



# GARS

Glenn Amateur Radio Society

KJ6HCG



## *The Prez Says -*

Prez Says for May 2019

Greetings to all club members and guests from the shack of KF6OBI. Now that we are into Spring, by 44 days, we are finally being blessed with some really nice weather. Whats around the corner this coming Summer is unknown. I can tell you that vegetation wise this year is going to be a much different than the last few years. I'm already seeing and dealing with weed varieties that are popping up much earlier than what was normal.

Phil, KI6SMN, is out on a 6 week road trip across the US and will not be able to make membership meetings for the months of May and June. Therefore I have decided to not hold the GARS membership meeting for these two months. After Phil returns we will resume meetings on our normal scheduled day of the month.

GARS and GEARS are now in a partnership to rebuild the W6RHC repeater and to build and put up another repeater at a site up on Saint Johns. This new repeater will be linked to the W6RHC repeater that is now located up in Forest Ranch. It has been decided that this will be a Yaesu System Fusion repeater system to take advantage of the analog and digital features that the new Yaesu DR-2X brings to the table. Will you need a new radio? No, you will not! But if you wish to enjoy the benefits of C4FM and other Yaesu digital options, then yes, you will need to explore a new radio that will accomplish this.

The features of the Yaesu DR-2X repeater are listed elsewhere in this newsletter. Next month we shall learn more about the differences between the DR-1X and DR-2X repeaters and a little more about the DR-2X features.

Going fourth this Spring and looking toward Summer we all will be very busy. This year because of this and the fact that we will not be meeting to plan what we will do for the ARRL 2019 field Day, this too, it has been decided, we will meet up with GEARS for this event. This will be real fun and educational for all. More on this next month. Stay tuned!

Glenn County ARES – monthly meetings are held at the Kanawha Fire Protection District fire house located at 1709 County Road D, Willows. The next Glenn ARES meeting is to be held on the 14<sup>th</sup> of May. Meetings start at 6:30pm.

Our next normal meeting will be at the Artois Lutheran Fellowship Hall at 6:30pm, is canceled this month. Please see reason mentioned above. Remember that one does not have to be a member of the club to participate in our membership meetings. So be safe in all you do and may you all have many blessings in the days ahead!

Mike Ellithorpe, KF6OBI  
President, GARS  
kilofox6obi@yandex.com or kj6hcg@gmail.com



Minutes of the meeting of April 11, 2019

Present: Mike, Phil, Mike M , Bob W, Howard, Hank, Lester, Bob M

President Mike Ellithorp, KF6OBI, opened the meeting with the pledge at 18:40.

The **March minutes** were approved. They were included with the agenda. **Moved:** Lester **Seconded:** Howard

**Treasurer** Phil reported the account balance of \$4,161.65 which included the income from dues received since the last meeting and a Thrivent Choice deposit of \$120 which Phil directed toward the club with the intention that it be used for ARES expenses. The only expense was for the ARES logos put on the DRT: \$57.18.

**Old Business:**

**Disaster Trailer Report:** As noted in the Treasurer's report the ARES logo has been affixed to the street and curb sides of the trailer. In addition Howard has been working on the GARS generator which will start but cut out shortly thereafter and when placed under load. He has ordered a new diaphragm anticipating that is the problem. Thanks, Howard, for your time and effort. Discussion of this issue brought forth suggestions of using aviation fuel, Sea Foam, and making sure the fuel is totally run out at the end of each deployment.

**Web Page Discussion:** KF6OBI has done some work on the Web page including trying to figure out how to post the Club NL and other updates. KJ6KIZ has been doing maintenance on the FB page including the posting of silent keys Otis and John on a specially created FB page.

**Youth Outreach:** KJ6KIZ reported that conducting a JOTA with the Scouts (formerly BSA) can be done with Club members serving as guest speakers. Contacts to date show most promise with the younger scouts (Cub) showing the most promise.

**Run Your Tail Off:** The event will take place at the Buckhorn Campground, Black Butte Lake, on 4/13. Trail maps were distributed by KF6OBI with participating stations requested to be present at the boat ramp parking lot by 0700. FQs used will be 147.105 for repeater coms and 146.550 as the primary simplex FQ with 147.555 as secondary. We may also try using the 1.25m band.

**New Business:**

**ARES Report:** KJ6KIZ reported that there have been no call outs. At the May meeting he will do a tutorial with respect to the Sacramento Valley Section forms which should be filled out on a regular basis. He is also developing a tri-band station at the Kanawha QTH. As part of an exploration for doing the same at Lutheran Hall, KJ6KIZ will demo the AREDN system at the May meeting.

**Scholarship Fund:** KF6OBI presented the idea of creating two scholarships targeting the promotion of STEM at the high schools. The amount of the scholarships is yet TBD and the organization of them is a work in progress. These would be set up as memorials to SK's Otis and John. Dj Post has communicated the idea that she would like them to represent all SK's from both GEARS and GARS. The funds from the scholarships would be to help with book costs and it is hoped to have them operational in the Fall of 2019 so as to be distributed in May, 2020. KI6SMN volunteered to get a copy of the scholarship administered by the Willows Ministerial Association to KF6OBI to use as a sample document. KM6VFF will do the same for the Elk Creek Fire scholarship. KJ6KIZ will talk to Chief Steinhoff about getting a copy of the document used by Kanawha.

**Fiscal Agency:** \$15,000 has been received by GEARS from the North Valley Community Foundation. These funds come from the Butte Strong Fund created following the Camp Fire. The purpose of this grant is for GEARS & GARS to collaborate in improving emergency communications capabilities by locating a repeater on St. John's and enhancing the repeater already located in Forest Ranch. KF6OBI distributed a preliminary document outlining some of the equipment/costs which will be needed. GEARS will be appointing two people to represent their club in this venture and GARS is being asked to do the same. **Moved:** Mike M **Seconded:** Howard that KF6OBI & KI6SMN represent GARS on the Fiscal Agency Committee to be formed in collaboration with GEARS for the development of and purchase of necessary equipment which will enhance emergency communications capabilities in Glenn and Butte Counties. **Approved.**

**Ed Note:** On the day after the Club meeting KI6SMN picked up the check from GEARS treasurer Kathy Favor and deposited it in the GARS checking account. A new liability account has been created in the GARS accounting system to track the way these funds are used and regular reports will be given to both GEARS & GARS.

**Membership Recruitment:** Nothing further

**Fun Projects:**

Winlink/DMR Report: both capabilities are experiencing significant development here in Glenn County.

Hank, KM6VFF, set up his 2m rig using the Club antenna on the West end of Lutheran Hall. Winlink Express was activated and discussion ensued concerning the function of the waterfall.

**The meeting concluded at 20:00** via announcement from Pres. Mike.

The **next meeting** is scheduled for **05/09/19, 18:30.**

# Yaesu DR-2X Repeater

## Features

### Easy Migration....

The repeater controller, receiver and transmitter are all packaged into a 19" standard cabinet rack mount panel unit for simple replacement of an existing repeater. Existing peripheral devices such as the duplexer and amplifier, etc., can continue to be used as-is.

Please see the DR-2X/XE Brochure for more information.

### DR-2X/XE Features

Modulation Modes: Conventional FM, 12.5 kHz C4FM Digital (V/D Mode, VFR Mode, DFR Mode) \*

VHF or UHF operation (cross-band capable) / Dual Receive / Dual Transmit (DRDT)

AMS (Automatic Mode Select) function automatically recognizes the signal as C4FM digital or conventional FM, and then the DR-2X repeater re-transmits the signal using the preset communications mode.

3.5-inch Full Color Touch Panel Operation

Extremely reliable, high RF Output Power: 50W/20W/10W

Emergency Operation: Supports auto-switched backup battery power operation.

Front panel microphone connector is provided for use in repeater transmitter testing, and enables use as a base station.

Built-in large-size monitor speaker with front panel volume control

Full Integrability with existing repeater controllers using the 15 Pin rear I/O connection.

\*System Fusion is not compatible with the D-STAR GMSK digital format.

### DR-2X/XE New Features

Dual Frequency Operation (DRDT)

MSRL (Multi-site repeater link) Function for Easy Coverage Expansion using optional module

New and improved "News Station" feature for Easy sharing of voice and text messaging.

Enhanced Group Monitor Feature for Easy Grouping Set-up (DG-ID, DP-ID)

### User Friendly Set-Up

The large front panel, color touch-screen permits convenient configuration of the transmitter and receiver frequencies, transmit power output and AMS functions. When the settings are complete the display can be switched off to prevent accidental operation. Simply turn the display switch ON and use the touch panel screen to confirm or change settings. The transmit and receive frequencies, CTCSS tones, squelch, AMS, and other functions are configured by the touch panel screen

### Enhanced Group Monitor Feature

Yaesu's revolutionary Group Monitor feature allows you to track multiple resources quickly and efficiently by displaying telemetry and signal strength information of other group members that share the same Digital Group Identification number.

Dual Receive / Dual Transmit (DRDT)

The unique Receiver, Transmitter and controller combination in the DR-2X/DR-2XE allows the control operator to assign up to two frequency pairs per repeater. This feature enables two separate dual-band inputs and outputs per single DR-2X/DR-2XE repeater, allowing even more methods of access.

Continued page 4

Repeater—continued from page 4:

### MSRL (Multi-site Repeater Link)

The MSRL (Multi Site Repeater Link) allows the repeater operator to link multiple repeaters over a Wide-Area-Network (WAN) or Local-area-network (LAN) across short or long distances. Realizing the reliability shortcomings inherent with WAN (Wide Area Networking) such as the internet, the new DR-2X/DR-2XE incorporates direct connectivity into a variety of networking environments to provide high quality Digital and Analog communications even when “All Else Fails” .

### New and Improved News Station Function

Quickly store and retrieve digital audio and text messages for groups or individual operators that can be accessed on demand, any time of the day (\* Requires Optional MSRL module).

### Touch Panel Operation

Enjoy the ease of using the DR-2X/XE’s 3.5-inch Full Color Touch Panel Operation:

- Setup screen
- Frequency setting screen
- CTCSS setting screen

### Other Features

- Internal AC Power Supply
- 19” Rack Mount Capable
- High Stability  $\pm 2.5$ ppm TCXO included
- DSQ (Digital Squelch Code) Signaling Feature
- CTCSS and DCS Signaling Feature
- ID Announcement Feature
- Remote/External Controller Interface
- Base Station Operation
- Time Out Timer
- Firmware Upgradeable

### DR-2X/XE Supplied Accessories

- AC Cable
- DC Cable for backup battery
- PC Connection Cable SCU-20
- Rubber Feet (4)

### DR-2X/XE Options

- DTMF Microphone MH-48A6JA
- Hand Microphone MH-42C6J
- Voice Guide Unit FVS-2

### DR-2X/XE Specifications

- Frequency range 144 to 148 MHz, 430 to 450 MHz
- Channel steps 5/6.25 kHz
- Emission type F1D, F2D, F3E, F7W
- Frequency stability  $\pm 2.5$  ppm (-4°F to +140°F (-20°C to +60°C))
- Antenna impedance 50 ohms
- Supply Voltage AC 100 to 240 V
- DC 11.7 to 15.8 V, negative ground

**Continued on page 5**

Current consumption:

1.5 A (Receive)

13 A (50 W TX, 144 MHz band)

14 A (50 W TX, 430 MHz band)

Operating temperature -4°F to +140°F (-20°C to +60°C)

Dimensions: 19"(W) × 3.5"(H) × 15"(D)

Weight : 22.05 lbs (10 kg) approximately

Transmitter

RF power output 50/20/5 W

Modulation type F1D, F2D, F3E Variable Reactance Modulation

F7W 4FSK (C4FM)

Spurious emission At least 60 dB below

Receiver

Circuit type Double conversion super-heterodyne

Intermediate frequencies 1st: 47.25 MHz, 2nd: 450 kHz

Receiver sensitivity

0.3 .V (Digital 2 m/70 cm) BER 1%

0.2 .V (FM 2 m/70 cm) 12dB SINARD

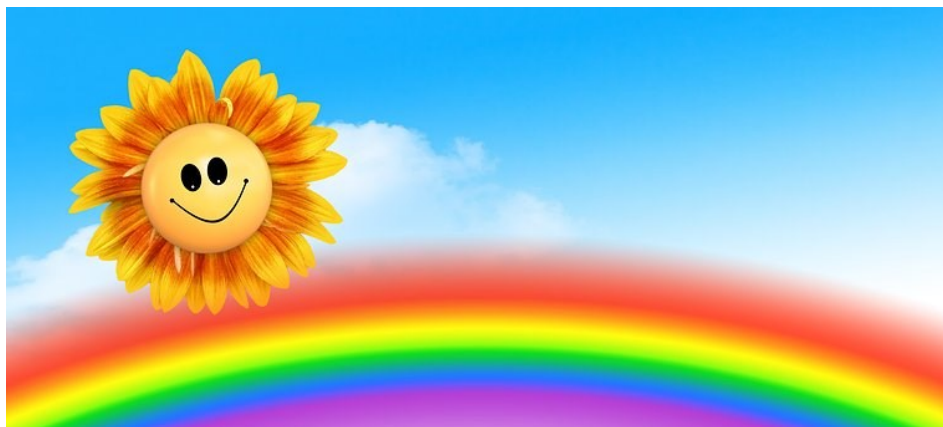
Adjacent Channel Selectivity Better than 65 dB TYP (20 kHz offset)

Selectivity FM 12 kHz/35 kHz (-6 dB/-60 dB)

Intermodulation Better than 65 dB TYP (20 /40 kHz offset)

Submitted by KF6OBI

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**Remember your Mother ..visit, or telephone , or with a gift of love,  
On Mother's Day. Sunday May 12th!**

**April 23, 2019:** Ten years ago, NASA reported a “[perfect storm of cosmic rays](#).” During the year 2009, radiation peppering Earth from deep space reached a 50-year high, registering levels never before seen during the Space Age. It’s about to happen again.

Ground-based neutron monitors and high-altitude cosmic ray balloons are registering a new increase in cosmic rays. The Oulu [neutron monitor](#) in Finland, which has been making measurements since 1964, reports levels in April 2019 only percentage points below the Space Age maximum of 2010.

What’s going on? The answer is “Solar Minimum.” During the low phase of the 11-year solar cycle, the sun’s magnetic field and solar wind weaken. Cosmic rays find it easier to penetrate the inner solar system. In 2009, the sun experienced the deepest solar minimum in a century. Cosmic rays reaching Earth naturally surged.

Ten years later, solar minimum is back with renewed weakening of the sun’s magnetic field and the solar wind. Again, it’s a “perfect storm.” A panel of experts led by NOAA and NASA Four years of overlapping data from neutron monitors and cosmic ray balloons agree that atmospheric radiation is increasing again.

Cosmic rays cause “air showers” of secondary particles when they hit Earth’s atmosphere. Indeed, this is what neutron monitors and cosmic ray balloons are measuring—the secondary spray of cosmic rays that rains down on Earth.

This spray is of special interest to air travelers. Secondary cosmic rays penetrate the hulls of commercial aircraft, dosing passengers with the whole body equivalent of a dental X-ray even on ordinary mid-latitude flights across the USA. International travelers receive [even greater doses](#).

The International Commission on Radiological Protection has classified pilots as occupational radiation workers because of accumulated cosmic ray doses they receive while flying. Moreover, [a recent study](#) by researchers at the Harvard School of Public Health shows that flight attendants face an elevated risk of cancer compared to members of the general population. They listed cosmic rays as one of several risk factors.

Stay tuned for updates as solar minimum deepens.

## Cosmic Rays on Earth since 1964



## REPEATER TIDBITS

Bob, W1RH from EDCARC newsletter

**Here's a few codes you might want to jot down:**

**2#111—Punch in this code on 2 meters and the repeater will respond, "RADIO CHECK READY"**

**Key your microphone, say a few words, release the mic, and hear your signal as it is recorded at the repeater.**

**4#111—Punch in this code on the 440 repeater and the repeater will respond, "RADIO CHECK READY"**

**Key your microphone, say a few words, release the mic, and hear your signal as it is recorded at the repeater.**

**6#111—Punch in this code on 6 meters and the repeater will respond, "RADIO CHECK READY"**

**Key your microphone, say a few words, release the mic, and hear your signal as it is recorded at the repeater.**

**2#112—Will play back the date and time on 2 meters.**

**4#112—Will play back the date and time on 440.**

**6#112—Will play back the date and time on 6 meters.**

**61291—Enter this code on 6 meters to link 6 meters to 2/440**

**61292—Enter this code on 6 meters to un-link 6 meters from 2/440**

## N6JV TUBE OF THE MONTH

### 4624

The 4624 is a 400 watt tetrode made by RCA that is similar to the 4626 that is liquid cooled. Maximum frequency is 500 MHz. This tube contains an internal 600 pF screen bypass.



Length = 2.13" Diameter = 1.63"

Max voltage = 2200

Max current = 375 ma

Fil voltage = 6.3

Fil current = 3.5 amps

#### N6JV'S TRANSMITTING TUBE MUSEUM

The collection of tubes is located at my home in Sacramento, California. It was conceived as a virtual museum that tube collectors could use for reference on the internet. Anyone interested in transmitting tubes may also visit the collection. Just drop me an e-mail and I will send directions.

[n6jv@N6JV.com](mailto:n6jv@N6JV.com)



**Club Officers: (Board of Directors)**    

President .....Mike Ellithorpe— kf6obi  
Vice President..... Tracy Pitts—ki6uqd  
Secretary /Treasurer\* ..... Phil Zabell—ki6smn  
Past President..... Albert Leyva-n6yck  
Board ..... vacant  
Board ..... Bob Wirth-kc6uis  
Training.....Bob Wirth-kc6uis  
Publications..... Rick Hubbard--ki6vos  
Radio Officer ..... Phil Zabell—ki6smn  
Em.Com Officer .....Michael 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**

**The Glenn Amateur Radio Society web page can be found here: < <https://garshamradio.org/> >**

**Facebook page for GARS can be found here: < <https://www.facebook.com/KJ6HCG/> >**

**Facebook page for Glenn County ARES can be found here: < <https://www.facebook.com/Glenn-County-Amateur-Radio-Emergency-Services-198851130796357/> >**

**Other Nets:**

**Sac Valley Section Net—7:00 PM 2<sup>nd</sup> 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.**

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**Editor .....Dorothy Post**

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**Please send all submission for publication through the following medium: E-mail: [dj@posthouse.us](mailto:dj@posthouse.us) ; All submissions must be in good taste, relevant to amateur radio; Editor reserves final determination as to publication.**

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P O Box 229, Artois, CA 95913

**GLENN AMATEUR RADIO**

**SOCIETY NEXT MEETING IS:**

**IS CANCELLED FOR MAY!**

