December 2019 Volume 12-2019

Nacogdoches Amateur Radio Club

2019 CLUB OFFICERS

Pres: Jack York – KG5POU

Vice Pres: Bill Rascher – KT5TE

Sec/Treas: Army Curtis - AE5P

Visit our web site at

https://w5nac.com/

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 and having fun.

NOVEMBER MINUTES

The November meeting of the Nacogdoches Amateur Radio Club (NARC) was held as scheduled on November 6th. **Vice-President Bill KT5TE** opened the meeting at 7:00 p.m. in the Lunch Room of Christ Episcopal School. Eleven members were present. Each person present introduced them self. Minutes of the previous meeting were approved as published. The Treasurer's report was read.

Contests:

The ARRL CW Sweepstakes was held November 2-3. Several club members participated in this long running contest.

The CQWW SSB contest was held October 25-27 and was a great opportunity to work a lot of DX.

The nominating committee appointed last month by NARC President **Jack KG5POU** consisting of **Army AE5P**, **Andy KE5EXX** and **Bill KT5TE** made their report back to the club on a slate of officers for 2020. The committee nominated Bill KT5TE for President, Steve WB5IDY for Vice-President, and Army AE5P for Secretary/Treasurer. There being no nominations from the

floor, the slate was elected by acclimation and will take office at the December meeting.

Discussion held on the December club meeting / Christmas Party / White Elephant Auction. The events will be held on our regular meeting date of December 4th, with an early starting time of 6:00 to accommodate a pot luck supper. Family members are welcome to attend.

The monthly book raffle was won by **John KC5WNM**. The book for November was **"HF Antenna Handbook" by William Orr W6SAI**.
Meeting closed at 7:25 p.m.

Program:
Our Emergency Coordinator John KC5MIB presented a program on the Division Level Simulated Emergency Test (SET) scheduled for November 9. John will open a special SET net on the club 146.840 repeater that morning to receive status reports from club members. Those reports in turn will be sent via Winlink to the NTX SEC and to the Texas SOC in Austin. All club members are urged to participate.

FROM THE PRESIDENT

Voices From the T-Layer

By Paul A Scipione

Continued:

Now the faint but high-pitched voice had become more than just an oddity to Mac. Hitting the narrowest filter made the voice disappear entirely, but when he flipped his transceiver to AM, he caught the strange voice much stronger. What the heck kind of station was this, transmitting in AM mode on 20 meters and using terms like Desert Thunder and Benina? Mac suspected that it was some type of aircraft, but they had long since been restricted to their own protected bands. Mac had worked a rare aeronautical mobile the year before, a 727 captain at Federal Express who was also a ham and sometimes got on 20- or 40-meter phone to stave off boredom during long flights to Memphis.

The frightened, mysterious voice now had Mac totally hooked. *Mayday, Mayday!* The desperate voice kept bouncing across the ionosphere, alternating booming and fading. In his frantic attempt to understand this mysterious string of transmissions, Mac reached over and activated his cassette recorder. Otherwise none of his ham buddies would ever believe him. A B-24?

Mayday, any station. This is Tech Sergeant LaRosa flying in Desert Thunder 221 out of Benghazi. We have lost all direction in a sandstorm and will be out of fuel in less than 10 minutes. Please-anyone-give us bearing and distance to Benghazi!

The fear in LaRosa's voice was more than Mac could take. He grabbed his 2 meter rig and quickly called his friend Don on the club's repeater. Don, hurry up and get on 14.178. Point your beam northeast. You're just not gonna believe this. As Don tuned onto 14.178, Mac heard what proved to be the final transmission from the mystery plane.

Please save us! We are attempting a crash landing…

Mac and Don next heard sounds of the aircraft breaking up and then silence. They were stunned, staring at their HF transceivers, trying to fathom what they thought they had just heard. Mac grabbed his cassette recorder and played it back over the phone for Don to hear. No, it was no illusion, they had just heard the desperate voice of the radio operator on a B-24 bomber that had apparently been lost somewhere over the North African desert-during World War II !

How can this possibly be? We heard it all with our own ears, Mac asked Robb, the radio club's resident expert on propagation and Sammy, one of the club's oldest members, who had actually served as a B-24 crew member.

Robb shook his head. He was a real expert but couldn't possibly explain the bizarre transmission from Desert Thunder 221. How can HF signals bounce around the ionosphere for more than 60 years? I'm not saying it couldn't happen, because we may not be aware yet of all propagation phenomena.

We heard Sergeant LaRosa's panicked calls, Mac broke the awkward silence. LaRosa and his eight crew mates clearly died somewhere across those burning sands. But how could his actual voice live on nearly 60 years after he died?

The Bible says that the spirits of believers will live long after their physical death-forever-if they were true believers-but not their physical voices. Is it possible that LaRosa's voice has been bouncing around the ether, between different layers of the ionosphere, for nearly 60 years.

I am beginning to think that the ionosphere extends up much farther than the F1 and F2 layers. Maybe as far up as a T-Layer, Robb the propagation expert suggested. Why a T-Layer? Mac asked.

T as in tubular or transmutable, trapping signals without attenuation for long periods of time. Something far above our current ability to explain.

Let's look for relatives of LaRosa, who could ID the voice we recorded.

The task took the friends months. No one claimed to have a relative named Andy who died in World War II-until two younger men in Jersey City led the men to their grandmother, 88 year old Emma LaRosa Maggio who proved to be the younger sister. She was living in an assisted living center down the shore. At first she seemed very confused when the four ham operators visited her, until Mac put headphones on her and turned on his cassette player.

Emma sobbed uncontrollably until her face broke into a radiant smile. *"Andy, just the way he sounded the day he left. You finally brought my big brother home!"*

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Final words as President: The holiday season reminds us to give thanks for all the many blessings that have been bestowed upon us. The article lends itself to remember those that are not presently with us but who are with us in memories of good times. The club also has provided many good memories and it has been my pleasure to serve the group.

73 de Jack York

KG5POU

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FROM THE VP CHAIR

The last month of the year is upon us and the older I get the faster they go by. November was a great month, but I didn't get enough time at my remote location (the south pasture). My time at the remote station was cut off early one foggy morning when a shadow to the east at the fence line caught my eye. I was just debating about getting on FT8, but it might be too early. What I didn't need to do was light up the remote station with the laptop screen. Someday I'll remember to setup a black display mode for use at this remote location. The battery on the floor is a 12v deep cycle and can keep things running all day long. Of course this is dependent on sunny weather since the Coleman solar panel is only 4" x 14".

It took a while for the shadow to start moving again from my left (east) across the field. When the shadow was about 40 yards away and visible out

the front window, I leaned over to the TC with a 30-06 barrel and picked it up with my left hand under the stock. Not the usual way to lift it up. Just wanted to take a peek through the scope to see what I was dealing with.

Oh, oh, oh… I immediately put down the coffee cup that was in my right hand, put on hearing protection, took up proper shooting position, cocked the hammer, calmed my breathing, and focused on a single tiny spot. As I did my best to forget about that massive rack and tracked that huge buck moving diagonally away from the radio shack I thought to myself, "he is not going to stop". I moved the scope from 3x to 9x. He kept moving at a steady pace, so I started to lead for a moving shot. As I was about to fire he stopped.

At 110 yards away, turned his head, and looked back right at me. Without any conscious thought on my part I fired the shot. As my sight picture lined up after the recoil he was going down, and never moved. Well, rats, plenty of sausage but the excuse to disappear for most of the day for the next 2 months was gone. With so much to do I won't be able to use that excuse and slip away for hours to be on the radio. There is very little QRM at this station. Go figure… My go to transceiver for this location is a 10W KX2 with a 20m whip on a magmount stuck to the tin roof of the station. Also available are 40m, 17m, & 15m whips. For a computer I use an Acer TravelMate w/ a 13" display running Linux, WSJTx & CQRLog. This all fits nicely in to a small backpack.

For next year I'm thinking about taking my new KX1 with headphones and a couple small LiFePO4 batteries. With sound canceling headphones I'll always be wearing hearing protection. Not to mention I could hold a warm mug of coffee in hand and pound brass with the other. Pan sausage with breakfast, can't wait… (Big Smile)

Until next month,

73, Bill KT5TE

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Editor's note:

See a picture of the big buck on page 12.

NOTES FROM OUR EC

2019 will soon be finished. The hurricane season ends 30 November, just a few days away. Sebastien was the last storm of the season. It stayed in the Atlantic, dying out close to the Azores.

The WGD Simulated Emergency Test went off with an oops and a minor worry. The minor worry, 2 meters was very busy around the region. Sun rise, sun set and the early morning hours have some interesting propagation. Thought we might have to light up the other repeater for the net which might not have been a bad idea anyway. The oops, your humble scribe needs

to load a couple more frequencies in his 857. We had 9 club members meet the net during the hour the net was open, we passed 3 messages up line. Thanks to everyone who got on the net and thanks for the additional information.

The November weather has been goofy. Winter conditions in the fall season. Some really cold days and thankfully no sleet or other awkward percipitation. Winter is still a month away. We have had a few good days lately, nice comfortable temps. What have you done in preparation for the winter? Winterized the vehicle, checked the guys on the dipole? Hung a new sky hook to catch those elusive radio signals? Cycled your batteries? Those of you that have a generator have you done the PMs, have you run it lately? And what about your radios and hand helds?

Don't forget to set your scales ahead 15 pounds (or is it set it back) just like you do for Daylight Saving Time. Serious eating season has opened. I'm not sure if there is a bag limit or a keep limit...

As we enter the Thanksgiving and Christmas season, please remember those who will be working the extra hours over the next few weeks-- our service members, police, fire, ems, hospital and those who may be on a short leash for work standby.

Don't forget our Monday and Thursday Radio nets. Enjoy the Christmas party.

ARL Sixty One

73 de John Chapman KC5MIB
jlchapman2@juno.com

VE TESTING

Our next VE testing is scheduled for **Wednesday December 18 at 7:00 p.m.** in the Lunch Room of Christ Episcopal Church School.

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.

More information is available on the club website at https://w5nac.com/about/testing/

73 de AE5P.

email: ae5p@arrl.net

NEW HAMS

At our VE testing session November, we had one applicant. Tony Weatherford, formerly KE5ASM and a former member of NARC, passed his Tech exam after letting his previous license expire. Congratulations Tony. It is great to have you back.

TWO METER CLUB NETS

Remember to join us each week for the two 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.

BOOK RAFFLE

The monthly book raffle will be on Christmas break in December. We will resume this popular program at the January meeting.

DECEMBER MEETING, CHRISTMAS PARTY AND WHITE ELEPHANT AUCTION

December means not only our NARC monthly meeting, but also our Christmas Party and White Elephant Auction.

All of this will be held on Wednesday **December 5th** beginning at **6:00 p.m.** in the Christ Episcopal School Lunch Room (our usual meeting place). Dinner is pot luck with the club furnishing drinks and paper goods. After a very short meeting, we will hold our popular White Elephant Auction with all proceeds benefitting the club. Bring a White Elephant gift, wrapped or not, and ideally accompanied by a note giving a clue as to what it is.

The auction is always the most fun when lots of folks are bidding on the goodies, which can be ham radio, electronics, computer related, or "something completely different" as Monty Python used to say. There are always several wrapped gifts especially intended for the ladies that you don't want to miss.

The entire family is invited and most welcome to attend. Plan now to join us for a fun evening.

UPCOMING EVENTS OF NOTE

Mark your calendars for the following events coming up in the next few months. Full information on these events and much more can be found at http://www.hornucopia.com/contestcal/contestcal.html

Note that all dates shown here are local, CST dates while all contest logging uses UTC dates and times.

ARRL 160 METER CONTEST
Dec 6-8, 2019
http://www.arrl.org/160-meter

FT8 ROUNDUP
Dec 7-8, 2019
http://www.rttycontesting.com/ft8-roundup/rules/

ARRL 10 METER CONTEST
Dec 13-15, 2019
http://www.arrl.org/10-meter

ARRL ROOKIE ROUNDUP CW
Dec 22, 2019
http://www.arrl.org/rookie-roundup

ARRL RTTY ROUNDUP
Jan 4-5, 2020
http://www.arrl.org/rtty-roundup

NAQP CW
Jan 11-12, 2020
http://www.ncjweb.com/NAQP-Rules.pdf

ARRL JANUARY VHF
Jan 18-19, 2020
http://www.arrl.org/january-vhf

NAQP SSB
Jan 18-19, 2020
http://www.arrl.org/january-vhf

SHUTTLE COLUMBIA SPECIAL EVENT K5C
Feb 1-2, 2020

CQ WW RTTY WPX
Feb 8-9, 2020
http://www.cqwpxrtty.com/rules.htm

ARRL Inter. DX, CW
Feb 15-16, 2020
http://www.arrl.org/arrl-dx

NAQP, RTTY
Feb 29-Mar 1, 2020
http://www.ncjweb.com/NAQP-Rules.pdf

ARRL Inter. DX, SSB
Mar 7-8, 2020
http://www.arrl.org/arrl-dx

CQ WW WPX, SSB
Mar 28-29, 2020
http://www.cqwpx.com/rules.htm

SAN JACINTO DAY SPECIAL EVENT K5T
Apr 25-26, 2020

Direct Conversion Receiver

by

Thomas Atchison W5TV

We talked generally about mixers in the previous article. Now let's get a little more specific. In an ideal mixer, the outputs would be only $f_1 + f_2$ and $f_1 - f_2$. Unfortunately, in practice, additional frequencies are generated because of harmonics. The levels of the various harmonics depend on the type of nonlinear device that is used for the mixer. This information is sometimes specified by the datasheet that accompanies the mixer. Since we are usually only interested in one particular frequency in the output of our mixer, we filter out all the unwanted outputs.

For amateur radio receivers we can use mixers to convert an incoming signal to a form that we can understand. That is, our purpose is to communicate information from a transmitter at one location to a receiver at another location. That information may be continuous wave (CW), amplitude-modulated (AM), or single-sideband (SSB) signals. There are other types of modulation, however, let's concentrate on these for the time being. All receivers are **demodulators** which are devices for removing the intelligence (modulation) carried by the incoming signal.

We can simplify the discussion concerning the reception and demodulation of RF signals by considering a **direct conversion receiver**. Suppose we begin with a CW signal since it consists of a carrier interrupted by dots and dashes. If the carrier is generated at 7 MHz then it would not be audible unless we can reduce it to an audible tone so we can hear the dots and dashes. Audible detection can be accomplished by introducing a local signal of a different frequency and mixing this local oscillator frequency with the incoming signal so the difference is in the audible range. The difference frequency or **heterodyne** is created by feeding both the incoming RF signal and the local frequency oscillator into a mixer and listening to the audio tone generated by the difference frequency. In this particular case, if the input signal was at 7 MHz and the local oscillator was at 7.0006 MHz, then the difference frequency would be 600 Hz, an audible tone.

A simple block diagram for a direct conversion receiver is shown in Fig. 1.

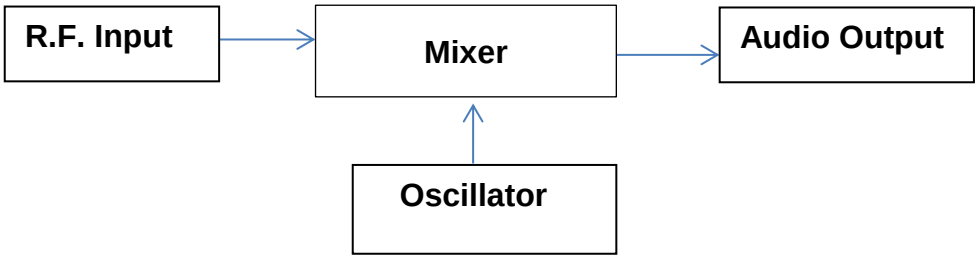

Fig. 1

Because we are multiplying two frequencies in the mixer to demodulate the incoming signal to audio frequencies, the mixer block is often called a product detector. The oscillator block is often called a beat-frequency oscillator (BFO). In receivers of yore the beat-frequency oscillator was tunable using a knob on the front panel of the receiver. This would change the tone of the beat note for CW. When SSB was introduced we would use the BFO to 'slope detect' the SSB signal by providing a carrier.

Before you begin to think that what I am discussing is just 'old stuff' you should note that we can use direct-conversion techniques with quadrature sampling detection and digital signal processing to perform any sort of demodulation and filtering on down-converted signals. This is the basis for software defined radios.

You can find additional information in *Direct Conversion, A Neglected Technique* by Wes Hayward, W7ZOL and Dick Bingham, W7WKR, QST, November 1968, pp. 15-17. This is a construction article with a schematic diagram and considerable description of a direct conversion receiver.

REPEATERS – PART FIVE

by

Army Curtis AE5P

We have tried to cover a variety of topics pertaining to repeaters in this series, but frankly we have barely scratched the surface. Everything we have discussed is pointed to FM voice repeaters such as the three systems we have here in Nacogdoches.

There are many other types of repeaters besides just FM voice. We have another type of repeater here in town, and that is our Winlink repeater, W5NAC-10. It can be used to send digital message traffic between individual stations within range of the repeater, just as our voice repeaters do. It does not repeat voice messages however, only digital.

The W5NAC-10 Winlink repeater operates on 145.050 MHz. No offset (simplex). No tone. Digital in and out is 300 baud ASCII. In addition to sending and receiving messages from local users, it also sends and receives digital message traffic via the internet to any Amateur Radio station in the world, or to anyone in the world with an email address. This capability uses the Winlink system, which you can learn more about at https://www.winlink.org/ .

The same equipment used for our Winlink repeater is also a Packet repeater. For that mode, the callsign is W5NAC-7. Same frequency, same baud rate, just a different callsign.

Another very popular type of repeater is an APRS repeater. While we do not have an APRS repeater here in Nacogdoches, there is an excellent APRS repeater in Lufkin and many other locations in our general area. You can learn more this mode at http://www.aprs.org/ .

I hope this series of articles has whet your appetite to learn more about repeaters. For voice repeaters, one of the best resources out there is the Repeater Builders Technical Information Page by Kevin Custer, W3KKC at http://www.repeater-builder.com/rbtip/index.html . This is an incredible collection of information that can keep you reading and learning for months if not years.

In the meantime, if you have questions, don't hesitate to ask.

THE BIG BUCK FROM KT5TE