President-Mark Hetherington - KF5KUW Vice-President-James Hunt - KI5DQ Secretary-Sarah Richardson – KI5PZF

Treasurer-Sharon McEachern – KK5SM Trustee- Dr.Mike Durbin - K5MJD

Fannin County Amateur Radio Club
K5FRC

Volume 1 Issue 6 - June 2023

JUNE 2023 K5FRC TREASURER'S REPORT

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Currently, the club has a balance of $4,824.32 in its checking account and a balance of $224.03 in its savings account. Since our last club meeting, the club has had the following deposits:

A deposit of $408 on 6-5-23 included two individual memberships of $24, $50 from the club raffle, and 3X$100 donations to build j-pole antennas. Thank you, Bill Purcell, Jo Dahlin, and Marti MuMaw.

A deposit of $24 was made on 6-12-23 for one individual membership.

The club filed its 990-N e-postcard requirement for small tax-exempt organizations.

Reminder: If you need to renew your ARRL membership, you can do so through the club and the club will receive a commission from ARRL. I will have the forms at our next meeting.

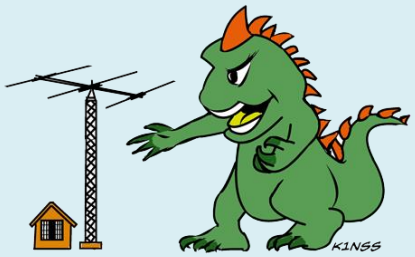
73's
Sharon
KK5SM

WHAT IS FIELD DAY

Field Day is ham radio's open house. Every June, more than 40,000 hams throughout North America set up temporary transmitting stations in public places to demonstrate ham radio's science, skill and service to our communities and our nation. It combines public service, emergency preparedness, community outreach, and technical skills all in a single event. Field Day has been an annual event since 1933, and remains the most popular event in ham radio.

- Objective-

To contact as many stations as possible on the 160-, 80-, 40-, 20-,15- and 10-Meter HF bands, as well as all bands 50 MHz and above, and to learn to operate in abnormal situations in less than optimal conditions.



K5FRC REPEATERS

145.470 (100Hz tone; -600Khz offset) C4FM or Analog; IRLP 3602; ECHOLINK 143903; WIRES 21151; 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;

FCARC meets every third Saturday at 9:00 AM at the BOIS D' 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

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

Website: www.k5frc.org

President's Report

President's Report
June 2023

Our club continues to grow and develop, opening the doors to more opportunities for all our members. Membership has now exceeded 60 active members, the largest number since I have been a member, now twelve years. I feel very fortunate to be able to share with others what it is about amateur radio that I love so much. One of the biggest benefits I get is the feeling of satisfaction that I was able to help someone else out. It could be something so simple as giving my suggestions, to teaching prospective hams what it takes to pass the Technician exam. And then the frosting on the cake, being able to help give the test and seeing their expressions when they pass their license exams…

For a number of years, I have talked about putting radios into locations around Fannin County that would provide critical information which can save their lives. One area I have talked about is with senior citizen assisted living centers, and how they critically need the most warning time possible. I was made aware by one of our members (now a silent key) that it took over 30 minutes to assemble the seniors into a safe area during a reported tornado in the area, in the assisted living center he was staying at while recovering from surgery. Thirty minutes, and that was when he told them he was listening to his radio and heard that a tornado had been spotted and was being tracked. He also mentioned that it was almost 15 minutes into moving of these patients that the senior center received a formal notification of a potential tornado, and to take cover. It is still on my list of projects I want to do, to make this dream come true.

Another was to be able to better support communications during an emergency around our county. We have seen first hand that our county radio systems go down, and always at the worst possible time. As a club, we have stepped up to help the county be able to properly dispatch emergency personnel during these times, but there is more that still needs to be done. One weakness is that we have eleven volunteer fire departments (VFD) in Fannin County. These VFD's raise their own monies to fund their equipment and services, as they are not paid employees. And over time, their communications needs continue to increase, but their equipment tends to stay the same. And now we are doing something about trying to help these VFD's out with some communications equipment that might just help save a life or someone's property. We are working to build J-Pole antennas for all of our VFD's, eventually wanting to add in a radio, and get these mounted so that they can, at the very least, be able to listen when our radio club is helping watch weather situations, so they might be able to react faster and more effectively if a situation requires their attention. And just think if we could also get those volunteer firemen and women to become amateur radio operators…

At Field Day this month, we are planning to build some of these simple but very effective and reliable antennas for our VFD's. This is going to allow us to teach our members who have not built one of these, or maybe have never built any antenna, how easy it can be to make and how well they can perform. While this is happening, I am hoping that we have many of the Fire Chiefs from these VFD's also there at Field Day, so they too can better understand why we are doing this, and how it can help their organizations. And with the incredibly selfless donations that have been made by some of our members, we have the funds to be able to build an antenna for every VFD in the County.

And to try and spread the word to other community leaders, as well as some of our political leadership, we have sent out over 60 invitations asking them to come join us and share in the fun and

education. We've invited mayors, commissioners, our county judge, police chiefs, fire chiefs, our state representative, and many other key leaders of our communities.

Field Day is more than just building antennas. This year we will be having a lot of fun, with some motivating incentives. We will be having a fox hunt, where we can learn or improve our abilities to location a source of interference. And the winner will get a new 2M radio, already programmed with some local frequencies, so it is ready to be used. Another challenge will be to make and log contacts with other Field Day clubs and amateur operators. To further motivate everyone, you will receive an additional raffle ticket for the raffle drawing we will be having. Now you can buy more tickets, and you can earn more tickets. Either way, you can get yourself more chances to take something home with you.

And Field Day wouldn't be complete unless we have some food, so the club will be providing hamburgers and hotdogs to all our guests. With these delicacies to entice us, what vegetables, desserts, snacks, and drinks we each bring and share with others, we can have a fantastic meal while we visit with one another. Best of all, we will be back at historic Lake Fannin, operating where we are truly away from our normal conveniences, comforts, and air conditioning. Modern day roughing it…

I look forward to seeing everyone there at Field Day.

SECRETARY REPORT

Fannin County Amateur Radio Club
Regular Meeting Minutes
May 20, 2023

President Mark Hetherington called the meeting to order at 0908 and led the pledge. Roy Riales led the invocation.

President's report –

- With the Radio On The Lake event postponed from the May 6 date, June is full, July is hot, August is hot, so the question is do we try for September or cancel it this year. We will revisit the topic as we look at our schedules.
- Sam Rayburn House Home School Day was a success. Weather caused a reorganization of the layout, and the club was right at the front. We have been invited back to the Heritage Day in September. (9/23/2023)
- Emergency Preparedness Fair had a low turnout for their annual event. In their debriefing, it will be moved back to the February/March time for next year.
- Field Day will be at Lake Fannin, at the Lodge. We have some restraints: no open fire, prefer no generator. We will have some important guests to show off the club and Lake Fannin both. We will have games focusing on ham activities (number of contacts, fox hunt) with Dr. Mike Durbin overseeing those activities. Invite your friends now, especially those in EMS and home care so we can show off the benefits of amateur radio.
- Autumn in Bonham is going to be October 7. FCARC will be in charge of communications for each rest stop and 'SAG Wagon' will have a radio. We also will have a live stream from the NTMWD Bois d'Arc Lake Operations Center. Mark asked for someone to take over the position for the committee, Keith Mumaw accepted that responsibility.

September – Mark is going to be out of state for the September meeting and Heritage Day. VP James Hunt will be in charge of the meeting.

Severe Weather – the Emergency Operations Center requires a background check to be in the area since it is in the FC Sheriff Office operations area. RACES meets that background check requirement. If you are interested, contact Mark.

TMC-Bonham – we have to get that equipment repaired for the hospital emergency communications. The antenna is fine, the feedline needs to be repaired at the connections due to water damage. It will require three (3) people at minimum, due to our needing a radio operator.

NEXT MEETING – June 17, 2023, at Bois d'Arc Cowboy Church. Field trip to tower possible after the meeting.

Trustee: Dr. Mike Durbin reports all repeaters are working. The trailer antenna goes up and down well, but the trailer still needs a little work for the antenna. Another workday at his place needs to happen before Field Day. Since the idea of Field Day is to be making contacts, all the antenna and other work needs to be done prior. We are not camping at Lake Fannin but will be operating continuously.

National Weather Service has reported that the Skywarn Tag Line was being heard on IRLP and/or Echolink. He thinks he has it fixed.

Speaker Keith Mumaw showed off the J-Pole antenna he has built, talking about how inexpensive it was and how easy to build. He then brought back up the idea of the club building J-Pole antennas for the Volunteer Fire Departments of Fannin County. There are twelve (12) VFD in the county. Discussion followed, regarding the building and the club costs, and offer on loan to the VFDs, and any remaining to offer to sell at cost to new hams. Bill Purcell moved to commit up to $1000 as a club to this build, Keith Mumaw seconded the motion. The motion was amended to build 12 J-Pole antennas to be made available. Amended motion passed.

Treasurer: Sharon had the report in the newsletter, with the update that the tax exemption for the club still needs to be filed this month if the website for the filing will be functional. New members have been added to the account. Rodger Eppler moved to accept the treasurer's report, Keith Mumaw seconded the motion. Motion carried.

Secretary: Sarah also remarked that the minutes were in the newsletter, and that they were very short as our meeting had been at Bonham State Park for the celebration. Rebecca Bruner moved to accept the minutes; Keith Mumaw seconded the motion. Motion carried.

Vice President: James reported that for the Treasure Island event redo, the boat is ready. Thank you, Sharon, for the reminding. Propagation is good on most bands.

Keith Mumaw made the motion to adjourn, Rebecca Bruner seconded, and motion carried.

Testing for Technician and General began after a short break

VICE PRESIDENTS REPORT

13June2023
James Hunt - KI5DQ
Vice-President and Safety Officer

Spring Time safety tips and awareness.

2023 SKYWARN Schedule

The National Weather Service (NWS) SKYWARN Program is now complete.
https://www.weather.gov/fwd/skywarnmap

Your NWS certificates are good for 2 years.

The K5FRC 145.470- and 442.525+ repeaters have SKYWARN nets during inclement weather events. They have direct link to the NWS.

Treasure Island Expedition, K5E – 5-6May2023
The May rainshowers placed a damper on our scheduled Treasure Island Expedition.
The event is postpone TBA.

General Class
The General Class via Zoom platform is complete, with five candidates.
Please welcome them with their new achievements!
It was a great pleasure helping all of these individuals.

On the Air Activities
The 10 meter band continues to be excellent opportunities for the technician class, 28.300 to 28.500.

Upcoming HF Propagation - with Field Day tidbits

It seems like just a few weeks ago, the upper HF bands were open all day long to faraway places. At night, the low bands took up the slack, especially as the terminator slid past your location. While we still have plenty of sunspots (thank you, Cycle 25!), the bands are beginning to sound a lot different as summer gets underway. It's natural to expect that with even more daylight, the upper HF bands should be even more open, so what's going on? What should we expect during Field Day, which is about a month from now and close to the summer solstice?
Summertime Ionosphere

First, let's recognize that when we here in the U.S. talk about "summertime," we're really just referring to the Northern Hemisphere. The tilt of the Earth's axis means that the northern ionosphere is illuminated longer and more directly by UV from the Sun. That means its structure will be a little different in the summer than in the winter, and HF propagation will be different too.

Illumination of the ionosphere with UV varies greatly with time of day and the seasons. The phase of the solar cycle also matters, and we are in the rising phase of Cycle 25 during which sunspot activity is increasing. More sunspot activity also increases ionization in all of the regions—D, E, F1, and F2.

The highest F2 region is what provides long-distance HF propagation, day in and day out, all year long. Its ionization is greatest during daylight hours. The F2 region is strongest during the day and the F1 region below it is mostly a summer daytime region. It appears during the day when solar UV is strongest. The F1 and F2 regions merge at night. Ionization of the lower E and the lowest D regions are also stronger throughout the summer day. The E and F1 regions are responsible for the big shift in HF propagation we observe in the summer.
Blanketing and Absorption

Blanketing (also known as "screening") refers to a lower region being sufficiently ionized to bend signals heading upward back to Earth before they can reach the higher long-distance regions. For example, the figure below shows how the E region might block signals from reaching either of the F regions. The F1 region sometimes acts the same with respect to the F2 region. It's as if the lower region placed a blanket over the Earth from the perspective of the upper regions.

From "Introduction to HF Radio Propagation" by the Australian Space Weather Services

The F1 region is primarily a summertime region caused by the extended UV during daylight. The E region is present all year long throughout the day. These two regions work together to block signals headed to the F2 region: the F1 region blankets higher angle signals, and the E region blankets those at lower angles. Either way, the result is a lack of long-distance DX through the day in the summer months.

Absorption occurs as signals travel through a region with strong, dense ionization. This scatters the wave or dissipates its energy as heat. It can occur in the D, E, and F1 regions although it is strongest in the lower regions. The effect is also strongest at lower frequencies.

From "Introduction to HF Radio Propagation" by the Australian Space Weather Services

During the summer, E region and F1 region blanketing and absorption end several hours before sunset. After sunset, the F1 region combines with the F2 region to produce a lower-altitude, less densely ionized nighttime F2 region. The nighttime F region is less densely ionized and has lower MUFs than the daytime F2 region, but it is still there, resulting in long-distance propagation through the summer evenings.

Effects on HF Propagation

The F1 region acts to absorb 20 meter and higher frequency signals through the summer day at high angles. The result is degraded F2 propagation on these bands during midday caused by F1 region absorption and blanketing of F2 propagation. This is especially noticeable in the hours around noon on the upper bands in particular.

Absorption takes its toll on the lower-frequency HF bands through the day. D region absorption rises quickly at sunrise as soon as solar UV can reach the lower regions. Summertime absorption will remain strong on 40 meters until late afternoon, on 80 and 160 meters until sunset, and extends on 160 into the evening. The E region absorbs or blankets 40 meter signals from increased ionization until sunset, extending on 80 and 40 meters into the evening.

Short Skip and Sporadic E

For the higher HF bands, while blanketing and absorption take a significant toll on long-distance F2 propagation, it's not a lost cause by any means! The blanketing effect produces shorter hops as the signal is returned to Earth, resulting in "short-skip" propagation with a 1,200 to 1,500-mile hop.

Sporadic E diagram

From "Introduction to HF Radio Propagation" by the Australian Space Weather Services

For example, this is great for making contacts around the North American continent on the 15, 12, and 10 meter bands. As absorption falls in late afternoon or before it builds up in the morning, 20 and 17 meters benefit as well. There is a lot of day-to-day variability in propagation, so don't take these guidelines as absolute. There is no experience like calling CQ on a band that you don't expect to be open and getting a completely surprising contact in return! Use the Reverse Beacon Network and listen for the 10 meter beacon stations to see the actual propagation at the moment.

Sporadic E is another bonus for the summer months. It provides similar propagation to short skip. In fact, the same time is often given to both. True sporadic E or Es is created by wind shear in the E region forming thin layers of dust from meteors and terrestrial events. When the dust is sufficiently dense, it can reflect signals back to Earth with excellent signal strength. The dust is organized as patches or clouds that move with upper-atmosphere winds so the propagation will move with them.

The primary seasons for sporadic E are in May-July and December-January. Sporadic E occurs most commonly during the summer daytime and early evening at low and middle latitudes. At higher latitudes, sporadic E tends to form at night. North America straddles the medium and high latitudes so sporadic E can form during the day and stay active well into the evening. It also forms in conjunction with a disturbed ionosphere following solar

activity, so flares and CMEs have some benefits. The clue is that if you hear what sounds like short skip on the higher HF bands, particularly 10 meters, then listen on 6 meters as well. Call CQ and see what happens!
Atmospheric Noise

Along with the summer comes increasing storms that greatly affect the lower HF bands. While the band may be open, the lower signal-to-noise ratio makes communication more difficult. On the lower HF bands, however, blanketing is the same mechanism that creates NVIS propagation, so if the noise is manageable, the signal levels can be stronger.

Don't forget that northern summer means winter in the southern hemisphere. That creates opportunities for some good low-band DXing when southern stations are benefiting from lower noise levels. This is when noise-rejecting, directional receive antennas really help by cutting down noise from thunderstorms in other directions.
Advice for Field Day

Here is a list of suggestions for Field Day (June 24-25 this year) that can serve as a propagation "template" for your summer months, especially for portable operating of POTA or SOTA. You can also use the information for the worldwide IARU HF Championship that follows two weeks later.

Morning:

Short skip will be likely on the higher HF bands and 6 meters by mid-morning to late morning
NVIS will be useful on 40 meters but weaker on 80 meters due to absorption

Afternoon:

Start looking for 40 meters to open to the east and stronger 20 meter signals
Before sunset the higher HF bands may open and 20/40 meters will be strong after sunset

Evening:

20 meters and even 15 meters may continue to be open for some time to the west
40 meters will be open across the continent for quite a few hours
80 and 160 meters will come alive a few hours after sunset

Nighttime:

Depending on solar flux levels, 40 meters may be an excellent band all night
Your night crew should make the most of 80 and 160 meter activity in your region

Sunrise:

Look for 20 to 10 meters to open quickly to the east as UV ionizes the F2 region
The higher bands will degrade as blanketing and absorption build up from the F1 and E regions
Short skip will develop on the higher HF bands
NVIS will be useful on 40 and 80 meters, but 80 meters will fade due to absorption

There is so much to HF propagation that every operator, experienced or new, with stations large and small, has something to learn every day, every season, and every year. The ionosphere also has plenty of tricks to play, so get on the air and see what you can hear!

Last, but not least – The solar flux index is your propagation gateway:
https://www.swpc.noaa.gov/products/predicted-sunspot-number-and-radio-flux

Trustees' report

Simple report ***All systems are up and operational***

NOW FOR TRUSTEE FUN INFO

VLF (VERY LOW FREQUENCY) RF FREQUENCY RANGE

15–30 kHz

VLF electromagnetic technology is used in the frequency range of **15–30 kHz**. VLF utilizes the carrier waves of distant powerful communications transmission as an example some military organizations.
Very Low Frequency (VLF) communications transmitters use digital signals to communicate with submerged submarines on at frequencies of 3-30 kHz. The eighteen Trident submarines constitute about half the US strategic nuclear capability. The supporting infrastructure for these submarines include connectivity links such as the Extremely Low Frequency (ELF), Very Low Frequency (VLF), and TACAMO Airborne VLF communications systems.

AUDIO FREQUENCY RANGE

The **audio frequency spectrum** represents the range of frequencies that the human ear can interpret. Sound frequency is measured in **Hertz (Hz)** unit. This **audible frequency range**, in the average person at birth, is from 20Hz to 20000Hz, or 20 kHz.
So does that mean you can hear radio stations in the VLF range? Have you ever heard them with your ears? After all they are in the hearing range of human beings!!

NO!! Well here is why..

Audio frequency is the frequency of sound compressed air waves which our ears can hear. Radiofrequency is the frequency of the electromagnetic radio waves which cannot be picked up by the human ear.

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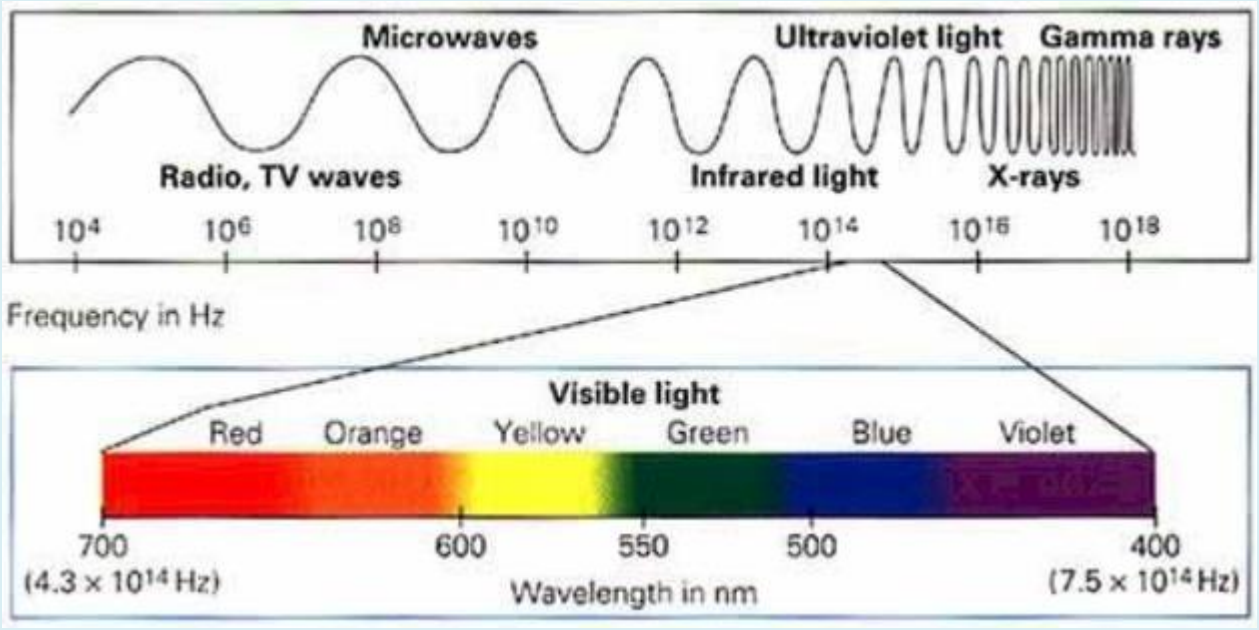
OK So what about fiber optics and lasers can we see that radiation?



Can light electro mechanical waves be detected by the human eye?

The visible light spectrum is the segment of the electromagnetic spectrum that the human eye can view. More simply, this range of wavelengths is called visible light. **Typically, the human eye can detect wavelengths from 380 to 700 nanometers**.

The visible spectrum is well below the rf wavelengths used in fiber optics. That means **you generally cannot see the light in fiber systems**, so there is no reason to look into the end of a fiber to see if there is a signal.

LASER FREQUENCY RANGE

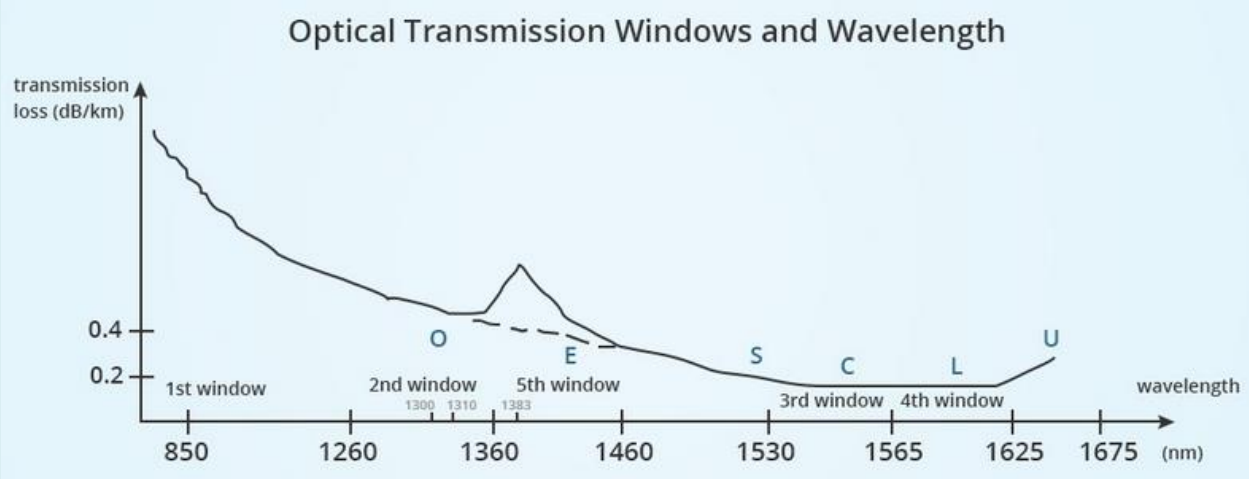
Lasers can be on many frequencies and some are visible to the human eye.

Intermediate wavelengths, from **380 to 740 nm**, produce visible (VIS) light from violet to red. The longest wavelengths, from 700 nm to 1 mm, produce infrared (IR) light which, like UV, is invisible to the human eye. Of course, regardless of its wavelength, the beam of a laser must be precisely controlled and directed. Difference between hearing and seeing is that sound waves we hear are ***not*** electo mechanical waves, where the human eye does detect frequency in the electro mechanical range we call light!!

In the early days of fiber optic communication the LED was employed as a light source due to its low price. Multi-mode fiber optic cables that operate at 850nm and 1300nm became the first choice for building small network, while single-mode optical fiber cables, working at 1310nm and 1550nm with laser as the light source , were the foundation for constructing large network.

Typically, the human eye can detect wavelengths from 380 to 700 nanometers.

SO NO, YOU CAN NOT SEE FIBER OPTICS LIGHT…



73 de K5MJD