

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.



FEBRUARY MINUTES

The February meeting of the Nacogdoches Amateur Radio Club (NARC) was held as scheduled on February 6th. **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 Shuttle Columbia Special Event station was held February 2nd and 3rd.

Seven club members participated using their home stations and the special call sign of K5C, racking up a total of 933 contacts using SSB, CW and FT8. All contacts were confirmed via LOTW. Over 140 requests for QSL cards have been received so far with 130 being answered to date. QSL cards received will be passed around at our March meeting.

Due to several factors, roving in the January VHF contest was cancelled and several members entered the contest from their home stations instead. Propagation was relatively flat, yet numerous contacts were made Saturday using FT8 on 6 meters.

In the February newsletter, a new

Technical Question column was premiered, with a prize being offered to the first dues paying member to send the correct answer to the editor. Unfortunately, no one responded and the prize went unclaimed. The column continues this month.

A book raffle was begun at the February meeting, suggested by long time member Rusty KD5GEN. Everyone present at the meeting receives a raffle ticket at no charge. Additional tickets are available for \$1 each or 6 tickets for \$5. The book for February was 'ARRL's Hands-On Radio Experiments' by Ward Silver NØAX. The book was won by Rusty KD5GEN. The book for the March meeting is 'Grounding and Bonding for the Radio Amateur' by Ward Silver NØAX. You must be present to win.

RM, K5AGE has asked the club to provide communication support for the Old Stone Fort Bike Ride. More details to

follow. Andy KE5EXX suggested we obtain several NARC banners for this and similar events. Andy will check on prices and styles and report back to the club.

Meeting closed at 7:40 p.m.

Program:

Roger KØYY presented a program on FT8, followed by a live on-air demonstration by AE5P using his Flex 6700 remote.

2019 DUES ARE DUE

Dues are now just \$20 a year and cover all licensed hams in a family.

Please get your dues to our Secretary/Treasurer either in person or by mail.

Help support your NARC.

FROM THE PRESIDENT

TEACHING THE WIFE

I have been trying for some time to get my spouse interested in getting the Tech rating. The only problem is that she is not interested in "techie" stuff. She did say she would study it though, if there was no other pressing matter but that was a while back.

Trying to convince someone to do something when there are other options more preferable is a challenge. Lately she has renewed interest because I have shown her that there is a benefit to having alternative communication means. So she has asked me to write something on the subject for the newsletter.

For her she is interested in passing with the minimum score not the "A" that most HAMS shoot for. The technical work is the hardest for obvious reasons. Some of the technical stuff she

refers to is converting between meters and MHz, how that relates to antennas, building antennas based on such info, etc. When she read through the book she had questions but after some examples and back story she just may get it.

So the strategy for the exam thus far is to concentrate on all the non-math parts to offset the losses on the math parts that are hard. After that some Q and A on the exam questions. With some good fortune she will make the grade on the first try.

So for those of you with a non-interested family, explore options to show them of some good reasons to learn the art of HAM and encourage them along the way.

73 de Jack York

KG5POU

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FROM THE VP CHAIR

In my darkroom / bunk room / radio shack I've been trying to rid myself of noise as much as possible. So I don't allow my XYL or children to come in there. Just when you think you're pretty clean something else pops up. This one surprised me since I would never expect a linear power supply (PS) to be the source of the noise.

When operating in SSB mode the noise wasn't that noticeable, but for CW it wasn't hard to miss. The pan adapter span for the different modes isn't fixed but is somewhere about 50K for SSB and 5K for CW. At 5K the noise stands out. For my pan adapter 200K is max and 2K in minimum.

This time I killed the utility power to the barn (where the radio shack is located), and the shop. I connected batteries to my KX3 radio and PX3 pan adapter. Wow, the PX3 was very, very clean and

the noise floor was down. It was as good as in the deer stand a $\frac{1}{4}$ mile away. Don't ask how many DB down because I was too excited with it being so low that I wasn't paying attention.

The next step was to turn on the shop power breaker by breaker. Nothing too serious. The power to the well was on but the pump wasn't running. Next the barn, step by step. A few items (a/c, tack room lighting, etc.) did add ever so slightly to the noise. The last thing I did was remove the batteries, plug in the Astron RS-35M, and turn on the radio. The noise was back! The good part is I have an idea how much each item adds to my noise condition (well, mostly). The bad? My expensive dang linear PS is a major problem! To confirm the problem I changed to a Powerwerx SS30 switching PS, and the noise disappeared.

The next step was to get the PS tested and it worked as advertised (with a little extra...).

Bob K5ME checked his Astron against my batteries and he had a similar problem.

So since I'm using an Elecraft radio (I reasoned) I posted on the Elecraft reflector. It turns out I'm not alone and a lot of hams have an opinion on Astron power supplies... Wow, my inbox filled up fast. Almost all of them said that Astrons were excellent. Nice to know that there are so many helpful hams out there.

Before you post to a group be sure to do your homework, and post on topic using accurate statements. That way you'll be less likely to walk away with severe burns. Engineers can get awfully picky, and this time I came away clean! ;-) I received some excellent solutions. Almost unanimously every one suggested to clean the paint away to bare metal for the case ground and the green wire connection to the case from the power source. From Astron came the suggestion to add a 0.1uF

capacitor across the yellow transformer output wires. Army, AE5P, donated the caps and suggested I also remove the paint from the contact points between the lid and the chassis so all parts have metal to metal contact. Also clean away the paint for any connection to the chassis where there is a star locking washer. The paint on the Astron PS is a good thick layer of paint.

Yesterday I finished and tested for conductivity. Then I put the Astron back into the lineup. Well what do you know, that solved the problem.

For the test at the March 2019 meeting you'll need to read the article by Jim, K9YC;

<http://k9yc.com/PowerSupplyBondingAndAudioDistortion.pdf>

73, Bill KT5TE

bill@watershipfarm.com

NOTES FROM OUR EC

I'm going straight to ARES, do not pass GO, do not collect 200 dollars.

The ARRL Board of Directors held their meeting January 18-19 2019. The Board adopted the ARES Plan with some modifications. The minutes and supporting committee reports can be found on the ARRL website. Web address will be at the end of the column.

What is the impact? ARES will have 3 levels of participation, Level 1 basic. Level 2 more advanced requiring over 11.5 hours of FEMA on line training and including completion of the ARRL EC-01 INTRODUCTION TO AMATEUR RADIO EMERGENCY COMMUNICATIONS.

Level 3 the most advanced including management and planning. 40+ hours of FEMA training, and ARRL EC-016 EMERGENCY COMMUNICATIONS FOR MANAGEMENT. This level is geared more for

the SEC, DEC and the local EC.

What will it mean to you? For most of us, not too much. Mainly training to a position and more documentation. The

additional courses for Level 2 and Level 3 are not required. We are waiting for SEC Jerry Goodson, W5BFF, to provide some additional guidance.

For now, based upon what I have read, we'll just need to document a few things and keep on keeping on.

<http://www.arrl.org/board-meetings> January 18-19 ARRL Board of Directors Annual Meeting Minutes, an interesting read anyway, bring coffee.

<http://www.arrl.org/ares-plan> The ARES plan.

Everyone, thanks for taking time to participate in our nets. We need you. You don't have to be a lurker, come in and join us. The process isn't hard and only takes about 15 minutes out of your evening.

ARES/RACES, Mondays
8:00 pm Local time 146.84

SKYWARN, Thursdays,
8:00 pm Local time 147.32

73 de John Chapman
KC5MIB

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VE TESTING

Our next VE testing is scheduled for **Wednesday March 20 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

NEW HAMS

At our VE testing session February 20, two individuals passed their Technician exams and a third individual who drove up from Houston upgraded to General. 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 March 6th at 7:00 p.m.** in the Lunch Room of Christ Episcopal Church School.

BOOK RAFFLE

At the suggestion of Rusty KD5GEN, we are going to have a book raffle/giveaway beginning with the February

meeting. 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 March will be "Grounding and Bonding for Radio Amateurs" by Ward Silver, NØAX. You must be present at the meeting to win.

We are interested to know which books members would be most interested in being a part of the raffle. Send your ideas and suggestions to the Club Secretary.

OLD STONE FORT BIKE RIDE



Calling All Radio Operators

I am looking for radio operators wishing to volunteer their radio expertise for the Nacogdoches Rotary Club - Old Stone Fort Bike Ride on April 13th. Our radio presence during the 2017 ride was much appreciated by the riders and the volunteers. The group in charge of OSFBR has extended a request for our help this year, and I would love to see our group oblige. Look at the link below for details on the event and the mapped route. We will have a discussion at our next meeting. I would love to hear all opinions on this. Please be ready to answer

my formal call for operators after this discussion.

<https://www.active.com/nacogdoches-tx/cycling/the-old-stone-fort-bicycle-ride-2019?int=>

Rm Blake
k5age@fastmail.com

HAS JOE TAYLOR KILLED AMATEUR RADIO?

For a humorous take (rant?) on the current and possible future of Amateur Radio, check out

<https://www.oldtimersclub.info/PDF/Did%20Joe%20Taylor%20K1JT%20Destroy%20Amateur%20Radio.pdf>

DO YOU LIKE TO JUST LISTEN?

A lot of hams (like me) enjoy listening to short wave broadcasting stations and other services that most ham radios can receive.

A great resource for Short Wave Broadcasting is <https://short-wave.info/> where you can find out just who that station is that you're listening to, where they're located, and how much power they're running.

If you like to listen to the Non-Directional Beacon stations from 195 KHz to 1735 KHz (like I do) check out <http://www.dxinfocentre.com/ndb.htm>

And what about all those other signals you hear on the short wave bands? A great resource for many of them is <http://www.monitoringtime.com/html/mtttopHF.html>

These certainly don't cover all the different stations you may run

across while tuning the bands, but it will cover a lot of them. Just remember where the ham bands are and give transmitting a shot too.

MORE TRIVIA

During WWII, U.S. Airplanes were armed with belts of ammo, which they would shoot during dogfights and on strafing runs. These belts were folded into the wing compartments that fed their machine guns. These belts measure 27 feet and contained hundreds of cartridges. Often times, the pilots would return from their missions having expended all of their bullets on various targets. They would say, "I gave them the whole nine yards," meaning they used up all of their ammunition.

In George Washington's days, there were no cameras. One's image was either sculpted or painted. Some paintings of George Washington him standing behind a

desk with one arm behind his back while others showed both legs and both arms. Prices charged by painters were not based on how many people were to be painted, but by how many limbs were to be painted.

Arms and legs are 'limbs,' therefore painting them would cost the buyer more. Hence the expression, 'Okay, but it'll cost you an arm and a leg.' (Artists know hands and arms are more difficult to paint.)

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 INTL DX - SSB

Mar 1-3, 2019

<http://www.arrl.org/arrl-dx>

CQ WW WPX - SSB

Mar 29-31, 2019

<http://www.cqwp.com/rules.htm>

SAN JACINTO DAY SPECIAL EVENT

Apr 20-21, 2019

K5T

CQ WW WPX - CW

May 24-26, 2019

<http://www.cqwp.com/rules.htm>

MENTORFEST 2019

April 27, 2019

9 a.m. - 4 p.m.

Garland, TX

HAMCOM 2019

June 7-8, 2019

<https://sites.google.com/hamcom.org/ham-com>

ARRL JUNE VHF

June 8-10, 2019

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

ARRL FIELD DAY

June 22-23, 2019

<http://www.arrl.org/field-day>

IARU HF WORLD CHAMPIONSHIP

July 13-14, 2019

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

Solid State Devices Part 5

by
Thomas Atchison W5TV

A very popular bipolar junction transistor is the 2N2222. Here we have a circuit with a 2N2222 NPN bipolar transistor with a Collector/Emitter DC voltage at V_{CC} and a variable base current generator at I_{BASE} . We plan to do two sweeps, a primary sweep from 0 volts to 15 volts on V_{CC} and a secondary sweep from $0\mu A$ to $100\mu A$ in steps of $20\mu A$ on I_{BASE} (Fig. 1). We will measure the Collector current on Q1 at point 2 on the schematic of Fig. 1. The Base current will be measured at point 1 on the schematic of Fig. 1.

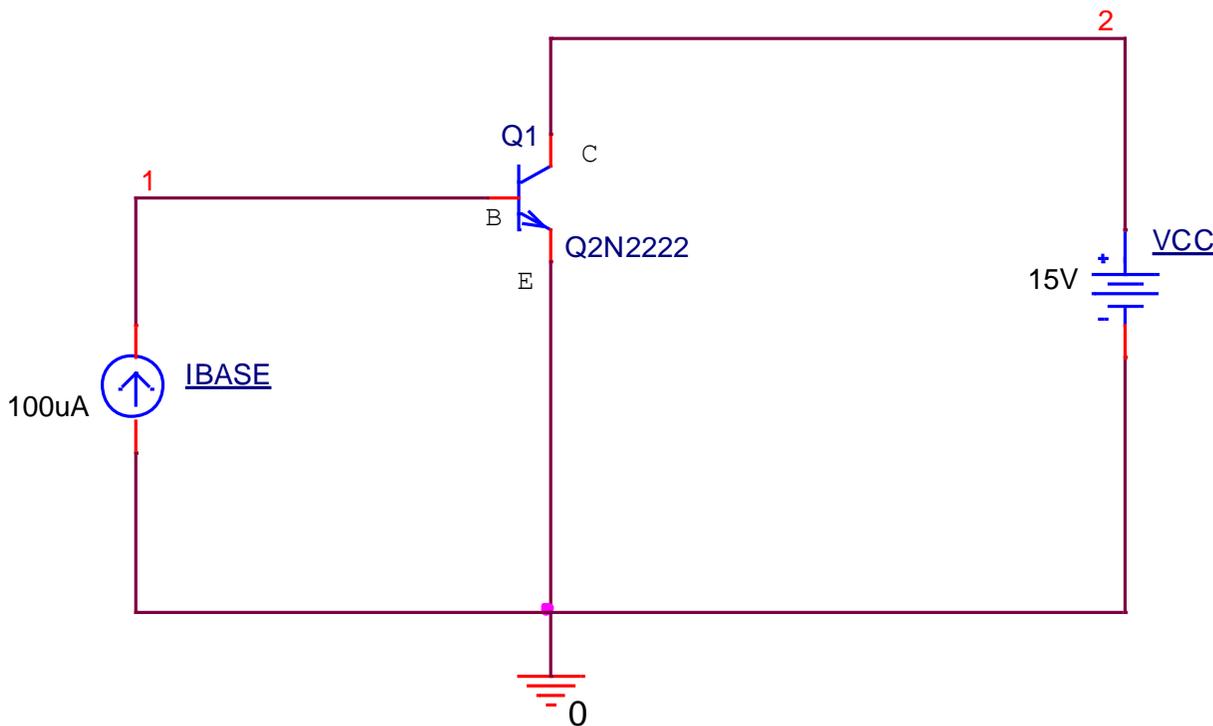


Fig. 1

The result of these sweeps produces the characteristic curves in Fig. 2.

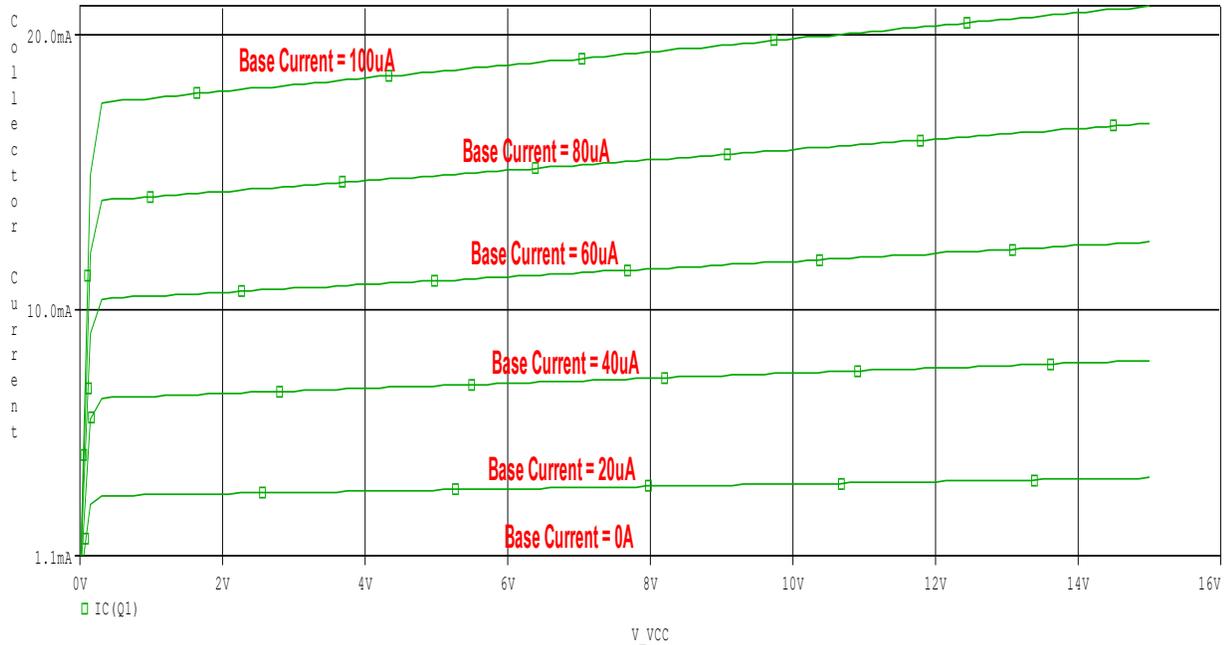


Fig. 2

Notice on each characteristic curve the Collector current increases rapidly at the beginning and flattens quickly as we talked about in the previous article. This is a real transistor so the Collector current does increase slightly on the flatter portion of the graph, however not much. In particular, notice that a Base current of $40\mu A$ generates a Collector current of about 5mA. This translates into a β of about 125. The α is 0.992 in this case. If you look at the specifications of the 2N2222 you see that the current gain (β) is at least 100 under optimal conditions.

The 2N2222 is a common NPN bipolar junction transistor used for general purpose low-power amplifying or for switching applications. It is a transistor that is included in most Arduino kits for experimentation. For example, the schematic below (Fig. 3) shows an audio amplifier. A 2N2222 transistor could be used for the NPN transistor.

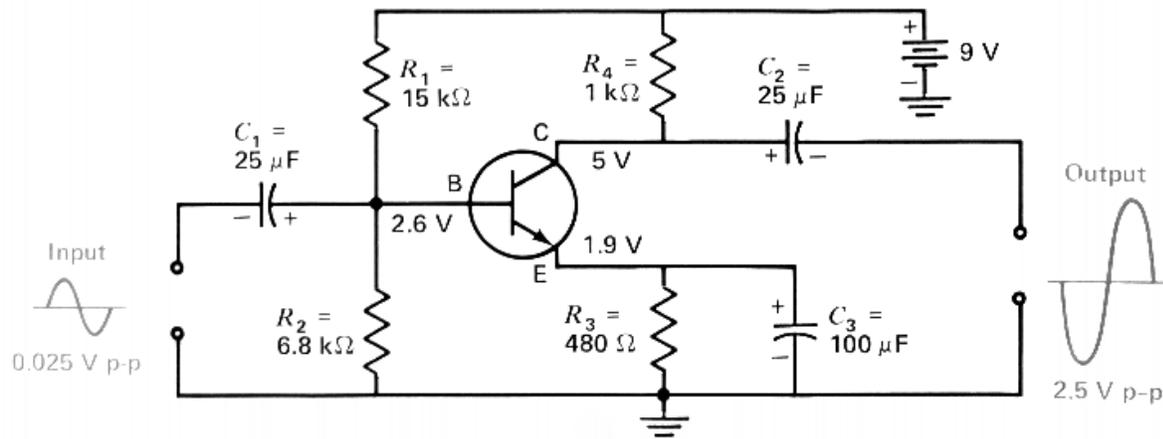


Fig. 3

TECHNICAL QUESTION FOR MARCH

Editor's note: This month we continue a new column where we challenge our readers with a technical question. The first 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.

RLC Series Circuit with Unknown C1

In the last NARC Newsletter we had an RLC circuit that raised the question of why the phase of the voltage across L1 was 180 degrees out of phase with the voltage across C1. The answer was that the circuit had a resonant frequency at 10 kHz so the impedance of the inductor was opposite to the impedance of the capacitor. The result was a resistive load, R1.

Now suppose we have a 15 kHz sine wave at V1, an inductor at L1 of 1mH and a resistor at R1 of 30 ohms (Fig. 1).

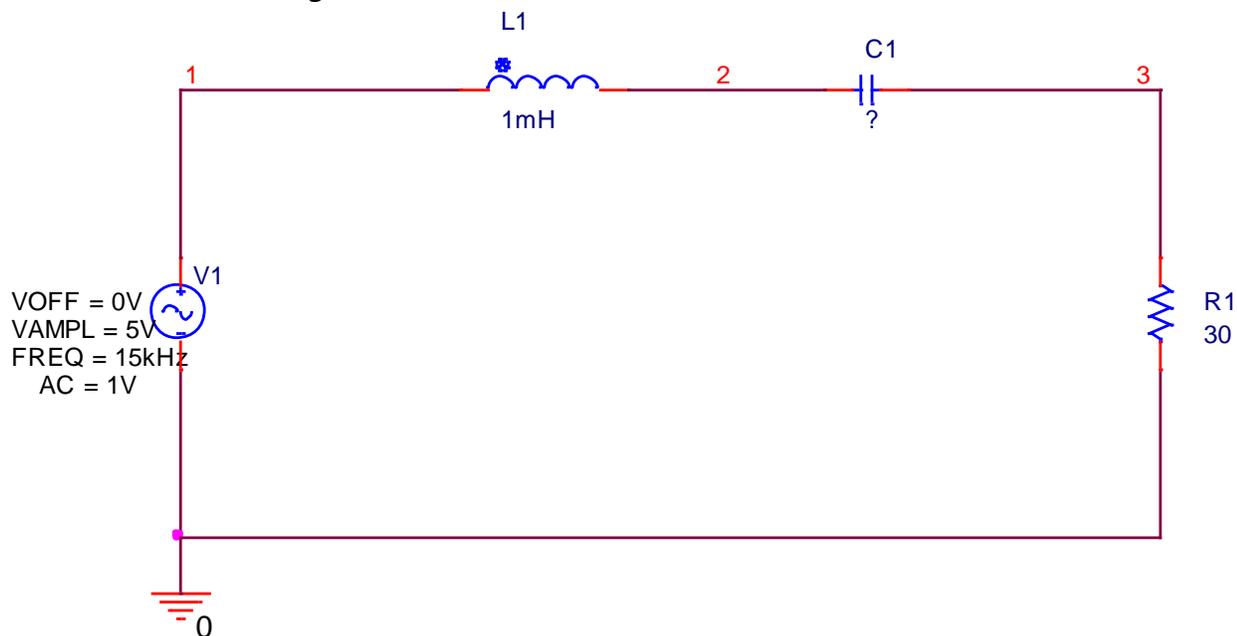


Fig. 1

What must the value of C1 be in order for the circuit to be in resonance?