

# Telstar



THE NEWSLETTER OF S.T.A.R.S (SOUTH TOWNS AMATEUR RADIO SOCIETY)

DECEMBER 2021

VOL 53 ISSUE: 14



# STARS

**STARS** is the South Towns' largest ham radio club, with our clubhouse and tower located at the Town of Hamburg Recreation Center, Lakeview Rd.

To learn more about **STARS**, visit [wb2elw.net](http://wb2elw.net).

During Covid restrictions, we have remained active with online meetings, collaborative contesting, our two nets, and local UHF chat.

So, warm up those radios and join us **ON THE AIR** and **ONLINE!**

**Saturdays** 10 AM HF net 3.925 MHz;

**Mondays** 8:30 PM UHF 446 MHz simplex chat for locals - bet you can hear us!

**Tuesdays** 7:30 PM VHF UHF net 147.090 (107.2) and 442.325 (88.5)

**General CLUB meetings: first Thursday of the month at 7 PM (NOW IN PERSON AT THE YOUTH CENTER!)**

Email Joe KB2JDB, club secretary, if you'd like to be invited!

Need help getting on the air? Let us know...

Thanks and 73! [joe@joeclaus.com](mailto:joe@joeclaus.com)

The Telstar would like to thank all of those who wrote in with notes, suggestions, content submissions, etc.

All ideas are welcomed and encouraged! If there is something you would like included in next month's edition, please email: [TELSTAR@WB2ELW.COM](mailto:TELSTAR@WB2ELW.COM) or [KD2UOE@GMAIL.COM](mailto:KD2UOE@GMAIL.COM)

We are always in search of new and exciting content and feedback from our audience is what keeps the ball rolling.—WHAT DO YOU GUYS WANT TO SEE MORE OF?—

Likewise, if something was published in error—please reach out via email so that corrections can be made, lawyers contacted and settlements reached.

**MONTHLY MEETING INFORMATION**  
**ON FOLLOWING PAGE:**

# ANNOUNCEMENTS:

## 2021 CHRISTMAS PARTY (DECEMBER MEETING)

HELP US MAKE IT GREAT! - BY ATTENDING!

WHEN: THURSDAY, DECEMBER 2ND 2021 @ 7PM

WHERE: HAMBURG YOUTH CENTER

200 PROSPECT AVENUE, Hamburg, NY 14075

LET'S GET TOGETHER AND CELEBRATE THE SEASON WITH A DISH TO PASS.

PIZZA AND REFRESHMENTS WILL BE AVAILABLE AS WELL!

## SECRET SANTA EVENT: \*BRING YOUR JUNK\*

ANY PIECE OF GEAR/GIZMO/GADGET (POINTS FOR ODDITY)

WRAPPED IN A BAG OR BOX TO OBSCURE IT'S IDENTITY!

-BRING AN ITEM TO GET AN ITEM!!! - LET'S HAVE FUN

## 2021 OFFICER ELECTION RESULTS:

- CLUB PRESIDENT: KEN POKIGO
- VP: AL MITZO
- SECRETARY: JOE CLAUS
- FINANCIAL SECRETARY: JOE BARRILE
- DIRECTOR (2YEAR): MATT OVITT

# ANNOUNCEMENTS:

## REMINDER: DUES ARE DUE (IN JANUARY!)

THIS REMINDER WILL RE-APPEAR NEXT MONTH—BE ON TOP OF THE BALL AND MAKE SURE YOUR MEMBERSHIP DUES ARE PAID AND UP TO DATE... 2022 IS GEARING UP TO BE A BIG YEAR FOR S.T.A.R.S... NEW EQUIPMENT, MORE PRESENTATIONS, MORE ACTIVITIES! NEW MEMBER/MEMBERSHIP RENEWAL FORM IS LOCATED AT THE END OF EACH TEL-STAR TO PRINT AND SEND IN WITH PAYMENT.

***IF IT SMELLS LIKE CHICKEN...***



***...YOU'RE HOLDING IT WRONG.***

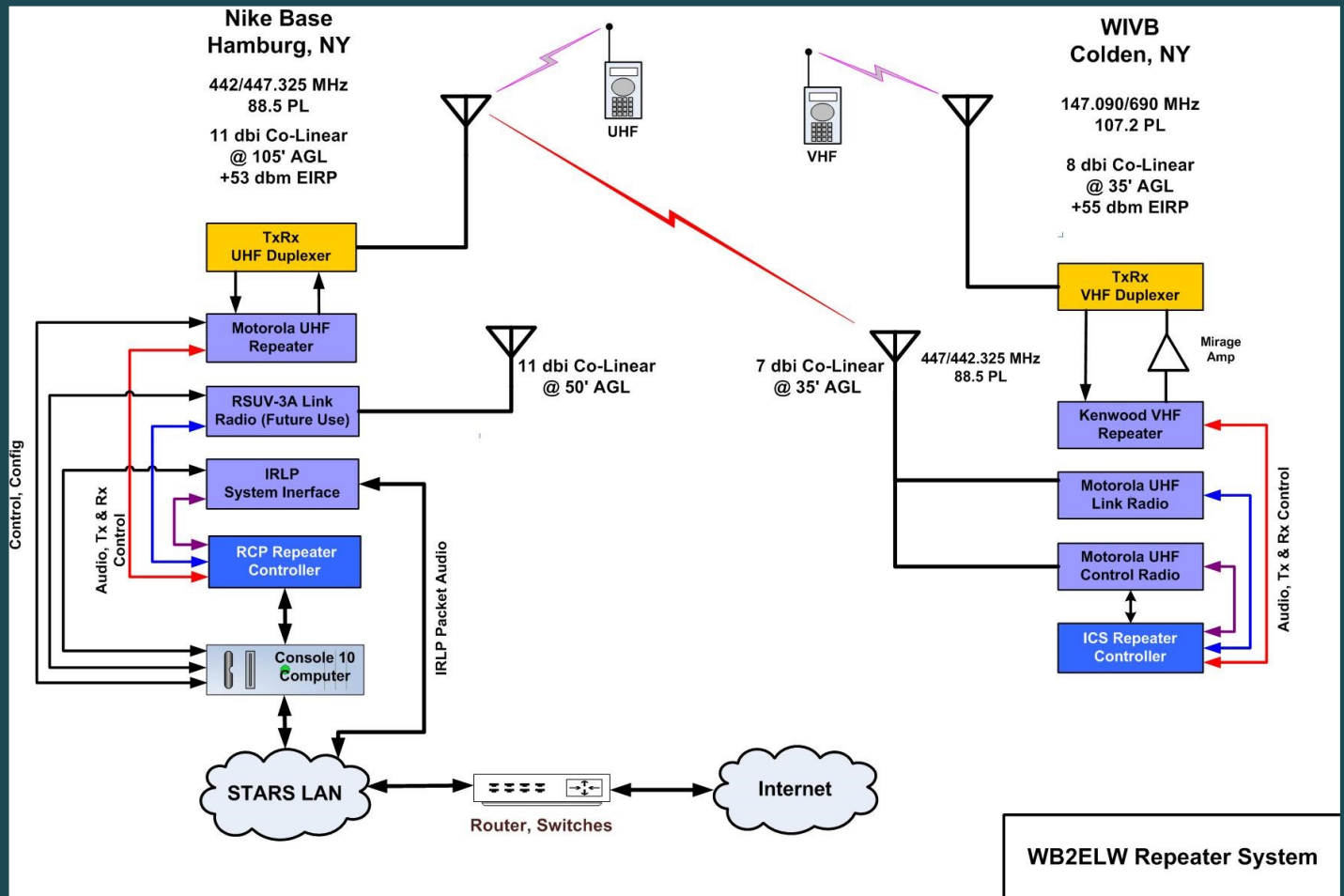
## SUPERBOWL POOL FUNDRAISER UPDATE:

THIS FUNDRAISER IS ONE OF THE ONES THE CLUB RELIES ON—WE'RE ABOUT HALFWAY THERE TO SPOTS BEING SOLD OUT... GET IN ON THE ACTION AND HELP THE CLUB ACHIEVE NEW GOALS IN THE UPCOMING YEARS!

CONTACT JON AA2ACC FOR MORE INFO

# THE ANATOMY OF THE WB2ELW LINKED REPEATER SYSTEM:

-THE ORIGINAL "STAR-LINK"



This block diagram is brought to you by S.T.A.R.S. REPEATER CHAIR Mike Fetto (KB2FX)....

THIS OUTLINE DEPICTS "STAR-LINK"...OUR LINKED REPEATER SYSTEM.

CAN YOU GET IN TO BOTH SIDES FROM YOUR HOME QTH? WITH AN HT?

WHY NOT CHECK IN?—TUESDAY NIGHT NET 730PM!

(BRING A FRIEND!)

# NYQSO PARTY:

THIS YEARS NY STATE QSO PARTY WAS MUCH FUN. DESPITE SEMI-TYPICAL UNPRODUCTIVE CONDITIONS, MANY CONTACTS WERE MADE ACROSS THE BANDS. OPERATING MULTI-MULTI UNDER THE SPECIAL EVENT CLUB CALL W2E, WHISKEY -2-ECHO MANAGED TO GATHER ALMOST 49,000 POINTS THROUGH THE DURATION OF THE 12 HR CONTEST.

IF YOU MISSED THIS YEAR, PLEASE MAKE IT A POINT TO ATTEND NEXT YEAR .... PHOTOS TO FOLLOW—

LET'S HOPE FOR ANOTHER AWARD. -GO S.T.A.R.S.

Score Statistics	
Total Contacts	504
Total QSO Points	504
Total Multipliers	97
Total Score	48,888
QSOs / Hr (Last 20 min)	84
QSOs / Hr (Last 60 min)	80

1	4	7	0
CT NH	AL NC	AK OR	CO MO
MA RI	FL SC	AZ UT	IA ND
ME VT	GA TN	ID WA	KS NE
	KY VA	MT WY	MN SD
		NV	Canada

2	5	8	
NY NJ	AR NM	MI WV	MAR SK
	LA OK	OH	QC AB
	MS TX		ON BC
			MB NT

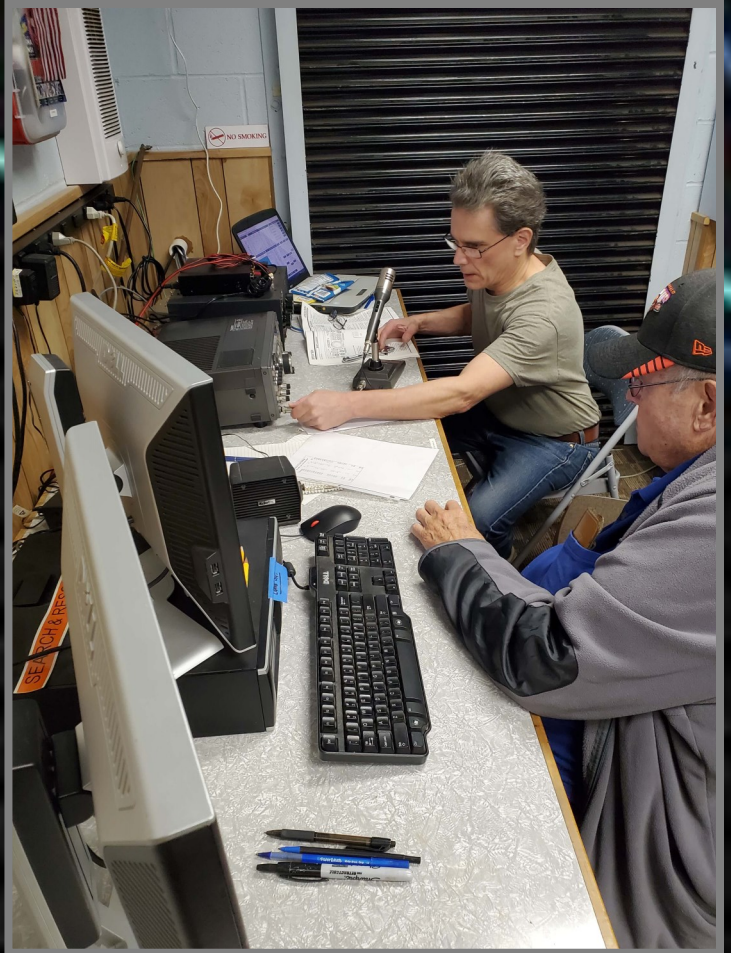
3	6	9	
DE MD	CA HI	IL WI	NL
PA		IN	

10:00:26 PM UTC  
02:00:26  
10:00 PM  
12/18/2021

**KB2JDB**



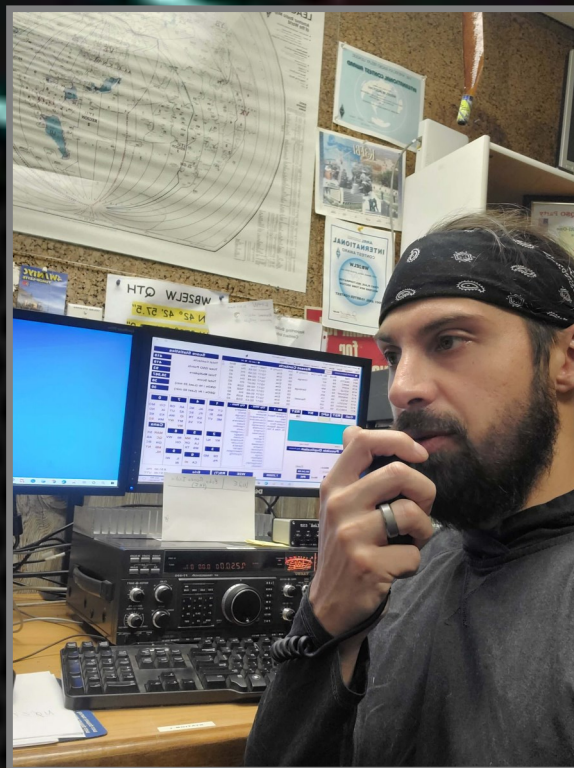
**KA2RFT/KA2MGE**



**KB2JDB/KC2VWG**

EVERYONE WORKED HARD  
TO EARN THEIR KEEP AT  
THE S.T.A.R.S. CLUBHOUSE  
DURING THIS CONTEST...

HOWEVER, BELOW YOU  
WILL NOTICE THE FT-847,  
SHOWING ITS AGE AND  
TAKING A LITTLE "SNACK  
BREAK"!



**KD2UOE**

### **YAESU FT-847**



# WIRELESS BAOFENG PROGRAMING DEVICE

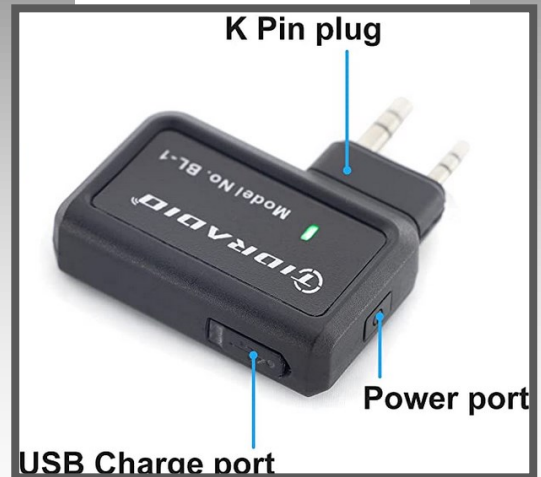
Programming Anywhere Anytime ✓  
 One software can programming multi radio models ✓  
 Mobilephone instead of computer ✓  
 Save & Share Configuration file ✓  
 No need to install drivers ✓



[\(CLICK HERE TO VIEW ON AMAZON\)](#)

\$19.89

✓prime & FREE Returns ✓



HERE'S YET ANOTHER LATE NIGHT AMAZON FIND:

AT UNDER \$20 IT BOASTS THE ABILITY TO PROGRAM A HANDFUL OF RADIOS (BAOFENG UV-5R, OTHERS) WITHOUT THE NEED OF ANYTHING OTHER THAN YOUR SMARTPHONE.

I HAVEN'T TRIED IT— BUT I DEDICATE THIS PRODUCT TO LARRY (WA<sub>2</sub>TLY) ... AND MIGHT JUST MOVE TO GET ONE FOR THE CLUB TO TRY!

Program your ham radio with Your Phone!

## Software On Phone!

**Wireless Programmer**

- ✓ One software can programming multi radio models
- ✓ Mobile phone instead of computer
- ✓ Save & Share Configuration file
- ✓ No need to install drivers



For Baofeng: UV-5R, UV-82, F8TD, 888S, 888S-PLUS(Beta), 88A(Beta), 88ST (Beta), UV-5X, F8HP(Beta), UV-82HP (Beta), UV-5XP(Beta), GT-5R(Beta)

TIDRADIO: UV-5R, UV-82, UV-5R Pro, F6, F9GP, 777S, 777, 66, H6, GM-5R  
 TID:V2 M8

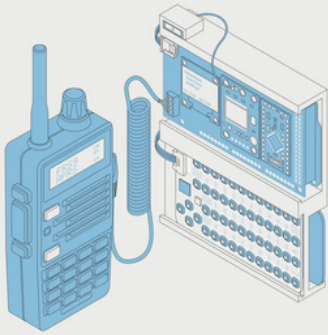
For Tenway: UV-5R Pro, UV-82 Pro (Beta)

For Radioddity: UV-5G, GA-2S, GA-510, UV-5R EX(Beta), GA-5S(Beta), UV-5RX3(Beta), UV-82X3(Beta)

(AND OTHERS—SEE LINK FOR MORE)



Articles by Dale Thomas



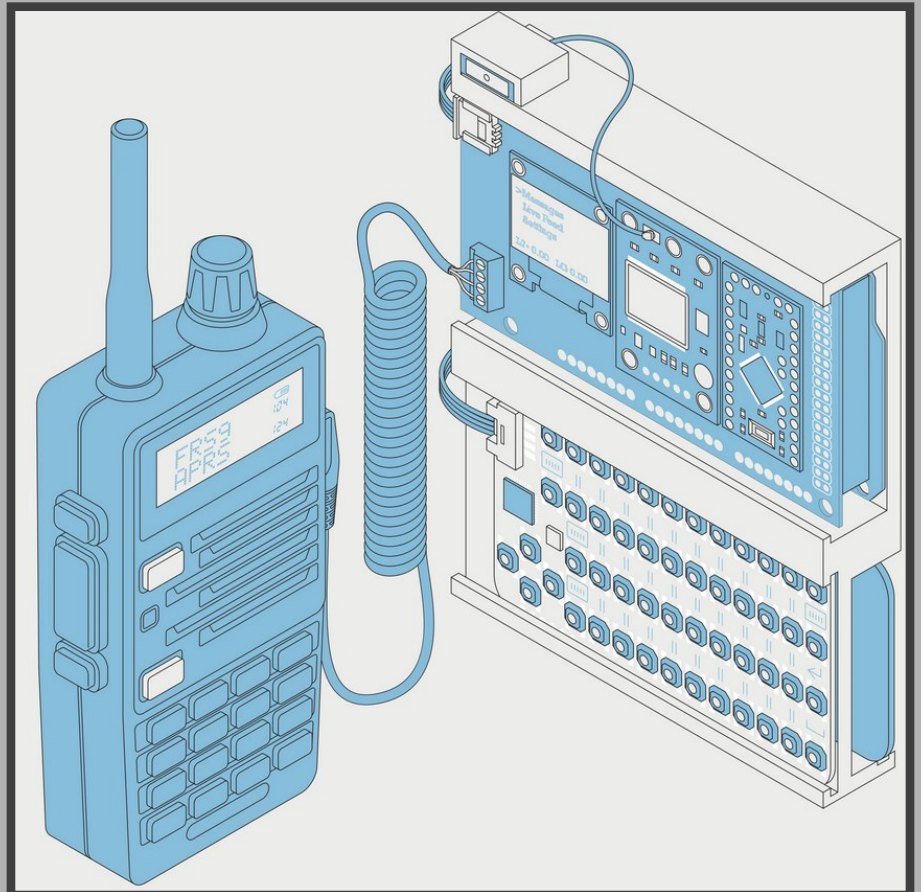
HANDS ON **DIY**

## Hacking Ham Radio for Texting > An Arduino shield taps the potential of VHF handheld radios

17 NOV 2021 | 5 MIN READ |

My first exposure to radio communication happened when I was around 5 or 6 years old. My dad was working as an airport electrician. He would bring walkie-talkies home, and my brothers and I would play with them around the yard. That's as far as my radio experience went, until a friend and I decided to get our amateur radio licenses together. This was only months before the COVID-19 lockdown, so it turned out to be the perfect time to learn to communicate using amateur radio!

However, I found that just talking over ham radio was boring for me. I started thinking about an old police scanner my dad owned and how we would sometimes hear odd sounds that sort of sounded like a dial-up modem. And that is when the lightbulb for HamMessenger turned on. What if I could find an easy way to communicate digitally with my handheld radio?



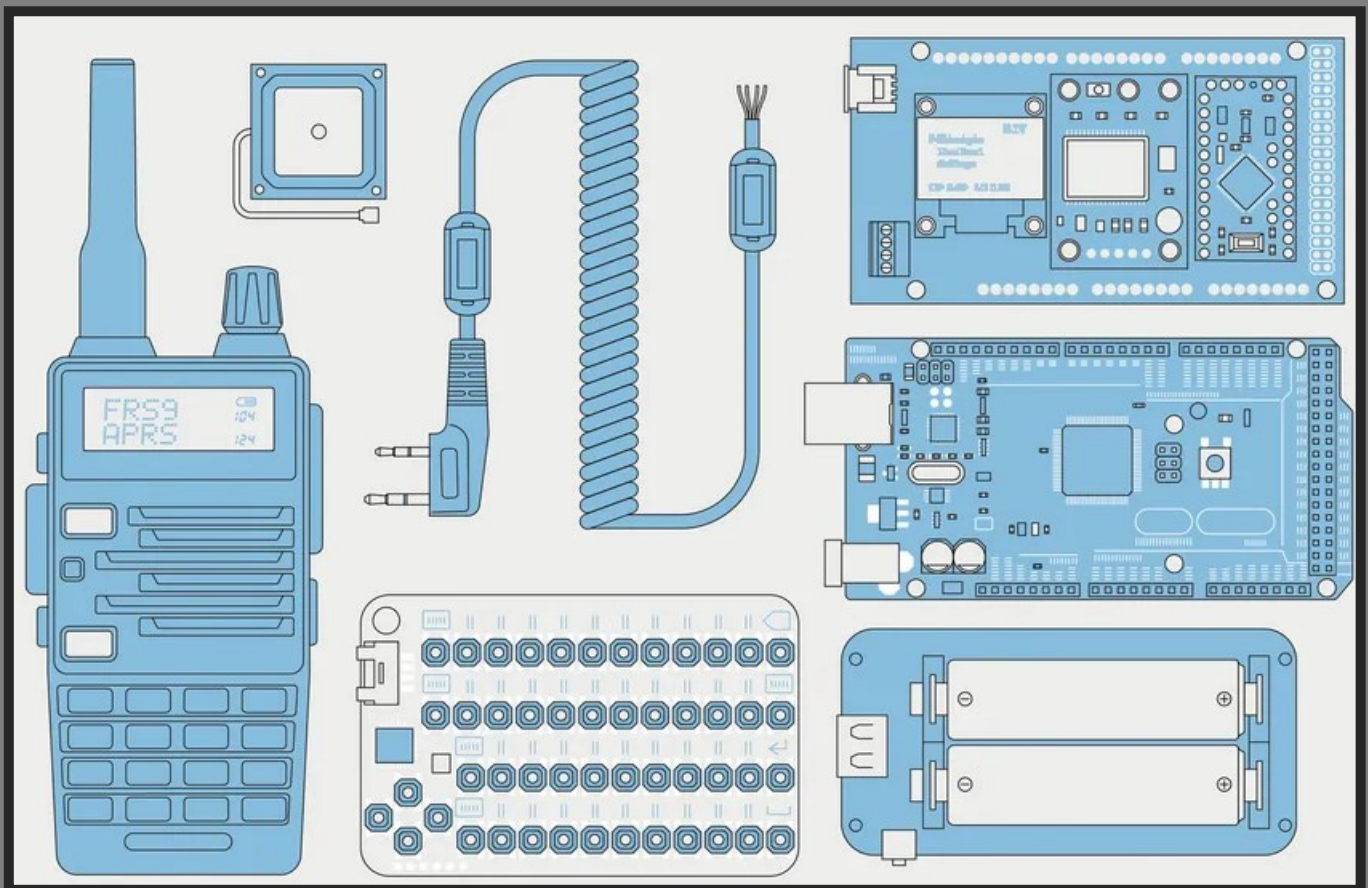
I started learning about the many different types of digital communication modes that people use with ham radio and I came across APRS (Automatic Packet Reporting System). APRS is a store-and-forward radio network protocol developed over 25 years ago by U.S. Navy researcher Robert Bruninga and was originally designed to track tactical information in real time. APRS operates on a frequency within the VHF 2-meter band and is popular for applications like location transponders or weather stations. You can view APRS activity in your area at www.aprs.fi right now.

APRS supports sending text messages, and if you're in range of an Internet-connected gateway node you can even exchange SMS texts with cellphones and send one-line emails. Sending texts traditionally meant using a PC hooked up to a so-called terminal node controller (TNC) packet radio modem, which is in turn connected to a radio (signals are transmitted as audio tones, just like old dial-up modems). More recently, TNC modems that interface with smartphones have been created. And these are awesome projects! But at its core, HamMessenger was created in the shadow of my simple childhood experiences. I wanted a portable device I could connect to my handheld radio that was completely self-contained, with a keyboard, screen, and GPS receiver all built in.

First, I would need to nail down the hardware and software I was going to use. I found MicroAPRS, which is an open-source and Arduino-compatible firmware package for DIY packet radio modems. With MicroAPRS you can quickly implement a full-featured APRS modem with the ability to automatically switch the radio between receiving and transmitting.

This was perfect. I could now focus on the rest of the HamMessenger. I thought about building it around a Raspberry Pi. It would have been cool, but a Pi is overkill. It would need a lot of power, and there's a risk of corrupting the filesystem if you don't do a controlled shutdown, a problem if the battery dies.

I decided on a dual Arduino approach. An Arduino Pro Mini (US \$10) would act as the modem, running MicroAPRS and communicating with the rest of the system via a serial connection. An Arduino Mega 2560 (\$40) would be the central controller, tying together the modem, keyboard, display, and GPS. Rechargeable batteries with a battery-management board would provide the power.



The HamMessenger is compatible with most handheld VHF radios [left] by using an adapter cable [top, middle] that connects to a printed circuit board with a display, GPS receiver, and Arduino Pro acting as a modem [top right]. The PCB plugs into an Arduino Mega [middle right], a GPS antenna [top left], a mini keyboard [bottom middle], and batteries [bottom right]. James Provost

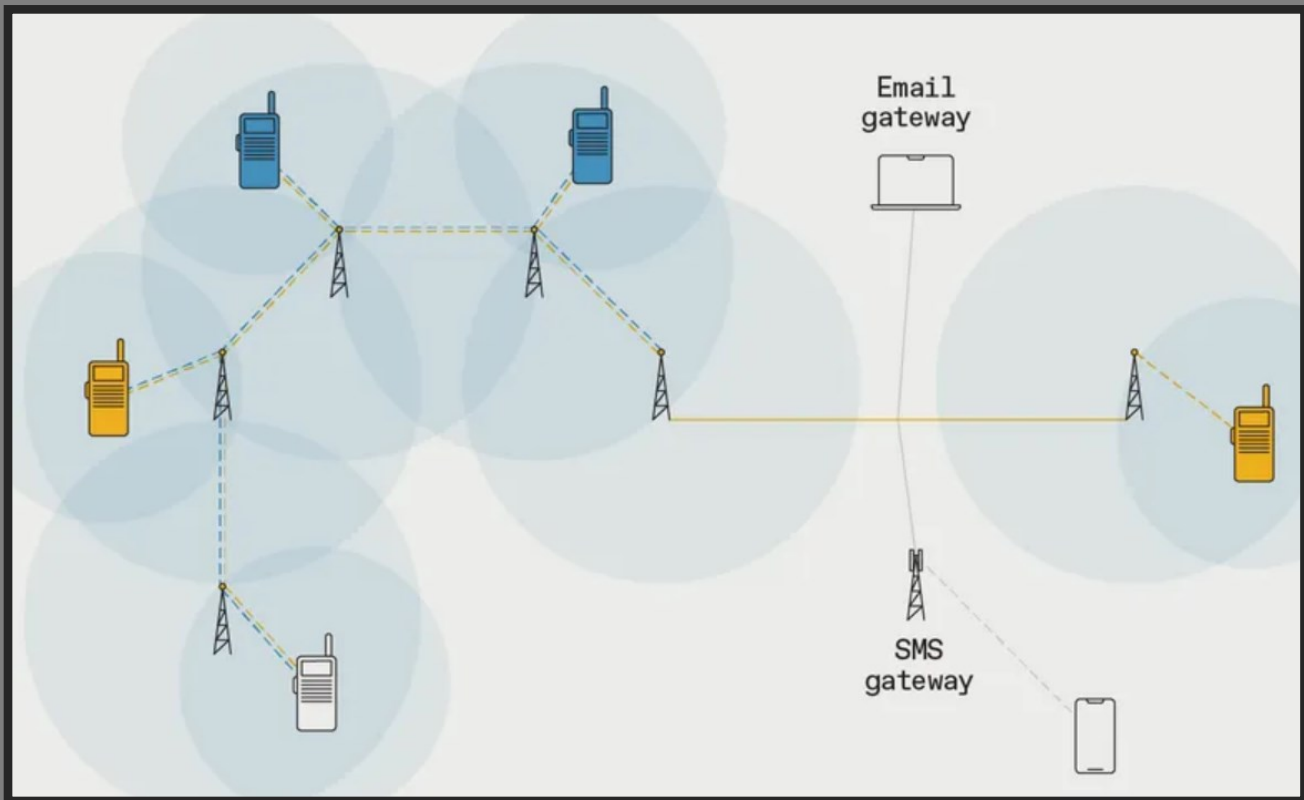
The GPS provides the location data that is integrated into most APRS transmissions. I chose a \$10 NEO 6M-based GPS receiver that is popular with hobbyists for things such as DIY drones. Like my modem, the NEO has a serial interface.

In my initial design, the human input setup was very simple, with just three buttons. One button let me step through displayed menus and modify parameters, one button selected a submenu or set a parameter, and the last button let me cancel a parameter entry or navigate to a previous menu.

Ultimately, because of the difficulty of using the buttons to enter text messages, I replaced them with a mini CardKB QWERTY keyboard (\$8.50). However, the limits of the three-button system forced me to simplify the HamMessenger's user interface as much as possible, something I am very thankful for now, as it means the HamMessenger is easy to operate with just a basic knowledge of APRS.

For the display, I chose an OLED screen for its power efficiency. The only drawback for hobbyist OLEDs is their small size. The 0.96-inch displays are the most common, but I was able to find a \$9 1.3-inch display that communicates via an I2Cserial bus.

The final modular component I needed for the HamMessenger was some nonvolatile storage for received messages. I decided on a micro-SD card reader because they natively speak the SPI Interface protocol.



The Automatic Packet Reporting System relies on a backbone of digital repeaters, or digipeaters, that repeatedly retransmit messages sent by handheld and other radios. Other digipeaters that pick up the signal in turn will retransmit the message up to a specified number of hops. Some digipeaters are connected to the Internet, which allows the user to send messages to distant digipeaters or relay them as cellphone SMS messages or emails. James Provost

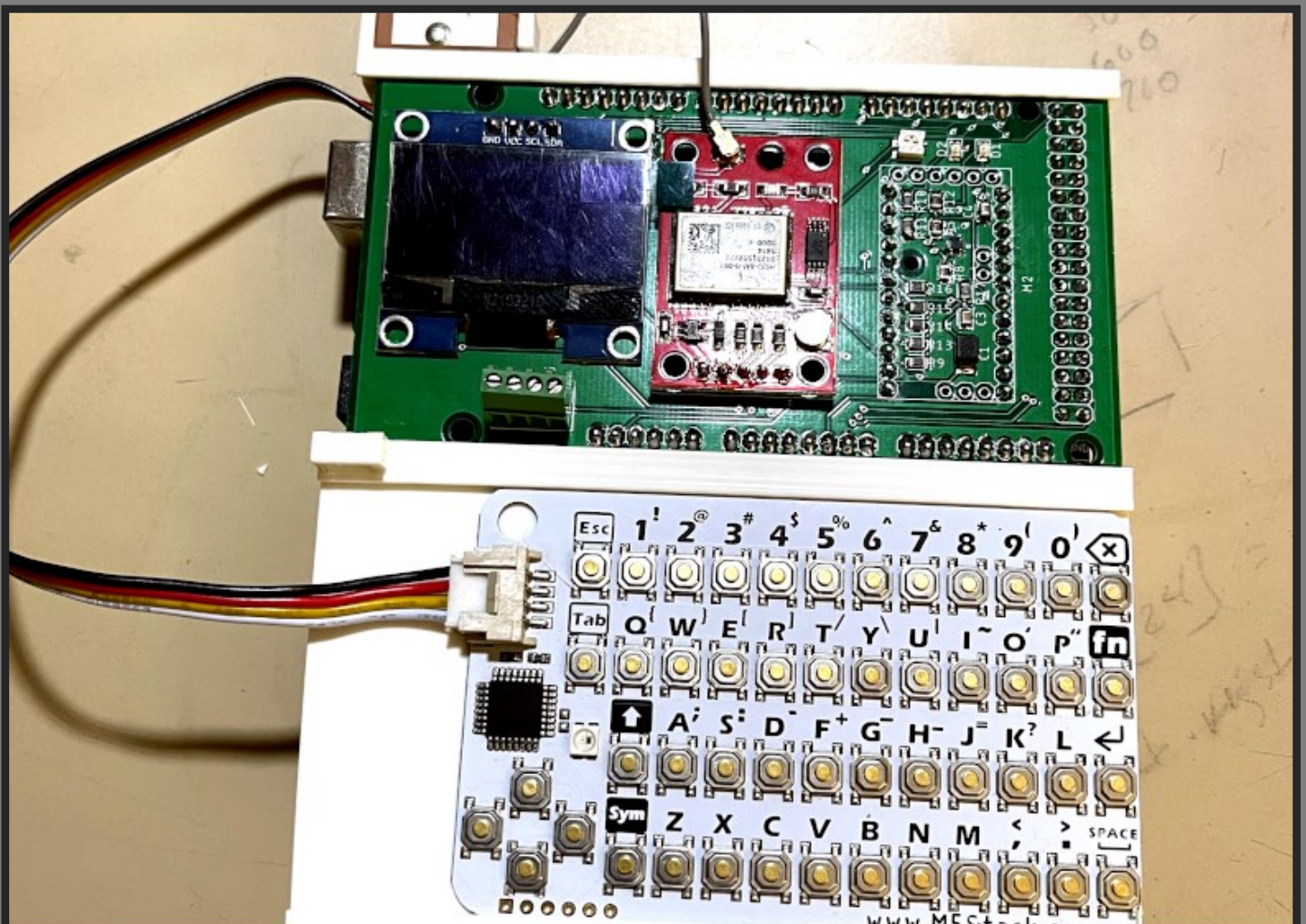
All of these feed into the Arduino Mega. The Mega was chosen for the central controller as it doesn't need a lot of power, yet has enough resources to handle all the different module connections—two serial, two SPI, and one I2C connection. (And then I added a third serial port so you can control the HamMessenger with a PC or other device using an ASCII-based API.)

I designed a shield (a printed circuit board that accommodates the modules and some supporting circuitry that simply plugs into the top of the Mega), using Autodesk's Eagle, and then used the shield design files to help create a 3D-printed enclosure in Fusion 360 (full details are available on the HamMessenger GitHub page).

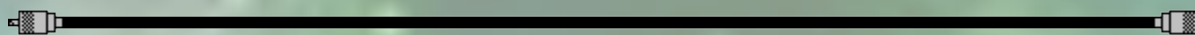
Currently, the HamMessenger is still in a prototype stage, but it works well. I have a HamMessenger installed in my truck that doubles as a location beacon. It will never replace a cellphone for most people, of course, but those in places without coverage might find it useful. Still, it was primarily created as a way to promote electronics and alternative uses of amateur radio, and if you want an easy way to learn and blend these hobbies, then I think the HamMessenger is a great way to do that.

*This article appears in the December 2021 print issue as "Phone-Free Texting."*

<https://spectrum.ieee.org/ham-radio-text-hacking>



# FEATURED HAM SITE OF THE MONTH:



<https://www.dxzone.com/catalog/Software/>



Ham radio software  
Ham radio software collections

THE DXZONE NEWS REVIEWS LINKS INSIDE DXZONE

HAM RADIO SOFTWARE ANTENNA PROJECTS TECHNICAL REFERENCE DXING HAM RADIO EQUIPMENT OPERATING LISTENING MORE

## SSTV FAX WX Software

A very complete ham radio software collection for SSTV, FAX, and WX

## Freeware for Amateur Radio

Programs for hams written by Alex Shovkoplyas

## Raspberry Pi Ham Radio Packages

Collection of Amateur radio packages for the Raspberry Pi devices

THIS MONTHS FEATURED WEBSITE IS ALL ABOUT SOFTWARE AND DIVERSITY.

DXZONE CONNECTS YOU WITH MANY NEW AND EXCITING MODES, PROGRAMS, IDEAS, PROJECTS AND MORE...

CLICK THE LINK ABOVE AND TAKE A TRIP DOWN THE RABBIT HOLE.

## Software

ACARS ADS-B Aircraft scatter  
Android Antenna analysis  
Antenna rotor control APRS  
Audio Recorders Audio Streaming  
Awards tracking  
Beacon Monitoring  
Browser extensions Circuit Design  
Clip Art Collections\* Contesting  
D-STAR Databases Decoders  
Developer Resources Digital SSTV  
Digital Voice DRM DSP  
DX Cluster EME Filter Design  
Front Panel Design  
Grid Bearing and Maps  
Ham Exam Hellschreiber  
Internet Linking iPhone JT65  
Legacy Systems Linux  
Log Analysis Log Converters  
Logging Low Frequency  
Macintosh Morse Code Decoders  
Morse Code Training Multimode  
Navtex NBEMS Olivia  
Oscilloscope Packet  
Packet Cluster PIC Programmer  
Propagation PSK31 QSL  
Radio Control Radio Programming  
Repeater Control  
RF Coverage Mapping RTTY  
Satellite tracking Shortwave  
Signal Generator  
Software Defined Radio  
Spectrum analyzers SSTV Time  
Utilities Vector Network Analyzer  
Virtual Audio Software  
Virtual Serial Port Voice Keyer  
Voice tools Weak Signal  
Weather and FAX

## NEW MEMBER: KD2YBU—GREG BRIGGS

*S.T.A.R.S WOULD LIKE TO INTRODUCE AND WELCOME NEW MEMBER GREG BRIGGS- KD2YBU.*

GREG IS A PART TIME RESIDENT OF NY, BUT SPENDS MANY MONTHS (SPECIFICALLY THOSE THAT BRING THE BAD WEATHER, COLD, AND BAD DRIVERS) IN LAKE HAVASU, ARIZONA.

HE RECENTLY MADE THE TRIP OUT THERE AND HAS BEEN USING HIS HANDHELD AND HOMEMADE J-POLE ANTENNA, IN BEAUTIFUL LAKE HAVASU ARIZONA, TO CHECK IN TO OUR LOCAL 2M/70CM NET ON TUESDAY EVENINGS VIA IRLP.

HE CONNECTS TO US VIA IRLP NODE: 3970 SO IF YOU HEAR THE NODE CONNECT AND HEAR HIS CALL, KNOW THAT HE IS ONE OF OURS AND PLEASE TAKE THE TIME TO KEY-UP AND SAY HI!

BELOW CHECK OUT SOME PHOTOS OF HIS QTH AND WHAT WE'RE MISSING OUT ON HERE IN NY.





# The Radio Amateur's Code

**The Radio Amateur is:**

**CONSIDERATE**...He/[She] never knowingly operates in such a way as to lessen the pleasure of others.

**LOYAL**...He/[She] offers loyalty, encouragement and support to other amateurs, local clubs, the IARU Radio Society in his/[her] country, through which Amateur Radio in his/[her] country is represented nationally and internationally.

**PROGRESSIVE**...He/[She] keeps his/[her] station up to date. It is well-built and efficient. His/[Her] operating practice is above reproach.

**FRIENDLY**...He/[She] operates slowly and patiently when requested; offers friendly advice and counsel to beginners; kind assistance, cooperation and consideration for the interests of others. These are the marks of the amateur spirit.

**BALANCED**...Radio is a hobby, never interfering with duties owed to family, job, school or community.

**PATRIOTIC**...His/[Her] station and skills are always ready for service to country and community.

*- adapted from the original Amateur's Code, written by Paul M. Segal, W9EEA, in 1928*

# US Amateur Radio Bands

**US AMATEUR POWER LIMITS — FCC 97.313** An amateur station must use the minimum transmitter power necessary to carry out the desired communications. (b) No station may transmit with a transmitter power exceeding 1.5 kW PEP.



**ARRL** The national association for AMATEUR RADIO®

## KEY

**Note:**  
CW operation is permitted throughout all amateur bands.

MCW is authorized above 50.1 MHz, except for 144.0-144.1 and 219-220 MHz.  
Test transmissions are authorized above 51 MHz, except for 219-220 MHz.

■ = RTTY and data  
■ = phone and image  
■ = CW only  
■ = SSB phone  
■ = USB phone, CW, RTTY, and data  
■ = Fixed digital message forwarding systems only

E = Amateur Extra  
 A = Advanced  
 G = General  
 T = Technician  
 N = Novice

See [ARRLWeb](http://www.arrl.org) at [www.arrl.org](http://www.arrl.org) for detailed band plans.

## ARRL We're At Your Service

ARRL Headquarters:  
860-594-0200 (Fax 860-594-0259)  
email: [hq@arrl.org](mailto:hq@arrl.org)

Publication Orders:  
[www.arrl.org/shop](http://www.arrl.org/shop)  
Toll-Free 1-888-277-5289 (860-594-0355)  
email: [orders@arrl.org](mailto:orders@arrl.org)

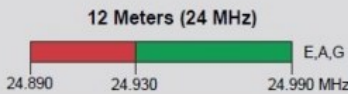
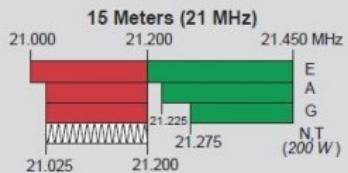
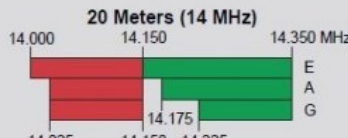
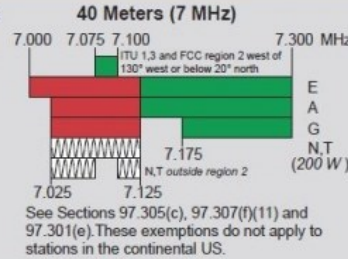
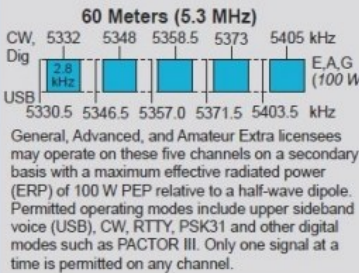
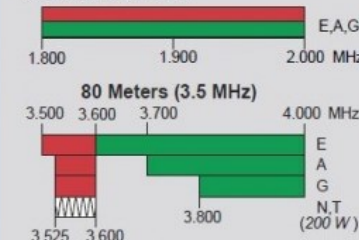
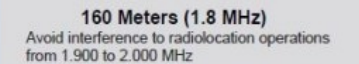
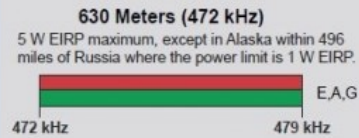
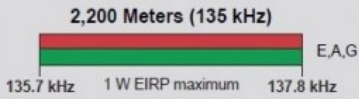
Membership/Circulation Desk:  
[www.arrl.org/membership](http://www.arrl.org/membership)  
Toll-Free 1-888-277-5289 (860-594-0338)  
email: [membership@arrl.org](mailto:membership@arrl.org)

Getting Started in Amateur Radio:  
Toll-Free 1-800-326-3942 (860-594-0355)  
email: [newham@arrl.org](mailto:newham@arrl.org)

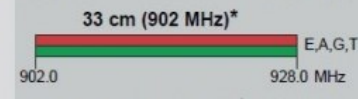
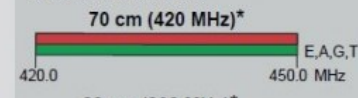
Exams: 860-594-0300 email: [vec@arrl.org](mailto:vec@arrl.org)

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Amateurs wishing to operate on either 2,200 or 630 meters must first register with the Utilities Technology Council online at <https://utc.org/plc-database-amateur-notification-process/>. You need only register once for each band.



\*Geographical and power restrictions may apply to all bands above 420 MHz. See *The ARRL Operating Manual* for information about your area.



All licensees except Novices are authorized all modes on the following frequencies:

2300-2310 MHz	10.0-10.5 GHz ‡	122.25-123.0 GHz
2390-2450 MHz	24.0-24.25 GHz	134-141 GHz
3300-3500 MHz	47.0-47.2 GHz	241-250 GHz
5650-5925 MHz	76.0-81.0 GHz	All above 275 GHz

‡ No pulse emissions

[\(CLICK HERE TO GO DIRECTLY TO THIS IMAGE\)](#)

## HERE IS ARGUABLY ONE OF THE MOST IMPORTANT CHARTS REFERENCED AMONGST OPERATORS.

IN SEEING, READING AND WATCHING ALL THE DEBATE SURROUNDING THE ALLOCATION OF 5G, NEW WIRELESS DATA, ETC... I THOUGHT IT WAS IMPORTANT TO PROVIDE THIS REFERENCE—ESPECIALLY FOR THOSE NEWLY LICENSED TO PIN/PRINT, GANDER AND REFERENCE.

PLEASE TAKE NOTE THAT, THIS IS IT. THIS IS WHAT WE'VE GOT TO WORK WITH!

AS THE SAYING GOES: "USE IT OR LOSE IT!" - SO, LET'S MAKE SURE WE'RE DOING OUR PART, SIGN UP FOR THE ARRL, JOIN OTHER CLUBS, PARTICIPATE IN CONTESTS, RAG-CHEWS AND NETS. GET INVOLVED... WITHOUT ACTIVITY AND ACTION TODAY, OUR HOBBY WILL BE NOTHING TOMORROW!

TIRED OF HEARING "RADIO IS A DYING HOBBY"? - CHALLENGE YOURSELF, LEARN SOMETHING NEW, JUMP ON A NEW BAND—MAKE CONTACTS AND SHARE THE EXCITEMENT OF ALL RADIO HAS TO OFFER.



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BE INFORMED! THIS IS IMPORTANT!  
 CLICK BELOW (BLUE TEXT) TO TAKE A  
 LOOK AT THE COMPLETE .PDF DOCUMENT

### [Mid-Band-Spectrum-and-the-Co-Existence-with-Radio-Altimeters.pdf](#)

This white paper focuses on the need for 5G spectrum to support the wireless cellular industry in low, mid, and high bands. It also discusses the global harmonization of spectrum with technology, and how spectrum supports a broad ecosystem. 3GPP specifications support new spectrum and wider bandwidths ranging from a minimum of 5 MHz – 100 MHz for sub 7 GHz spectrum, and channel sizes of 50 MHz – 400 MHz for frequency ranges above 24 GHz. For operators to deliver on the promise of 5G, regulatory bodies must ensure harmonized spectrum availability across low, mid, and high spectrum with timely allocations.

- *Low bands: Sub-1GHz supports wide area coverage and indoor coverage, and brings the 5G advantage across urban, suburban, rural regions.*
- *Mid bands: Ranges between 1 – 6 GHz and provides balanced coverage and capacity. More spectrum must be made available in this range to accommodate the wide variety of 5G use cases.*
- *High bands: mmWave ranging from 24 – 71 GHz provides high capacity and ultra-high speeds but lacks coverage and indoor penetration.*

To facilitate 5G deployments that can serve a variety of use cases, it is imperative that spectrum is made available across all three frequency ranges. Regulatory bodies throughout North America have been actively working towards the introduction of new bands to support 5G. In the United States, there has been an extensive push towards the allocation of spectrum for 5G services. Within the last couple of years, the FCC has released spectrum which has paved the way for those in the US to receive 5G wireless services.

The recent C-band (3700 MHz – 3980 MHz) spectrum auction was the biggest auction in FCC history. ISED, the Canadian regulatory body, has also been active in identifying and designating new spectrum for 5G services. ISED is planning to auction the 3450 – 3650 MHz band on June 15, 2021.<sup>1</sup>

# 5G (C-Band) Interference with Radar Altimeters in Aviation!?

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**Figure 3-1: Spectrum Illustration Showing 5G Fundamental and Spurious Emissions**

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BUT, WHAT IS 5G?

## The WIRED Guide to 5G

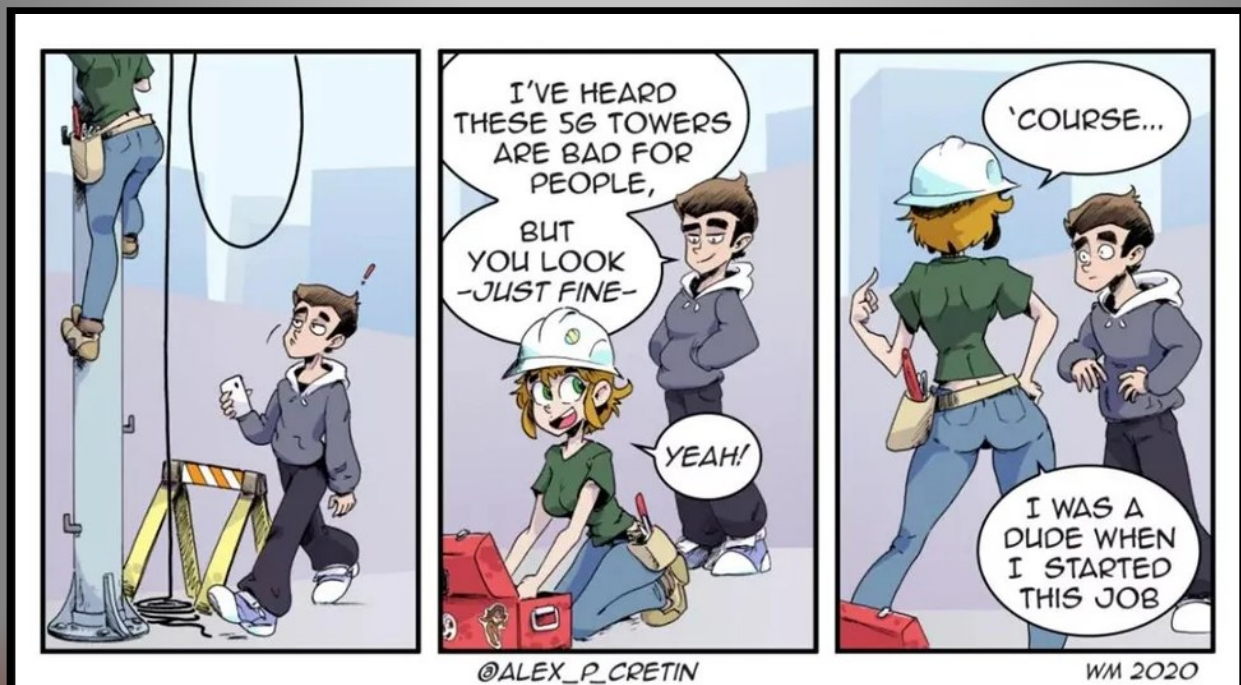
Here's everything you'll ever want to know about the spectrum, millimeter-wave technology, and why 5G could give China an edge in the AI race.

THE FUTURE DEPENDS on connectivity. From artificial intelligence and self-driving cars to telemedicine and mixed reality to as yet undreamt technologies, all the things we hope will make our lives easier, safer, and healthier will require high-speed, always-on internet connections.

To keep up with the explosion of new connected gadgets and vehicles, not to mention the deluge of streaming video, the mobile industry has introduced something called 5G—so named because it's the fifth generation of wireless networking technology.

The promise is that 5G will bring speeds of around 10 gigabits per second to your phone. That's more than 600 times faster than the typical 4G speeds on today's mobile phones, and 10 times faster than Google Fiber's standard home broadband service—fast enough to download a 4K high-definition movie in 25 seconds, or to stream several at the same time.

FULL ARTICLE: <https://www.wired.com/story/wired-guide-5g/>



# Diary Of A DXpedition

(For Those Who Can't Afford A DXpedition)

Matt Oreskovic WA2JLF ex-KD2UMP  
1425 Abbott Road  
Lackawanna NY 14218

Isn't it a shame that the world has lost its sense of humor. Even hobbies have to become avaricious pursuits. And isn't it a shame that life passes you by so quickly that you never get a chance to do a lot of things that you always wanted to do. I know guys who dream of operating their rigs from exotic places, basking in the sun, tossing down cool rum drinks, or checking into a net each day for a prolonged chat with friends on the airwaves until the "Big Net Control" in the sky 73's them for the last go-round. Me, I'm still chasing DX from a cold basement before and after work, fighting it out with the big boys feeding stacked beams up a wavelength, usually getting clobbered. I'll end up in Pooped Payton Place with the best of 'em tending my travel trailer and making TVI for the other trailer park tenants while running traffic north to the kids QTH. So before my SB102, SB640, SB200 get the final tag that says "from the estate of the late WA2JLF" I'd like to be an exotic station, sought after, piled on, cursed and given undeserving complimentary signal reports. I have some buddies that harbor the same dreams. "We'll probably never get to Market Reef or Swan Island." was our cry, until we got our heads together for a poor-man's DXpedition. So this is the true story of a handful of ordinary guys who had a dream come true for twenty-four hours.

It all started the fall of 1970 when a

DXpedition to Swan Island occupied the DXers' time. I thought, what the heck, why not have a DXpedition of my own? I discussed it briefly with Zero (WB2ZMO) and Frank (W2RSJ). The next morning driving into town. I talked it over on 2m FM with Joe (K2DSO), an oral surgeon.

I knew of a location with an exotic-sounding name and carrying with it the required difficulties of getting permission to use the place, plus the possibility of getting a call sign that would be distinctive. The location was Squaw Island, located 42 degrees fifty-five minutes 48.5 seconds north latitude, 78 degrees 54 minutes 14.5 seconds west longitude; it lies wholly in American waters between the United States and Canada. The waters west of the island are not navigable except for small powerful craft. Joe (K2DSO) and I had KJ2UNK in mind as a call sign, but the Buffalo FCC office suggested that the call sign would confuse people because of its use on Johnson Island. KD2UMP was chosen, and we are sworn to secrecy as to the originator of the call.

All planning for the DXpedition was taking place on 2m FM, and most listeners thought it was some sort of gag. The Western New York 2m FM bunch is not adverse to pranks such as sending ARRL Official Observer cards to innocent souls for "excessive monitoring." I might add the cards were obsolete, as was the call of the "Official Observer." The counter-



Joe Margarone (K2DSO) (l.) receiving proclamation from Mayor Frank A. Sedita. This was a milestone in the legitimizing of KD2UMP.

attack for the phony cards was planning an imaginary microwave project using helical polarity from left to right – or was it right to left. Bags of opened and used food were to be found on the doorstep of WB2QDA's QTH weekly while he was out on strike. A Canadian user of our repeater, VE3ADO, offered to show me how to put an ac plug on a piece of lamp cord. I might add that he will be the subject of "massive retaliation" when he returns from VK land.

The DXpedition was not a gag, and the deeper we became involved in the project, the more believers joined the ranks. At a meeting of BARRA (Buffalo Amateur Radio Repeater Association) Joe (K2DSO) asked for support for the DXpedition. The response was unanimous, as was the response of the South Towns Amateur Radio Society of which I was president. I think the fact that we forgot to ask for money helped railroad the "support resolution" in both clubs. We still had to get a call assigned and a bona fide reason for the DXpedition. The request was drafted and redrafted until it stated the specifics of the desired call, and when the last and final draft was ready for typing we crossed our fingers and hoped that we could get a special call for Squaw Island.

Nearly a month went by and we passed the deadline for any big amateur magazine publicity. The call KD2UMP was finally granted for a twenty-four hour period of time for April 1, 1971, 0000 to 2400 GMT. The real work was just beginning.

I did not know a soul who had been to Squaw Island, and frankly didn't know any legal way of getting to the island to do some necessary scouting. We went ahead with plans anyway. It was immediately evident that several backups for every item necessary would have to be considered. At the appointed hour we could fall back on secondary choices for antennas and rigs, not to mention operators, workers and living accommodations. We now entered the "promise" stage of planning, a time during which souls of good intent tend to promise more than they are capable of delivering. As an example, we were promised – I might add unsolicited – a telegraph pole in excess of forty feet, set in the ground, electric power, and a travel trailer. I don't remember if the "promisee" offered to furnish food and drink for both days or not. Hollow promises tend to waste a lot of time because you have to go through the ritual of calling the promisee until he finally comes to his senses and begs off from the promise.

We would need a tower to support a beam; a ladder that can extend to twenty-five or thirty feet with an eight foot mast would do nicely, and I had such a ladder. We purchased some good nylon line for guying the ladder, and the tower was in the bag. Our South Towns ARC had a beam that was left drooped over a roof after our County Fair episode. A cold winter afternoon liberated the beam and we headed to the clubhouse at a former Nike base to get a 22 amp generator to power the encampment planned for Squaw Island.

Problems began to compound; the generator had a stuck valve and a broken needle valve. Winter claimed a toll on one of the beam traps. My trailer needed some unexpected repair, another trailer had to be taken from winter storage, a

# KD2UMP



## SQUAW ISLAND DX-PEDITION

QSL card for DXpedition. Bottom row: Lee (WB2QDA), Ted (WA2HKS), Bob (WA2VVF). Standing: Frank (W2RSJ), Matt (WA2JLF), Zero (WB2ZMO), Joe (K2DSO).

third could be had if we could repair a faulty furnace. During this phase, three of us — W2RSJ, Frank, and WB2ZMO — were the only ones doing the physical work connected with repairs and getting the rigs we planned to take along readied. K2DSO was hopping around getting the paperwork taken care of.

Squaw Island has much trivial history attached to it. For example, it was the staging point for an invasion of Canada by a group of Irishmen around the turn of the century. The group were members of the Fenian Society; they crossed over into Canada and occupied a town near the eastern shore for a period of several hours until a contingent of Canadian Provincials routed the party of twelve or so and confiscated their rowboats. During the era of prohibition of the sale of alcoholic beverages in the U.S., smugglers used Squaw Island for a haven. Cottages and boat houses dotted the western shore. After repeal of prohibition, the cottages were taken over by squatters who just recently were forceably evicted

by the authorities. So — during the night at least, the island is uninhabited save for wild dogs, wild cats, and rats.

Up to the present time the island has not had a moment of glory. It usually gets a big guffaw from those who know about it. It suffers from gigantic indignity. No one cares about Squaw Island. It is the Orphan of the Antilles, not in the least helped by the fact that Squaw Island (connected to Bird Island by a breakwater and land fill road) is the site of the Buffalo garbage incinerator and sewage treatment plant. There it is, for those of you who suspected, for those of you who knew, and finally those of you who looked into the Atlantic or Pacific waters for the Island of Squaw.

On March 31, 1971, a small band of hams made the trip to Squaw Island to set up the first Amateur Radio Station ever on this desolate piece of land. We found an excellent spot at the last digester tank which was built over land belonging at one time to Squaw Island. Digester tanks function like huge septic tanks. Bacteria work and feed on the waste and liberate gases which are incinerated to burn some of the solids that come from the sewage system.

April first is a bit early for the annual tomato plant sprouting which takes place at the solids dumping ground. Liquids are chemically treated and discharged into adjacent water. The garbage is disposed of in much the same manner of incineration except settling and digesting aren't required, just storage until room is available in the incinerator. An odor familiar, yet unusual, is first noticed when you arrive, but one gets accustomed to it after awhile. Two days and two nights usually do the trick, and it's only after you get home and get a whiff of that old pair of coveralls that memories are brought back.

The erection of the antennas was fast and workmenlike. W2RSJ had a connection with a crew that had access to a cherry picker crane that could be extended to a height of thirty-five feet. This facilitated matters, and we had



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everything ready but the living and operator quarters a day before "D Day."

Shortly after the travel trailers were parked and hooked up and the generator purring, we were paid a visit by a guy who could jump center on my basketball team any time. Let's face it, most hams look like refugees from an old Edward G. Robinson movie - I do - and this guy was no different. He greeted me with a bunch of call letters and then proceeded to follow me around like a pet dog. Never having been formally introduced, and having a lot of unattended gear around on the 31st of March, I was concerned about warm bodies roaming in and out of trailers, especially if no one knew who they were. I wondered how the "string bean" got wind of our location, since the local papers only carried a small item about the Mayor of Buffalo proclaiming the first of April as Radio Amateur Recognition Day, and the radio and TV stations had not carried the item because the release was for the next day. I decided to have all strangers not connected with the sanitation and sewage department evicted, and since Lee (WB2QDA) was a southerner and possessed the proper tone and command presence to evict strangers, the duty of ridding our encampment of strangers before Radio Amateur Recognition Day fell upon him. About ten minutes after my decree, Lee came into the operating trailer and informed me that "String Bean" bought his way into the expedition by offering us the use of his Signal/One, Collins 30L1 and a trapped "V." That in itself should buy anyone into a DXpedition. Now I listened a little closer: WB2OEU was his call, Fred was his name, and he had an Extra Class Ticket. I said, "Okay, you're in, but bring your own food, drink, and a bedroll." I got to know Fred quite well during the stay on the island, and much of our work on 75m was WB2OEU's fine operating.

We began using our own calls as portable to test the equipment about 1800 GMT and were disappointed that the propagation would not be optimum that evening. About 2100, strangers invaded the area and all indicated that

they were hams. At one point there were twelve people watching operations in the operating trailer that could hold only four operators comfortably. Some of the scoffers came by to "help" after all the work was done and the fun ready to begin. Seven of us had done the leg and paper work, the assembly of equipment, the erection of equipment, and now we were being offered "help." One cigarette being snuffed out on my trailer floor and a paper cup of coffee atop my linear was not enough to arouse my ire - but when cables and cords were being upset, I saw red and probably made a lot of enemies among the ham community.

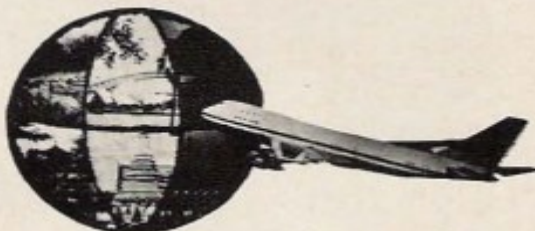
We logged nine hours of CW on forty with a little DX; we gave Squaw Island as the QTH. For those more curious we gave the geographic coordinates. Unless you're accustomed to copying three-letter code groups or you moonlight as a ship's radio operator, forget it. We have tapes of contacts who were given geographic coordinates and their comments are rare entertainment every time we listen to the playback. By 1100 GMT, twenty started to turn hot and we had a ball with European stations. We added a further clue to the location of Squaw Island, "We're four hundred miles from New York City." This disclosure placed us in the Atlantic Ocean to some listeners. Good Samaritans, helpful to a fault, began warning stations that we were bootleggers operating a 10 kW transmitter. We dropped another hint . . . we had a paragraph on page 101 of QST March 1971 issue . . . still we were thanked for a "New Country" by calling stations. Old residents of the area called in and went along with the DXpedition; one was so dumbfounded he said, "Why, that's the city dump!" I might add that some Good Samaritans recorded on tape cannot be found in any Callbooks, but they do have class in selecting calls.

What did we accomplish April 1st? Well, forgetting the work, we did have a lot of fun. We did set up a first-class operating facility efficiently and quickly that could be activated once again if an emergency arose. Amateur radio was

publicized in the press and the public was made aware of our existence. K2DSO appeared on TV for a full half-hour interview show. We have two speaking engagements booked to date; we have several shoe boxes of QSL cards to reply to, and what is most important, Rare DX came toward the U.S.A. for a change. Would we do it again? Well, maybe not Squaw Island, but there are other islands waiting to be conquered, and just yesterday the airline pilot member of our DXpedition (WB2QDA) suggested that he could get a "chopper" to airlift our party to the brink of Niagara Falls to give the world one of the Three Sisters Islands. How does KS2SSY sound? Or a station on Goat Island even closer to the brink of the falls, KG2OAT?

...WA2JLF■

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[RENEWAL FORM \(CLICK HERE\)](#)

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Are you a member of the ARRL? YES  NO

Please list any other amateur radios clubs you belong to: \_\_\_\_\_  
 Do you know a club member? If yes, who? \_\_\_\_\_  
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## South Towns Amateur Radio Society 2022 Membership Renewal

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Phone \_\_\_\_\_

Email Address \_\_\_\_\_

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Call \_\_\_\_\_ Name \_\_\_\_\_ Class \_\_\_\_\_

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Just a friendly reminder of the STARS Amateur Radio Society Facebook Page...

If you are on Facebook—stop by, like and share!

Here is a link: <https://www.facebook.com/WB2ELW>

The screenshot shows the Facebook profile for the STARS Amateur Radio Society. At the top, there are navigation icons for home, notifications (with a '2' badge), friends, and a page icon. The main image shows six men standing in a room. Below the image is the profile picture, which is a circular logo with a star and the text 'South Towns Amateur Radio Society STARS WB2ELW'. To the right of the logo is the page name 'STARS Amateur Radio Society' and the handle '@WB2ELW · Nonprofit Organization'. A blue 'Learn More' button is visible, along with the website 'wb2elw.net'. Below the profile information are tabs for 'Home', 'Community', 'Events', 'Photos', and 'More'. There are also buttons for 'Liked', 'Message', and search. The 'About' section on the left includes a map showing the location at '2982 Lakeview Rd Hamburg, NY 14075' and a description of the group. The 'Create Post' section on the right offers options for 'Photo/Video', 'Check in', and 'Tag Friends'. A 'PINNED POST' section features a post from June 15, 2017, with the text 'Check out our Community tab to see all the great posts from people who like our page!' and a link to 'www.facebook.com'. The post has 1 comment and is liked by 'You and 2 others'.



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THANKS ESPECIALLY TO MIKE (KB2FX) AND KEN (KC2AYK) FOR HANDLING THE TECHNICAL SIDE OF THINGS, BEHIND THE SCENES.... IT'S A LOT OF WORK AND WE ALL APPRECIATE YOU!  
-STARS MEMBERS

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 Special Events Chairs Joe Claus KB2JDB  
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 Telstar Editor Matthew Ovitt KD2UOE  
 VE Team Liason Bob Koster KA2WYE  
 Webmaster



# GIZMOS, GADGETS AND WHAT-HAVE-YOU!?

LOOKING FOR SOMETHING? GOT SOMETHING TO SELL OR TRADE?  
THAT'S WHAT YOU'LL FIND HERE!

FEEL FREE TO SUBMIT YOUR I.S.O. (IN SEARCH OF) OR WANTED TO  
SELL AD TO THE TELSTAR AT:

**TELSTAR@WB2ELW.COM**

IN HOPES TO FIND OLDER LAPTOP (XP). MUST HAVE RJ45 JACK FOR NET  
CABLE AND SERIAL (DB9) PORT... PLEASE CONTACT JOE IF YOU HAVE  
SOMETHING - HE IS DESPERATE AND WILLING TO BARTER OR BUY IN A  
SELLERS MARKET.

**-JOE KB2JDB**



# GIZMOS, GADGETS AND WHAT-HAVE-YOU!?

**Cushcraft #10-4CD 4 element 10 Meter yagi on a 16' boom (new-still in the box) \$175.00**

**Cushcraft #A503S 3 element 6 Meter yagi on a 6" boom (new -still in the box) \$130.00**

**Alliance #HD-73 heavy duty antenna rotator w/control box and length of control cable (like new) \$150.00**

**Midland #23-126 field strength indicator/standing wave bridge (vintage) \$15.00**

**Heathkit #GD-1B grid dip meter w/coils (vintage) \$15.00**

**Vibroplex keyer paddle (vintage) s/n 260796 \$20.00**

**Heathkit #DX-35 (vintage) 50 watt xtal controlled cw/am transmitter \$50.00**

**Drake #2-NT (vintage) 70 watt xtal controlled cw transmitter \$50.00**

**Bird #25-T-MN 25 watt RF load (new) \$20.00**

**Microwave Assoc. #44004 100 watt RF load (used) \$50.00**

**Antenna mount kit (chimney) up to 1-1/2" mast \$15.00**

**1 pr heavy duty galvanized mount brackets wall or pole to antenna mast \$20.00**

**1 pr heavy duty galvanized mount brackets pole to antenna mast \$30.00**

**1 pr heavy duty galvanized mount brackets telephone pole to antenna mast \$50.00**

**Anyone interested in any of the above can contact me by e-mail or telephone ([WA2YSJ@roadrunner.com](mailto:WA2YSJ@roadrunner.com) or 716-947-4974 there is an answering machine)**