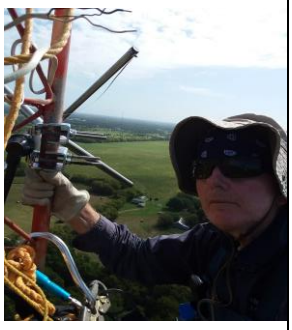
President- Keith Mumaw KI5VNL Vice-President- Mike Durbin – K5MJD Secretary-Sarah Richardson– KI5PZF

Treasurer- James Hunt- KI5DQ Trustee- Dr.Mike Durbin - K5MJD

March '2025 K5FRC Treasury Report



Yes– a gentle reminder, it is time for membership dues. If not yet done so, please take care of supporting the K5FRC Radio Club.
It is $24 for individual and $36 for family membership.

The K5FRC club is providing an interesting program every meeting. Along with technical Q&A.

A surprise club benefit will be announced at the March meeting, available for the club members.

Currently, the club has a balance of $3,390.80 in its checking account and a balance of $225.42 in its savings account. Since our last club meeting, the club has had the following deposits and expenditures:
A deposit of $162.85 (checks n cash) memberships and $0.05 interest gain in savings.
The club has had 0 expenditure since last month's meeting.

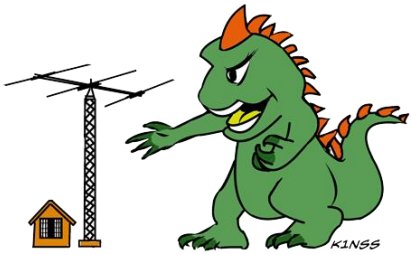
Tax Time Guide 2024: What to know before completing a tax return
https://www.irs.gov/newsroom/tax-time-guide-2024-what-to-know-before-completing-a-tax-return

73's,
James
KI5DQ

Ham 1 — Hey I hear Old Megawatt is retiring from Ham Radio

Ham 2 — Yeah I heard him say that before

Ham 1 — I know, but this time the FCC said it!



K5FRC REPEATERS

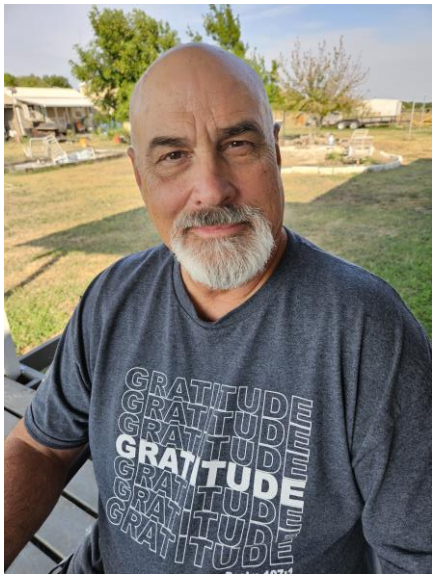
145.470 (100Hz tone; -600Khz offset) C4FM or Analog; IRLP 3602; ECHOLINK 143903
Tuesday Night Net 8:00 PM
442.525 (100HZ TONE; +5.0 Mhz offset) C4FM or Analog;
443.750 (100Hz tone; +5.0Mhz offset) C4FM or Analog;
444.775 (100Hz. Tone) +5 MHz Offset C4FM or Analog FM Emergency RPTR

CROSS BAND IN BONHAM IS ON 445.200 SIMPLEX WITH 100Hz.TONE

FCARC meets every third Saturday at 9:00 AM at the Bois D'Arc Creek Cowboy Church
ZOOM sessions are held every Tuesday at 7:00 PM CST before the net on the 145.470 Mhz repeater. Website: www.k5frc.org

Facebook: www.facebook.com/K5FRC/ Mark, KF5KUW is the administrator.
Website: www.k5frc.org

Presidents QSO



It seems that in the blink of the eye, spring has sprung, and March is here. This is one of the good things about having surgery during the winter months, you're stuck inside in severe weather. With the arrival of March, came our first severe weather event which took out power across our county. It also caused a tremendous amount of wind damage.

But the most important thing was the testing of the ***Emergency Communications Systems*** that kept us all safe. Amateur radio operators are known for their desire and unique ability to provide public service through communications. Whether activated for a severe weather event or a local event such as a marathon or bike ride, the utility value and versatility of the Amateur Radio Service is enjoyed by communities around the country. One critical aspect of coordinating communications is the role of net controller. These key volunteers bring order to chaos and flow to information. It is a specialized skill that requires development, practice, and training.

Fulfilling the role of "Net Controller" is not hard, nor is there any magical formula to follow. You are simply "moderating" a radio conversation with multiple participants and acknowledging each one.

Far to often, many of the net control individuals are the same ones repeatedly. I know when I first joined our club, I was a little intimidated but after receiving a written "guideline" or format to follow. After listening to several other nets, I decided to jump in, and I'm glad I did.

Running the net has helped me with my "radio voice" and gain a comfort level that I wouldn't have otherwise. Several of our members have taken on the role of net controller and it's a gratifying feeling when I hear other hams on other nets offer compliments for a job well done.

With the upcoming weather season and the multitude of nets on the airwaves, there are plenty of opportunities to step out of your comfort zone. Two of our three members have done just that, with two of them running the net for the EOC and the third put themselves out there for the NCTC net and did an excellent job.

Think about it.

Keith (KI5VNL)

73

SARAH RICHARDSON
KI5PZF
SECRETARY

Fannin County Amateur Radio Club
Regular Meeting @ Bois D'Arc Creek Cowboy Church
February 15, 2025

President Keith Mumaw (KI5VNL) called the meeting to order shortly after 9:00 and led the opening prayer.
Mark Hetherington (KF5KUW) led the pledge.
President Keith Mumaw thanked everyone for being here and wanted to remind members of the "Tech Time Corner" today, in soldering connections for cables. Winter Field Day recognition of Sharon McEachern (KK5SM) for the most contacts and Sarah Richardson for the second most, and for the NCTC Net of 2-13-2025 Net Control Shawn Dobbels (KJ5DJR), representing the club well.

Vice-President/Trustee Dr. Mike Durbin (K5MJD) is celebrating with family for his birthday today. Happy Birthday, Dr. Mike!

Secretary's Report Sarah Richardson (KI5PZF) asked if all had read the minutes in the newsletter, asked if there were any edits that needed to be made. No edits were indicated needed, Mark Hetherington (KF5KUW) made the motion to approve, Mike Lindsey (KD5UNY) seconded, motion carried.

Treasurer's Report James Hunt (KI5DQ) reported that the matters with the bank are resolved. Checking account balance is $3,227.95 and the savings account balance is $225.37. Rebecca Bruner (KI5IOO) made the motion to approve, DeeDee Yakel (KI5VFV) seconded the motion, motion carried.

Old Business:

Forming a Membership Committee. Keith asked for volunteers. Ralf Borgardt (KI5LVS) asked the question "What's the value of the club membership?" Mark Hetherington offered that it may be time to have a review of the membership cost. Ralf is going to chair, with Mark Hetherington, James Hunt and Sarah Richardson being the rest of the committee.
Remember Skywarn Training is being held on February 24th at Grayson College, Center for Workplace Learning, 6101 Grayson Dr., Denison TX. Mike Rice (WB5KWK) reminded us of the training being held in Delta Co. on February 25th at Cooper ISD Admin Building, 759 FM 1528 Cooper, TX 75432.
WFD Results: Mark Hetherington (KF5KUW) reports the results were phenomenal - 44 out of 50 states, we only missed five (5) of the Canadian provinces, had several DX contacts, for a total of …. 396 contacts.

New Business

Keith Mumaw (KI5VNL) reported the North Texas 2-Meter Simplex net on 146.560 (NCTC.org), but had to table the net until some antenna issues are sorted out. There has been quite a bit of interested in this so there is more to come. David Stephens, administrator of NCTC, shared with members of the Facebook group that he has been paying rent on some of the towers used by the NCTC group from his own pocket. Keith presented the idea of the club supporting the links of NCTC.

Weather Station – Dr. Mike Durbin (K5MJD) donated his spare weather station to the club on the tower at Ivanhoe. Bob made a motion to give Dr. Mike a receipt for tax purposes for the weather station, David Bruner (KI5ION) seconded the motion, motion carried.

Rebecca Bruner (KI5IOO) made a motion to adjourn, Mike Rice (WB5KWK) seconded the motion, motion carried.

James Hunt (KI5DQ) presented the TECH TALK hands on training on coax building.

Testing was offered after the meeting.

I just want to say it again: Thanks for letting me be the Secretary. I have been working on the roster for the 2025 year. I have mailed the WFD contact his QSL card, received membership forms and dues, and if the dues come by mail, I will deposit as soon as possible, since the bank is close to the Bonham Post Office. With the problems around the recent submission of license upgrades, we can get back to testing soon, I hope. The regular meeting is going to be March 15, at 0900 at Bois D'Arc Creek Cowboy Church. I hope to see you there.

MEMBER ARTICLES…

VICE PRESIDENT REPORT

De K5MJD

I will make my VP report and normal FUN stuff the same location..

NOW MY USUAL FUN/INFO STUFF

"I AM COMPLETELY OPERATIONAL AND ALL MY CIRCUITS ARE OPERATING NORMALLY"

ANTENNA FUN AND INFO ON HOW TO CALCULATE DIMENSIONS

To calculate the effective length of the antenna, the formula **λ= v/ f** must be used. The Greek lowercase letter lambda (λ) is used to denote wavelength. The wavelength is calculated by dividing the phase velocity of the wave (v) - the speed of light 300,000.

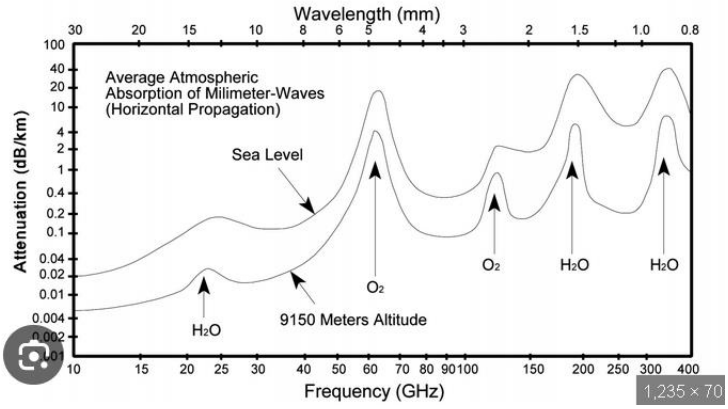
So why you ask 300,000? Well, being a lazy engineer, it is easier to handle than 299792458 m / s. Yes, that is meters per second. So here in the US where most folks haven't adopted the metric system that is 983,571,056.43 feet per second. NOW I have to clarify that is the speed in a vacuum also called free space loss. So, what is the speed in say normal atmosphere, fiber optics cable, or being a ham, coax.

Since most hams don't use fiber optics cable, let's move on.

Atmospheric propagation.

The most important atmospheric effects on radio wave propagation are **refraction and reflection**. Refraction can occur in the troposphere or the ionosphere. Tropospheric refraction occurs because the refractive index of the atmosphere decreases as altitude increases, leading to a bending of waves back toward the earth.

As we go higher up in frequency, the earth's atmosphere starts to impact the propagation of RF signals. RF signals travelling in free space are affected by atmospheric attenuation. This attenuation in the atmosphere is caused mainly by signal absorption by gases such as O2 and H2O.



Coax and antennas which is what you hams are waiting for!!

Let's look at propagation through coax and wire which we hams tend to use in our everyday activities.

Cable	Propagation Velocity (% of c)
LMR-400	84
LMR-100A	66
RG-11	66
RG-58	65.9

In other words, the speed of a radio signal through RG 58 as an example is 65.9% the speed of light.

Formula: for wavelength or frequency in free space or atmosphere is as follows

$$\text{Frequency} = \frac{C}{\lambda}$$

$$\lambda = \frac{C}{\text{Frequency}}$$

AN example for calculating a 40-meter dipole would be as follows:

40 meters when plugged into the above formulas results in a frequency of 7.4948MHz. Well, that's not good since the frequency is not in a ham band. So, let's calculate using the other formula and 7.25MHz. center of the 40-meter band (Told you hams like to simplify numbers.) We get a wavelength of 41.3506 meters. Dang old metric system again, so converting to feet we get a wavelength 135.665 feet. Since dipole antennas are typically ½ wave dipoles the length would be 67.88 feet long fed in the middle. If we ½ the speed of light in Feet per second we get (983,571,056.43 feet per second/2) = 468..

Told you we like to round off to make the math easier.

Also, since many things effect the actual length, I like to make my starting point about 2 feet longer and trim as necessary.

SO ONE OF YOU NOTICED THAT RG 11 IS 75 OHMS!!! GOOD NOW I CAN GET ON MY SOAP BOX ABOUT 75 vs 50 OHM COAX.

When RF engineers think about the impedance of their project's transmission lines, they may automatically assume that these lines all have a nominal impedance of 50 ohms (Ω). That makes sense, as so much of today's RF design work is based around that value. It's not an arbitrary number; there are good technical reasons for using 50 Ω.

However, there are also many RF applications where the transmission line impedance has a 75 Ω value. These are mostly related to video signals and cable TV, which includes the many related functions in this large market, such as building-wide distribution amplifiers. To designers and end-users in these areas, 75 Ω is the "normal" impedance, while 50 Ω is the oddball value.

The use of two very different impedances raises some interesting questions. Why are there two standard impedances? Why do they have those particular values? Which is "better," where, and why? Does using one versus the other really matter and, if so, in what specific ways?

The answers to the impedance questions have both historical and technical roots. They begin with the work done by Lloyd Espenscheid and Herman Affel, who developed and analyzed the first coaxial cable in 1929 while working for the legendary Bell Labs. Their goal was to find a transmission medium for propagating a 4 megahertz (MHz) signal (a very wide bandwidth in those early days of long-distance telephony), which was needed to carry about 1000 bandwidth-limited analog voice calls across hundreds of miles. Doing so required a transmission line that could handle both high voltage and high power.

The two researchers analyzed the tradeoffs among key transmission line parameters of attenuation, voltage rating, and power rating (Figure 2).

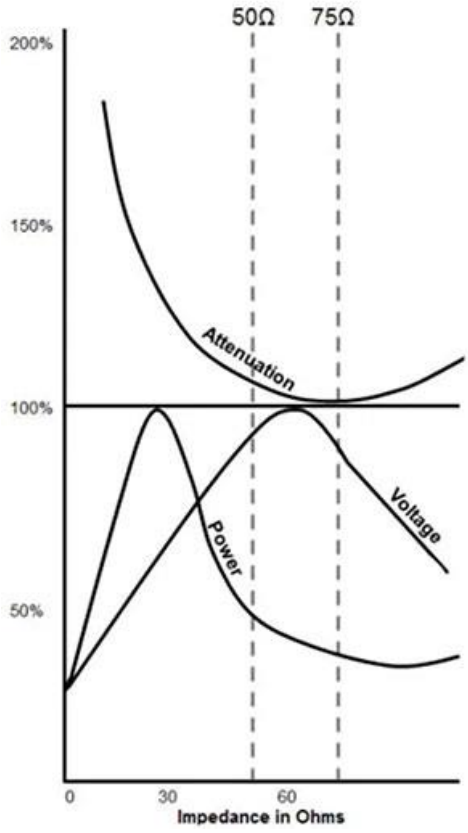


Figure 2: Among the key transmission line parameters are attenuation, voltage rating, and power rating. Each has an optimum value at a different impedance. (Image source: https://vk8bn.me)

Their analysis looked at the performance of three characteristics as a function of impedance and they found:

1: *Attenuation (loss)* is largely a function of the dielectric in the cable. For the air-filled coaxial cable which they analyzed, the ***lowest loss was at about 77 Ω*** (it is around 50 Ω for some dielectrics, but such cables did not yet exist).

2: The *voltage maximum* is a function of the intensity of the electric field between the coaxial outer conductor and the inner conductor. For coaxial cable supporting RF signals in the TE_{10} electromagnetic (EM) field waveguide mode, the e-field has its maximum at around 60 Ω.

3: The *power handling capability* is determined by the breakdown field and impedance (V^2/Z). For air-filled coaxial cables operating below the TE_{11} mode cutoff frequency, the power transfer is at its maximum at around 30 Ω.

As with most engineering decisions, there is no "ideal" impedance value; instead, the "best" choice involves balancing tradeoffs. The 50 Ω value is a good compromise for power and voltage, such as that output by a

transmitter. In contrast, for situations where low attenuation is the primary goal, such as with low-level signals from an antenna or an analog video link, 75 Ω is a better choice.

Further, there's another reason why 75 Ω is a desirable impedance. ***The "natural" impedance of a standard half-wave dipole antenna at its resonant frequency is 73 Ω, while the impedance of the widely used folded dipole antenna is 300 Ω. This means that 75 Ω is a near-perfect match for the larger dipole, while it also is easy to provide a close match to the folded dipole using a basic 4:1 balun.***

Using different impedances realizes different objectives in a single design and adds another level of complexity. In practice, the difference in loss over a short run of a few centimeters may be negligible. Further, the voltage standing-wave ratio (VSWR) when connecting a 75 Ω cable to a 50 Ω one is 1.5:1, which may be an acceptable non-unity value (in many low or medium power situations, a VSWR below 2:1 is considered acceptable).

Hopefully this helps clear the mud. Maybe made muddier!!!

BCNU DE K5MJD