

Allen County HamNews

Fort Wayne Radio Club Fort Wayne DX Association

Allen County Amateur Radio Technical Society

March 2021

Volume 22

Issue 3



SOLAR CYCLE 25: WHAT'S THE SCOOP?

Check out K9LA's column
for the answer!

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From the Editor

Another month has gone up in smoke—and another snowdrift has melted away. Welcome to March!

This weekend I started to test out a Xiegu G90 HF radio. Interesting little gizmo, but the jury is still out on it.



This month's edition includes all kinds of fun information. Carl K9LA includes information on the solar cycle. Check out Jim AC9EZ's column on antennas. There is information on the popular ACARTS FM Simplex Contest plus new classifieds and lots more.

Please send me any material for the April edition by 3/30/21.

73,

Josh Long, W9HT

drjoshlong (at) gmail.com

Tuning Up by AC9EZ

Antenna Bootcamp: Part 1

For the past couple months, this column has delved into several antenna designs, such as doublets or K2AV over FCP inverted L antennas. However, what if you are a newcomer to the world of diy antennas? Where do you find the wire from which to build the antennas? What is a good source for pvc enclosures or antenna connectors? This article, part 1 of a multi-part series, will focus on answering some of those questions.

Antenna Wire

For a wire antenna, we need a few simple pieces of gear, but most importantly, we need wire. I have personally used many different gauges of wire. But, the most cost effective wire I have found is stranded copper #14 THHN insulated wire. This wire comes in a 500 foot roll and costs \$50 from Menards. The wire is tough. From ice and snow to entire limbs from trees a foot in diameter, this type of wire can handle it all (this comes from personal observation at station AC9EZ!). The outer insulation of the wire is nice and slippery, allowing the wire to slip easily over tree branches or garage roofs.

This wire will be affected by UV rays and normal weathering. However, any decently-made antenna constructed from this wire should last a couple of years of outdoor service. The wire is not particularly heavy, so it is trail friendly for portable operators (e.g. POTA/SOTA/IOTA...) What is even better, is that this type of wire comes in several "stealthy" colors, such as green or black, both of which blend in nicely in any suburban lot.

Coax Cable and Open Wire Feedline

Probably one of the more expensive items for any homebrew antenna is the feed line. Feed line is itself like a Pandora's box of a subject, with multiple different design considerations. For this article, let's stick with two design goals - cost, and low loss.

Feed line can be divided, broadly, into two basic categories. The first category is coax cable, which can be bought as either fully assembled cable complete with connectors, or purchased in bulk without attached connectors (you or a friend attaches the connectors yourself). Open wire feed line consists of ladder line, window line, and TV twinlead (see *Figures 1 and 2*). All of the various types of open wire feed line can be purchased, but the traditional 600 Ohm impedance "ladder line" (used since the early days of ham radio) can be homemade.



Figure 1

The cost of coax cable or open wire feed line is directly related to the cable's amount of loss - the lower the loss,



Figure 2

the more expensive the feed line. Additionally, if one is considering open wire feed line, there is choice between solid and stranded conductors, and the gauge of the conductor (just like regular antenna wire). If a multi-band, resonant antenna is used, then coax cable is the natural choice. If a doublet or doublet-derivative antenna is used, open wire line is a much better choice.

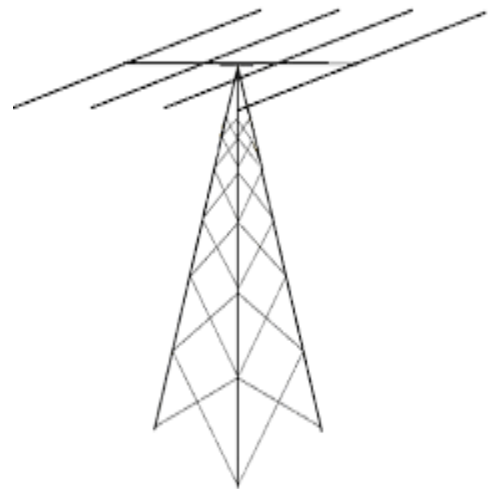
Depending on the frequency of use of the antenna, feed lines as small as RG-58 cable can be used without too much loss (the lower the frequency, the lower the loss). As the feed line between the rig and antenna gets longer (and as the frequency in use gets higher), feed line loss gets progressively larger. For most hams, 50 feet of RG-8X or RG-8 coax will work well for a beginner set up.

If one is considering serious operation on the VHF/UHF bands or a serious contest/dx station, then such low loss-high cost cable as LMR-400, LMR-600, or Buryflex should be considered. Practically any type of coax or open wire

feed line can be purchased either assembled or in bulk from Ham Radio Outlet, DX Engineering, and Davis RF, but expect to pay high prices for low loss coax! Open wire line has very good low loss characteristics (better than many coax cables), but it usually requires the use of an antenna tuner or balun.

Enclosures, Baluns, Ununs, Transformers, and Toroids

Sometimes, a particular antenna requires more than antenna wire and a feed line to work properly, such as a 9:1 unun for a random wire antenna or a 49:1 transformer for an end-fed half wave antenna. Doublet antennas, if used with an "unbalanced" tuner, require a balun to transition from the balanced, open wire feed line to the short run of unbalanced coax cable.



A random antenna graphic

Weatherproof, pvc enclosures can be purchased for roughly \$10 from the local “big box” stores, such as Menards or Lowes. The enclosures come in different sizes, and include a rubber gasket around the inside of the cover, to help prevent moisture intrusion (see *Figure 3*). These boxes can be easily drilled out with a basic hand drill, and they provide adequate protection for one’s balun/unun/transformer for several years of variable Indiana weather.



Figure 3

Wing Nuts/Bolts/Support Rope/Connectors

Any homemade antenna requires various pieces of “hardware” to attach the antenna wire, to connect the coax, and to support the antenna from one’s support of choice. Basic screws, nuts, and bolts come from either a local hardware store or “big box” store. Antenna or coax connectors come from places like DX Engineering, Davis RF, MFJ, or even online auction/swap meet sites like Ebay or Amazon. If purchasing from a non-ham specific site, be aware that there are some very low quality or oddly designed connectors that are

present in the rf connector world. It might be better to spend a little more on good quality connectors from known, ham-friendly sources, than to take a chance on some unknown source of possibly cheap/poor parts.

One of the biggest selections of adapters and connectors is MFJ. At station AC9EZ, I have repeatedly used and re-used the same five SO-239 connectors that I purchased several years ago. For a quick solution, one might try the DIY store in the Glenbrook Shopping Mall, which has a very nice, albeit somewhat limited, selection of common connectors.

For the beginner ham, remember that most coax cables use male, PL-259 connectors. These male PL-259 connectors connect to the female, chassis-mount SO-239 connectors, which are mounted on enclosures and base or mobile radios (see *Figure 4*). Chassis mount BNC connectors are mounted on some QRP radios and QRP antennas (see *Figure 5*), with male BNC connectors used on some coax cables.

One word of caution about connectors. Try to avoid using too many adapters.

As you increase the number of adapters, loss can



Figure 4

increase, and the number of potential failure points in the antenna system will certainly increase.



Figure 5

Conclusion

The above details are by no means an exhaustive list of the various materials one can use for antennas, but it does give a starting point on where and what to look for the basic antenna building supplies. Don’t forget that local hams love to help out their fellow hams. If you’re looking for advice or even some help putting an antenna together, put out a call on the local repeater or net! You never know what some hams might have stored in their shacks, basements, or garages. One ham’s junk is another ham’s treasure!

73 de Jim ac9ez

Ham splatter

Fort Wayne Radio Club P.O. Box 15127, Fort Wayne, IN

FWRC MEETINGS RESUME AT ALLEN COUNTY PUBLIC LIBRARY-DOWNTOWN



I'm pleased to announce that meetings of the Fort Wayne Radio Club will resume at the downtown branch of the Allen County Public Library starting in March.

Although with somewhat restricted hours the library can once again host us in Meeting Rooms A & B. These meeting rooms will provide us with virus safe separation distance accommodations for up to 32 people, and will be open until 8:00 pm on meeting nights.

We have secured reservations for club meetings on March 17th, April 14th and May 19th, all dates occurring on a Wednesday. We will plan to start the meetings promptly at 6:00 pm so that we will have adequate time to conduct club business.

The library is located at 900 Library Plaza and is bounded by W. Wayne St. and Washington Blvd. On-street parking is available as is underground parking at the library which is free if you hold an Allen County library card. Otherwise the underground parking is \$1.00/hour.

The March meeting will feature a presentation by Carlos Felix,

KD9OLN who will describe his involvement in 2 meter mobile operation while executing a parachute jump, and will include video.

The April meeting will include a presentation by Jeff Bauermeister, a Raytheon retiree who will describe the hobby of racing pigeons (which includes one of the earliest forms of communications, messenger pigeons).

The May program will feature Sgt. Sonja Rosales-Scatena, Public Information Officer with the Ft. Wayne Police Department Community Relations division. She will discuss issues related to Safety, Situation Awareness and perhaps will have a few comments on the attack on the Capitol Building on January 6th. I have heard her present at a previous venue and she is excellent.

So mark your calendars for the dates and times and we'll see you there!

I should also mention that foxhunts are starting again. The March hunt will occur on Sunday 7 March starting at 1:30 pm from Cobin Memorial Park, our usual starting point. Hopefully the ranks of the foxhunters will be augmented by a group of new foxhunters from the Trine University Amateur Radio Club. Why not join in on the fun?

73 and 88,

Carole, WB9RUS

FWRC Officers 2021

President

Carole Burke, WB9RUS
(260) 637-1989
Wb9rus(at)comcast.net

Vice President

Paul Prestia, KA3OPZ
(260) 485-9632
Phixer(at)gmail.com

Secretary

Al Burke, WB9SSE
(260) 637-1989
Aburke55(at)comcast.net

Treasurer

Bob Streeter, W8ST

Communications Manager

Charles Ward, KC9MUT
(260) 749-4824
Kc9mut(at)yahoo.com

Directors

Steve Nardin, W9SAN
(260) 482-4039
W9san(at)arrl.net

Clarke Derbyshire, KG9FM
(260) 485-6255
Cderbyshire(at)comcast.net

Bill Hopkins, K9WEH

Stuart Hall, KD9LFW

Newsletter Editor
Josh Long, W9HT



IN MEMORY OF
DON GLICK,
K9LI (SK)

Rest in peace
and good DX always!



Foxhunt Dates for 2021
March 7
April 11
May 2
June 6
July 11
August 8
September 19
October 3
November 7
<i>Stay tuned to HamNews, local nets, and the club websites for updates!</i>



Fort Wayne Radio Club

Treasurer's Report: February 2021

The club assets as of 26 February 2021 were:

- checking account balance of \$5,774.24
- savings account balance of \$1,831.53
- Vanguard Cash Reserves Fund balance of \$11,325.36
- The club has no cash on hand.

The club has no debt. The club has ongoing operating expenses, such as repeater electricity, insurance, etc. that requires expenditures from the club funds.

73,

Bob Streeter, W8ST

Treasurer, 2021

THE ALLEN COUNTY AMATEUR RADIO
TECHNICAL SOCIETY PROUDLY PRESENTS THE

2021 FM VHF / UHF SIMPLEX CONTEST

Saturday, April 10th,
7:00PM - 10:00PM EDT

For complete contest
rules, check the club
site at
www.acarts.com



State of the Arts

Allen County Amateur Radio Technical Society

P.O. Box 10342, Fort Wayne, IN

ACARTS President's Message for March 2021



Thanks to all of you that have renewed your ACARTS membership of joined the club for 2021.

After a few weeks in February of cold and heavy snow, it looks like Spring is starting to make an appearance. I hear talk on the repeaters that many of you are starting to plan your outdoor activities. I also hear that many of you are getting your COVID-19 vaccinations and are more than ready to resume normal, unrestricted activities. We are not there yet, but the end of the pandemic may be in sight. ACARTS has no immediate plans for any meetings yet, but hopefully we can safely hold meetings and functions without social distancing, capacity limits, and other restrictions in the near future.

Remember the one activity that ACARTS will be holding is the FM VHF/UHF Simplex contest next month. it will be held of Saturday, April 10th, from 7:00 p.m. to 10:00 p.m. EDT. the contest last year had a record number of participants and log submissions. It was held near the start of the COVID-19 pandemic and people were looking for things to do. Everyone had fun, so let's

plan on spending a few hours on a Saturday evening this year and increase the participation even more. The contest was originally started by ARES as a method to learn the simplex capabilities of your radios and to learn ways to improve your simplex operation in the case of an emergency. ACARTS has assumed the sponsorship of the contest, but the idea for learning the simplex capabilities of your station is still the same. Just think of the recent widespread power outage in Texas to realize how important simplex operation could become. Remember the date, April 10th. The rules will be essentially the same as last year, with three categories, Base, Portable, and Rover. Complete contest rules, a log sheet, and a map of Northeastern Indiana townships can be found on the club website, www.acarts.com.

73,

Dave Lindquist, W9LKH



ACARTS Officers 2021

President

Dave Lindquist W9LKH
260-485-6135
w9lkh(at)comcast.net

Vice President

Jim Boyer KB9IH
260-489-6700
kb9ih(at)arrl.net

Secretary

Chris McCullough W9TSB
260-312-2750
kd9lrw(at)gmail.com

Treasurer

Howard Pletcher N9ADS
260-747-5252
n9ads(at)arrl.net

Station Manager

Jim Sampiere KD9NPL
260-999-8132
Kd9npl(at)gmail.com

Fundraising Manager

Fred Gnegnagel KC9EZP
260-704-7801
kc9ezp(at)gmail.com

Directors at Large

Bob Erb N9PWM
260-466-7772
roberterb(at)hotmail.com

Steve Shannon K9SKS
260-704-5353
k9sks(at)aol.com

(1 open position)

W9INX Trustee

Dave Lindquist W9LKH
260-485-6135
w9lkh(at)comcast.net



Comments on Solar Cycle 25

Carl Luetzelschwab, K9LA

The first official sunspot of Cycle 25 (active region AR2744) occurred

on July 8, 2019. There were some earlier sunspots from Cycle 25, but they weren't big enough and didn't last long enough to be assigned an active region number. As a side note, the last sunspot of Cycle 24 was in July 2020 – one year later. This tells us that solar cycles overlap – we see sunspots simultaneously from both the new cycle and the old cycle.

Although the first Cycle 25 sunspot was in July 2019, it took until January 2020 to see Cycle 25 sunspots on somewhat of a regular basis. But things didn't really pick up until the end of 2020. If you operated on the higher HF bands (15 meters,

12 meters and 10 meters) at the end of 2020 (including the CQ WW DX contests in October and November and the ARRL 10 Meter contest in December), you know that we had some pretty good worldwide propagation.

The reason was the sun hiccupped and gave us a big spike in extreme ultraviolet radiation (EUV – the true ionizing radiation for the F2 region). Of course this was accompanied by spikes in both sunspot number and 10.7 cm solar flux (both are proxies for EUV). See Figure 1 of EUV and 10.7 cm solar flux during 2020. Unfortunately, things then settled back down in early 2021 and we returned to solar minimum conditions. After 14 days of zero sunspots in early February 2021, things have picked up again starting on February 19. Hopefully we'll see some increased Cycle 25 activity – and some better propagation on the higher HF bands.

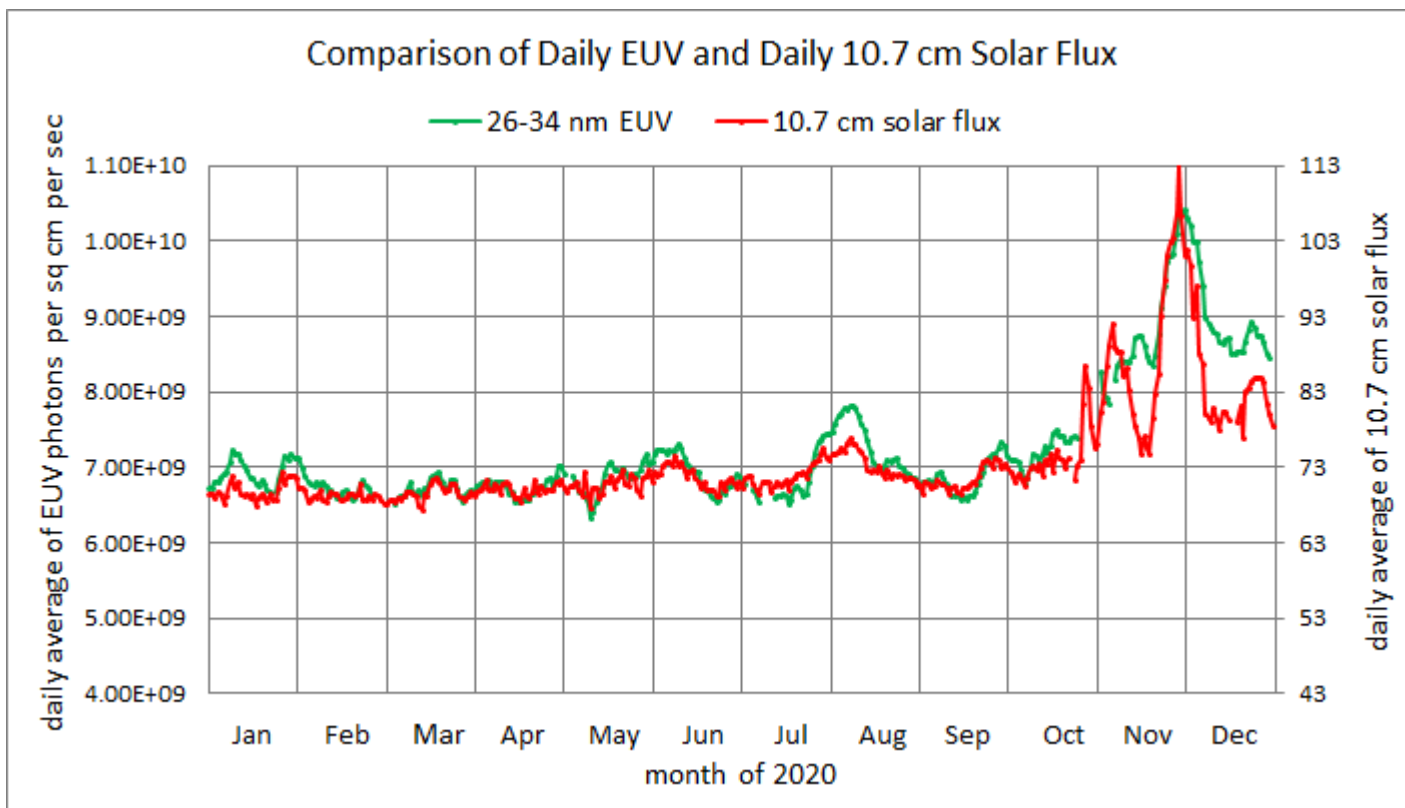


Figure 1

An interesting event happened around February 23. We saw two active regions in the northern solar hemisphere – AR2803 and AR2804. See Figure 2. This is a magnetogram of the sun showing the magnetic polarity of the active regions. Both active regions were at the higher solar latitudes, indicating they indeed were from Cycle 25.

But note that they were of opposite magnetic polarity. AR2803 was white-leading-black (left-to-right), whereas AR2804 was black-leading-white. That shouldn't be – they both should have been black-leading-white for Cycle 25 sunspots in the northern solar hemisphere. Also note that

AR2805 (also Cycle 25) in the southern solar hemisphere is of opposite magnetic polarity to AR2804. This is what it should be, as sunspots of the same solar cycle should be of opposite magnetic polarity if they are in opposite solar hemispheres.

So what's going on? AR2803 could be a rogue sunspot. It doesn't follow our two general rules that sunspots from the new cycle should be at the higher solar latitudes and they should also be of the same magnetic polarity in the same solar hemisphere.

Maybe this simply tells us that the sun will do what it wants to, and not conform 100% to our rules.

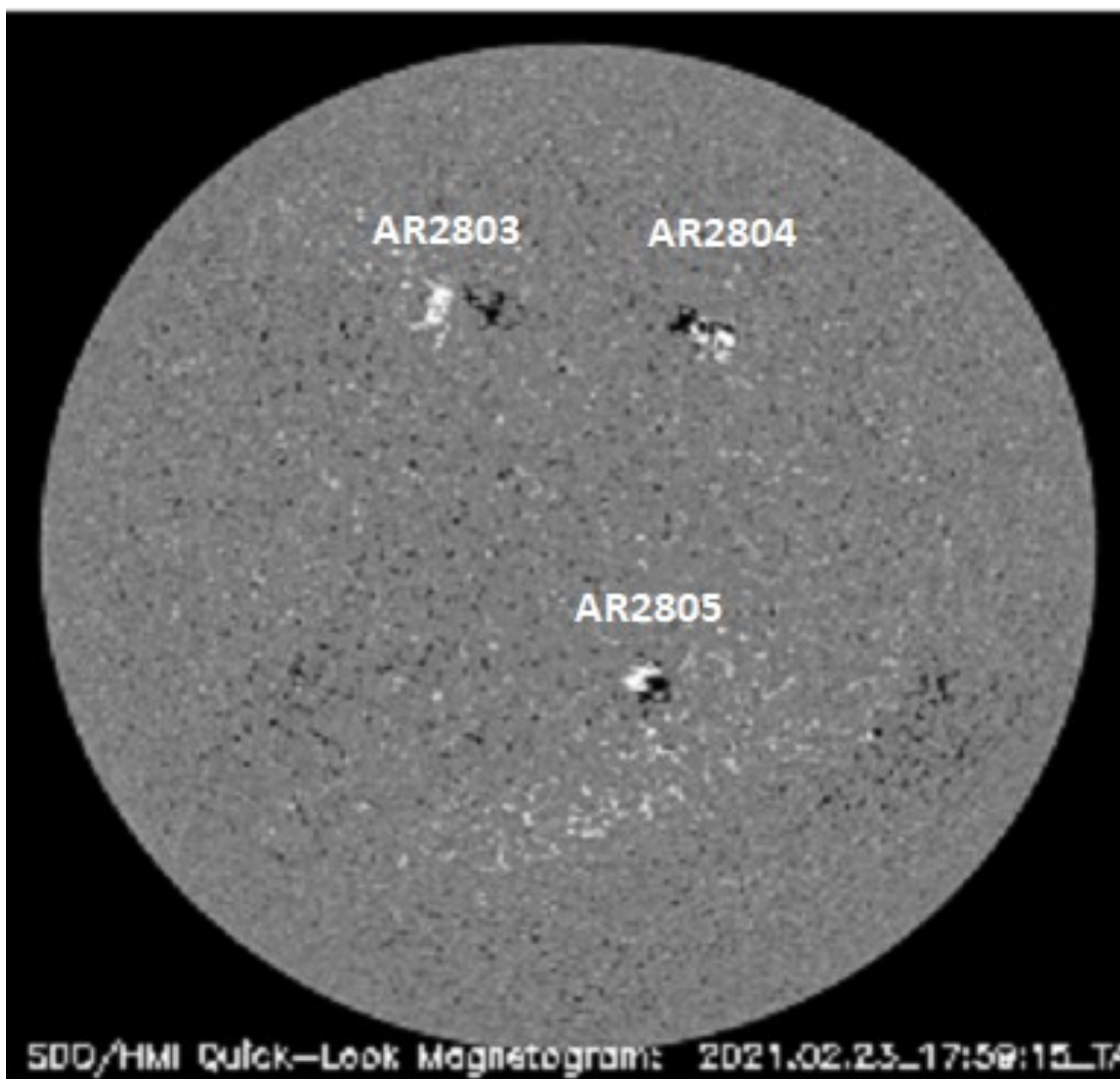


Figure 2

The Fort Wayne Radio Club
presents the first annual

**VHF SSB CW
2M SPRINT
CLASSIC**

For more information,
check out the club site at
www.fwrc.info
or contact AC9EZ.



For sale and wanted listings in this section are provided to members of the Fort Wayne Radio Club, the Allen County Amateur Radio Technical Society, the Fort Wayne DX Association, and to other local hams free of charge! Listings can be renewed upon request to the editor (see pg. 2 for contact information).

- For Sale: Kenwood TS-520S Vintage HF Transceiver – Good condition, 160-10 meters, \$300 or Best Offer

Please contact Gary, KB9TUI at kb9tui (at) gmail.com or call 260-450-0980

- For Sale: MFJ-259B Antenna Analyzer and external AC supply. Analyzer covers from 1.8 MHz to 170 MHz. It measures antenna SWR, coax loss, capacitance, inductance, and can be used for adjusting tuners. All are in very good condition. Internal alkaline batteries are included, but are not new. \$180.00

Please contact Bill, K3HZZP at HZZP_Electronics (at) jun0.com



- For Sale: LDG AT-200Pro Autotuner, with DC Power cable, Icom Cable IC-PAC, Yaesu Cable YT-PAC, and printed manual. \$180.
- Tigertronics Signalink USB, with USB cable, Icom Yaesu 6 pin mini DIN cable SLCAB6PM, Kenwood 13 pin DIN cable SLCAB13K. Jumper Module SLMOD6PM. Printed manual. \$80
- MFJ – 259B HF/VHF SWR Analyzer, with AC/DC power supply and Printed manual. \$175. Batteries not kept in instrument.
- Heathkit HD-1418 Active Audio Filter \$40

Please contact Mike, KB9OZI at kb9ozi (at) hotmail.com

Your item could be listed here next month! Just send the editor an email with your listings before February 27! See page 2 for contact information.

For Sale / Wanted

Continued

- For Sale: 2019 chrome Vibroplex bug, also includes optional Vari-speed to slow down the bug's speed. \$250

Please contact Al, K9FW at k9fw (at) frontier.com

- For Sale: LDG AT-200Pro Autotuner, with DC Power cable, Icom Cable IC-PAC, Yaesu Cable YT-PAC , and printed manual. \$180.
- Tigertronics Signalink USB, with USB cable, Icom Yaesu 6 pin mini DIN cable SLCAB6PM, Kenwood 13 pin DIN cable SLCAB13K. Jumper Module SLMOD6PM. Printed manual. \$80
- MFJ – 259B HF/VHF SWR Analyzer, with AC/DC power supply and Printed manual. \$175. Batteries not kept in instrument.
- Heathkit HD-1418 Active Audio Filter \$40

Please contact Mike, KB9OZI at kb9ozi (at) hotmail.com

- For Sale: CW paddles kit. Assembled and works well. This kit was reviewed in the December edition of QST. \$25
- Morse Tutor Board. Assembled and works well. Includes manual. This kit was reviewed in May edition of QST. \$30
- Pair of FRS/GMRS handheld radios. Bought new in the fall, only used once. \$40

For any of these items, please contact Terry K9FMX at tjbowman (at) frontier.com or at 260-705-7128



For Sale / Wanted Continued

The Fort Wayne Radio Club has the following items available for sale. Please contact Steve W9SAN if you are interested in any of these items at w9san (at) arrl.net.

Heathkit HW-101 with HP-23 Power supply and dust cover. This works completely and is in very clean condition. It has the sharp CW filter included. Receives and transmits fine; good power output. The CW filter switch is Firm. d. \$90



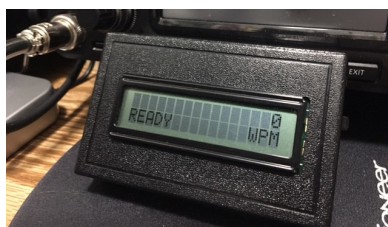
• SOLD

Bencher/MFJ-422 paddles with keyer. The paddles should be worth \$50 by themselves; we'll throw in the MFJ Curtiss keyer. Nice condition.



• SOLD

MFJ-461 CW reader works fine; includes manual and fresh battery. \$45 OBO



Selected Contest Calendar for March 2021

SKCC Sprint Europe	2000Z-2200Z, Mar 4
Novice Rig Roundup	0000Z, Mar 6 to 2359Z, Mar 14
ARRL Inter. DX Contest, SSB	0000Z, Mar 6 to 2400Z, Mar 7
UBA Spring Contest, CW	0700Z-1100Z, Mar 7
NSARA Contest	1200Z-1600Z, Mar 7 and 1800Z-2200Z, Mar 7
SARL Hamnet 40m Simulated Emerg Contest	1200Z-1400Z, Mar 7
WAB 3.5 MHz Phone	1800Z-2200Z, Mar 7
YB DX RTTY Contest	0000Z-2359Z, Mar 13
SARL Field Day Contest	0800Z, Mar 13 to 0800Z, Mar 14
RSGB Commonwealth	1000Z, Mar 13 to 1000Z, Mar 14
SKCC Weekend Sprintathon	1200Z, Mar 13 to 2400Z, Mar 14
Oklahoma QSO Party	1400Z, Mar 13 to 0200Z, Mar 14 and 1500Z-2200Z, Mar 14
Stew Perry Topband Challenge	1500Z, Mar 13 to 1500Z, Mar 14
QCWA QSO Party	1800Z, Mar 13 to 1800Z, Mar 14
Idaho QSO Party	1900Z, Mar 13 to 1900Z, Mar 14
Wisconsin QSO Party	1800Z, Mar 14 to 0100Z, Mar 15
BARTG HF RTTY Contest	0200Z, Mar 20 to 0159Z, Mar 22
Russian DX Contest	1200Z, Mar 20 to 1200Z, Mar 21
SKCC Sprint	0000Z-0200Z, Mar 24
FOC QSO Party	0000Z-2359Z, Mar 27
CQ WW WPX Contest, SSB	0000Z, Mar 27 to 2359Z, Mar 28
UBA Spring Contest, 6m	0600Z-1000Z, Mar 28

Radiosport

This information comes from the WA7BNM Contest Calendar at contestcalendar.com and is gratefully acknowledged. It is deemed accurate as of the time of publication.



Area Nets					
Daily			Tuesday		
8:00 AM	3.535	Daily (QIN) Indiana Section CW net	7:30 PM	147.150+	21 Repeater Group Net (97.4 PL)
8:30 AM	3.940	Daily Indiana Traffic Net	8:00 PM	50.580 USB	FWRC 6-Meter SSB Net
6:00 PM	3.940	Daily Indiana Traffic Net	9:00 PM	146.940-	Allen Co. ARES Training Net (141.3 PL)
6:30 PM	146.880-	IMO (alternate is 146.760)	Wednesday		
7:00 PM	147.015+	Tri State Two Meter Net	7:00 PM	146.760-	FWRC YL Net
8:00 PM	3.535	Daily (QIN) Indiana Section CW net	8:00 PM	145.270-	Whitley Co. ARES (141.3 PL)
Week-days			8:00 PM	50.580 FM	FWRC 6-Meter FM Net
9:00 AM	3.820	Little Red Barn Net	9:00 PM	146.940-	Help and Swap Net (141.3 PL)
Sunday			Thursday		
8:00 PM	444.550+	Whitley Co. ARC Sunday Night Net (141.3 PL)	8:00 PM	D-STAR	Indiana D-STAR net (Note 3)
8:30 PM	1.965 & 146.910-	"No-Name" Net also on EchoLink Node number 519521	8:00 PM	50.580	AM 6-Meter AM Net
9:00 PM	145.53 simplex	Northeast Indiana Packet Net 1200 baud (Note 2)	8:30 PM	145.510 simplex	Allen County ARES Digital Operations Team Training Net (Note 4)
Monday			Saturday		
8:00 PM	224.780-	Fort Wayne 224 Net	8:00 PM	146.685-	Huntington ARES(141.3 PL)

1. All times local time. **Any changes or corrections should be submitted to the newsletter editor at drjoshlong (at) gmail.com.**
2. NEIPN is direct accessible via any BPQ Chat Node (or through Node hopping etc.) via other packet frequencies in this area and other areas through other nodes (it is locally direct accessible on 145.53 in NC & NE Indiana/NW Ohio and SE Michigan using KA9LCF-11, KC9VYU-11, N9LCF-11, N9PXE-11, K9BIF-11) Most BPQ Nodes use an SSID of -11.
3. Reflector REF024B.
4. Net starts using BPSK-31 and switches to BPSK-250 after roll call to pass traffic etc. NBEMS suite of software (FLDIGI, FLMSG, and FLAMP) is preferred.
5. Indiana HF Traffic Nets Web Site: <http://www.inarrl.org/index.php/public-service/indiana-nts>

Fort Wayne repeaters							
Frequency	Offset	Tone/Notes	Callsign	Frequency	Offset	Tone/Notes	Callsign
145.330	-0.6 MHz	--	W9FEZ	443.100	+5 MHz	DMR	K9MMQ
146.880	-0.6 MHz	--	W9INX	443.275	+5 MHz	P25	K9MMQ
147.255	+0.6 MHz	--	W9INX	442.6375	+5 MHz	--	N9MTF
146.760	-0.6 MHz	--	W9TE	444.800	+5 MHz	--	W9FEZ
146.910	-0.6 MHz	--	W9TE	442.99375	+5 MHz	D-Star	W9TE
146.940	-0.6 MHz	141.3 FM C4FM	W9TE	444.8750	+5 MHz	141.3	W9TE
224.780	-1.6 MHz	--	W9FEZ	53.3300	-1 MHz	--	W9FEZ

FWRC Membership Application

Name: _____ Call Sign: _____
 License Class: _____
 Street address: _____ City: _____
 State: _____ ZIP: _____ Phone #: (_____) _____
 Email address: _____ ARRL Member? _____

(ARRL membership helps the club maintain ARRL affiliation)

May we list your name, call & email address in our membership roster & on our club web site?

Fort Wayne Radio Club dues:

Regular membership	\$20.00 / year
Family membership ¹	\$30.00 / year
Student membership ²	\$5.00 / year
Associate membership ³	\$20.00 / year

(Memberships for July-December are ½ the stated amounts)

Please attach a check to this form (paying by check is strongly encouraged) made out to:

Fort Wayne Radio Club (check number _____) and bring to a club meeting or mail to:

Fort Wayne Radio Club

P.O. Box 15127

Fort Wayne, IN 46885-5127

Please list all names and calls on an attached sheet.

K-12 or full time student.

Unlicensed member.

ACARTS Membership Application

Name: _____ Call Sign: _____
 License Class: _____
 Street address: _____ City: _____
 State: _____ ZIP: _____ Phone #: (_____) _____
 Email address: _____ ARRL Member? _____

(ARRL membership helps the club maintain ARRL affiliation)

May we list your name, call & email address in our membership roster & on our club web site?

ACARTS dues:

Regular membership	\$12.00 / year
Additional family members ¹	\$6.00 / year
Student membership ²	\$6.00 / year
Associate membership ³	\$6.00 / year

(New regular memberships are \$1.00/month)

Please attach a check to this form (paying by check is strongly encouraged) made out to:

Allen County Amateur Radio Technical Society (check number _____) and bring to a club meeting or mail to:

A.C.A.R.T.S.

P.O. Box 10342

Fort Wayne, IN

Please list all names and calls on an attached sheet.

K-12 or full time student.

Unlicensed member.