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# THE FEEDLINE

Volume 46, Issue 8 The Voice of the Western Illinois Amateur Radio Club August 2022

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## Meanderings of a Junk Collector

I suppose I could be accused of showing signs of ADHD. I have so many projects that I cannot seem to concentrate on any one long enough to finish it before I am distracted by another one. My collections of parts show how far advanced my vice has become.

Summer is in full swing, and it has brought quite a variety of enhancements and challenges to the amateur radio operator. One challenge is weather; it seems to be hot or rainy, sometimes both at the same time. Not unusual but makes for a bit of a challenge for operating outside or doing antenna work. There is also the change of HF propagation in the northern hemisphere. At times, the upper HF bands have been lacking, in spite of the higher sunspot activity. The lower bands are often noisy with summer thunderstorms, but there is still some excellent propagation if you listen for it. On top of that, Sporadic E has been providing a good amount of activity on the upper HF bands and quite a bit of action on 6 meters. While it is not easy, there have been quite a few opportunities to get on the air if you look for them. In recent weeks, there has been tropospheric ducting and even some Sporadic E on the VHF and tropo on UHF. If you are not seeing the activity, you need to look in a few different places than where you normally hang out.

Covid has shown a noticeable increase in the past couple of months. Right now we still plan on holding our meetings at the Red Cross, but we are at their mercy if the circumstances change. If that happens, I hope we can have at least a few meetings outdoors yet this year. I still want to hold a tailgate type flea market and I am leaning towards picking a Saturday morning in September at a park somewhere and invite anyone that wants to come. We may even combine it with a picnic. If anyone has any further thoughts or suggestions on this, bring them to the August meeting.

Since we again have access to the Red Cross, I would like at least look at the viability of holding a Technician class again this fall or winter, it has been some time since we have done this.

The club station seemed to work well for Field Day, it would be great to make some plans for a multi-op contest or two this fall and winter. I would also like to see the club organize and hold some short training classes, maybe starting off with use of the club station equipment, operating digital modes, chasing or activating Parks on the Air and progressing on to other topics club members would like to know more about. If we do not have anyone in the club well versed in a particular topic, we can bring in an expert, in person or virtually. Let me know.

See you at the meeting August 3<sup>rd</sup>.  
Danny W9DP

## Moved and Seconded: Minutes of the July 2022 WIARC Meeting

The July 2022 meeting of the Western Illinois ARC was held on Wednesday, July 6 at the American Red Cross building in Quincy. In the absence of the President, the meeting was called to order at 7 pm by Vice-President W9WE with the following members and guests present:

KB9FIN, WB9EWM, K9VXD, NR9Q, W9US, WA9GBC, W9WE, KB9YN, K9AJC, WM4D, W9GQK, AB9DU, KA0SNL, KD0DKE, K2PEY

Minutes of the June meeting were approved as printed in *The Feedline*.

Treasurer's Report by K9VXD: 2022 income to date: \$1154.40 2022 expenses to date: \$1929.46. Excess of expenses over income of \$775.06. Of the expenses, \$1841.46 was for repeater equipment, \$83 POBox rental, \$5 for Secy of State NP registration. Treasurer's report approved on a motion by KB9FIN, second by WB9EWM and voice vote.

Repeater Board: WB9EWM reported that the board met. There was a discussion about acquiring a spare repeater. The equipment 146.94 needs to be checked; it will soon be moving. It's old enough that there are probably no parts available. KB9FIN mentioned that the D-Star repeater is unused and disposition or re-employment should be considered.

Station Committee Report: (including Field Day report, some of which in included here by N9JF though it was not part of the meeting report). Field Day was operated on the last weekend in June from the American Red Cross building with two stations (SSB and FT8) in the club room and two stations (CW and 6 meter FT8) in the meeting room. Everything "worked" though there were problems with interstation interference and building RFI. Thirteen operators appeared and most made at least one contact. A total of 1052 contacts was logged with CW and DIGI about equal and SSB a bit less. The report has been submitted to ARRL.

VE Report: The next test session is scheduled for the Saturday in August following the WIARC meeting (August 6).

W9DP has books on order from ARRL for donation to the Quincy Public Library.

There were no applications for membership.

New Business: WB9EWM suggested that plans be made (and publicized) for a local swap-meet on the September meeting date (September 7) at an outdoor setting, possibly Upper Moorman Park.

The members' sympathy is extended to KB9YN upon the recent passing of his wife, Sharon. Sharon's funeral services will be Saturday morning, July 9 at 10 a.m. at the Triplett Funeral Home in Mendon. Memorial contributions to the family will be appreciated to help defray funeral costs.

Net Control Stations:

Aug 3 W9WE Aug 10 WB9EWM Aug 17 NR9Q Aug 24 WB9EWM Aug 31 WM4D Sep 7 W9WE

Minutes constructed from notes and audio kindly provided by W9WE.

Respectfully submitted, N9JF Secretary

08/06/2022 FCC Amateur Radio License Test

Sponsor: Western Illinois Amateur Radio Club

Location: Bethel Assembly of God Church

Time: 1:00 PM (Walk-ins allowed)

Please let me know if you intend to come!

210-325-7923 text or voicemail on first contact or,

Email  me at address below .

Bethel Assembly of God Church, 839 S 12th St, Quincy, IL 62301, USA

[w9we.lee@gmail.com](mailto:w9we.lee@gmail.com)

Dave Scranton

W9WE

## FCC Legacy CORES System Has Been Retired

The Federal Communications Commission (FCC) retired the [Legacy version](#) of its COMmission REgistration System (CORES) on July 15, 2022. CORES is the FCC's public-facing database that enables and tracks certain types of FCC and FCC applicant actions, including amateur radio applications and licenses. Its implementation has enabled routine amateur applications and licenses to be issued overnight instead of over weeks, as was the case with earlier methods. The [updated version of CORES](#) is now available.

In essence, CORES is designed to identify those who hold certain types of FCC licenses and FCC authorizations, including amateur licenses, and organize them in an easily accessible manner under a common FCC Registration Number (FRN) regardless of whether one holds a single such authority or thousands. The new CORES, in addition to assigning individual FRNs, allows holders of multiple FRNs to aggregate them under a single account where the licenses and authorizations, fees and payments, and related actions can be administered from within the same account.

In effect, new CORES can be conceptualized as an electronic interactive file folder. The [updated version of CORES](#) has been available since 2016, and its use is now mandatory for all amateur licensees when submitting amateur-related applications.

The Legacy CORES website now re-directs users to the [Commission's updated CORES](#) site. Although some functionalities in the old system will continue to work for a short time, the [FCC has urged all users](#) to transition to the updated CORES system to take advantage of its enhanced security and functionality.



## Register with the FCC

Licenses that do not already have an FCC CORES Username Account must create one with a unique username (a valid email address) and password. After creating the account, when logged in, users should associate their existing FRN or FRNs with this account. Instructions for doing so are on the [FCC Registration Help](#) web page. One's FRN is printed on all current amateur applications and licenses, and will not change. FRNs can also be found by looking up one's call sign in the Commission's ULS (<https://wireless2.fcc.gov/ULsApp/ULsSearch/searchLicense.jsp>) or by using the FCC's [Advanced Search](#) web page.

The FCC has posted [tutorial videos](#) to assist with the transition. ARRL VEC Manager Maria Somma, AB1FM, recommends viewing "Getting Started With the New CORES," which explains how to register for a CORES Username Account, and "Associating an FRN to a Username," which instructs Legacy CORES users on how to link one or more existing FRNs to a username. [FCC CORES Registration Instructions](#) can also be found on the ARRL website.

Additional information is available on the [FCC](#) website or by calling the FCC Licensing Support Center at 877-480-3201, Option 4, and on the FCC's [e-support](#) web page.

From W9DP's laboratory

My attention has been diverted for the past couple of months in trying to put together a 10 GHz station, and it is turning out to be easier and somewhat cheaper than I had thought it would be. A simple 10 GHz receive only system can be put together with a cheap RTL-SDR dongle (\$30.00) and a 12 to 14 GHz LNB (\$30.00) both available from Amazon or eBay. If you ask around, you can find Direct TV, Primestar or Dish Network dish for hauling away and make a 30 dB gain antenna. You might question who you might hear on 10 GHz; but even if no one is close enough to hear on the air, our numerous thunderstorms this summer have brought a lot of the 10 GHz operators out of the woodwork using the tops of tall thunderstorm clouds to reflect signals hundreds of miles beyond normal range. A good site to use to see what potential paths you have due to thunderstorms can be found at <https://rainscatter.com/> Not only that, but there is some satellite activity on 10 GHz using the Es'Hail 2 satellite. <https://amsat-uk.org/2017/04/21/low-cost-10-ghz-ssb-receiver/>

That same, cheap, STL-SDR dongle can also be pressed into service as a spectrum analyzer of sorts. Add a mixer and an oscillator circuit and you can raise or lower the frequency range of interest to just about anything you can imagine.

Up until recently, most of the frequency bands above 450 MHz required you to be somewhat of a combination inventor and mad scientist and to have pretty deep pockets. Things have been changing, Q5 Signal now offers a low power transverter that covers 144, 222, 432, 903 and 1296. Pluto and Lime SDR offer devices that may be used as transverters for several SHF bands up to 3500 MHz. You still will need to do a good bit of assembly and testing, but you seldom need to build a circuit from discreet components.

Creating more than a few milliwatts on the microwave bands has certainly gotten easier and cheaper, mainly through inexpensive MMIC devices that use a very simple circuit and offer gain over a large frequency band. If that is not enough power, many commercial microwave systems have been decommissioned. I have Alcatel amplifier

boards that will be good for a couple of watts at 5.7 and 10.2 GHz, and both were pretty inexpensive on the used market. Filters to ensure reasonable spectral purity are easily made using PCB traces and/or pipe cap filters. W1GHZ has spent years finding ways to roll your own microwave transverters, and his web site is a treasure trove of information <http://w1ghz.org/> Paul offers boards for sale and is very willing to discuss any ideas or questions you have about his projects.

There is a microwave dedicated club in the St. Louis area, the ST. Louis Area Microwave Society, SLAMS. They have an active group working on mostly home brewing transverters, beacons, antennas and scheduling activity on several microwave bands. <https://slams-stlouis.blogspot.com/> They are a friendly group and are dedicated to seeing our microwave frequencies being used. They offer help, ideas and provide a great resource of knowledge of what can be done without breaking the bank. Several of the group travel to various sites and try to give out different grids to others that are looking for their VUCC award or simply the challenge of a new grid.

Speaking of VUCC awards, the criteria for VUCC on 10 GHz is only 5 grids! While this sounds easy, it does take some time; and all grids have to be worked from the same general location, that is from your own 6 digit grid square This make it a lot tougher unless you have your antenna on top of a very high point above trees and buildings or operate portable from a location the provides a very distant view of the horizon. (Being higher than everything around is a big help as well). As an example of what a well-equipped 10 GHz station can do, W8BYA has worked 50 grids from his location in north central Indiana over the past couple of years. If you want to dig into 10 GHz a little more, there are several YouTube channels that provide various aspects of how others have managed to be successful on 10 GHz. [https://www.youtube.com/channel/UCA60LZ-uHTS76\\_HVsh9HWjg](https://www.youtube.com/channel/UCA60LZ-uHTS76_HVsh9HWjg)  
[https://www.youtube.com/channel/UCIKV4\\_S\\_4IN\\_cjIVxd6Qtlw](https://www.youtube.com/channel/UCIKV4_S_4IN_cjIVxd6Qtlw)  
<https://www.youtube.com/c/w8bya>  
<https://www.youtube.com/user/radeohedca>  
<https://www.youtube.com/user/rad1orush>  
<https://www.youtube.com/user/aa9il>

It is not uncommon for a new operator to build two sets of hardware; one is used to test the functionality of the other. Because of this, there are hams with extra hardware they often loan out, both to get another operator started and to increase their own “local” activity.  
W9DP

If your stress level needed priming.... (from SpaceWeatherArchive.com):

## Starfish Prime: The First Accidental Geomagnetic Storm

**JULY 8, 2022 / DR.TONY PHILLIPS**

July 9, 2022: Sixty years ago today, one of the biggest geomagnetic storms of the Space Age struck Earth. It didn't come from the sun.

“We made it ourselves,” recalls Clive Dyer of the University of Surrey Space Centre in Guildford UK. “It was the first anthropogenic space weather event.”

On July 9, 1962, the US military detonated a thermonuclear warhead 250 miles above the Pacific Ocean—a test called “Starfish Prime.” What happened next surprised everyone. Witnesses from Hawaii to New Zealand reported auroras overhead, magnificent midnight “rainbow stripes” that tropical sky watchers had never seen before. Radios fell silent, then suddenly became noisy as streetlights went dark in Honolulu.



*Above: ‘Nuclear auroras’ viewed from Honolulu (left) and from a surveillance aircraft (right) on July 9, 1962.*

Essentially, Starfish Prime created an artificial solar storm complete with auroras, geomagnetic activity, and blackouts. Much of the chaos that night was caused by the electromagnetic pulse (EMP)—a ferocious burst of radiation that ionized the upper atmosphere. Ionized air over the Pacific pinned down Earth’s magnetic field, then let it go again when the ionization subsided. The rebound created a manmade geomagnetic storm for hundreds of miles around the blast zone.

Dyer, who is widely known for his studies of extreme space weather events, was still in school when the bomb exploded. “In 1962 the Cold War was red hot, and we all thought the end was nigh,” he says. “Starfish Prime was a defining event.”

“The explosion led to the early demise of all the spacecraft in orbit at the time. These included Ariel-1, the UK’s first spacecraft, and Telstar-1, a US communications satellite which had the bad luck to be launched the very next day.”

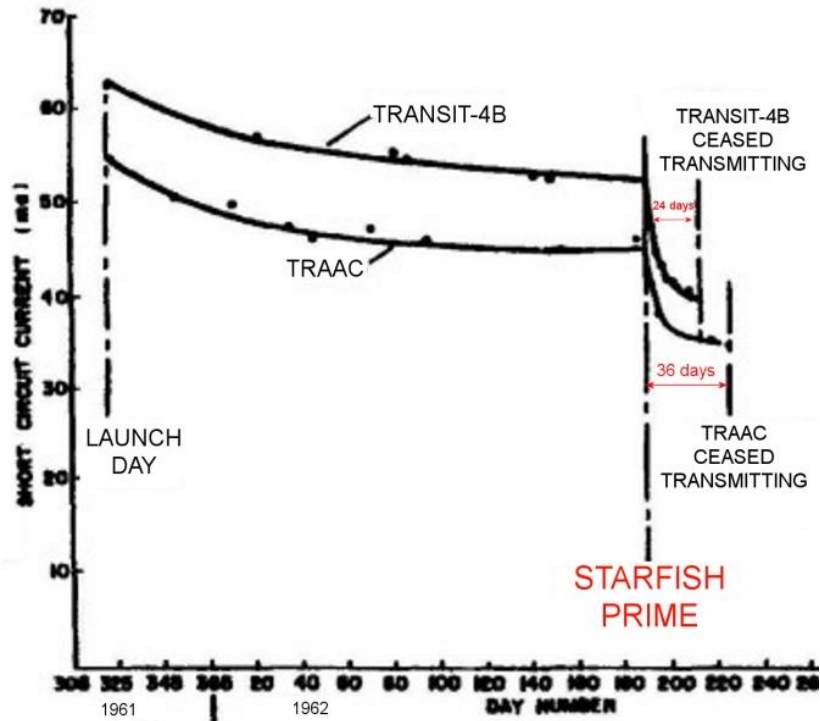
# Solar Array Degradation After Starfish

TRANSIT-4B Navigation Satellite

TRAAC - Transit Research & Attitude Control

Both launched 15 Nov 1961 into 1000 km, 32° orbits

Demised after 36, 24 days respectively



Credit: R.E. Fischell, "ANNA-1B Solar Cell Damage Experiment," Transcript of the Photovoltaic Specialists Conference, April 10, 1963, Washington DC.

Normally, geomagnetic storms bring down satellites via orbital decay. The upper atmosphere heats up and expands to the point where it can pull satellites down toward Earth. Starfish Prime was different.

"The explosion filled Earth's magnetosphere with energetic electrons," explains Dyer. "Electrons were injected by the gradual beta decay of fission products and added to our planet's natural radiation belts. There were increased fluxes of trapped electrons for many years after the blast."

These artificial electrons hit satellites hard, degrading their electronics and solar arrays.

"Ariel-1 became almost unusable after 4 days due to power degradation and tape recorder failure," recalls Dyer. "The Telstar satellite lasted until November 1962 when its command decoder failed. It still managed to provide the first transatlantic TV feed, synchronize UK/US time to 1 microsecond and inspired the Tornado's rock classic 'Telstar,' which used recordings of a flushing toilet played backwards."

Starfish Prime serves as a warning of what could happen if Earth is blasted by high doses of radiation. Sixty years later, [researchers are still learning](#) what it can teach us about the vulnerability of power grids. An even scarier atmospheric explosion may have been Soviet test 184 (also designated K3) on October 22, 1962, which set fires and knocked out hundreds of miles of power lines in Kazakhstan. That, however, is a different anniversary.

**DX News shamelessly stolen from *ARRL DX News July 14, 2022***

**DX Bulletin 28 ARLD028 From ARRL Headquarters Newington CT July 14, 2022  
To all radio amateurs**

**This week's bulletin was made possible with information provided by The Daily DX, the OPDX Bulletin, 425 DX News, DXNL, Contest Corral from QST and the ARRL Contest Calendar and WA7BNM web sites. Thanks to all.**

**ALGERIA, 7T60. Members of the Amateurs Radio Algeriens (7X2ARA) are now active as 7T60I, 7U60I, 7V60I, 7V60ID, 7W60I to celebrate the 60th anniversary of Algerian Independence, until August 5. QSL via BEN LAGHA, 3 Rue Claude Curtat, Meyzieu 69330, France.**

**AZORES, CT8. Jim, W6PQL will be active as CT8/W6PQL from Pico Island (HM58rn) until September 6. Activity will be on various HF bands and 2 meter EME. QSL via his QTH in California or LoTW.**

**SPRATLY ISLANDS, DX0. Gil, 4F2KWT has been issued the call sign DX0NE from the Republic of the Philippines National Telecommunications Commission. The special call sign will be used during an operation from Kalayaan Spratly Island sometime between August 1 and December 31, 2022. The four man team includes Gil, Ed, 4F1OZ, Jong, DU3JA and Mike, DU1XX/AE6DG. Activity will be on 160 to 6 meters using CW, SSB, FT8. QSL via IZ8CCW.**

**GRENADA, J3. Greg, N9GB will be active as N9GB/J3 from August 13 to 18. Activity will be mainly holiday style on 40 to 10 meters using CW, SSB and FT8. Most of the time operation will be at night, but sometimes will be during the day. QSL via N9GB.**

**CANADA, VX7. Jon, VA7JC will be active as VX7ITE from Metro Vancouver, BC, to celebrate the Platinum Jubilee of Queen Elizabeth II.**

**UNITED STATES, W8. Operators Geoff, W8GNM, Jay, K8CJY and Jon, KB8SRQ will be active as W8GNM/8 from the Port Clinton Lighthouse August 20, from 1500 to 2100z. QSL via LoTW only.**

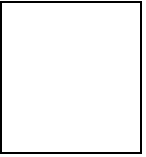
**MARKET REEF, OJ0. DG5CST, DL3DXX, DL6FBL and SM0W plan to operate OJ0DX from July 25 to August 1, concentrating on the IOTA Contest. Prior to the contest they will be operating on 3.5 through 50 MHz and DG5CST will be on VHF and UHF. Their arrival and departure will be dependent on weather as Market Reef has no harbor so landing is always difficult and only possible with low wind and waves. QSL via DL3DXX.**

**ANGOLA, D2. Bernie, ZS4TX plans to be QRV from August 12 to 16, operating on 2 Meter EME and HF as D2TX. There is also a possibility he will be on 6 meters EME and Tropo and 70CM. QSL via PA3CMC.**

**TURKEY, TA. Berkin, TA3J will be QRV as TA3J/0 from Yassica Island (AS-099) every Saturday and Sunday until October 31, 2022. Activity will be on SSB, CW, RTTY and FT8 on 80, 40, 30, 20, 17, 15, 12 and 10 Meters. Logs will be uploaded to Club Log and LoTW.**



**Western Il. Amateur Radio Club  
PO Box 3132  
Quincy, IL 62305-3132**



**August meeting: Wednesday Aug 3, 2022 7  
pm  
Adams County American Red Cross  
Building, 24<sup>th</sup> and Koch's Lane, Quincy (west  
½ block from intersection then north on  
driveway)**

**W9AWE – W90AB  
The Western Illinois Amateur Radio Club, Inc.  
WIARC homepage: <http://www.w9awe.org> e-mail to [w9awe@qsl.net](mailto:w9awe@qsl.net)  
WIARC email reflector: [wiarc@mailman.qth.net](mailto:wiarc@mailman.qth.net)**

**Sponsors of  
Voice repeater W9AWE/R on 147.630/.030 Quincy  
Voice repeater W9AWE/R on 146.340/.940 Quincy  
Voice repeater W9AWE/R on 448.900/443.900 Quincy  
147.03 and 448.9:103.5 sub-audible tone; 146.94 123.0  
D-STAR repeater W9AWE on 147.795/.195  
D-STAR 446.89375/441.89375  
ILLINOIS QSO PARTY**

**Newsletter input due by the 20<sup>th</sup> of the preceding month  
Editor Jim Funk N9JF  
[n9jf@arrl.net](mailto:n9jf@arrl.net)**