



GARS

Glenn Amateur Radio Society

KJ6HCG



The Prez Says:

JANUARY 2021

Happy New Year and blessings from the shack of KF6OBI! – Well it looks like we are going to have a mild Winter this year as the weather is still holding off for better days. So I am looking for a wet late Winter and Spring. What about you? Are you ready for a change?

Since July 1 of 2020 here in Willows we have recorded 0.96 inches of rain and up at the repeater site, Saint John's, we have recorded 0.79 inches of rain. As one can tell just looking at the mountains of the Mendocino Range one will see that there is a bit snow. There are two factors for the lower rain recorded up at the repeater site, which in theory should be higher. The first is the rain gauge is mounted up on the ice threader so is about 30 feet higher than it should be mounted. Also there are no wind baffles installed, other than what is on the rain gauge, thus the high winds, 79 miles an hour recorded so far during the last two storms, play a big part on the accuracy of the measurements. The second is that rain gauges do not measure snow and moisture content of the snow. This then means when it snows there is little to no rain measuring taking place.

REMINDER: *Membership dues are now due. Please send/mail your monies in to Phil. The club address is at the bottom of this message.*

We will be holding a Zoom membership meeting again this month. So put on your calendar the 8th of January, the second Friday of the month, set it aside, and join us on line if you can. It is not difficult to set up Zoom on your devices. Phil once again will host the meeting and we look forward to all members joining us. Please watch your email in boxes for all the details needed to enter the GARS Zoom membership meeting. Main discussion will be this years election process and the submission of names to fill our open board member positions.

The Emergency Communications Team plans are on hold until the second quarter of 2021. I am still waiting for input from the membership.

Plans to place a GMRS repeater up on Saint John are in motion. So far the duplexer has been ordered. The repeater, a used Kenwood TKR-850 machine, will be ordered with in the next few days along with an open dipole antenna. The plans are to install this machine and antenna in the early Spring along with a RIGrunner 10010i which is a sophisticated 12 VDC power controller and distribution system, intended for use in remote control applications. As we have Internet at the repeater site this RIGrunner will allow remote monitoring of the battery bank and supplied loads.

The GARs web page update will commence the second week of January. What would you like to see added to the page? Let me know and it will be added if a benefit to the membership. If you received a new device or toy that you think the membership would like to hear about drop me a note and we will make up an article and page to show it off.

Up and coming events are: None for the foreseeable future. All plans are on hold again due to limitations placed on us because of COVID-19.

GARS 10th Anniversary doings – on hold – this event is now on hold until such time as we can meet F2F. We are again forced to put off this event until such time as we are over most of the COVID-19 restrictions. Stay tuned in for up coming announcements. It is hoped that we can make something happen this coming year.

Please note we will not be having our normal membership meeting for the month of January. Face to face meetings and gatherings are, at the time of this writing, still an iffy situation. Face to face meetings will resume when our local governance feels we are no longer at great risk.

Mike Ellithorpe, KF6OBI/WRHY416
President, GARS
kilofox6obi@yandex.com or kj6hcg@gmail.com
530-518-3730

Glenn Amateur Radio Society, P.O. Box 212, Willows, CA 95988



Minutes of 12/11/2020

Present: Mike, Phil, Bob W, and guest Jim Matthews of GEARS

President Mike Ellithorp, KF6OBI, opened the meeting with the pledge at 18:33. (Phil needs to figure out how to start a Zoom meeting more efficiently)

The **November minutes** were approved. **Moved:** Bob W **Seconded:** Phil

Treasurer Phil reported the account balance of \$6,854.54. The balance of the 2020 scholarship funds are being retained until clarification is received as to how COVID will impact the college enrollment of the recipients. Payment of dues by two members is the only change to the account balance. KF6OBI noted greetings from Dj who has now moved to Tennessee and indicated she will be sending dues shortly and KI6SMN noted a communication from KI6DWP that his dues should be received shortly.

Old Business:

Disaster Trailer Report: The solar DC installation is complete allowing for perpetual charging of the batteries. On the horizon is the installation of an antenna for the scanner.

Web Page Discussion: Rich Astley's (N3UOR) server is now the residence of our Web page. He and KF6OBI are working on elimination of some problems we have had over the past month with spammers.

Outreach: Activity is presently on hold.

Scholarship Fund: No change. (see note under **Treasurer**)

GARS 10 Year Anniversary Planning: Due to the impact of the current COVID restrictions, this is on hold.

St. John's, W6RHC-West: COVID prevented a raising of the solar panels and weatherization of the vault exterior. Hopefully 2021 will allow addressing of those two issues. One benefit of the delay with respect to exterior weatherization is a re-thinking of whether or not to use sheet metal. KF6OBI has done some research which indicates using sheet metal can create some inter modulation issues. An alternate approach would be to use fiberglass.

KI6SMN has made application for two Thrivent Action Team grants of \$250@ for the purchase of a rackmount RIGrunner 10010i unit for remote monitoring of the power status at the summit. KF6OBI gave an overview of the RIGrunner's capabilities. If the applications are approved, one will be a service activity involving GARS where we join together in obtaining the necessary hardware. The other will be a function of Glenn Communities Working Together as a **fundraiser** for the project. Those willing to make a tax-deductible donation in support of this project (the goal is \$600) should **make checks payable to GCWT** with an earmark saying it is for the "RIGrunner Project." Mail those donations to **881 Brennan Pl, Willows, CA 95988**.

New Business:

GARS Elections: Standing by.

'20/'21 Dues: Members continue to be encouraged to **remit their dues to PO Box 212**, Willows, CA 95988, as soon as possible. The slowness of remittances raises the issue of club viability and ability to continue to be rostered as an official ARRL club. K6EST asked what the ARRL requirements are and suggested one possibility would be the establishment of honorary members. He also noted how COVID as well as current cultural shifts have had an impact on the Elks of which he is a member. GEARS is also struggling with membership issues and has experienced the same challenges as we have with making a youth connection through the schools. One possibility is a connection with Butte College through Ken Couch (KE6DHU).

GMRS was also noted as a possible way to expand membership. Kenneth Hastings of GEARS was noted as a possible contact for exploring this. KF6OBI noted that he has had it in mind to locate a GMRS repeater atop St. John's and has some of the necessary hardware. K6EST, who lives in Chico, commented that this would be a welcomed addition to local area communications as it would embellish even further the GMRS reach into the side valleys on the east side of the Sacramento Valley along the ridge above Chico.

Fun Projects:

Thanks to GEARS for graciously making their Zoom account available to us. The January meeting will be held using their Zoom connection so we don't have to limit our meeting time to :40 which is a restriction of KI6SMN's free account. K6EST & KF6OBI will connect with each other to work out a cost proration so GARS picks up our fair share.

The meeting concluded at 19:13

Next meeting: 01/08/20, 18:30. Lutheran Hall in Artois or Zoom

FCC approves new ham and GMRS license fees

The FCC has just approved new license fees for Amateur Radio and the GMRS. These fees are actually lower than the original fees proposed in August, which were highly contested by hams, but welcomed by GMRS licensees. While the new FCC license fees may alleviate some of the sticker shock from the original fees proposed by the Commission, it is welcome news for fans of the GMRS.

According to the FCC Report and Order released December 29, 2020, Amateur Radio license fees will now cost \$35. This same fee will apply to new licenses, renewal licenses, vanity call signs, and license modifications. Previously, no fees were collected for ham licenses or vanity call signs issued to amateur radio operators, so technically it is a significant change. However, it is considerably less than the \$50 fees originally proposed by the Commission, so it should be of some comfort to hams. On the brighter side, a GMRS license will now cost significantly less than before. Up to now the application fee for a GMRS license was \$70. With this Report and Order, the new GMRS license fee will be only \$35, which is \$15 less than the proposed fee and half the cost of the fees previously charged by the FCC. The GMRS license is still valid for 10 years and covers an entire family.

The amendment to the proposed fees was largely due to the comments and feedback the Commission received in response to the proposal in August. While the FCC disagreed with many of the assertions from hams and the ARRL why the original proposed \$50 fees should not be charged at all, it did acknowledge an important point brought up by many that the fees did not fairly represent the amount of effort required to process the license applications, which is largely automated.

As the FCC put it, "We agree that the applications for amateur licenses, and other personal licenses, are largely automated, and for that reason the cost-based fee we adopt is only \$35. With respect to the amateur licenses, while review is highly automated, staff must maintain the processing system to ensure applicants are qualified, vanity call sign procedures are followed, and off-lined applications are individually reviewed. Therefore, we cannot conclude that there are no costs involved in processing the applications and we do not have the discretion to exempt this service from application fees." Since the same is true with the processing of GMRS licenses, the Commission amended the proposed well, bringing the cost of a GMRS license down to \$35.



What GMRS Radios To Use & When...

The General Mobile Radio Service (GMRS) is a "licensed required" land-mobile FM UHF radio service that was originally in its intent designed for short-distance two-way communication (Apparently "short distance communications" has been removed from the language within the GMRS FCC rules). It requires a license issued by the FCC for the use of the GMRS Channels as allocated by FCC in the United States.

FCC permits use by individuals (licenses are issued to individual adults age 18 years of age and older) who possesses a valid GMRS license. In addition to this licensed individual who is authorized to use this license, other individuals (even those under 18 years of age) with permission of the licensed holder, such as his or her immediate family members, are allowed to use same said license. Per FCC, "family members" includes a spouse, children, stepchildren, parents, stepparents, siblings, grandparents, aunts, uncles, nephews, nieces, and in-laws (see 47 CFR 95.179).

Immediate relatives of the GMRS system licensee are entitled to communicate among themselves, or with other licensed GMRS users, regardless of location within the United States. Non-licensed individuals may place a base, control, or repeater station in operation anywhere within the United States but only licensed holder and approved individuals as approved by the hold may actually transmit on said GMRS base, control or through a repeater for personal or business purposes. **Employees of the licensee, who are not family members, are not covered by said same license.**

GMRS radios are typically, base, mobile, repeater, and hand-held portable devices. These base, mobile, and hand-held radios, unlike Family Radio Service (FRS) radios, and share some of the FRS frequency band near 462 and 467 MHz. Unlike FRS radios, hand-held radios are allowed to have detachable antennas. Mobile and base station-style radios available are normally commercial style UHF radios as often used in the public service and commercial land mobile bands. These are legal for use in this service as long as they are GMRS type-approved. Many public service and commercial radios manufactured prior to 2005 are type-approved/accepted for GMRS use.

Additional information on this is available at the follow link: https://en.wikipedia.org/wiki/General_Mobile_Radio_Service

President Trump Signs Executive Order for Resilience Against Electromagnetic Pulses

March 26, 2019

WASHINGTON, D.C. - On March 26, 2019, [President Trump signed an Executive Order \(E.O.\)](#) establishing the first ever comprehensive whole-of-government policy to build resilience and protect against electromagnetic pulses, or EMPs – temporary electromagnetic signals that can disrupt, degrade, and damage technology and critical infrastructure systems across large areas.

This E.O. directs action to protect key systems, networks, and assets that are most at risk from an EMP in a dynamic threat environment, and will aid in preparedness against EMP events through increased public and private coordination and planning.

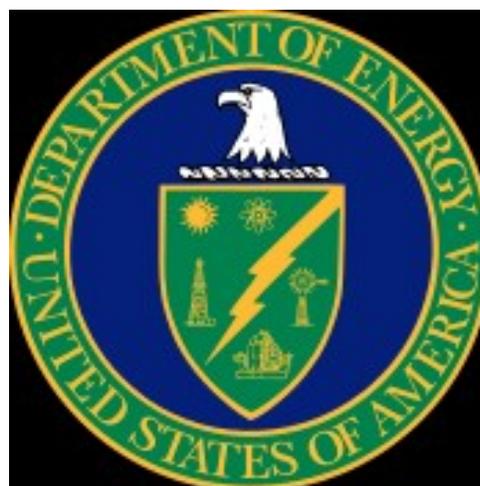
“EMPs are a threat to our national security and energy security. The Executive Order sends a clear message to adversaries that the United States takes this threat seriously,” said Energy Secretary Rick Perry. “As the Sector-Specific Agency for the energy sector, the Department of Energy will work with our Federal and private sector partners to reduce the threats EMP events pose to the Nation.”

The E.O. is aligned with the Administration’s broad efforts to secure our Nation’s critical infrastructure from all threats and hazards, including the [National Cyber Strategy](#); directs Federal agencies to clearly define roles and responsibilities; and increases coordination and information sharing between Federal and non-Federal stakeholders.

The E.O. directs action in five areas to reduce the risk that EMPs pose to U.S. critical technology and infrastructure systems: (1) identify national critical functions and associated priority critical infrastructure at greatest risk from EMPs; (2) improve understanding of EMP effects; (3) evaluate approaches to mitigate the effects of EMPs; (4) strengthen critical infrastructure to withstand the effects of EMPs; and (5) improve national response to EMP events. It also promotes government and private sector innovation, directing the Federal agencies to further the research and development necessary to build the Nation’s resilience to EMP events.

“Reducing the risk of EMPs requires not only increased coordination across government and industry, but also increased innovation,” said Under Secretary of Energy Mark W. Menezes. “DOE’s unique assessment and modeling capabilities and the world-class capabilities and expertise at our National Laboratories has played, and will continue to play, an important role in securing our Nation against this formidable threat.”

News Media Contact: (202) 586-4940



Two big EMP protection lies

There are a lot of people talking about electromagnetic pulses (EMPs) these days. A few of them actually know what they're talking about. And even those few don't know exactly what effects an EMP might have because most of it is still theory. If someone tries to sell you something that will protect your electronic equipment in the event of an EMP caused by a solar flare, a nuclear war or a terrorist group detonating a nuclear device above the earth, do your research before spending any money. It's likely to be a scam.

First, let's take a quick look at exactly what an EMP is and how it can burn out electrical and battery-operated devices. A nuclear burst close to the ground can cause untold misery for people, but it's really not all that damaging to electronic equipment because that burst is quickly dampened by the earth. Any EMP effects would be confined to the region of the blast. EMPs become more powerful and widespread when a nuclear device is detonated much higher up in the atmosphere where the earth cannot soak up the free electrons.

In theory, one 20-megaton bomb exploded at 200 miles above the United States could cause an EMP that would knock out much of civilian electronic equipment across the continental U.S. Terrorists know this and there is no question that somewhere, someone is working on trying to turn this into reality.

Back in the late 1950s and early 1960s, at the heart of the Cold War, both the U.S. and U.S.S.R. were testing nuclear devices in the earth's atmosphere. One of the U.S. tests in 1962, known as the Starfish Prime project, detonated at an altitude of about 250 miles. It produced a yield equivalent to approximately 1.4 megatons of TNT and resulted in an EMP that illuminated a large area of the Pacific Ocean, caused electrical damage in Hawaii some 900 miles away from the detonation point, and trapped high-energy electrons to form radiation belts around the earth, disabling one-third of satellites in low earth orbit and causing other satellites to fail over time.

Also in 1962, the Soviet Union detonated a 300-kiloton missile warhead west of Dzhezkazgan at an altitude of 180 miles. The resulting EMP blew the fuses and overvoltage protectors on telephone lines, burned down a power plant and shut down 620 miles of power cables.

Those types of tests have long since been banned, and while there is data from the tests, it is not as comprehensive as many would like. The fact is, we still don't know for sure how an EMP would affect a modern society that has become dependent on electronics. The information is sketchy. Even electronics designers have to test their equipment in powerful EMP simulators before they can be sure it's capable of withstanding the effects.

For example, it has been widely assumed for some time now that battery-operated vehicles including cars and trucks would be disabled by an EMP. Logically, and certainly on paper, that assumption is correct. But a number of real-world experiments, including those conducted by the U.S. military, have not confirmed that assumption. Many cars have proven to be resistant to the effects of EMP simulators, other than cars with fiberglass bodies, those located near large stretches of metal and possibly newer models with many IC circuits. One theory is that a car's metal body is partially insulated by the rubber tires that are in contact with the ground.

Now let's take a look at some of the false information there is out there about EMPs, which will help you avoid being scammed by those offering protection from them.

Light It Up

Some people have compared an EMP to a lightning strike. Going under the assumption that they are similar, they have designed strategies for protecting electrical equipment against it. This theory is flawed, and I will tell you right now that any claims of protection based on that theory are no good. The products they are pushing will not do what they are designed to do.

Yes, the effects of a lightning strike on electrical equipment can be similar to the effects of an EMP, including burning out electrical equipment with intense electronic surges. But an EMP is really more similar to a super-powerful radio wave.

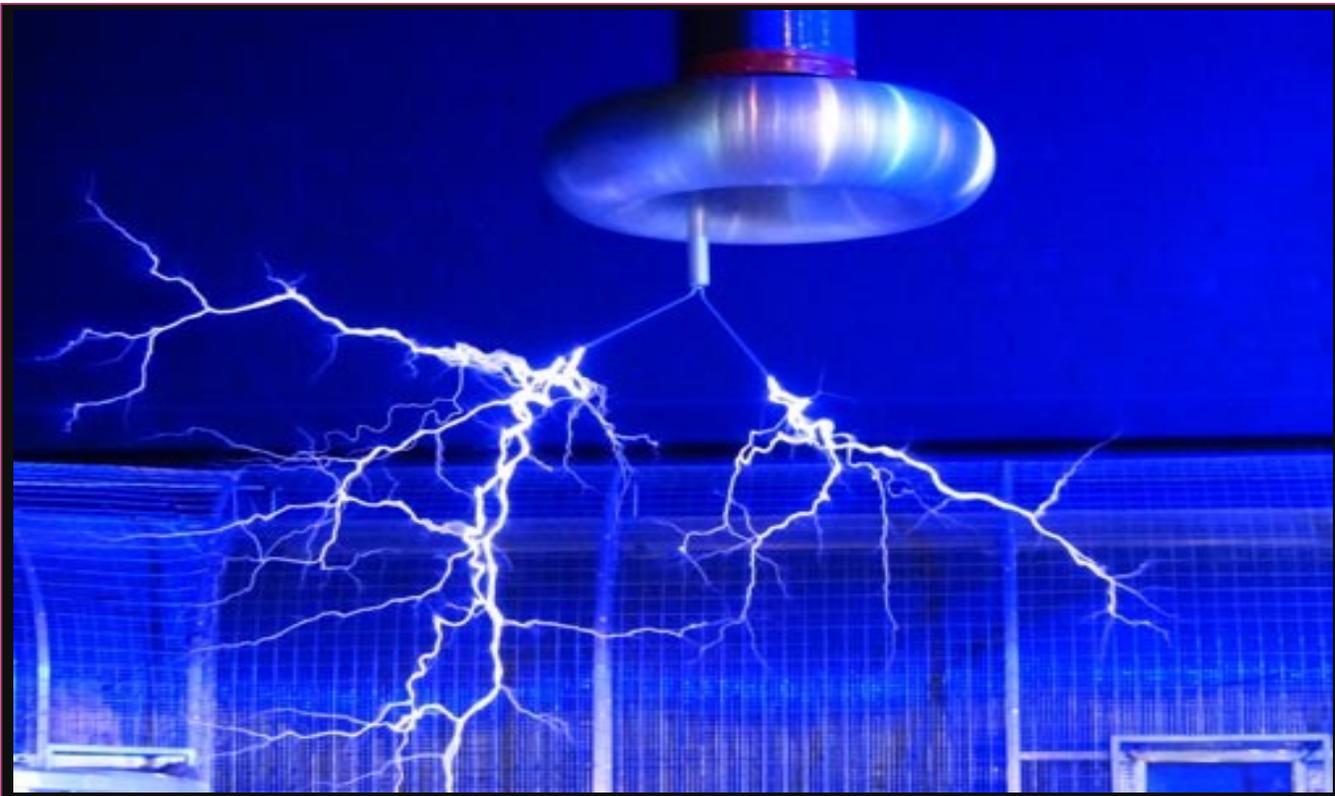
Continued on page 6

Brain Dead?

Sticking with the lightning theme, there's information out there that an EMP could fry people's brains or cause them other health problems, such as being hit by lightning would do. If an EMP wiped out electronics nationally or even in a region, it could negatively affect a person being able to access his funds and find food and water, but the blast itself would not hurt a human, animal or plant. Wires carrying surges through wires to metal, such as what happens with electrical equipment, is what causes concentrated damage when it comes to an EMP.

Ultimately, the only real protection for your electronic equipment is going to be a Faraday cage.

Prior to the Civil War, English scientist Michael Faraday created a cage that blocked external static and non-static electric fields. This enclosure was formed by conducting material or by a mesh of such material. Its operation depends on the fact that an external static electrical field will cause the electric charges within the cage's conducting material to redistribute themselves so as to cancel the field's effects in the cage's interior. Within your home, a Faraday cage could protect your most valuable electronic equipment, including computers, during an EMP attack.



Tube of the Month

8D21

Norm N6JV

Television has been around in one form or another since the late 1920's. RCA's first experimental station in New York had one transmitter, three scattered receivers and a "Felix the Cat" doll slowly rotating on a turntable. Very exciting. After the end of WWII, the FCC licensed commercial VHF television channels in two frequency segments and 70 stations were quickly licensed. Coverage was a real problem as stations tended to be low power, but with tube technology learned during the War, new tubes were being developed. RCA had been working on the problem and by 1948 developed a new transmitter, the TT-5A (Television Transmitter 5 KW) around its new tube, the 8D21 that had been in development for several years.

All glass tubes have a practical limit of about 2 KW dissipation, so the 8D21 was built with all its elements water cooled and not just the anode. This gave the tube a dissipation of 6 KW with an input power of 10 KW. With an upper frequency limit of 300 MHz, it would operate on all TV frequencies. UHF TV wasn't approved until 1955.

The TT-5A used two of the 8D21 tubes. One was in the video transmitter and the second in the FM audio transmitter. Both transmitters were constructed with similar RF sections. Low channel transmitters could omit the last two driver stages. The upper channels required the additional stages ending in push pull 4C33s (later 4X500As). Due to the tube's construction, they needed to be mounted on their sides. The complicated network of wires and water hoses made fast tube replacement a real problem. The TT-5A had the tube mounted on a vertical plate that could slide out with the tube attached. Most of the water lines were combined so a new tube module could be slid in quickly.

With this powerful transmitter the range was greatly increased. TT-5As were quickly installed on Mt. Wilson and the Los Angeles basin was all in range. The weird looking tubes were used in RCA tube advertising for several years and are scarce today. I think the old TV engineers kept all the replaced tubes as souvenirs.

Visit the museum at N6JV.com
Norm N6JV



Club Officers: (Board of Directors)

PresidentMike Ellithorpe– kf6obi
 Vice President..... Tracy Pitts—ki6uqd
 Secretary /Treasurer*..... Phil Zabell-ki6smn
 Past President..... Albert Leyva-n6yck
 Board Dorothy Post
 Board Bob Wirth-kc6uis
 Training.....Bob Wirth-kc6uis
 Publications..... Rick Hubbard--ki6vos
 Radio Officer Phil Zabell—ki6smn
 Em.Com OfficerMichael Maddalena-kj6kiz

Club Meetings: Lutheran Church Hall
 565 Main St., Artois CA

General Meeting 2nd Thursday 6:30 PM
 Board Meeting 2nd Thursday 6:30 PM
 GARS Net: Monday, 7:00 p.m. Primary 147.105
 (+)110.9 PL); secondary: 146.850 MHz-PL 110.9
 GEARS Club Net
 Tuesday, 7:30 PM 146.850 MHz-PL 110.9
 Sacramento Valley Traffic Net
 Nightly 9:00 PM 146.850 MHz-PL 110.9
 ARES Nets:
 Butte Mondays 20:00 146.850 MHz-PL 110.9
 Yuba Sutter Thursdays 19:00 146.085+MHz PL 127.3

EditorDorothy Post

Distribution—via e mail—monthly (hopefully)_
 Please send all submission for publication through the
 following medium: E-mail: dj@posthouse.us

All submissions must be in good taste, relevant to
 amateur radio.

Editor reserves final determination as to publication.

Other Nets:
 Sac Valley Section Net—7:00 PM 2nd Wed of the month
 146.085 MHz+PL 127.3
 440 Wed. Night 8:00 PM Wednesday 440.650 MHz
 Golden Bear 7:00 PM Daily 3975 kHz
 Willie Net 8:00 PM Mondays 1930 kHz
 Western Public Service System (WPSS) 7:30 PM 3952 kHz

ARISS (*International Space Station*) Uplink 144.490 MHz
 Downlink 145.800 MHz

Hope-1 satellite: all uplinks are in 145Mhz band:
 All downlinks are in 435Mhz band

California Traffic Net: 3906 KHz nightly @6:00 pm
 For traffic listing & @6:30 p.m. for roll call.

**GLENN AMATEUR RADIO SOCIETY
 & GLENN COUNTY ARES
 NEXT MEETING IS:
 THURSDAY, January 8, 2021
 via Zoom**

**GEARS / GARS
 New Repeater
 IS ON THE AIR**

W6RHC West is 145.410 Mhz
 PL is 123.0 Negative offset.

