

# 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

<http://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.



## JUNE MINUTES

The June meeting of the Nacogdoches Amateur Radio Club (NARC) was held as scheduled on June 5th. President Jack KG5POU opened the meeting at 7:00 p.m. in the Lunch Room of Christ Episcopal School. Thirteen members and one guest were present. Each person present introduced them self. Minutes of the previous meeting were approved as published. The Treasurer's report was read.

The CQWW WPX CW contest saw participation from club members Tom

W5TV, Army AE5P and Bob K5ME.

Field Day 2019 was discussed. It will be held at the new City/County EOC on FM3314 behind McCoys. Jack KG5POU is the FD Chairman. Plans call for two HF stations each using an Icom IC-756 Pro-II, a Cushcraft tri-band yagi on the Green Monster push-up mast, a Butternut 40/80 vertical, and various wire antennas. There will also be a VHF station.

Andy KE5EXX made a motion to purchase ARRL FD coffee mugs to present to government officials visiting the FD site. Approved.

Andy KE5EXX made a motion to send post card invitations for FD and our upcoming Ice Cream Social to all licensed hams in

Nacogdoches County Approved.

Field Day will be held the weekend of June 22-23 and will kick off with breakfast, 7:00 a.m. at Kinfolks. All are invited.

Meeting closed at 7:50 p.m.

This month's book raffle of "Baluns and Ununs" from CQ magazine was won by **Ralph N6RH**.

The Technical Question of the month was correctly answered by **Robert KD5FEE** and he won the "Hints and Kinks" book from ARRL.

#### Program:

**Jack KG5POU** led a discussion on our plans for Field Day.

## FROM THE PRESIDENT

### Modern Ham Radio - PART 3

The cost of sending a message by telegraph was at one time quite exorbitant. As a result, messages by telegraph became concise, to the point, and made use of many acronyms that are today associated with internet chat and text messaging to save on word count. These too were brought to common usage in amateur radio. Imagine the mortification of the teenager who learns her grandpa was using terms such as OMG some 80 years ago. The Titanic tragedy highlighted the use of the wireless code "CQD", which was an internationally recognized distress call. This later migrated into the more familiar "SOS."

#### Emergency Situations

One of the most important functions of amateur radio is communication in times of

distress. Hams are diverse, dispersed around the world, knowledgeable, and disciplined. In the event of a natural disaster or other emergency, amateur radio can provide a means of communication when centralized systems are down (overloaded cell towers, downed telephone lines, power outages, etc.).

Hams take this responsibility seriously, and can often be found assisting families and authorities. For example, the incident with the trapped Chilean miners made big news - but little was mentioned of the Radio Club de Chile and Radio Club Copiapo, who provided communication and equipment during the ordeal, going so far as to establish a radio communication system inside the mine itself. About 80 members installed and subsequently manned the equipment right from the start.

Emergency traffic always takes priority on the airwaves, and the likelihood of assistance is

high if anyone listening can help. In some areas, operators can even be granted special license plates that qualify them as emergency vehicles.

Every year, hams around the world participate in an event designed to reinforce the ability to setup and operate an effective station using emergency power and temporary antennas, during a weekend long event called Field Day. Structured as both an exercise as well as a contest, it draws participation from hundreds of thousands of hams worldwide during the 4<sup>th</sup> full weekend of June.

73 de Jack York

KG5POU

[gtjakco@yahoo.com](mailto:gtjakco@yahoo.com)

## FROM THE VP CHAIR

July 2019 is upon us and it is a good time for watermelons, ice cream, and a good ham radio book. Just finished the book "Receiving Antennas for the Radio Amateur". It's OK for the price, and there are some interesting items in the book, but I didn't find that much new and useful information unless you are interested in X-O antennas. Which are a very good solution for receiving.

For July mornings with coffee I have a new book "Portable Operating for Amateur Radio". I generally read 1 chapter per day with 2 cups of  $\frac{1}{4}$  caf coffee. Morning rituals? Well, you know how that goes? For now it is time to work on equipment and cut hay.

73, Bill KT5TE

[bill@watershipfarm.com](mailto:bill@watershipfarm.com)

## NOTES FROM OUR EC

Hot and sweaty, followed by hot and sweaty with a little hot and sweaty thrown in for good measure and more rain. Forecasters were saying there is some chance of rain to finish out the month.

It seems that most of my writings over the past few years have skewed to SKYWARN and weather activity. So many times the two become intertwined. We are so close to the hurricane tracks that a hurricane becomes a sheltering event. We now are a month into the 2019 hurricane season. There has only been 1 sub-tropical storm to date and that occurred in May. June was not active for hurricanes and we have just had more rain. Hopefully July won't be very active, but the weather will do as it pleases.

How do you get your weather information, TV, broadcast radio, websites, cell phone apps, maybe the

pain in your knees. Most of us have mix of all the above. Trouble is, if you don't have them turned on (except for the knees which are always warning you), you may not get the word.

The National Weather Service has a number of weather information radio stations around the US operating on 1 of 7 frequencies in the 162 MHz range. Many of the hand held radios have these frequencies pre-programmed into a WX band. Interestingly some of the Cobra CB (yes, i said it) have a weather receiver built in. Locally we have the Lufkin at 162.550 MHz and Center/Timpson at 162.525 MHz. These 2 radio stations cover Nacogdoches county. I have the Lufkin station programmed into the 857 in my NITRO.

NWS has an alerting system called Specific Area Message Encoding (SAME). Just like its name it will wake up receivers in a specific county to broadcast weather messages. This function is used by

broadcasters to activate the EAS warning equipment to send warnings from the Weather Service. It drove my Mom buggy because the Norman OK office was broadcasting every few minutes during a recent storm event in the Wichita Falls area. Why bring that up? It's another tool to get timely warning of serious weather events. Eton, Kaito and Sangean all manufacture weather radios. Some of the Eton and Sangean radios have Weather Alert or SAME functions on them. And they'll work where cell phone coverage is limited or unavailable.

I hope all that came out for Field Day 2019 had a good time. The EOC was an interesting place to work out of. Lots of real estate to set up the antennas especially the Green Monster. We had a number of visitors some city and county officials and made lots of contacts. thanks to Jack and RM for the food. If you were there and have some ideas, let Andy or me know. Andy will probably have a report

elsewhere in the news letter.

Stay comfortable, keep hydrated and have a great summer.

As always a reminder, please join us on our nets every Monday and Thursday at 8:00 pm [weatherradios.com](http://weatherradios.com), SAME codes, NWS Stations.

73 de John Chapman  
KC5MIB

[jlchapman2@juno.com](mailto:jlchapman2@juno.com)

## VE TESTING

Our next VE testing is scheduled for **Wednesday July 17 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. 73 de AE5P

email: [ae5p@arrl.net](mailto:ae5p@arrl.net)

## NEW HAMS

At our VE testing session June 19, we had seven applicants with one upgrade to General and five new Techs.

Corey KG5NFQ from Fairfield upgraded to General.

New Techs are:

Chris KI5FIO Lufkin  
 Jessica KI5FIP Lufkin  
 Aaron KI5FIQ Nac.  
 Ronnie KI5FIR Nac.  
 Michael KI5FIS Longview

Congratulations to all.

## 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.

## NEXT MEETING

The next meeting will be **Wednesday July 3rd at 7:00 p.m.** in the Lunch Room of Christ Episcopal Church School. This will be our annual Ice Cream Social, so bring your favorite flavor of the cold stuff or just your appetite. Family members are welcome too.

## BOOK RAFFLE

Each month, we will have a current book on a topic of interest to Amateur Radio operators. Everyone present at the meeting will receive one ticket. Additional tickets can be purchased at \$1 per ticket, or 6 tickets for \$5. A ticket will be drawn at the end of the meeting

for the book of the month.

The book for July will be Volume 3 of ARRL's "Hands On Radio Experiments". You must be present at the meeting to win.

## FIELD DAY 2019

FD19 began with operators/constructors meeting for breakfast at Kinfolks Saturday at 0700. In attendance were KT5TE, WB5IDY, KC5MIB, K5AGE, KE5EXX, & Jim Young.

After we finished our vittles, we migrated en masse to the Nacogdoches EOC, arriving shortly after 0800. KT5TE, KE5EXX, & K5AGE installed banners and signs in 4 locations directing people to the EOC.

K5AGE & KE5EXX pre-staged a trailer with antennas and other equipment at the EOC Friday afternoon.

The construction crew erected the Green

Monster with the Cushcraft Tri-Bander with the help of youth visitor **Emily Martinez**. Emily is a member of the NISD Law Enforcement Explorers and has an interest in dispatching.

The crew then began installing the Butternut 2-band vertical only to find that the antenna had some parts missing. A trip was made to **AE5P**'s house to find the missing parts but none could be found. After 2 trips to Lowe's and **W5WJC**'s fine whittling/sanding, the antenna was repaired and installed.

**N6RH** arrived to use his drone to deliver a line into 2 pine trees for use as supports for a G5RV antenna. Despite Ralph's expert flying abilities, the drone had a rough landing and was unable to complete the task. **K5AGE** provided a fine pitching arm to get the antenna launched and in place.

While the rest of the team got feedlines attached to transceivers,

**W5COX**, **WB5IDY**, **KE5EXX**, & **K5AGE** installed a Comet GP3 on top of a WilBurtt portable mast to provide VHF FM Coverage.

The team broke for lunch delivered by **KG5POU**.

Two ICOM 756 PRO II transceivers were used during the contest for CW, SSB, & FT-8 contacts.

Several guests and almost forgotten Hams made an appearance Saturday afternoon.

**KG5POU** hooked us up with the best BBQ chicken I've ever put in my mouth from CC's Smokehouse Saturday evening. **K5AGE** cooked us a great breakfast Sunday morning.

The decision was made to pull the plug at 11:45 Sunday to allow us to get out of Dodge before the weather rolled in from OK.

The club was able to take advantage of the following Field Day bonus points:

Media Publicity - **KC5MIB** drafted a Press Release that **KE5EXX** delivered to the Daily Sentinel and KTRE/KLTV. The Sentinel and KTRE attended the event. We were on the KTRE Saturday Evening News.

Public Location - The Nacogdoches EOC is (now, we were the first) a public location.

Public Information Table - **KE5EXX** setup a table that was manned by **K5AGE**.

Formal message to ARRL SM/SEC - **KE5EXX** transmitted a message to **SM Steven Smith, KG5VK**

W1AW Field Day message - **AE5P** copied the message via RTTY.

Formal Messages handled - **KE5EXX** originated 17 messages and received 5 messages via WINLINK.

Natural Power QSOs completed thanks to **WB5IDY** providing a solar charging station.

Site visited by invited elected official - County Judge Greg

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| <p><b>Sowell and City of Nacogdoches</b></p> <p><b>Councilman Roy Bolden</b> attended Saturday afternoon.</p> <p>Site Visited by invited served agency official - <b>Nacogdoches County Emergency Manager</b> <b>Tara Triana</b> (and her son <b>Thomas</b>) visited Saturday and <b>City of Nacogdoches Emergency Manager</b> <b>Robert Ford</b> visited Sunday morning.</p> <p><b>KC5MIB</b> drafted letters inviting several City and County officials that were mailed out June 1.</p> <p>Educational Activity - <b>KE5EXX</b> demonstrated WINLINK to several Hams and guests Saturday.</p> <p>Youth Participation - <b>Emily Martinez</b> - 15, <b>Jack Luke York</b> - 6, <b>Thomas Triana</b> - 6, <b>Georgiana Burns</b> - 12, and <b>George Allen Burns</b> - 10 successfully made contacts Saturday afternoon.</p> <p>Social Media - <b>KE5EXX</b> posted pictures on the</p> | <p>club facebook page and utilized #ARRLFD as specified in the FD Rules.</p> <p>Web Submission - <b>KE5EXX</b> submitted the club's results to the ARRL at <a href="http://field-day.arrl.org">http://field-day.arrl.org</a></p> <p>WE WERE ABLE TO CLAIM 1,250 BONUS POINTS</p> <p>We had 17 Amateur Radio operators and 19 guests during the event.</p> <p><b>You will have to attend the July Ice Cream Social to find out our stats and final score.</b></p> <p>Thank you to <b>KT5TE</b>, <b>WB5IDY</b>, <b>KC5MIB</b>, <b>K5AGE</b>, <b>KE5EXX</b>, <b>W5COX</b>, <b>N6RH</b>, <b>W5WJC</b>, <b>K5ME</b>, <b>KG5POU</b>, Jim Young &amp; <b>Emily Martinez</b> for the setup and tear down.</p> <p>Thank you to <b>Jim Young</b> and <b>W5WJC</b> for videoing or photographing our event.</p> <p>Thank you to <b>KG5POU</b> for keeping us fed.</p> | <p>Thank you to everyone who sat in front of a radio. Each of you played a part in our points.</p> <p>de Andy KE5EXX<br/> <a href="mailto:delgado@apollos-dev.com">delgado@apollos-dev.com</a></p> |
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## 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.

## IARU HF WORLD CHAMPIONSHIP

July 13-14, 2019

<http://www.arrl.org/iaru-hf-championship>

## CQ WW VHF

July 20-21, 2019

<http://www.cqww-vhf.com/>

## NAQP RTTY

July 20-21, 2019

<http://www.ncjweb.com/NAQP-Rules.pdf>

## NAQP CW

August 3-4, 2019

<http://www.ncjweb.com/NAQP-Rules.pdf>

## NAQP SSB

August 17-18, 2019

<http://www.ncjweb.com/NAQP-Rules.pdf>

## ARRL ROOKIE ROUNDUP RTTY

August 18, 2019

<http://www.arrl.org/rookie-roundup>

## ARRL SEPT VHF

September 14-16, 2019

<http://www.arrl.org/september-vhf>

## TEXAS QSO PARTY

Sept 14-15, 2019

<http://www.txqp.net/>

## CQ WW RTTY

Sept 28-29

<http://www.cqwwrtty.com/>

## CQ WW SSB

Oct 26-27, 2019

<https://www.cqww.com/rules.htm>

## ARRL SWEEPSTAKES CW

Nov 2-4, 2019

<http://www.arrl.org/sweepstakes>

## ARRL SWEEPSTAKES SSB

Nov 16-18, 2019

<http://www.arrl.org/sweepstakes>

## Solid State Devices Part 9

by

Thomas Atchison W5TV

We have briefly discussed common emitter amplifiers and common base amplifiers. The one left is the common collector amplifier. Let's take a look at that type of amplifier.

A basic common collector amplifier is shown in Fig. 1.

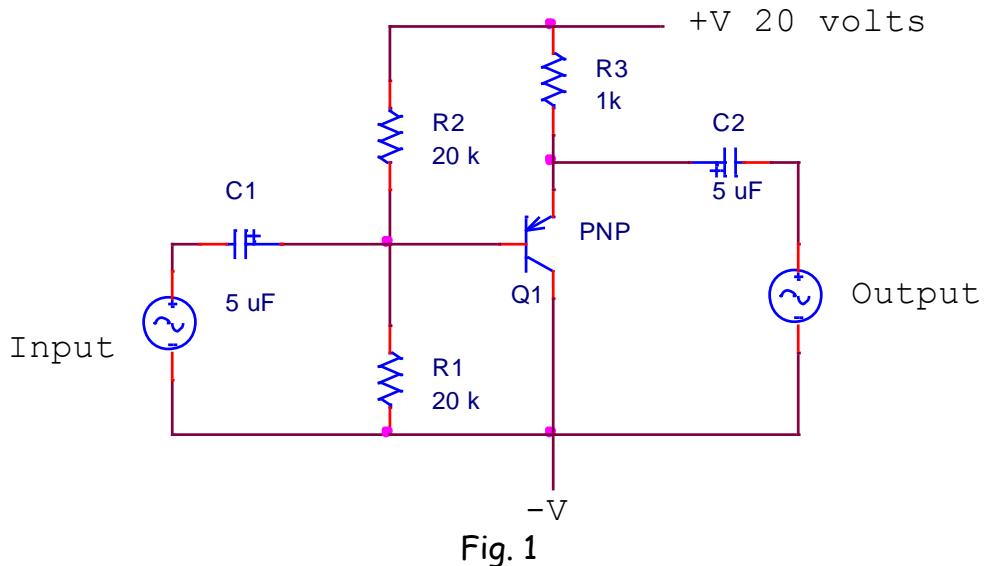


Fig. 1

Notice that the collector of the PNP transistor, Q1, is common to both the input and the output of this circuit. Also notice that the input and output voltages are in phase.

If we used an NPN in a common collector similar to Fig. 1 we could use the circuit displayed in Fig. 2. Notice that the bias voltage polarity reverses.

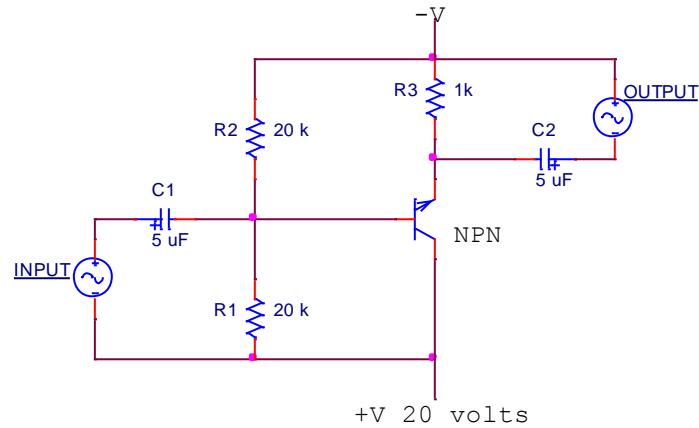


Fig. 2

Resistors R1 and R2 form a voltage divider as we have done in previous transistor amplifiers. These set the base voltage. The emitter resistor, R3, is a load resistor. The voltage across this resistor (R3) varies directly with the base voltage variations. That is, the input signal causes a variation in the base current and that causes a variation in the emitter current. The emitter current is  $\beta$  times the base current. This changing emitter current causes a varying voltage drop across resistor R3 as it flows through that resistor. This emitter voltage tracks or follows the changing base voltage. That is why the common collector amplifier is often called an *emitter follower*.

There is an input and output impedance associated with a transistor and there is an input and output impedance associated with the amplifier circuit. These must not be confused. A typical transistor used in a common collector circuit has input impedance of about  $50\text{ k}\Omega$ . The circuit input impedance in Fig. 1 is approximately equal to the parallel combination of R1, R2, and  $50\text{ k}\Omega$ . If we carry out this calculation we get the input impedance for the circuit in Fig. 1 to be about  $8333\Omega$ .

Typical output impedance for a transistor in a common collector circuit is about  $80\Omega$ . The circuit output impedance is approximately equal to the parallel combination of  $80\Omega$  and the value of the load resistor R3. This turns out to be about  $74\Omega$ .

The output voltage of the common collector amplifier is slightly less than the input voltage therefore the voltage gain is about 1 i.e.

$$G_V = \frac{V_O}{V_I} \approx 1.$$

Since the voltage gain is about 1 and the output voltage is in phase with the input voltage then this circuit is a non-inverting unity voltage gain amplifier. Another name for this amplifier is a *voltage follower* circuit. The current gain,  $G_I$ , of the common collector amplifier is approximately equal to the  $\beta$  of the transistor, therefore, it can be high.

Since the common collector amplifier has a high input impedance and a low output impedance it is often used as a voltage buffer between a high impedance source and a low impedance load. In this case it is an impedance transformer. It can also be used for cascade amplifier circuit isolation.

**Reference:** *Understanding Basic Electronics*, First Edition by Larry D. Wolfgang, WR1B, published by the American Radio Relay League, 2002.

## TECHNICAL QUESTION FOR JUNE

Editor's note: This month we continue a new column where we challenge our members with a technical question. The closest correct answer sent to AE5P from a current dues paying NARC member will be eligible for a special prize. The prize will be awarded at the upcoming meeting. You must be present to win. Members are limited to winning once per calendar year.

This month we again base our technical question on the wonderful column done each month by Dr. Tom, W5TV. In this month's column, Dr. Tom presents an analysis of the common collector transistor amplifier.

The question then is what is base bias voltage in Figure 2?

The first club member to send the correct answer to AE5P before Tuesday July 2, 2019 at 12:00 noon CDT will be declared the winner.

Look closely.