

Meeting Information

Our monthly club meetings are typically held at the Village of Arlington Heights Town Hall (601 Elliott Avenue, Cincinnati, Ohio 45215). Enter using the exterior elevator to the second floor at the rear of the building. We typically also offer Zoom video conferencing as an option (**no Zoom option in August**). Please join us at 7:30 PM Eastern time each first Tuesday of the month. The Zoom call will open at about 7:20 PM for you to join. The passcode is 146670

<https://zoom.us/j/996062859>

If you are unable to join online, you may join by telephone at (301) 715-8592 with a meeting code of 996 062 859 and passcode of 146670. Long distance rates will apply.

Brunch Bunch

by Bruce Vanselow, N8BV

The next Brunch Bunch will be held Saturday, July 12th, at 1pm. The location for July is Wild Mike's American Eatery, the Miami Heights location. The Miami Heights restaurant is located at 7587 Bridgetown Road, 45248. It is at the corner of Bridgetown Road and Shady Lane Road. If you were at the OH-KY-IN Field Day operation, you might have driven right past it.

"Locally owned and operated. Best wings in town! 20 Draft Beers on tap focusing on Local and Regional Breweries. Extensive menu with daily specials on food and drinks!"

Wild Mike's is not just a wing place! They have a wide range of American food on the menu.

For a look at the menu, go to: www.wildmikeswings.com

Remember that the Brunch Bunch always meets the second Saturday of every month at 1pm at a location to be announced each month. If you can't join us this month, maybe you'll be available to join us in the months ahead.

I'm always looking for suggestions on what restaurant you think might be a good place for the Brunch Bunch to visit in the future.

73, Bruce N8BV

SSTV Net Schedule Change

Due to declining participation, the SSTV net will drop to only meeting on the first Monday of each month. If you are interested in this mode and want to see the net continue, please check in!

August Meeting — Important Update

As part of our ongoing effort to make our events relevant and valuable to our members, we have decided to replace our August meeting with something different. Instead of our normal “presentation and business meeting” format, there will be no set agenda, no presentation and no business meeting in August. Instead, we will have somewhat of a “meet up” format. Our normal meeting location (Arlington Heights Town Hall) will be open for members and visitors and we are suggesting a theme of “radio programming night.” Please plan on bringing radios, laptops, programming cables, etc. with the goal of sharing radio programming knowledge with each other and helping each other gain hands on experience. Are you super comfortable programming radios already? Great! Please come and share your knowledge with others. Are you totally lost trying to program your HT? Bring it with you and see if someone can help you! Zoom will **NOT** be available for this event — this will be in-person only.

For those that remember the Jerry Shipp W1SCR (SK) “Digital Group” meetings, this format should feel very familiar. This is an experiment, so if you like this idea, please attend and support it. While there is a suggested theme, obviously those in attendance can use the time any way they see fit. Please help make this a success!

New Incentive for Volunteering

OH-KY-IN has two major fundraising events each year: Red, White and Blue Ash, on July 4th, and the three day Harvest Home Fair, September 5th through 7th.

The OH-KY-IN Board has approved an incentive to encourage volunteers to register early and help assure we have enough staff on hand. We are focusing now on Red, White & Blue Ash.

What is the incentive? A chance to win a gift card of at least \$20 and up to \$100 (max) based on 5% of the event revenue to the club from each event.

How it will work for Red, White & Blue Ash: One winner will be drawn from the volunteers who sign-up early and work the event for at least 3 hours.

What you need to do: Email Drew KE8JTL at macdrew.1@pm.me with your name, call sign, phone number and the start & end time you will work. Please let Drew know by June 30th if possible so he can finalize the schedule. If needed, you can also let him know at the July 1st club meeting.

For this event, we need six to eight workers staffing the booth at any one time and suggest a shift of 3 to 4 hours (but you can work as long as you like!). Beer sales open at 4:00 PM, we from 3:30 PM to 5:00 PM, we only need four to six staffers to get set up and learn the process for the credit card point of sale system.

From 5:00 PM to 10:00 PM (close), we need at least eight staffers for pouring beer, staffing the counter and operating the cash box. 6:00 to 10:00 PM is the busiest time!

Drew will send out a Summit park map with the booth location, and parking suggestions to everyone that volunteers in advance. Parking is easier the earlier you arrive.

Questions? Email Drew at macdrew.1@pm.me or call him at 513-708-2727.

Some stamina is needed, for walking to the event location from the parking lots and standing at the booth, but many hands make light work!

Combining Amateur Radio with Model Rocketry (Part 2)

by George Gardei, N3VQW

In Part 1, I began a project to integrate amateur radio into model rocketry, focusing first on transmitting basic real-time telemetry data throughout the flight. This project utilized a pair of Adafruit Feather M0 RFM69HCW 433 MHz Packet Radio modules. The transmitter module was paired with a BMP390 barometric, temperature and altitude sensor. After testing and modifying the sample code for the radio module and sensor, and working through sensor stability issues and code optimization, the radio module was integrated into an Estes Green Eggs rocket. The rocket itself was modified with a pressure equalization hole and custom balsa mounting frame fitted in the payload bay and the rocket was renamed the "Green Eggs and Ham". With the coding complete and hardware prepared, the stage was set for the actual launch and data collection phase of this amateur radio rocketry experiment.

Since some amateur radio operators may not be familiar with model rocketry basics, it's worth explaining that model rocket engines are classified by total impulse using a letter system (A, B, C, D, etc.), with each letter representing roughly double the impulse power of the previous classification. For the first flight of the Green Eggs and Ham, I chose to use a D22-4 engine, a composite fuel motor manufactured by Aerotech. This motor has 22 Newtons of thrust which is suitable for a rocket carrying the additional weight of the radio payload, with a 4 second ejection charge delay which should blow apart the booster and payload sections just after the rocket reaches apogee.

Before launching the Green Eggs and Ham, I needed to make sure the rocket would be stable with the extra weight of the balsa frame, battery and radio module. After weighing these components, I entered these parameters along with the D22 engine specifications, and a planned 300 ft parachute deployment into an OpenRocket simulation for the Green Eggs Rocket. The software predicted the rocket would be stable and reach an altitude of approximately 856 feet in 7 seconds for a flight time of 32 seconds, landing at 15 feet per second.

I planned to fly the rocket at the May 31st Wright Stuff Rocketeers sport rocket launch up in Huber Heights Ohio. The WSR club provides both safety oversight, launch equipment and arranges the appropriate FAA waivers when needed. The original launch date of May 31st was postponed to Sunday, June 1st due to a more favorable wind forecast. This is a common occurrence in rocketry where weather conditions can make or break a safe launch. This created conflict for me as I go to church on Sunday morning. Now, I'm all for scientific experimentation, but I wasn't about to skip church for a rocket launch - don't want a piano to land on me after all!

So, I made the practical decision to cut the number of rockets I planned to fly in half, load them in the car, and head up to Huber Heights after the church service ended. Miraculously, the pastor ended his sermon early! I had a shorter window at the launch site, but I still had time to fly my experiment and the other rockets I brought. One annoying observation: Sunday was a much windier day than Saturday!

After arriving at the site, I slapped on some sunscreen, put on my hat, and got out my prep table and chair. I first prepped The Green Eggs and Ham for launch. I placed 5 or 6 sheets of flameproof wadding into the body tube, and folded the parachute neatly, setting the shroud lines inside the chute so they were not likely to get tangled. I installed a Jolly Logic chute release device set to 300 feet on the parachute. This device allows the rocket to drop to a set altitude before allowing the parachute to open, reducing how far it would drift. I then carefully pushed the parachute into the body tube. Finally, I installed the D22 rocket motor and inserted the igniter.

I then prepped the payload section. I connected the battery to the radio module, which turned the module on. Using yellow masking tape, I secured the battery and module to the balsa frame and slid the frame into the

payload tube. I then placed the nose cone over the top, allowing the antenna to stick up into the nose cone. I used scotch tape to secure the payload tube to the bottom bulkhead and nose cone, preventing the payload section from coming apart during descent and potentially dumping the radio module out of the rocket.

Now, I have done a decent job detailing the setup of the rocket and the radio module but have not mentioned much about the receiving equipment. For receiving the telemetry from the rocket, I used the same radio module as the transmitter but with different code to receive the data and send it to the serial console. Since I needed to connect the module to an antenna, I had soldered on a tiny surface mount uFL connector to the bottom of the module by hand, only destroying one of the little buggers! I then used a uFL to SMA adapter cable, and SMA to PL-259 adapter and connected everything up to a 3 element 70cm Yagi. I duct-taped everything to one of my rocket painting sticks to hold it all in place! I chose to use the Yagi so I can point it at the rocket and hopefully maintain good signal reception. The receiver module was connected to a 6 ft USB cable which will be connected to my laptop. I also installed CoolTerm on my laptop which allows me to save the captured data directly to a file, as the Arduino IDE Serial Console will not let you do this.

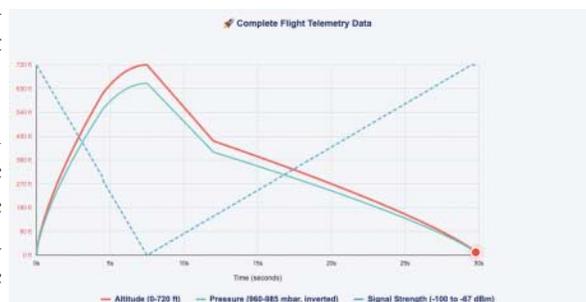
Now onto the flight setup. I walked over to the Range Safety Officer table with my rocket, yagi-on-a-stick, and laptop. Here I filled out a launch slip which contains my name, rocket name, rocket motor configuration and expected recovery parameters. I handed the filled slip to the Range Safety Officer, and he assigned me pad B4. I walked over to the pad and slid the rocket down the launch rod. I then grabbed the alligator clips, touched them together to verify they were not “hot”, and then connected them to the rocket’s igniter. I walked back to the RSO table, opened my laptop, connected the antenna, and configured CoolTerm to read and save the telemetry data. I was receiving telemetry, so I was ready for Launch.

“Now on pad B4, George’s Green Eggs and Ham, going in 5... 4... 3... 2... 1...” a spark, and Whoosh!!!! The rocket shoots off the pad! I try to follow the rocket with my Yagi, but it flew between me and the sun. Not being able to see anything but the sun, I pointed the Yagi straight up, hoping that I am still receiving data. About 10 to 15 seconds later the rocket was spotted, and I pointed the antenna towards the rocket again. But there was a problem, the parachute was tangled and partially open, and the rocket landed hard into a gravel driveway. I walk over to the rocket and find that it had a broken fin, and the payload section was busted open. After bringing the rocket back to the RSO table, I looked at the raw telemetry data collected on the laptop, scrolled through it and was excited to see that I got data throughout the entire flight!

Since the rocket was damaged, I could not fly it again to get more data during that launch. However, I did bring more rockets to fly! I had four successful flights of new rockets I had recently built. However, the last rocket, an Estes Nike Smoke on its maiden flight, experienced a CATO (Catastrophe At Take Off), which is a polite way of saying it blew up on the pad.

Over the next couple of days, I analyzed the telemetry data in detail and found some interesting comparisons to my pre-flight simulation. The rocket reached a maximum altitude of 720 feet versus the predicted 856 feet, likely due to the windier conditions on Sunday. The time to apogee was 8 seconds compared to the simulated 7 seconds, and the total flight time was 30 seconds instead of the predicted 32 seconds: showing the real-world flight profile was remarkably close to the OpenRocket simulation.

The telemetry also revealed exactly what went wrong with the parachute. The data clearly shows the ejection charge separated the booster and payload sections right after the rocket reached apogee. This resulted in an immediate rapid drop in altitude. Then the data showed a decrease in the



descent rate at approximately 400 feet, indicating that the parachute had deployed at that altitude instead of the programmed 300 feet. The parachute being pulled out of the Jolly Logic would explain the tangled mess I observed during its descent. The resulting landing was at 53 feet per second which is a lot harder than the simulated 15 feet per second. No wonder the rocket got damaged! Remarkably, the radio module survived the hard landing. The custom balsa mounting frame had done its job perfectly, absorbing the impact and protecting the electronics.

However, the data wasn't perfect. A detailed analysis revealed large reception gaps during the critical ascent phase: particularly seconds 3 through 5, and 7 when I received no packets at all, and other seconds showing 12 packets received versus 60+ packets per second during better reception periods. These gaps corresponded exactly to when I lost visual contact and had to point the Yagi antenna straight up rather than tracking the rocket directly. Despite these reception gaps, I still captured enough data points to reconstruct the complete flight profile.

Also, the altitude data showed an impossible "drop" during ascent where the rocket appeared to suddenly lose altitude before continuing its climb. Since rockets don't defy physics and teleport downward, this was clearly a data artifact. I have two theories explaining this: either a pressure differential issue caused by inadequate venting in the payload section, or corrupted data packets during the intermittent reception periods.

The pressure theory suggests that during rapid ascent, the single small equalization hole in my payload tube couldn't keep up with the changing atmospheric pressure, causing the barometric sensor to temporarily read an isolated air pocket rather than true outside air pressure. The corrupted data theory points to the intermittent reception I was experiencing during that same time. A garbled or partially received data packet could have produced an erroneous altitude reading that got logged as valid data. Both explanations are plausible given the real-world conditions of the flight.

Another anomaly, the temperature sensor consistently read 97°F instead of the actual 70°F ambient temperature. The clear payload tube and direct exposure to the sun had most likely created the greenhouse effect, heating the sensor well above the actual air temperature.

In response to what I learned from the first flight's data anomalies, I not only repaired the damaged fin on the Green Eggs and Ham, but also redesigned the payload section. I replaced the clear payload tube with a white cardboard tube featuring two large vent holes positioned strategically inside the frame bulkheads. This modification addresses both the pressure equalization issues that likely caused the altitude "teleportation" artifact and the solar heating problem that skewed the temperature readings by 27 degrees.

For the next flight, I plan to set up a second receiver module connected to a fixed 5/8th wave vertical antenna. This will hopefully eliminate the tracking challenges I experienced with the directional Yagi and provide a comparison of reception quality between the two antenna approaches. I also plan to fly Green Eggs and Ham

Second	RxPerSec	MinAlt	MaxAlt	AltDiff
1	48	0	253	253
2	63	261	367	107
6	12	685	706	22
8	21	708	720	12
9	1	655	655	0
10	26	605	661	56
11	12	582	608	26
12	39	526	571	45
13	62	485	520	35
14	46	446	484	37
15	49	420	446	26
16	55	373	416	43
17	30	347	373	26
18	45	306	335	29
19	53	264	294	31
20	67	229	264	35
21	57	204	227	23
22	36	179	203	24
23	33	158	167	10
24	65	134	157	23
25	64	110	132	22
26	70	91	110	19
27	52	76	91	14
28	61	52	71	19
29	63	31	51	21
30	68	3	30	27

with the same D22-4 engine configuration to get a similar flight profile for direct comparison with the first flight's data.

Additionally, I've learned to pack the parachute more securely to prevent it from being pulled out of the Jolly Logic device prematurely - or skip the device entirely if wind conditions are favorable. And if possible, I'll position myself so the rocket won't fly directly between me and the sun during the critical tracking phase.

Looking further ahead, I plan to fly rockets that will go higher to test reception limits on both the Yagi and vertical antennas. I will incrementally add onboard data logging, additional sensors such as accelerometers, GPS tracking, and even amateur radio direction finding beacons as backup to GPS. Eventually, I hope to build a handheld receiver that displays altitude and GPS location in real-time, eliminating the need to lug a laptop to the launch site.

This amateur radio rocketry project has proven that combining these two technical hobbies creates something greater than the sum of its parts. What started as a simple telemetry experiment has evolved into a comprehensive platform for real-time flight data collection, complete with the inevitable engineering challenges and solutions that make both hobbies so rewarding. The first flight of Green Eggs and Ham demonstrated that reliable RF communication with a rocket throughout its entire flight profile is not only possible but practical using readily available sensors and amateur radio equipment. Despite tracking difficulties, reception gaps, and a hard landing, the system captured valuable data that revealed exactly what happened during each phase of the flight.

Perhaps most importantly, this project bridges two communities of technically-minded experimenters. Amateur radio operators can discover the excitement of rocket flight dynamics and real-time telemetry, while model rocket enthusiasts can explore the world of RF communication and data transmission. Both hobbies benefit from the cross-pollination of ideas and techniques.

The journey from concept to launch pad has been filled with the kind of problem-solving that defines both amateur radio and model rocketry: duct tape solutions, iterative improvements, and the satisfaction of making something work despite Murphy's Law. Whether it's surviving church-versus-rocket scheduling conflicts, troubleshooting pressure differential artifacts, or simply keeping electronics alive during a 53 feet per second impact, each challenge has been a learning opportunity.

As for the future, the sky is literally the limit. With higher-flying rockets, more sophisticated sensors, and improved ground stations in development, this amateur radio rocketry platform promises to deliver even more interesting data and capabilities. The only question remaining is whether the next launch will finally happen without conflicting with Field Day, church services, or severe weather!

Until the next flight, 73 and safe landings! N3VQW clear.

June, 2025 Meeting Minutes

OH-KY-IN Amateur Radio Society
Minutes of June 3rd, 2025, Member Meeting

The meeting was called to order at 7:30 PM by Ryan AC8UJ with the Pledge of Allegiance. The club meeting was held in person and via Zoom.

Guests: John N8UNR, Chip Branscum, Paul, Joe JR4ECG, James N8FI, Rick KF8DOJ, Bret, Jeff, Reed

New Licenses or Upgrades: N/A

Attendance: 33 in person; 12 via Zoom

Health and Welfare: K8CO Rob Rogers broken femur. KD8OOB Shoulder Repair.

Awards & Achievements: Bruce N8BV received an award for the Ohio QSO party for 1st single operator phone.

Prior Meeting Minutes: George N3VQW made the motion, and Kitty W8TDA seconded accepting the meeting minutes for May 2025 as corrected in the Q-Fiver. Motion passed.

Membership: Not present. 123 have renewed for the year out of 157. Please renew at <http://renew.ohkyin.org/>.

Treasurer: Kevin W8SM, Treasurer's report read and filed for audit.

Silent Key: Bruce Peirano N8WBP

Tech Committee: Gary KB8MYC reports that repeaters are working for the most part. Did some reorganizing at the 67 site. Eric KE8BNZ helped with some controller work. Bruce N8BV and Gary did troubleshooting at 925. Seems like it is not outputting full power except when cold. Feed line, lightning arrestor and antenna all checked out fine. More troubleshooting required.

Classes and Exams: Classes will be returning in the fall.

Fox Hunts: Bob WA6EZV. N/A

Library: Contact Justin KE8COY if you would like to check out items from the library.

Nets: SSTV, the net will continue the 1st and 3rd Mondays at 9:00pm on the 146.670 repeater

Website: Still looking into changing the format of the website. Also still looking for someone to help with the website.

QCEN: Meetings are held the 2nd Thursday of the month at 7:30PM.

ARES: Meetings are held the 3rd Tuesday of the month at the ROC at 7PM.

Brunch Bunch: On July 12th at 1pm Wild Mikes in Miami Heights.

Events:

- Field Day June 28th & June 29th
- Red, White & Blue Ash July 4th

Old Business:

- Cesi KD8OOB: Satellite station grant update. No updates.

- Ryan AC8UJ: Remote participation in split-the-pot. N/A.

New Business:

- Field Day Discussion
- Looking to form a property audit committee by January of 2026. There will need to be a three-person committee. George N3VQW volunteered to be part of the committee.

Announcements: N/A

Program: Cesi KD8OOB Parks on the Air

Split the Pot: \$81.00 Split will be \$41.00. Mick KD8IOQ

Motion to adjourn made by Kitty W8TDA, seconded by George N3VQW. Meeting adjourned at 9:27PM

Respectfully submitted, Steve Crase N8PUP, Secretary

OH-KY-IN SSTV Net Samples

Here's a sample of the images you could be receiving if you tuned into the SSTV net on the 146.670 repeater. The net meets the **first Monday** of every month at 9:00 PM Eastern time. No special equipment is required. If you have a 2 meter receiver and a computer or smart phone, you can receive images. If you don't know how, check in to the weekly Tech Talk net Wednesdays at 9:00 PM Eastern and ask for help. Hope to hear you all on the nets!



Join the SSTV Net!

The SSTV net has attendance has been declining a bit recently. If you find SSTV interesting, we would love to have you join us. Don't know how to do SSTV? We can coach you on that!

Please check us out, the first and third Monday of the month at 9:00 PM on the 146.67 repeater.

DX Spots - July 2025

DE KA3MTT

Sun	Mon	Tue	Wed	Thu	Fri	Sat
TC0MAR - Turkey Thru 7-5 	SV5 - Dodecanese Is thru 7-5 	1	2	3 HR9 - Honduras Thru 7-10 	4 	5 C94RRC - Mozambique thru 7-11 ----- J38DX - Grenada Thru 7-15
6	7	8 TY5FR - Benin thru 8-6 	9	10 5B - Cyprus thru 7-15 	11 TF - Iceland thru 7-25 	12
13 C93RRC - Mozambique thru 7-19 	14 JW0V - Svalbard Thru 7-23 	15	16 SV5 - Dodecanese Thru 7-19 	17 OH0 - Aland Is Thru 7-24 ----- 8Q7YY - Maldives Thru 7-25	18	19
20	21	22	23	24 JW - Svalbard thru 8-2 	25	26
27	28 3B9SP - Rodrigues Is thru 8-1 	29	30	31		

Support OH-KY-IN by Shopping

Of course we appreciate your membership dues and all of the ways you give time and energy to the club, but did you know you can also support OH-KY-IN just by doing things you already do?

Kroger Community Rewards is a great source of income for the club and requires no effort! Visit <http://www.krogercommunityrewards.com/> and set us as your charity. We are organization **QY352**.

Contact Bruce N8BV for details about the program.

Committee Chairs & Appointments

Technical OperationsGary Coffey KB8MYC
ARPSA Representative(open)
Volunteer ExaminersGary Coffey KB8MYC
QCEN RepresentativeTom Delaney W8WTD
MembershipNathan Ciuffo KA3MTT
FundraisingBruce Vanselow N8BV
EducationTom Delaney W8WTD
Repeater Control Ops Mgr. . .Bruce Vanselow N8BV
PIOSteve Crase N8PUP
SSTV Net MgrSteve Crase N8PUP
LibrarianJustin Moore KE8COY
Q-Fiver EditorRyan Owens AC8UJ (interim)
ARRL Field DayEric Neiheisel N8YC
HistorianDale Vanselow KC8HQS
Fox HuntersDick Arnett WB4SUV
Equipment Manager(open)
WebmasterRocky McGrath KE8DZS
Silent KeyBryan Hoffman KC8EGV
Tech Talk Net ManagerBruce Vanselow N8BV
K8SCH Paper QSL MgrBob Frey WA6EZV
K8SCH Elec. QSL Mgr . .Rick Haltermon KD4PYR
TV/RFIDick Arnett WB8SUV

Newsletter Submissions

Please send any submissions you would like included in upcoming newsletters to Ryan, AC8UJ. All content is welcome! You can e-mail content to him at his callsign at arrl.net. Please send all content either as plain e-mail text (attach any photos or graphics) or as a PDF file. Depending on the spacing needs of the particular issue, Ryan may reformat your content and adjust the layout. Because of this, if you send a PDF, please also include any graphics used as attachments.

Consider a Donation to OH-KY-IN

Did you know that OH-KY-IN ARS has been recognized by the Internal Revenue Service as a 501(c)(3) charitable organization? That means anyone who itemizes on their Federal return can take a charitable deduction for a contribution to OH-KY-IN, as long as it qualifies under the general rules applicable to all other charitable contributions (for example, the contribution must be in cash, or other property which the organization has agreed to accept; the value of volunteered services is not deductible). Membership dues, such as the cost of a life membership, may even be deductible; consult your own tax advisor for details if considering that. Posthumous donations by Will or by naming the organization as beneficiary of a financial account are also welcome.

OH-KY-IN Officers

President Ryan Owens AC8UJ
Vice President Cesi DiBenedetto KD8OOB
Secretary Steve Crase N8PUP
Treasurer Kevin Tribbe W8SM
Director Drew MacDonald KE8JTL
Director Bruce Vanselow N8BV
Director Mike Niehaus KD8ZLB
Trustee Bruce Vanselow N8BV

Calendar of Upcoming Events

Tuesday	July 1 @ 7:30 PM	Club Meeting (Zoom & Arlington Heights Town Hall)
Wednesday	July 2 @ 9:00 PM	Tech Talk Net (146.670 Repeater)
Monday	July 7 @ 9:00 PM	SSTV Net (146.670 Repeater)
Tuesday	July 8 @ 7:30 PM	Board of Directors Meeting (same Zoom info as club meeting)
Wednesday	July 9 @ 9:00 PM	Tech Talk Net (146.670 Repeater)
Wednesday	July 16 @ 9:00 PM	Tech Talk Net (146.670 Repeater)
Wednesday	July 23 @ 9:00 PM	Tech Talk Net (146.670 Repeater)
Wednesday	July 30 @ 9:00 PM	Tech Talk Net (146.670 Repeater)
Monday	August 4 @ 9:00 PM	SSTV Net (146.670 Repeater)
Tuesday	August 5 @ 7:30 PM	Club Meeting (Arlington Heights Town Hall only)
Wednesday	August 6 @ 9:00 PM	Tech Talk Net (146.670 Repeater)
Tuesday	August 12 @ 7:30 PM	Board of Directors Meeting (same Zoom info as club meeting)
Wednesday	August 13 @ 9:00 PM	Tech Talk Net (146.670 Repeater)
Wednesday	August 20 @ 9:00 PM	Tech Talk Net (146.670 Repeater)

Life Members

John Phelps	N8JTP
Kenneth E Wolf	N8WYC
John W Hughes	AI4DA
Karl R Kaucher	KK4KRK
Fred Schneider	K9OHE
Dan Curtin	KF4AV
Steve Weeks	AA8SW
Kelly Hoffman	K8KAH
Mick Cook	KD8IOQ
Steve Crase	N8PUP
Joe Felix	K8NW

OH-KY-IN Repeaters

146.670 (-) Clifton

146.625 (-) Edgewood (Fusion & analog WIRES-X)

146.925 (-) Delhi (Fusion & digital WIRES-X)

All repeaters require a 123.0 Hz CTCSS (PL) tone.