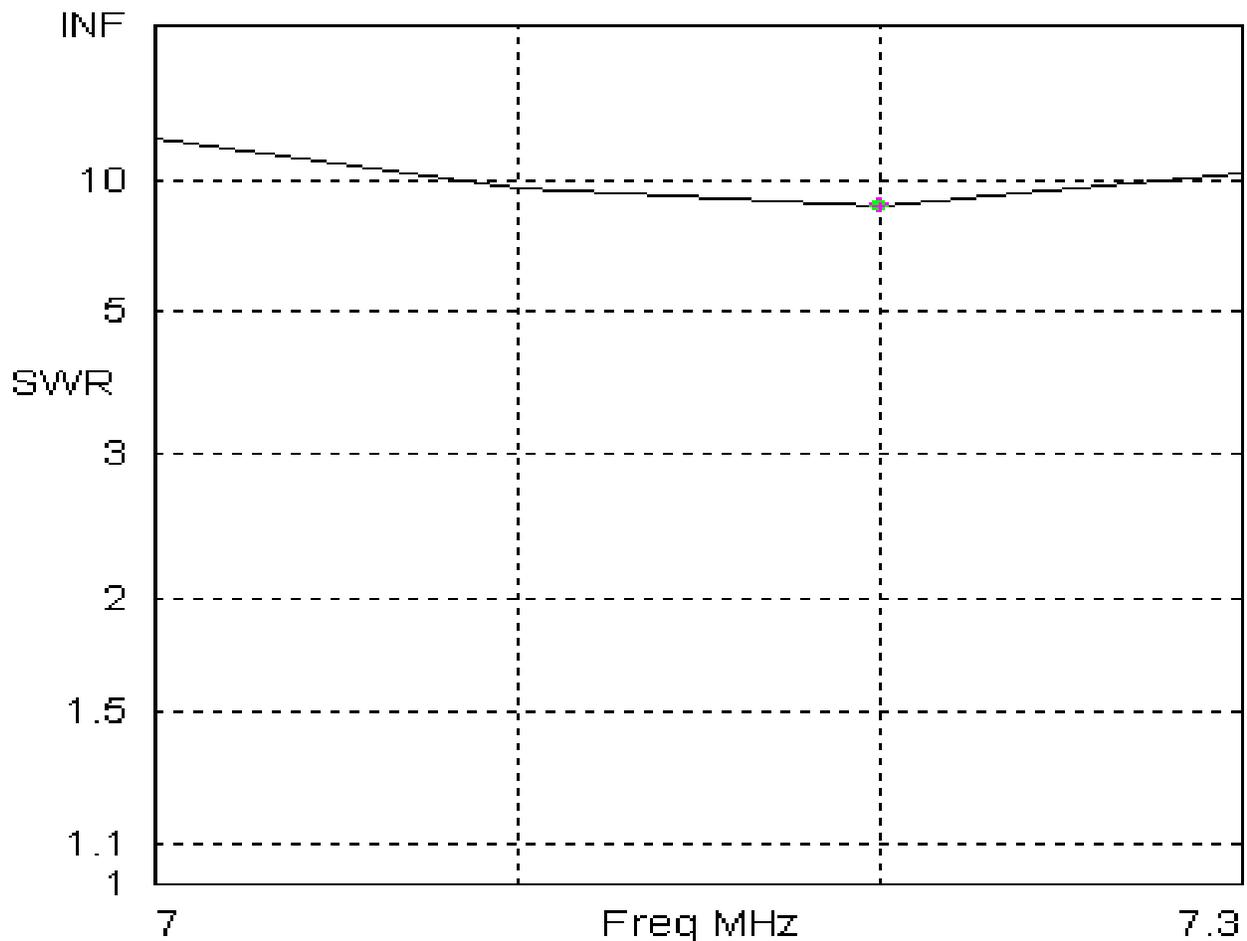
3D Max Gain	10.05 dBi
Slice Max Gain	10.05 dBi @ Elev Angle = 90.0 deg.
Beamwidth	94.2 deg.; -3dB @ 42.9, 137.1 deg.
Sidelobe Gain	< -100 dBi
Front/Sidelobe	> 100 dB

Fig. 2

Notice that the maximum gain is at an elevation angle of 90 degrees and the gain is about 10 dBi. If we look at various heights we have the following table:

Height(ft)	1	3	7	10	15	20
Gain(dBi)	18	12.5	10	9.4	8.8	8.3

It looks like the lower the better as far as gain is concerned in our simulation. If we feed the dipole with 50-ohm line and consider the SWR at a height of 7 feet we have the following from 7 MHz to 7.3 MHz:



Freq 7.2 MHz  
 SWR 8.49  
 Z 6.068 + j 8.65 ohms  
 Refl Coeff 0.7893 at 160.09 deg.

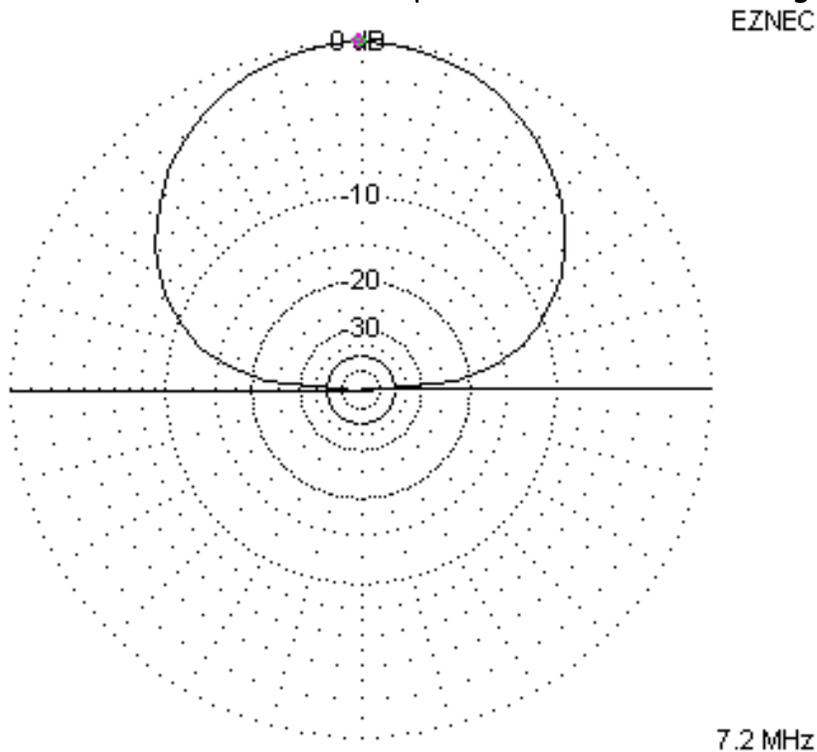
Source # 1  
 Z0 50 ohms

The minimum SWR of 8.49 is at 7.2 MHz. The following table shows how the SWR changes with height, assuming a 50-ohm feed line.

Height(ft)	3	7	10	15
SWR@7.2Mhz	46.9	8.49	4.87	3.23

From this we see that a reasonable compromise in height considering gain vs. SWR might be 7 to 10 feet.

Fig. 3 shows the elevation radiation pattern for a one wavelength loop at 7.2 MHz .



Elevation Plot		Cursor Elev	90.0 deg.
Azimuth Angle	0.0 deg.	Gain	10.78 dBi
Outer Ring	10.78 dBi		0.0 dBmax
3D Max Gain	10.78 dBi		
Slice Max Gain	10.78 dBi @ Elev Angle = 90.0 deg.		
Beamwidth	81.0 deg.; -3dB @ 49.7, 130.7 deg.		
Sidelobe Gain	< -100 dBi		
Front/Sidelobe	> 100 dB		

Fig. 3

This isn't much different from the dipole. The following table shows the SWR at 7.2 MHz (assuming a 50-ohm feed line):

Height(ft)	3	7	10	15
SWR@7.2MHz	23.4	4.24	2.13	1.07

The gain at various heights is as follows:

Height(ft)	1	3	7	10	15	20
Gain(dBi)	22.76	14.96	10.87	9.74	8.74	8.09

Again, a height of 7 to 10 feet seems to be a good compromise.

Finally, we consider what would happen with a two-wavelength loop at 7.2 MHz. The elevation radiation pattern is shown in Fig. 4.

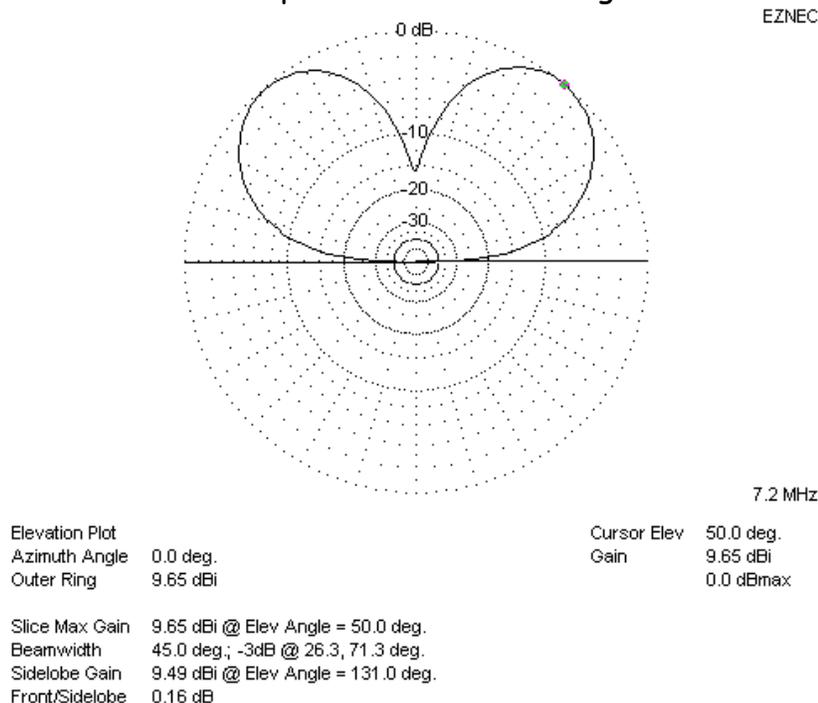


Fig. 4

Observe that we no longer have the vertical radiation that is desirable in an NVIS antenna.