

# Nacogdoches Amateur Radio Club

President: Tom Atchison - W5TV

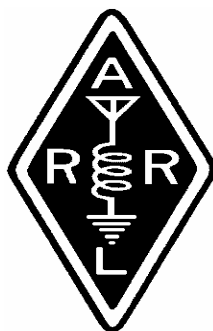
VP: John Chapman - KC5MIB

Sec/Treas: Army Curtis - AE5P

## SEPTEMBER MINUTES

The September meeting of the Nacogdoches Amateur Radio Club (NARC) was held as scheduled on September 6th. Twenty-nine members and three guests were present. **President Tom, W5TV**, opened the meeting at 7:00 p.m. in the Parish Hall of Christ Episcopal Church. Each person present introduced himself. Minutes of the previous meeting were approved as published. Treasurer's report was read.

It was noted that this next weekend is the ARRL VHF contest. **K5QE** is looking for more operators



for his contest station. If interested, please contact **Marshall, K5QE**.

Speaking of **Marshall**, he has acquired a whole bunch of LMR-400 coax. The club has agreed to purchase 2,000 feet from him for resale to our members. First dibs include **AC5Z** for 100 feet, **KE5EXX** for 300 feet, and **KI5KR** for 100 feet.

The club Christmas party was discussed at length. **Kent, KD5SHM** noted that the KC Hall will cater anything we want at \$10 - \$15 per person, plus \$60 for the hall. An alternative would be to hold the party at the church and bring in

our own food. Moved, seconded and passed to hold the Christmas Party at the Church. Committee assigned includes **KC5MIB, K5JLW, W5TV** and **AE5P**.

Telpac update: **KD5SHM** and **W5TXR** have been working on a club Telpac node, using a Motorola GM300 radio donated by **W5TXR**. The node is up and running on 145.010.

Skywarn training is being looked at for this fall. Stay tuned for further information.

It was suggested that the clock on the 444.050 repeater be changed to read out zulu time. This will be done.

Meeting was adjourned at 7:45 p.m.

Show and Tell: **KE5EXX** showed off a 432 MHz cheap yagi. **K5QE** showed off a DEMI high power 1296 transverter. **N5DUX** showed off a QRP antenna tuner constructed in an Altoids tin.

Program: **AE5P** presented a program on the Shuttle Columbia recovery. This is the same program that **Army** presented at Dayton in 2004.

### PRESIDENT'S CORNER

These months seem to be going by at a very fast rate. It seems like only last week that I was writing this message for the last NARC Newsletter.

The Texas QSO Party was last weekend and I heard several members of our club participating. If you did not get a chance to work the QSO Party this year, please put it on your calendar for next year. This is a fun contest and it is a chance to meet some Texas hams that you might not meet otherwise.

Several contacts were exchanged using 2 meter FM on 146.46. I must admit that my record of contacts was not impressive, however, I had a good time and I think each of you would also.

Speaking of contests, the ARRL November Sweepstakes (CW) is coming up November 4 - 6 and the Phone part of that contest is November 18 - 20. You will probably find the HF bands full of operators during those weekends.

I haven't heard any 6-meter openings recently, however, there has been some activity on 2 meters that reaches outside EM21. Keep listening.

We will have our October meeting at 7:00 p.m. on October 4 at Christ's Episcopal Church. Please plan to attend and bring anything that is new to you in the world of amateur radio for 'SHOW and TELL'. See you on October 4.

73 de Tom, W5TV



### V.P.'s CORNER...

I'm writing this after another loss by the Lumberjacks. McFarland didn't sound any too happy and I'm taking a break from the chores of a bachelor, you know house keeping. The TX QSO party is going on (Sunday 24 Sep), hope everyone is doing well.

I think most folks remember the Sea Horse case Robert Judy showed off not long ago. I'm testing 2 of them now. One is for some small units and another, a hard case for an Apple Laptop (yeah I know I may have stepped to the dark side). We are starting to carry a lot of items to the home football games which need to be co-located and protected. Three of the units are not much larger than a pack of playing cards. I also have outboard hard drives, remote communications

gear for intercom purposes and the notorious Apple Laptop computer. A soft sided riggers bag just won't do for these items and now I'm carrying 2 of them for cables, connectors, gaffers tape and the like.

I know we carry a lot of things when we go to the field, radios, batteries, computers, coax, extension cords etc. How are you getting that gear out to your operating location—milk crate, cardboard box, foot locker, soft-sided computer bag, by gosh and by golly? Look over your needs, look over what you have, decide what you may or may not need. Think about your potential needs and think some outside the box, don't figure that because you didn't use it the last time that it won't be needed the next time. Remember, Murphy was an optimist.

73 to all,  
John Chapman  
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[kc5mib@arrl.net](mailto:kc5mib@arrl.net)

### VE TESTING

Our next VE testing is scheduled for Wednesday, October 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 \$14 to cover the cost of the exam(s). Correct change is always very much appreciated.

### TRAINING MATERIALS

The club has purchased several copies of the latest ARRL "Now You're Talking" books, which provides everything a person needs to be able to pass the Technician class Amateur Radio license exam. Anyone may "borrow" one of these books for a \$20 deposit. When you return the book in good condition, you will get your deposit back. Interested? See Army, AE5P.

### 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.

### NEXT MEETING

The next meeting will be on Wednesday October 4th at 7:00 p.m. in the Parish Hall of Christ Episcopal Church. This is at the corner of Starr and Mound Streets in Nacogdoches. Hope to see y'all there.

### BREAKFAST BUNCH

Mark, W5TXR has organized a Breakfast Bunch to meet the first Saturday following the NARC general meeting, 8:00 a.m. at IHOP. So, the next meeting of the Breakfast Bunch will be

Saturday, October 7<sup>th</sup>.  
Hope to see many of you  
there.

## Basic Electronics Part Eight By Thomas Atchison

When we talk about antennas, we sometimes use a theoretically perfect antenna, called an isotropic antenna, as a reference for comparisons. This isotropic antenna is a point suspended in space so there is nothing nearby to interfere with the antenna. This theoretical point-source antenna radiates equally well in all directions. That is, an isotropic antenna favors no direction at the expense of any other—it has absolutely no directivity.

We use the designation dBi to indicate that we are comparing the power from one antenna with the power that would be sent out from the isotropic antenna. Therefore, if we have an antenna that is advertised to have a gain of 9 dBi, then we take that to mean this antenna

transmits eight times more power in one direction than an isotropic antenna would.

If the concept of an isotropic antenna seems a bit too contrived, consider comparing to a half-wave dipole. Many hams use a half-wave dipole antenna, so it makes a good standard for comparison. We use dBd to indicate that we are comparing our antenna to a half-wave dipole. That is, if we have an antenna that is advertised with a gain of 6 dBd, then we think of this as equivalent to increasing the power four times over that of a half-wave dipole. Of course the beauty of using a gain antenna is that you get the benefits on receive as well as transmit.

A half-wave dipole antenna has a gain of 2.15 dB greater than an isotropic antenna. The dipole concentrates the energy in certain directions, so that the radiation in those directions is greater than the radiation from an isotropic source with the same input power.

Therefore, the gain of an antenna referenced to an isotropic radiator is the gain referenced to a half-wave dipole plus 2.15 dB.

All practical antennas exhibit directivity. A directional antenna (including a half-wave dipole) can be considered to concentrate the available energy fed into the antenna, focusing the energy radiated from the antenna into the desired direction. The energy radiated in the desired direction(s) is increased by reducing the energy radiated in some other direction(s).

For example, the Hy-Gain Model EXP-14 Tribander 10, 15, 20 meter yagi has an advertised maximum gain on 20 meters of 7.5 dBi (5.35 dBd). This means that the main lobe of the antenna has a power level that is 7.5 dB greater than our isotropic antenna radiating in all directions. To calculate what this means in terms of power consider the following:

$$7.5 \text{ dB} = 10 \log \left( \frac{P_0}{P_i} \right)$$

where  $P_0$  is the power level from the EXP-14 main lobe and  $P_i$  is the power level from the isotropic antenna.

We can solve this equation for the power ratio as follows:

$$\log \left( \frac{P_0}{P_i} \right) = 0.75$$

$$\frac{P_0}{P_i} = 10^{0.75}$$

$$\frac{P_0}{P_i} = 5.62$$

$$P_0 = (5.62)P_i.$$

That is, the power from the main lobe is 5.62 times greater than the power from the isotropic radiator.

You may use this same process to determine what the power gain would be relative to a dipole by using

$$5.35 \text{ dB} = 10 \log \left( \frac{P_0}{P_i} \right).$$

This will yield

$$P_0 = (3.43)P_i.$$

This means the power from the main lobe is 3.43 times greater than the power from the isotropic radiator.

To get some idea of what antenna manufacturers use to establish their claims concerning gain consider the Hy-Gain LJ-203BA. It is a monobander that is advertised to have an average forward gain of 7.15 dBi (5.0 dBd). A footnote on the advertisement states that the gain is verified by computer modeling with MININEC 3 and radiation pattern measurements of full size antennas on Hy-Gain's antenna test range.