



## Eastern Iowa DX Association

*An ARRL affiliated club - Established 1975*

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### President's Propagation, Pontifications and Prognostics

Greetings from your President:

I hope your summer is going well. The 6 meter openings have been nice and HF bands have also been good. We've been able to enjoy the opportunity to log a new country, mode or band with the Glorioso expedition. Oh, the wonder of FT8!!

The LoTW problem has had us in the "dumps". It appears to be partially back on line as I write this. I used to think LoTW was a struggle to use but have grown a new appreciation for it now.

Mentoring was a theme of my last newsletter. I participated in the Ottumwa club's Field Day this past weekend. We were able to successfully test a new Technician and offered coaching to new inexperienced newbies. I always enjoy the chase of the pileup after 62 years in the operator chair. It's always fun for me.

Club Officers: Go 6 meters...!!

President:

Glen Kesselring, KØJGH Glen KØJGH

Vice President:

Gayle Lawson, KØFLY

Secretary:

George Cooley, NG7A

Treasurer:

Mike Nowack NA9Q

Repeater Committee:

Jason Joens NRØX

Membership Committee:

Jim Spencer WØSR

Nelson Moyer KUØA

Repeater: NØDX/R

144.59 / 145.19 (tone 192.8)

[www.EIDXa.org](http://www.EIDXa.org)

Web Master:

Craig Fastenow KØCF

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Bob Lee WØGXA

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Facebook EIDXa

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## Musings from the lunatic fringe

Bob WØGXA

Tuna? 3Y0I

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## Club News and Administrative Items

Minutes of club meetings are located at [www.eidxa.org](http://www.eidxa.org)

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## NEXT MEETING

July 12, 2024

Social Hour 6:30 PM

Meeting & Program 7:30 PM

Meeting and location information [here](#)

Program: Mike VA3MW highlights the new FLEX 8000 series radios.



### Card Checkers

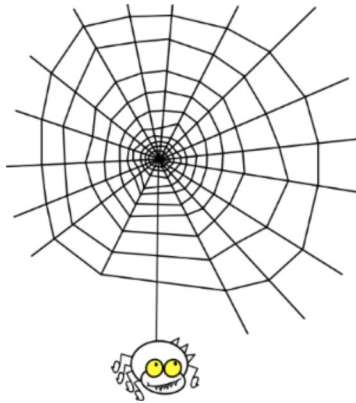
We have club members who can check your QSL cards

- Glenn, WØGJ
- Mike, NA9Q

Contact info can be found here:

<http://www.arrl.org/dxcc-card-checker-search>

### Member Spotlight



Nothing to report this month. If you haven't been featured in the newsletter, let me know. We'd love to do a story.

### DX News

## Feature Articles

### Field Day 2024

After action report

Call: WØCXX

Operator(s): NØMMA WØGXA NG7A WBØKHQ N9KBB WBØOAV  
KJØDX KFØNRV KEØIZE KCØYGW KAØIES AKØR ACØRA KI5SXY  
ACØPB

Station: WØCXX

Class: 3A LP

QTH: IA

Operating Time (hrs): 24

Summary:

Band	CW	Ph
-----		
160:		
80:	82	1
40:	314	399
20:	369	626
15:	64	29
10:	17	
6:		
2:		1
-----		
Total:	846	1055 0
Total Score = 5,496		

Club: CVARC, Linn County ARES, Collins ARC

Just over a year ago the local radio clubs in Cedar Rapids, Iowa formed an EMS trailer project working group involving the 4 organizations: Collins ARC, Cedar Valley ARC (CVARC), Linn County ARES, and Linn County EMA. All four groups come together for Field day to put two phone stations and one CW station on the air.

The CW station had the honor of being the first to use of the Joint Operations Comms Trailer during this year's ARRL Field Day 2024 -- in fact people were still working on it when they hitched it up to tow it to our Field Day location.

This year the CW antennas were simplified to just five end fed verticals -- one each on 80, 40, 20 15 and 10. However instead of using broadband end fed transformers, each had its own quarter wave transformer made of ladder line. The idea was that each antenna would have a DC short for lightning and would only work on its own CW portion of the band, thus rejecting everything else. The antennas, along with plenty of common mode chokes, worked flawlessly with no interference from our own two SSB stations even when they were in the same band.

The phone stations used an assortment of tri-banders on telescoping masts on the back of truck beds as well as hexbeams, and dipoles.

Rigs: CW = TS-590SG, Contest Phone = FT-710 and Fun Phone = IC-7300/FTdx10.

N1MM+ logging software was networked through a wireless bridge between the Phone and CW trailers.

ARDEN provided video feeds of all operating positions to the hospitality tent, where the GOTA station and technology exhibitions were on display to visitors; including our State's representatives and several media outlets.

Many newly licensed ops stopped by to observe and operate. We mentored three new CW ops and had several others plug in with us. One just got his extra and taught himself Morse Code. All did very well after they began to relax. After their sessions every one of them were shocked to learn that they were copying 26 wpm.

A big thank you to all the volunteers of the Cedar Valley ARC, Linn County ARES, Linn County EMA, and Collins ARC, whose hard work and dedication made for a very successful and fun Field Day.

Call	Class	Power	OpMode	Remote	CW	Qs	Ph	Qs	Dig	Qs	Op	Time	Score	Club
N9GNT	9E	LP			1083	1230	554	21.5				10,358	FM38	Repeater Group
AA3B	1E	LP	SO2R		2509	0	0	24				10,286	FRC	
NW8S	5A	LP			842	1157	729	24				9,031	Black River Radio Ops	
NF4AC	4A	LP			374	116	1153	24				7,890	Alachua EOC RC	
KY7M	1B	QRP			779	14	0	17				7,860	AOCC	
W9AV	3B	LP			1235	67	557	21.58				7,852	SMC	
KØAV	1B	QRP			781	0	0	18				7,810	Grand Mesa	
N4TY	1B	QRP			761	0	0	21				7,710	KCG	
NSØR	1D	LP	2BSIQ		1843	0	0	19:34				7,372	KCCC	
KA5D	1A	QRP			242	88	332	20				7,130		
K3MJW	4E	LP			1280	893	2173	20				6,906	Skyview Radio Society	
W4YY	2A	LP			1723	0	0	24				6,892	PVRC	
K9OM	1E	LP			1215	0	460	18				6,700	FCC	
W8VPV	5A	LP			729	1559	131	24				6,558		
KF7MD	1B	QRP			613	1	0	19				6,135	Colorado QRP Club	
N4BP	1E	LP			1528	0	0	16				6,112	FCC	
K3WW	1B	QRP			601	0	0	17				6,010		
K7TD	1B	QRP			554	0	0	10.25				5,540	Grand Mesa	
WØCXX	3A	LP			846	1055	0	24				5,496	CVARC_LinnCtyARES_CollinsARC	
W8TK	1E	LP			1353	0	0	17.5				5,412	AOCC	
AD4EB	1D	LP	SO2R		1343	0	0	14				5,372	TCG	
N5CXX	2E	LP			757	709	196	14.00				5,230		
W5TM	1D	LP			1272	0	0	15:46				5,088	DpDxCC	
VE3MGY	1D	LP	SO2R		1055	0	150	15:30				5,070	CCO	
N5EE	1D	LP			1253	0	0	13:05				5,012	DpDxCC	
K1LT	1B	LP			1148	0	0	20				4,842	MRRRC	
K6LL	1D	LP			1200	0	0	11				4,800	AOCC	
NE9U	2E	LP			1092	11	51					4,594	Honey Badger Contesters	
W5EA(@W5WZ)	2D	LP			455	1167	93	24				4,538	Lou CC	
KH6AQ	1B	LP			1055	9	21	24				4,304		

3830Scores Screen Shot

## ARRL VHF Contest Rover Report

Rod Blocksome, KØDAS/R

The ARRL VHF contest is held three times a year in January, June, and September. Contacts on the ham bands above 50 MHz are worth more points the higher in frequency you go. Multipliers are the grids. The Rover category is especially challenging as you must carry everything with you and activate (operate) from two or more grids

during the contest. The multipliers for a Rover Station are the total number of unique grids worked plus the number of grids they activate. This opens up several possible strategies.

A “run and gun” rover might carry as many bands as he can cram radios and antennas onto a vehicle and constantly stay on the move activating many grids in the 32 hour contest period. North-South Interstate highways are preferred.

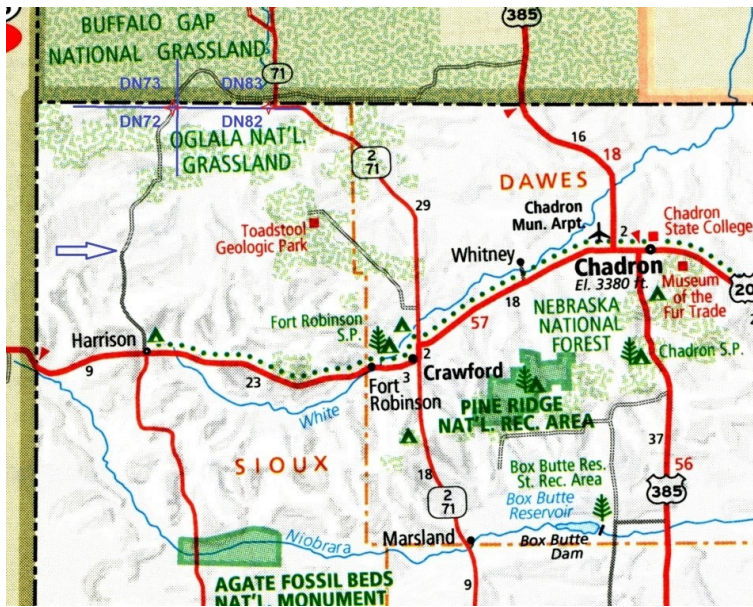
A “set-up” rover typically carries high power and high gain antennas all designed for relatively rapid deployment near grid lines or 4-corner areas. This means an ac generator, a tall mast, and rotator. Over the years, Bill NØLNO, and I have done both types of rovers and each provides a unique adventure in amateur radio.

In June of 2023 we decided to drive out to the border of Nebraska and South Dakota to activate grids DN93, DN92, EN03, & EN02 on 6-meters only using 750 Watts and a 5-element Yagi. These are some fairly rare grids for those 6-meter ops who are trying to work all 488 Grids in the continental US to earn the Fred Fish Memorial Award (FFMA). We hoped that factor would make up for a lack of contacts on the higher bands from that remote area.

We did quite well and came away with the high score in the Dakota Division (award plaque) and second highest score nationally for Unlimited Rover Class.

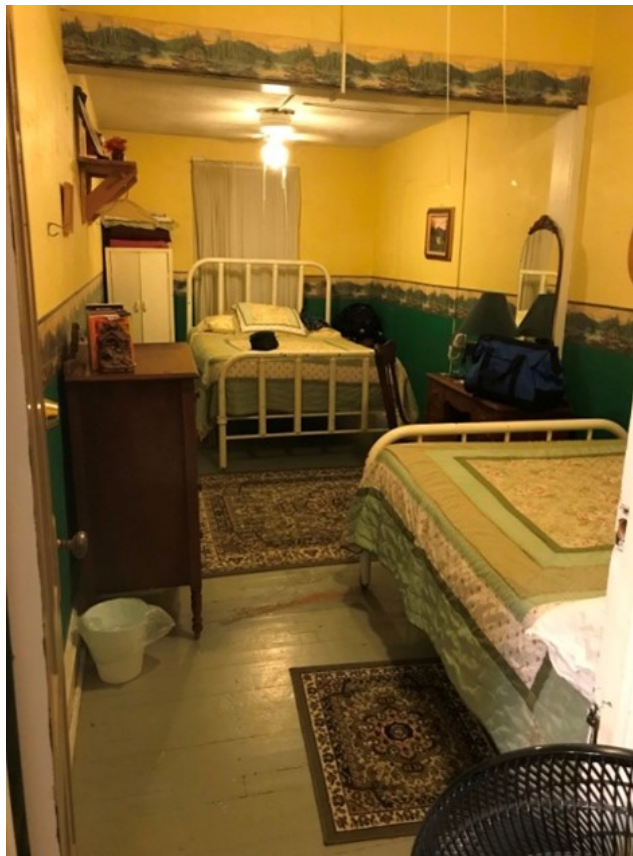
So this year we figured we should “up our game” a bit. Our plan was to push on further west along US highway 20 in Nebraska and activate DN72, DN73, DN82, and DN83. We planned to use my homebrew 8877 6-meter PA to run full legal limit. Of course that meant bringing along a bigger generator, more fuel, more noise, etc. But at the last minute equipment check-out, the PA blower refused to turn on (bad 35-year old motor run capacitor) so we took my modified SB-220 PA from last year and settled for 3 dB less power.

We loaded everything into Bill’s Suburban and drove 12 hours to Harrison, NE – the last town on highway 20 before entering Wyoming. The highway sign approaching Harrison reads “Harrison - Next Four Exits”. Sure enough, you could turn into Harrison (pop. 251) on any of the town’s four streets. We arrived late and the hotel owner said she would leave keys to the building and our room on top of the breaker box at the entrance.



Upon entering, we stepped into a “time warp” and found our room in 1930’s décor. It was clean, cheap, and she fixed us a breakfast in the morning before we headed out on the 1-hour, 30-mile drive through some great canyon scenery to arrive at our operating spot near the Oglala National Grasslands at the Nebraska – South Dakota border area.





The Harrison Hotel and our room; \$35/per night each person

We arrived 2 hours before contest start – plenty of time to get set up and running – we thought. Wrong! Microsoft decided it was time to exercise their authority over Bill's laptop and update his operating system. This went on for 45 minutes when we decided it was hung up and shut off the power. The contest starts and we power up the laptop again and now it announces that it has to start all over .... and we have no choice but to curse Microsoft and wait.

I brought along my laptop and transceiver as back-up. So we cabled it up and I booted up my computer that has always performed flawlessly with WSJT. It came up ok, audio signals were good on the meter and showed on the waterfall but ..... it refused to decode anything. I use a GPS receiver to keep the computer clock accurate. I gave up fighting my laptop when Bill's finally came alive with the updated installation. So we switched back to his radio and got on the contest 2 hours after it started.

But wait. Murphy was not finished messing with us. We were concerned about seeing our DT over a second different than most stations. We tried my GPS on Bill's computer but without the driver, it wouldn't work. OK we'll get it off the internet using a phone as a hot-spot. A good plan except you could get one bar of signal sometimes if you were outside the vehicle and held your phone just right. So we wound up setting the computer clock by "trial and error" (mostly the latter) and then looking at the DT on decoded FT8 signals until we got it down to about 0.3 seconds.

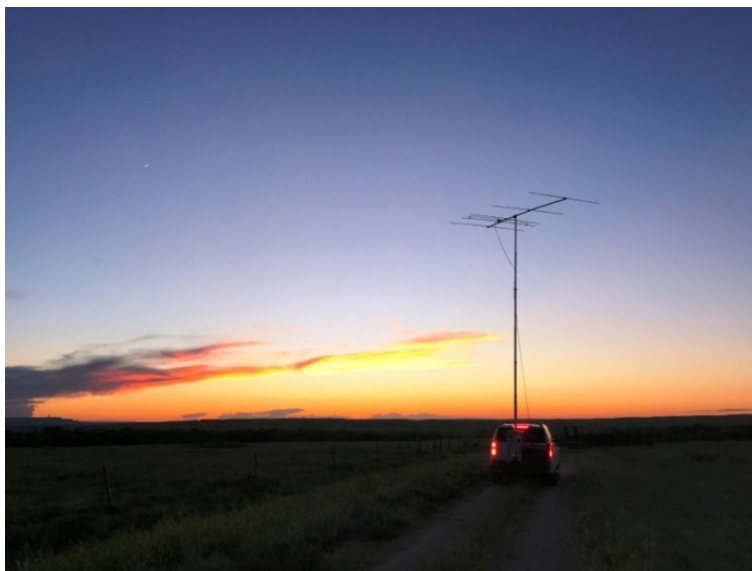
We are rollin' now but propagation is nothing to "write home about". We work what we can from DN73 then in early evening Bill figures out



how far down the road we have to back up, with the antenna mast at 30 feet, to be well inside EN72. He marks the spot with a pile of rocks. I walk behind as Bill slowly backs up maybe a quarter of a mile. The road is really only two tire tracks in the grass and there is no traffic the whole time we were there.



KØDAS/R in DN73, June 8, 2024



KØDAS/R in DN72

After sundown the band goes QRT so we pack up and drive back to our hotel in Harrison. Sunday morning we are up and ready to go back up the same road and then follow the trail off to the east where we can be in DN83 and DN82 for the rest of the contest. We need more gas for the generator but discover the only gas station in Harrison is closed on Sundays. The nearest one is 26 miles east in Crawford. We drive to Crawford, buy gas and food, and decide it would be faster to go 30 miles north to the border on paved highway 2 & 71 than going back to Harrison and then north to the 4-corners area again.

We find a nice spot just off the highway near a double set of railroad tracks. We are about 50 feet inside South Dakota according to the railroad marker. It is a nice sunny day and the noise level on 6 meters

is non-existent – and propagation is better than Saturday. Bill gets on and starts logging Q's on FT8 while I take a few photos.

About every couple hours a mile-long train comes by hauling coal out of Wyoming. We wave and the engineer gives us a long loud blast on the horn. I took a video of the first couple trains. Then the unexpected happened.

Another mile-long coal train comes by and I, of course, wave at the guys on the engine. They reply with a "TU" on the horn. You just never know when and where you might meet another ham.



KØDAS/R in DN83, June 9, 2024



Bill, NØLNO Operating in DN83

In the late afternoon we lowered the mast but left the Yagi mounted and proceeded to drive a few miles south on the highway to a suitable gravel road where we simply stopped on a slight rise in DN82. The train tracks were about a half-mile west of us. We operated there for the remaining hours of the contest and only three pick-up trucks came by and looked us over.



Activating our Fourth Grid – DN82 in Nebraska

The contest ended and it is now pitch black while we disassemble and pack the station for the 60 mile trip south and west to our hotel in Harrison. Why we didn't check out and book a room in Crawford remains a mystery to this very day. The following day, Monday, was expended in the long drive across Nebraska and part of Iowa. But wait, there was more computer fun in store for us.

The contest log in Bill's computer only showed about 157 QSO's (we both thought we were a bit over 200). Examining the "all.txt" file generated by WSJT revealed a total absence of data for the first day. At lunch, Gayle KØFLY, mentioned working us the first day – but our log didn't show the QSO. At the exact time that KØFLY's log showed he worked KØDAS/R, our log showed we worked KJ9I.

The data in Gayle's "all.txt" file clearly shows KJ9I working someone else and KØDAS/R clearly responding to and confirming a QSO with KØFLY at that time. I suspect there may be other log issues but

regardless I submitted the log as “accurate to the best of my knowledge”. I fear our computer issues may leave some disappointed ops.

Our submitted log showed 156 Q's with 94 mult's for a score of 14,664. Compare this to our rover operation in 2023 with 540 submitted Q's with 199 mult's for a score of 107,460 and you can see the effects of propagation and computer issues in 2024.

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## How to Minimize Co-site-Interference

George NG7A

This last Field Day, the CW station was hardened against interference in a number of ways. The CW antennas were simplified to just five end fed verticals – one each on 80, 40, 20, 15 and 10. However instead of using broadband end fed transformers, each had its own quarter wave transformer made of ladder line. The idea was that each antenna would have a DC short for lightning and would only work on its own CW portion of the band, thus rejecting everything else. The antennas, along with plenty of common mode chokes, worked flawlessly with no interference from our own two SSB stations even when they were in the same band.

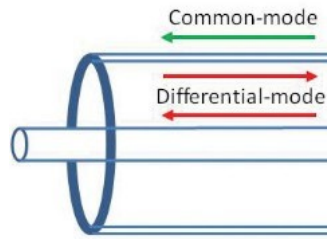
The HF Phone stations on the other hand used an assortment of tri-banders, hexbeams and dipoles. They were held up by metal pipes, towers and telescoping masts on the back of truck beds. Without filters, stubs or common mode chokes, they were plagued with interference and overloaded radios. Not even switching out the IC-7300 to a FTdx-10 solved the problem. So what was going on?

The ability to hear weak HF signals is limited mostly by the noise generated by nearby electronics. In the case of Field Day, the other 100 watt stations are the predominant noise sources. Noise sources can be coupled and re-radiated by common mode thorough 60-Hz power line wiring, antenna feed lines, rotator control cables, audio cables, patch cords, computer cables or any long metallic structures such as towers, fences and air conditioning/heating ducts.

To understand noise sources, it is important to understand the various kinds of transmission paths. When equal RF currents travel along two parallel wires in opposite directions, they will cancel as long as the two wires are spaced not more than 1% of the wavelength. This translates to 2.36" at 50 MHz, 4.0" at 30 MHz and 63" at 1.8 MHz. This is called the Differential Mode of transmission.

If both of the wires have the same currents traveling in the same direction, the currents will radiate. This is called common mode and is often induced from common nearby RF sources. Light dimmers, radio stations, florescent lights, blanket controls, computers, peripherals, wall warts, flat screen TVs, and electric toothbrushes are but a few examples.

Common mode currents also run on the outside of a coaxial cable.



The center conductor is a copper wire surrounded an insulating dielectric. For a coax cable to work properly, currents on the inside center wire must be equal to the currents on the shield (the "return" wire). Before explaining why, let's examine two principles: the skin effect and the proximity effect. Skin effect is directly proportional to the operating frequency. At higher frequencies RF currents travel near the surface of the conductor. More exactly between the surface and the skin depth, which varies from about 2 mils to just under half a mil over the 1.8 to 30 MHz frequency range. Ninety eight percent of the current flows within 4 times the skin depth, so about 8 mils of thickness is required to cover the HF range.

Proximity effect is an inductive mechanism caused by changing magnetic fields that concentrates currents in two wires close to each other. Above the frequency that proximity effect takes hold (a few kHz), the distribution of current around the perimeter of the conductor attains a minimum-inductance and does not vary further with frequency. Proximity effect is what keeps the currents on the coaxial cable shield flowing on the INSIDE of the shield and requires equal and opposite time varying current flow. Any imbalances on either the source (Transmitter) or Load (Antenna) will cause more currents to flow on either conductor. When this happens, those currents will migrate to the outside of the coaxial shield and will radiate. With reciprocity, the same thing will happen on the receiver. Any noise from switching power supplies, LED lights, TVs wall warts etc. will couple onto the outside of the shield and can find their way into the receiver. Each noise source couples and re-radiates onto antenna feed lines, power lines and any conductive wire in range.

Since the impedance of a conductor depends on the height of a conductor above the ground, few of us are able to install anything approaching a perfectly balanced antenna. Differences in impedance between the antenna elements can be caused by uneven ground, power lines, telephone wires, buildings, cars or conductive objects (like towers). This impedance imbalance will induce a common mode current, which is sent down the feed line to our receiver. Adding chokes (inductance) on the outside of the coaxial cable will suppress the common mode currents. 1K of inductance provides about 7 dB (1 S-unit) of noise reduction and 5K provides 17.21 dB (nearly 3 S-units). The latter will also provide enough choking impedance to prevent melting cables and starting fires at full legal limit (don't ask me how I know this).

The common mode impedance of a typical coaxial cable varies between 359 ohms at 1 meter (3 feet) and 497 ohms at 10 meters (33

feet). Nobody matches their feed lines for common mode (it is nearly impossible, and standing waves are present on the outside of coaxial cables). Placing a choke at a high voltage / low current point will be less effective than at a high current / low voltage point. So hedge your bets by placing a choke near the transmitter, near the antenna and in the middle.

One way -- and not the only way -- to achieve 5K of choking impedance is to use five Fair-Rite 2631803802 2.4" o.d. mix 31 cokes to wind the chokes as shown below. Five chokes produce enough (5K) impedance without exceeding the bend radius of thicker coax, such as RG-213 or LMR-400 with just 3 to 7 turns of coax. Lower frequencies need more turns and higher frequencies need fewer. With thinner coax or wire, 5K can be achieved by winding more turns on on just one core -- the number of required turns depends on the AI value of the core.



Each time the cable passes through the ring of chokes counts as a turn. Spreading out the outer turns minimizes inter-winding capacitance. Even if you don't have a choke, coiling extra lengths of coax will produce inductance that will help to suppress common mode currents -- a little choking impedance is better than none at all.

To recap: installing a 5K choke at the antenna, transmitter and halfway in between will significantly reduce RX noise. Power lines, rotator cables, audio cables, computer cables should be also be choked off.

More details and calculations at

<https://www.ng7a.com/NG7A/Articles/>

[Entries/2015/7/18\\_Turning\\_up\\_the\\_Gain\\_on\\_DX\\_with\\_Comm  
on\\_Mode\\_Chokes.html](https://www.ng7a.com/NG7A/Articles/Entries/2015/7/18_Turning_up_the_Gain_on_DX_with_Comm_Mode_Chokes.html)

73,

George NG7A

Member News

## Dayton 2024

A collection of pictures from some of the area hams attending Dayton.





Official Dayton uniform





Collins Collectors



Collins Collectors

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## Field Day 2024

A few shots from the Cedar Valley and Collins Amateur Radio clubs joint FD event.



WØGXA deploying beverages



Dave, WA9HBC, and KB4SBY's son hooking up the west beverage



Mike, ACØPB playing with tape. Safety first!



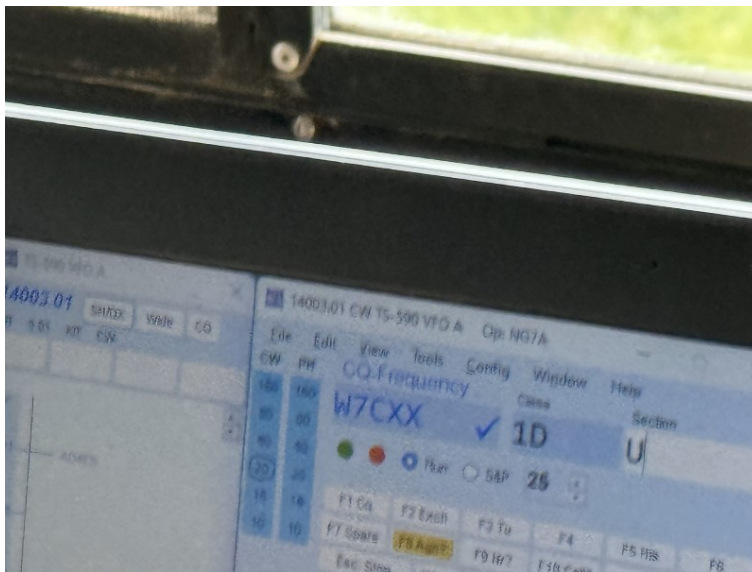
Authorities are trying to determine if this is Guy, NØMMA...



Reminds me of Comm Central



George, NG7A working another club station: W7CXX



Club station at the Hurricane Mesa Test facility in UT



Hammering out some phone QSOs

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### Iowa City ARC Field Day 2024



Attempt at putting up a 10 meter yagi at the Iowa City ARC field day in Kent park, Johnson county. W3ACO

Logbook

CQ Test

WPX Report by WØIY

Heard but not worked:

- N. Macedonia Z30 weak but workable [1]
- Qatar A71 Good sig but [1]
- Kuwait 9K9 really strong, open for a LONG time (hours), but he was open to the world[1]
- Kyrghystan EX and he was in the phone band for a change. Poor op, local QRN, poor radio, the usual. [1]
- Iran EP modest sig, but poor op. Did not attract a crowd.
- Kenya op sounded like UK, modest sig, but workable [1]

Note:

1. oh and there was a pileup

Stations I did work:

Cyprus (3x), Kazakhstan (2x) good signals and in our phone band!, Thailand (2), Oman A44, Ukraine (3x), Malawi, Moldova

Observations:

Ukrainian stations were being actively jammed. Someone was playing prerecorded audio of digital modes, RTTY, test tones... Very unfortunate.

Funny how Sat morning the bands (10m) really came alive about 1500z. Prior to that they were ok but not great. Same thing happened on Sunday, but 15m was the good band.

I was watching dxsummit.fi and observed there are good spots on there which do not show up on ve7cc (my usual) or even dxspots.com telnet. I'm not sure what is going on, but clearly there were interesting spots on dxsummit before the other clusters alerted the hord of LIDs. I didn't see a way to telnet to dxsummit. Does anyone know how to link telnet to them form n1mm?

A thought: if there is going to be a multiop or single that is dedicated to a contest, could/should that station be able to use NØDX? That would bring some visibility to the club.

---

## YL Operators Fund

Rich W3ACO through his YL Operators Fund, is sponsoring 4 YLs to go to PJ2T this October for the CQ WW SSB contest.

They are Morgan, KI5SXY, Paige, K0PZH, Violetta, KN2P, and Vonita, KM4CLT.

Total estimated costs are \$4000. If the club or individual members feel this is a worthy cause, contributions are welcome.



## QRM

### For Sale....

Flex 6000 Transceiver \$2000

( Early production but up to date mods and software )

Flex Maestro-A \$ 600

( Early production but up to date mods and software )

Elecraft KPA-500 500W PA \$1600

( Had recent visit to the Elecraft SPA and meets their current tests.  
)

Elecraft KAT-500 500W ATU \$400

MFJ-259B HF/VHF SWR Analyzer \$150

AL, KØVM

319-721-3128

[KØVM@arri.net](mailto:KØVM@arri.net)



A new form of matching network? The Moose Match?

QTH: KØAT

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