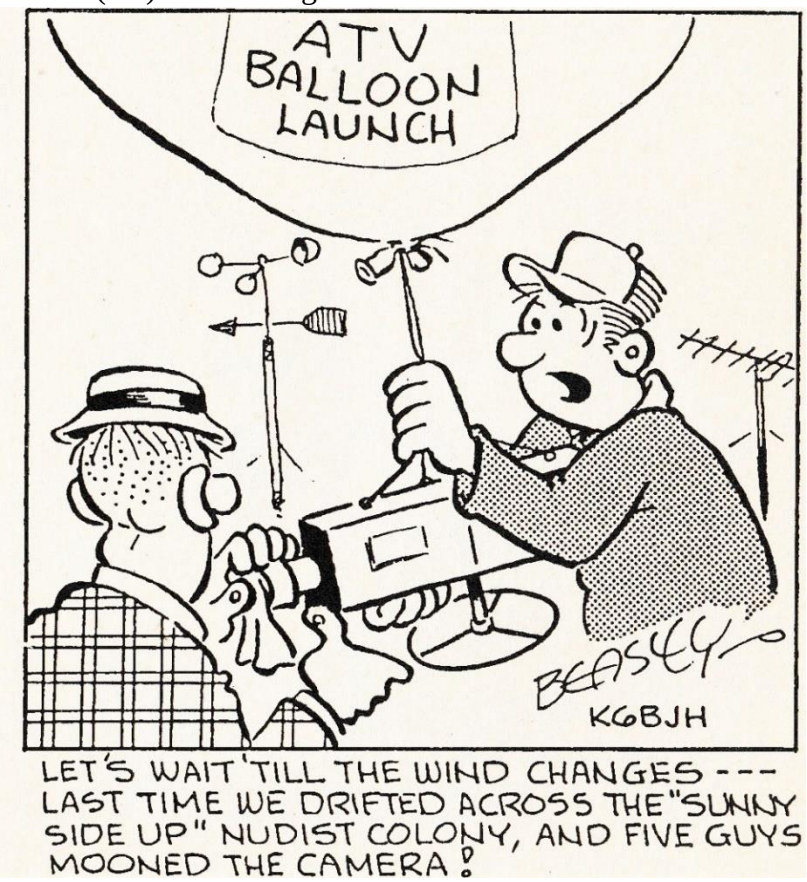
ATCO NEWSLETTER

VOLUME 38 NUMBER1 **January 2021**

The ATCO newsletter is the official publication of a group of amateur television operators known as "AMATEUR TELEVISION IN CENTRAL OHIO Group Inc" published quarterly (January, April, July, and October)

ATCO SPOTLIGHT TOPICS

Thanks to Beasley, K6BJH (SK) for allowing us to share his cartoons.



ACTIVITIES ... from my Workbench

Hold on guys, I see better times coming. However, just when I thought 2021 was going to be much better, I got a notice that Hamvention is cancelled again this year. There are still a few Hamfests listed that haven't been cancelled yet but if things don't get better soon, they too will be in jeopardy. What's a person to do??? Almost two years without a Hamfest??? Wow! Let's think about this. We've had all this time in quarantine to clean out the Hamshack and prepare the unused "stuff" for a Hamfest recycle. Now, it's all piled up and ready to go. But wait…we also have plenty of time to look that stuff over again and re-decide if it should REALLY go. So, my bet is that it'll end up back on the shelf in different positions to see the other side of the item. Resting there, it looks new again so you keep it! I guess if you have enough time to think about it, nothing will change!

The repeater is working but in need of the attention I stated last time. I haven't checked to see if I can gain access for maintenance lately but personally, because of the pandemic, I'd rather just stay away from there as long as it stays running. I'd REALLY like to repair or replace the MESH antenna but it's too cold to work on now even if they let me in there to do it. It's looking like a 2021 summer project now.

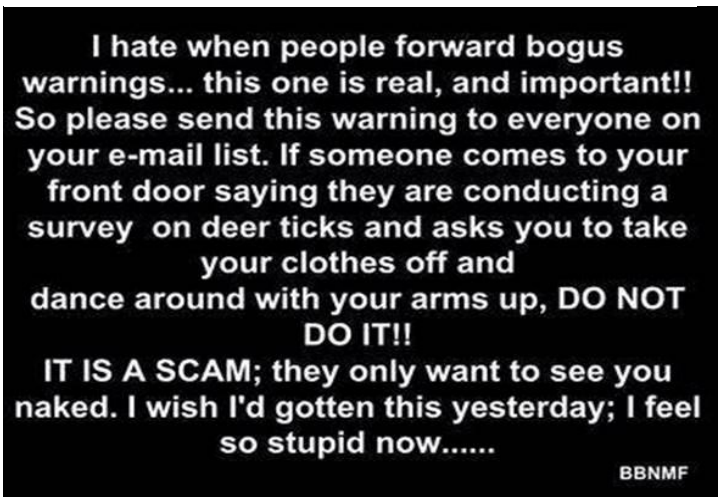
Everyone, including "out-of-towners", are welcome to join us on ZOOM every Tuesday evening at 8PM EST. We normally have 15 check-ins from all parts of the world bringing in a wealth of ATV related information and other topics. The informal roundtable discussion lasts about an hour so join in if you can. ***I notice there are 3 on our membership list that haven't paid since 2018. I hope they could join us on ZOOM on Tuesdays and stay active. I'd hate to drop them off the Email listings just because of that so I'd like to hear from them.***

To join ZOOM for the first time, simply type **https://zoom.us/join** then download, install the .exe program and run it. ZOOM will automatically start. Then, click on join, enter the **9670918666 meeting ID** then the **191593 password.** Use video or just audio if you don't have a camera.

The DARA ATV ZOOM Net in Dayton is on Wednesday also at 8PM using this same link and password.

I found some extra RF adapters laying around so……
(You never have enough connector adapters)

This didn't happen to me but if I don't warn you, it's possible **you** could be in the next Newsletter!



…WA8RMC

NSF TO DECOMMISSION ARECIBO RADIO TELESCOPE

by Jeff Foust — November 19, 2020

An image of the Arecibo radio telescope in Puerto Rico taken by a SkySat satellite Aug. 10 shows the hole in the telescope's dish caused by a cable that broke earlier that day.

WASHINGTON — The National Science Foundation announced Nov. 19 it will perform a "controlled decommissioning" of the giant radio telescope at the Arecibo Observatory in Puerto Rico, citing recent damage that made it unsafe to operate or even repair.

In a call with reporters, NSF officials said two broken cables used to support a 900-ton platform suspended over the telescope's 305-meter main dish put the entire structure at risk of collapse. One cable slipped out of its socket in August, falling to the dish below and damaging it, while the second broke Nov. 6

Both cables are attached to the same tower, one of three surrounding the main dish. "The engineers have advised us that the break of one more cable will result in an uncontrolled collapse of the structure," said Ralph Gaume, director of the NSF's Division of Astronomical Sciences, referring to cables attached to that same tower. That would result in the platform crashing down to the main dish and potentially toppling one or more of the towers.

Engineers advising the NSF and the University of Central Florida (UCF), which operates Arecibo for the NSF, concluded that it was not possible to safely repair the structure because of the collapse risk. "After the recent failure, WSP does not recommend allowing personnel on the platform or the towers, or anywhere in their immediate physical vicinity in case of potential sudden structural failure," stated WSP, one engineering firm involved in that analysis, in a Nov. 11 letter to UCF.

"NSF has concluded that this recent damage to the 305-meter telescope cannot be addressed without risking the lives and safety of work crews and staff, and NSF has decided to begin the process of planning for a controlled decommissioning of the 305-meter telescope," said Sean Jones, assistant director of the NSF's Mathematical and Physical Sciences Directorate.

Engineers are working on a plan to carry out that controlled decommissioning, which will take several weeks to complete. "The execution of that controlled decommissioning is unknown at this point," Gaume said. It could be done "very rapidly" if explosives are used to bring down telescope structures, he speculated.

One engineering firm did recommend the use of explosives to demolish parts of the telescope. "We believe the structure will collapse in the near future if left untouched," said a Nov. 12 report by Thornton Tomasetti to UCF. "Controlled demolition, designed with a specific collapse sequence determined and implemented with the use of explosives, will reduce the uncertainty and danger associated with collapse."

NSF officials also declined to speculate on the cost of decommissioning the telescope, saying they would work with the White House Office of Management and Budget and Congress on how to pay for it. A 2016 environmental assessment prepared by the NSF, developed as part of efforts by the agency to divest itself of older astronomical observatories, estimated deconstruction costs of $10.6 million to $18.7 million, depending

on which structures were abandoned in place versus completely removed. Gaume cautioned that those estimates are several years old and would need to be revisited as part of the decommissioning planning.

“While we are saddened by the loss of the facility, we commend [NSF Director] Dr. Sethuraman Panchanathan and his team for prioritizing the lives and safety of observatory staff and repair crews throughout this process,” Reps. Eddie Bernice Johnson (D-Texas) and Frank Lucas (R-Okla.), chair and ranking member, respectively, of the House Science Committee, said in a statement. The encouraged the NSF to continue to use the observatory for educational outreach and “to explore opportunities to use the site for exciting new science in the future.”

Engineers are still studying why the two cables broke. The first cable was one of set of auxiliary cables installed in the 1990s to reinforce the observing platform. The second was one of the main cables dating back to construction in the early 1960s. That main cable broke despite being subject to stresses of just 62% of its rated strength.

The unexpected main cable break led engineers to conclude all of the other cables are at similar risk of failure. Ashley Zauderer, program director for Arecibo at NSF, said the cables had been maintained according to plan throughout the history of the observatory, and inspections after a series of earthquakes less than a year ago “did not report any unusual findings.” She said that the main cables, made in the 1950s and 1960s, “were designed in such a way that it was hard, even with regular maintenance such as painting, to keep moisture and other things from seeping in.”

After the initial auxiliary cable broke, the observatory had been working on a repair and stabilization plan that included installing a more modern monitoring system that could have caught issues with the main cables. “It is truly unfortunate that this main cable failed before we had a chance to get things stabilized,” she said.

Decommissioning of the telescope is not the same as completely closing the entire Arecibo Observatory, NSF officials said. A lidar there used for atmospheric studies will remain, as well as a visitors’ center. The decommissioning process will seek to preserve buildings used for observatory operations that are located at the base of one of the towers.

However, the decommissioning of the radio telescope is a blow to both astronomers and planetary scientists, who used the telescope for a wide range of research. NASA funded part of Arecibo’s operations, using the telescope as a planetary radar to track and characterize near Earth objects as part of its planetary defense program.

In a statement, NASA said it was not involved in the NSF’s decision, but was kept informed along with other stakeholders, and provided the NSF with some engineering support. “NASA respects the National Science Foundation’s decision to put the safety of those who work, visit, and study at the historic observatory above all else,” it stated.

NASA said that it will rely on the Goldstone Observatory in California for future planetary radar observations. NASA recently brought that facility back to full operations after installing a new klystron for that radar.

Arecibo was the largest radio telescope in the world from the time it was built in the early 1960s until the completion of China’s Five Hundred Meter Aperture Spherical Telescope, or FAST, in 2016. It became part of popular culture through appearances in movies.

ARECIBO SUFFERS FATAL BLOW - INSTRUMENT PLATFORM FALLS

The 900-ton instrument platform of the 305-meter radio telescope at Arecibo Observatory in Puerto Rico fell some 400 feet Tuesday morning, crashing into the huge, already-damaged dish below, the National Science Foundation (NSF) reported. "No injuries were reported," NSF said, adding that it is still assessing the situation. "Our top priority is maintaining safety." The calamity not only was a final and fatal blow for the observatory but for the people of Puerto Rico.

Before the fall: Arecibo Observatory in better days.

Head of Telescope Operations Angel Vazquez, WP3R, called December 1 "indeed a sad day." Vazquez was in the control room at the time, salvaging instruments when he heard a loud noise.

"At around 7:55 AM, the platform collapsed due to the extra stress on the existing cables because of the main cable failure in November. Strands were starting to pop all weekend long, and it was just a matter of time," he told ARRL. "It came off the easternmost tower (T4) and took about 15 seconds. The azimuth arm that housed the dome came off the track, fell into the dish a little north of center and the triangle was pulled by the other existing cables to the northwestern part of the dish. The tops of the towers broke as well. This was a 900-ton platform, and the dome was smashed like an eggshell."

Vazquez said the Observatory still has a 12-meter dish that will be used for radio astronomy, as well as a LIDAR Lab and an Optical Lab with photometers. "The site by no means is closed and it wasn't the intent of NSF to close the facility, he said. "They did want us to stabilize the platform, so it could be lowered safely.

On August 10, an auxiliary cable that helped to support the platform snapped and fell, causing a 100-foot gash in the reflector dish. After an extensive evaluation, NSF announced on November 19 the damaged radio telescope in service for nearly 60 years was beyond repair and would be decommissioned for safety concerns.

Engineers were ready to implement emergency structural stabilization of the auxiliary cable system, but while arranging delivery of two replacement cables and two temporary cables, a main cable broke on the same tower on November 6. Based on the stresses borne by the second broken cable, engineers concluded that the remaining cables were likely weaker than originally projected.

Antenna designer and electrical engineer Jim Breakall, WA3FET, who conducted research at the facility over more than 45 years, told ARRL that his experience with Arecibo began in 1974 when he was a student, and he worked on the first HF ionospheric heating design and calibration of the dish for ionospheric research. He also conducted amateur radio moon bounce experiments there. Later, he designed feeds for radio astronomy and designed and built the HF ionosphere modification facility that fed the dish with a dipole array at the bottom of the huge dish, after Hurricane Georges destroyed the first HF facility some 10 miles away in 1998.

“I built a super contest station on my farm there about 2 miles away using Angel’s call sign, WP3R. It got destroyed in Hurricane Maria in 2017,” Breakall recounted. “I also was on the team for KP4AO in 2010 for EME [moonbounce] and my photo was on the cover of *QST* with Joe Taylor, K1JT. “I was prepared for this, but still never wanted to hear it,” Breakall told ARRL. “It is like losing a loved one when you know they are dying. *Wow*. Who would have ever believed it?”

ARECIBO TELESCOPE AWARDED $8 MILLION FOR POSSIBLE RECONSTRUCTION

Could this initial funding inspire potential U.S. sponsors to donate the rest?

By Loukia Papadopoulos

January 01, 2021 dennisvdw/iStock

On November 20 of 2020, we reported that the Arecibo telescope in Puerto Rico was set to be decommissioned as the National Science Foundation (NSF) estimated that it could not be fixed without risking human life. The decision would bring an end to a tool responsible for 57 years of astronomical discoveries.

New hopes

Now, new hopes have surfaced for the telescope as Puerto Rico has now committed **$8 million** to the device, as reported by *Engadget*. The amount is likely not enough to fix the telescope but it could be enough to delay its decommission.

Puerto Rico Governor Wanda Vázquez signed an executive order approving the **$8 million** amount stating that Arecibo's reconstruction is important as a matter of "public policy." This initial commitment may even inspire potential sponsors in the U.S. to donate the rest of the amount required to completely restore the telescope.

A tough decision

The difficult decision to decommission the telescope came after the two major cables broke resulting in significant damage to the observatory. Engineers of the University of Central Florida (UCF) found that even the other cables showed signs of degradation, fueling concerns that the platform could fall and crash through the dish.

At the time, the NSF stated that "the telescope structure is in danger of a catastrophic failure and its cables may no longer be capable of carrying the loads they were designed to support. Furthermore, several assessments stated that any attempts at repairs could put workers in potentially life-threatening danger." The question that comes next is if money can change these circumstances?

Can enough funding make it safe to repair the telescope or is it still too dangerous? In a statement to *Engadget*, the NSF announced that "the observatory is not closing. Research involving archived data from the **1,000-foot** (**305-meter)** telescope will continue and NSF is looking for ways to restore operations with the observatory's other infrastructure as soon as possible, including the **39-foot (12-meter)** telescope and LIDAR facilities." It looks like there is hope for Arecibo after all.

HAMVENTION CANCELLATION

Unfortunately, several setbacks in the recovery from the COVID-19 pandemic make necessary the difficult decision to cancel Hamvention 2021. Hundreds of volunteers have been working to do everything necessary to bring this Hamvention to the many amateur radio enthusiasts and vendors who support the Dayton Hamvention.

Vaccine distribution both in the United States and around the world is lagging behind what was planned. In addition, the emergence of a more communicable form of the COVID-19 virus increases the potential for further public health problems in the next few months. We make this difficult decision for the safety of our guests and vendors. Those who had their tickets deferred last year will be deferred again. Stay tuned for information about a QSO party for the Hamvention weekend. We'll be back next year!!!

…Terry Scott NV8E 2021 Forums Chairman Nv8e@twc.com

USA ATV REPEATER DIRECTORY

(revised & up-dated: May, 2020) web = www.kh6htv.com email = kh6htv@arrl.net

NOTES:

1. All analog repeaters are NTSC, VUSB-TV, 6 MHz channel, unless otherwise noted. Some analog repeaters are using non-standard, lower sideband (VLSB) instead. The frequency listed is the video carrier frequency.
2. Digital TV lists center freq. 6 MHz channel, unless otherwise noted. dt = DVB-T, ds = DVB-S, da = ATSC
3. For full details, go to the listed web site, or send an e-mail to the contact person
4. Some ATV groups also post repeater info on www.qrz.com under their call sign

Location	Call Sign	Output	Input(s)	Modes	Web Site & Contact for info
ARIZONA					note: AZ is linked to W6ATN in S. CA & NV www.atn-tv.org
Phoenix, White Tank	W7ATN	1253.25	434.0, 434 / 2 dt 2441.5 fm	VUSB, FM DVB-T	wb9kmo@gmail.com kwjacob@icsaero.com
Mesa	W7ATN	1289.25	434.0, 434 / 2 dt 2441.5 fm	VUSB, FM DVB-T	wb9kmo@gmail.com kwjacob@icsaero.com
Tucson, Mt. Lemmon	W7ATN	1277.25	434.0, 434 / 2 dt 2441.5 fm	VUSB, FM DVB-T	wb9kmo@gmail.com kwjacob@icsaero.com
N.E. AZ & NM Green's Peak	W7ATN	1289.25	434.0	VUSB	wb9kmo@gmail.com kwjacob@icsaero.com
CALIFORNIA					W6ATN rptrs linked to AZ & NV
Orange Santiago Peak	W6ATN	1253.25 5910 fm	434.0, 434 / 2 dt 2441.5 fm	VUSB, FM DVB-T	www.atn-tv.org wa6svt@gmail.com
Los Angeles, central Mt. Wilson	W6ATN	1265.25	434.0, 434 / 2 dt 2441.5 fm	VUSB, FM DVB-T	www.atn-tv.org wa6svt@gmail.com
Los Angeles, north Oat Mtn.	W6ATN	919.25 3380 fm	434.0, 434 / 2 dt 2441.5 fm	VUSB, FM DVB-T	www.atn-tv.org wa6svt@gmail.com
Jobs Peak	W6ATN	1253.25	434.0, 434 / 2 dt 2441.5 fm	VUSB, FM DVB-T	www.atn-tv.org wa6svt@gmail.com
San Bernardino Snow Peak	W6ATN	1242 / 4 dt	434.0, 434 / 2 dt 2441.5 fm	VUSB, FM DVB-T	www.atn-tv.org wa6svt@gmail.com
Santa Barbara	WB9KMO	1289.25	434.0, 434 / 2 dt 2441.5 fm	VUSB, FM DVB-T	www.atn-tv.org wb9kmo@gmail.com linked with W6ATN
San Diego	KD6ILO	423 dt 1243 dt 1268 ds	441 dt 1286 ds 5885 fm	DVB-T, DVB-S, FM	kd6ilo@yahoo.com also AREDN mesh
San Jose	W6SVA	427.25	910 fm, 1255 fm	VUSB, FM	www.k6ben.com :w2nyc@pacbell.net
Clayton	W6CX	1244.5 ds	1292.5, 1273, 915 ds, & 1273 fm	DVB-S, FM	www.mdarc.org info@mdarc.org
Palomar	W6NWG	1241.25	915 fm 2441.5 fm	VUSB, FM soon be DVB-S	w6nwg@palomararc.org mountain.michelle@gmail.com
COLORADO					
Boulder	W0BTV	423 / 6 dt or 421.25 5905 FM	1243 / 6 dt 441 / 6 dt 439.25	DVB-T, VUSB, FM	www.kh6htv.com kh6htv@arrl.net
Pueblo	W0PHC	423 / 6 dt	441 / 6 dt	DVB-T	billn@billnicoll.com
DELAWARE					
Wilmington	KC3AM	423 / 6 dt	439.25 AM, LSB	DVB-T AM	KC3AM@verizon.net qrz.com
FLORIDA					
Cape Coral	W1RP	421.25	439.25	VUSB	paul@cardlink.com

Location	Call Sign	Output	Input(s)	Modes	Web Site & Contact Info
IDAHO					
S.W. Idaho	WI7ATV	1257 fm	426.25	VUSB, FM	ka7anm@yahoo.com under construction
IOWA					
Davenport	W0BXR	421.25	439.25	VUSB	http://www.arcsupport.com/drac/
KENTUCKY					
Bowling Green	KY4TV	421.25	439.25 1280 fm	VUSB FM	w4htb@ieee.org www.qrz.com www.atn-tv.org
LOUISIANA					
New Orleans	WD0GIV	421.25	439.25	VUSB	wd0giv@att.net
MARYLAND					
Laurel	W3BAB	421.25	434.0, 1291 fm	VUSB, FM	ny3k2004@yahoo.com
Baltimore	W3WCQ	439.25 911.25	426.25 1253.25	VUSB	http://bratsatv.org/ brats@bratsatv.org
MICHIGAN					
Jackson	KC8LMI	923.25	439.25, AM LSB	VUSB	KC8LMI@hotmail.com
Grand Rapids	K8DMR	421.25	439.25	VUSB	ron_fredricks@att.net
Flushing	KC8KCG	1253.25	439.25 AM LSB	AM	kf8ui@mscginc.org
Flint	KC8KGZ	1253.25	439.25	VUSB	www.mscginc.org kf8ui@mscginc.org
MINNESOTA					
Wabasha	KD0HWX	421.25	439.25	VUSB	jonmcpete@yahoo.com
MISSOURI					
St. Louis	WD0FCH	426 / 4 dt	440 / 4 dt	DVB-T	k0pfx@arrl.net
NEBRASKA					
Omaha	WB0CMC	421.25	434.0	VUSB	wb0cmc@cox.net
NEVADA					
Las Vegas	N7ZEV	1253.25 912 fm	434.0, 434.0 / 2 dt 2441 fm	VUSB, FM DVB-T	frank.n7zev@gmail.com linked to W6ATN S. CA & AZ
NEW JERSEY					
Vernon	W2VER	5885 fm	5665 fm	FM	jaythienel@yahoo.com
OHIO					
Columbus	WR8ATV	423 / 2 dt 427.25 1258 fm 1268 ds 2397 mesh 10350 fm	439 / 2 dt 439.25 VLSB 1288 fm 1288 ds 2397 mesh 10450 fm	DVB-T VLSB FM DVB-S MESH	www.ATCO.tv gkenmorris@gmail.com towslee1@ee.net
Dayton	W8BI	421.25 428 / 2 dt 1258 fm	439.25, 439 / 2 dt 1280 fm	VUSB, FM DVB-T	www.w8bi.org dpel@aaahawk.com
Van Wert	W8FY	434.0	923.25	VUSB	ka8zge@w8fy.org
OREGON					
Portland	W7AMQ	1257 fm	426.25	FM, VUSB	belles73@comcast.net
Portland	WB2QHS	426.0	910 fm	VUSB, FM	emellnik@emavideo.com
PENNSYLVANIA					
Delaware Cty	KC3AM	421.25	439.25 AM, LSB	VUSB, AM	KC3AM@verizon.net
PUERTO RICO					
Aguas Buenas	KP4IA	426.25	439.25, 1252 fm	VUSB, FM	kp4ia@yahoo.com
WASHINGTON					
Seattle	WW7ATS	1253.25	434.0	VUSB	https://www.qsl.net/ww7ats/ ww7ats@gmail.com qrz.com

Revisions: Aug. 2019. corrected Kentucky data, changed Boulder, CO call sign, Sept. added Pueblo, CO. Oct. added San Diego, CA. Feb. 2020 changed K6BEN to W6SVA, CA added KC8KGZ, MI. Mar. added Davenport, IA. May corrected typos

DRONE TEST FLIGHT USING A QRP 70CM ATV PAYLOAD

Drone used for this project is the DJI Mavic Air-2

Providing interesting ATV signals for reception is a worthwhile project. To that end, ATV balloon activities has been occurring since the late 1980's. The high-altitude ATV balloon pioneer, WB8ELK and others such as the Dayton Amateur Radio Association and a number of individuals and groups have provided numerous opportunities to test their ATV receiver limitations that have allowed for a line-of-sight ATV DX range out to 400 miles or more. Aeronautical ATV is also nothing new, as a number of private-plane equipped hams have also tried aeronautical mobile ATV with various degrees of success. Relatively recently, hobbyist drone activities have taken off (no pun intended) and employment of a drone as an ATV transmitter platform provides yet another opportunity to mix the new drone hobby with amateur radio. FAA restrictions for recreational drone flyers that limit the drone altitude to no higher than 400 ft AGL does certainly limit the line-of-sight ATV signal path. However, for hams in the Midwest United States where mountainous terrain is obviously not an option, even a 400ft altitude above terrain will still provide extended range viewing of QRP ATV signals and can result in an interesting signal catch, where a band opening is not necessary. There are still a number of ATVers within the Midwest region that are using 70cm point-to-point AM composite video analog ATV for scheduled DX contacts. Most of the ATV DX activity in the Midwest is accomplished with analog video, although most of the ATVers here also have digital capabilities. Consequently, using A5 for this event allows for maximum number of ATV participants willing to look for a weak drone ATV link at low altitude.

My primary goal for this drone project was to simply try to see if I could fly an ATV transmitter, but the payload weight limitations for the type of drone I was using was not necessarily designed to carry items not much heavier than a GO-PRO camera or a drop device. This restrictive weight limitation had to be factored into coming up with a workable ATV payload. I settled on components that ended up weighing 15 ounces. Several drone hobbyists have flown the DJI MAVIC Air-2 in a lift-test of up to 1.5 pounds, and such a weight is certainly not recommended. By keeping the payload to under one pound, the drone's performance factor allowed for the appropriate lift performance requirement for this simple "up and down" ATV signal propagation test. With this weight, when connected to the payload, the drone's props sounded like a thousand angry bees!

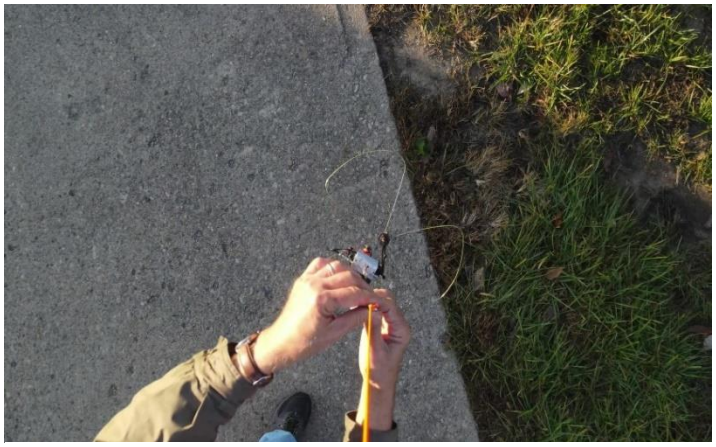
Completed ATV payload prior to its first flight on 7 November.

Payload and little wheel antenna. The three 18650 batteries were mounted in a plastic three battery holder mounted behind the transmitter/amplifier.

Because I live in a restricted flight area, and since safety is paramount at all times, especially whenever flying attached payloads, I opted to fly the drone at a location due South of Dayton, Ohio.

The first flight on 7 November was launched at the top of a hill on private property in Germantown, and once at altitude, the 70cm ATV signal was received 22 miles away (P3 Signal) by the Dayton Amateur Radio Repeater. Additionally, Al Vinegar, W8KHP received the ATV signal at his home QTH in Hebron, Kentucky. Charles Beener, WB8LGA (Columbus, Ohio) received the ATV signal on his SDR @ 30dB above the noise floor. Normally, the DJI Mavic Air 2 can remain airborne up to 35 minutes, but the extra weight being carried by the drone cut flight time in half. Three separate flights were conducted to exchange expended drone batteries.

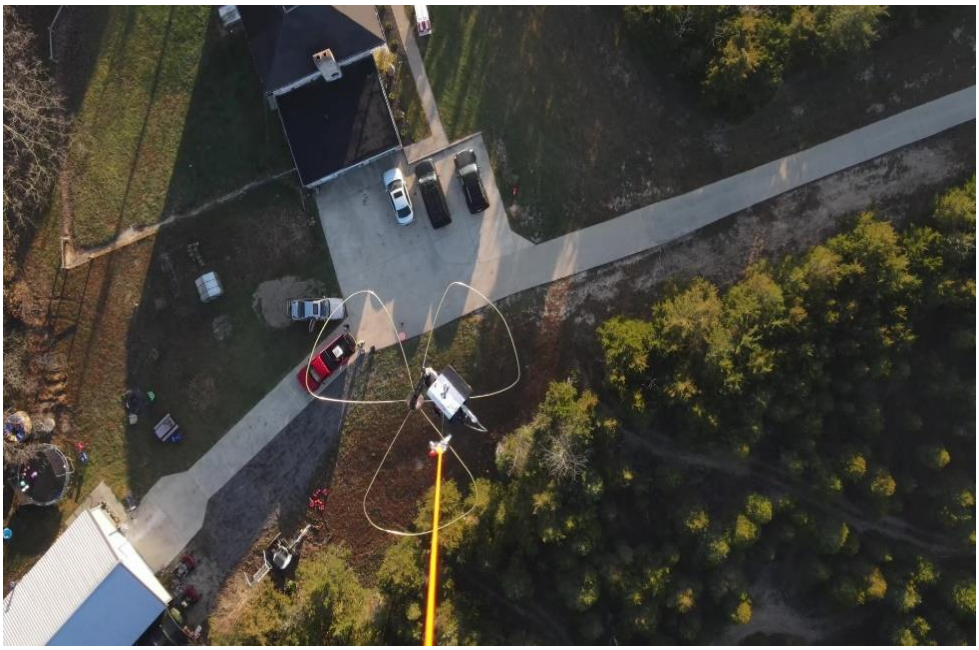
Hooking up the payload with the drone hovering



Connection of the Payload to the Drone tether as seen through the drone's camera.

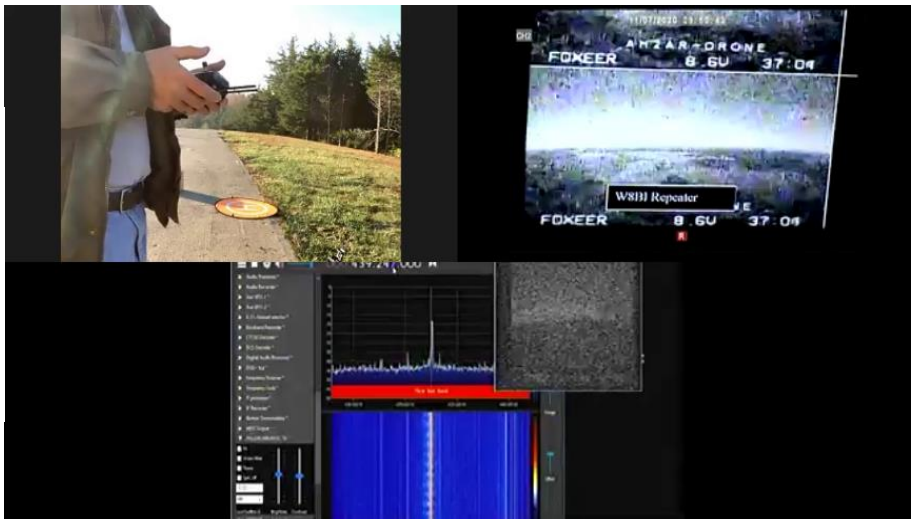
The transmitter payload was tethered below the drone (see photo). The payload included a home-brew little wheel antenna, three 4 Ampere Hour 18650 Lithium batteries, a videoLynx 70cm transmitter on 439.250 MHz, and a Chinese amplifier that produced a measured RF output of 2 watts (average). A "Foxteer" quadcopter standard definition video camera was used that also provided the on-screen display (OSD) with call letters. The camera and supporting OSD circuitry weigh less than an ounce.

The event was streamed live via ZOOM. Also, the Dayton Amateur Radio Association's ATV repeater was live-streamed on ZOOM in order to see whether the QRP video could be received at the ATV repeater in Huber Heights, Ohio. Keeping in mind that low-gain omni-directional horizontally polarized antennas were used on both ends of the path, the two-watt ATV signal triggered the ATV repeater's video squelch at P1, with ATV signals eventually reaching P3. "Curvature of the Earth" distortion was due to the FOXTEER' camera's extreme wide-angle lens.

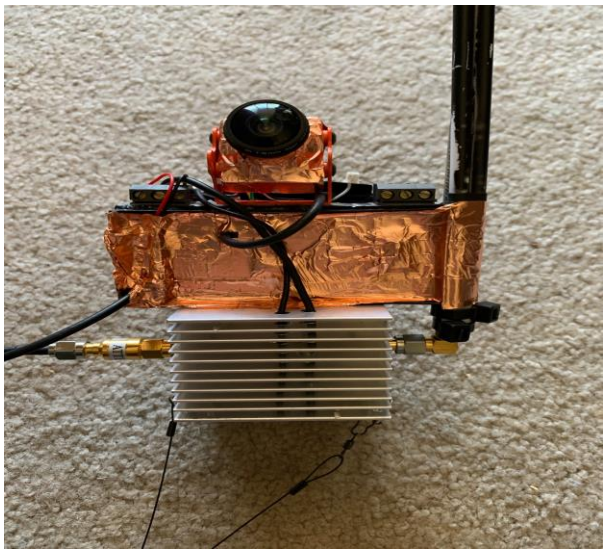


Drone's camera-eye view at approximately 130 ft AGL prior to reaching the working altitude

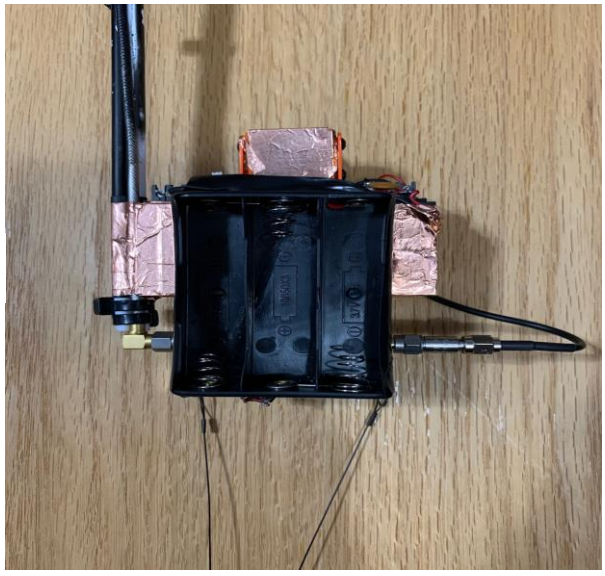
ZOOM Screen Capture showing live activity at the launch site (upper left frame), the SDR signal at W8KHP's Hebron Kentucky QTH (center), and the payload's video signal of the horizon as received by the Dayton W8BI repeater at 22 miles (upper right frame)



For the second flight, copper foil shielding has been added to eliminate some herringbone interference caused by the close proximity of the antenna that was encroaching into the ATV transmitter circuitry.



Flip side of the payload for placement of three 18650 Batteries



At the time of writing this article, another flight is planned on Saturday, November 14 if the weather cooperates. Please note if you want to watch the flight, it will also be streamed on ZOOM and preparations will start at 0700 Dayton Time. Flight time should occur around 0800-0815. (We will be using the Standard Midwest ATV DX Group/DARA NET/ATCO NET ZOOM number and passcode). It may be worth watching, as the dangling cord could always get caught in the props!

(Thanks to N3BFZ and WB8LGA for providing recorded video on ZOOM)

…by Dave Pelaez AH2AR

MYSTERIOUS RADIO SIGNAL FROM PROXIMA CENTAURI

Scientists searching for aliens are trying to understand signal's origins

The Parkes Telescope in Australia
By Claire Bugos smithsonianmag.com
December 22, 2020 https://www.smithsonianmag.com/smart-news/astronomers-discover-mysterious-radio-signal-proxima-centauri-180976602/

Scientists detected a mysterious radio signal from a nearby galaxy, which begs the question—could it be aliens?

As part of the Search for Extraterrestrial Intelligence (SETI) program, astronomers working on the Breakthrough Listen project scan for radio signals that could come from some non-human intelligent life in the cosmos. This fall, researchers noticed evidence of a strange radio emission while looking through archival data from 2019. The odd radio emissions seemed to be coming from the direction of Proxima Centauri, our closest neighboring star system at 4.2 light-years away, reports *The Guardian's Ian Sample* last week.

The scientists behind the discovery explain that there are several potential non-alien explanations for the strange signal. But they have yet to find a terrestrial culprit and have not yet ruled out an extraterrestrial intelligence origin story.

"It has some particular properties that caused it to pass many of our checks, and we cannot yet explain it," Andrew Siemion, Breakthrough Listen's principal investigator, tells Jonathan O'Callaghan and Lee Billings for *Scientific American*.

At the Parkes Observatory in Australia, the team uses a 210-foot-wide radio telescope to study Proxima Centauri. The star system is home to two planets, one of which may be rocky and temperate like Earth. There, they picked up a signal, dubbed BLC-1 after the Breakthrough Listen initiative.

BLC-1 is a narrow beam of around 982 megahertz. This signal is a far narrower frequency than what scientists typically can observe from human-made devices like satellites and spacecraft, according to *Scientific American*.

Additionally, there is an apparent shift in the beam's frequency, which makes the finding especially compelling because it mimics the drift observed when planets in motion give off signals.

"It's the most exciting signal that we've found in the Breakthrough Listen project, because we haven't had a signal jump through this many of our filters before," Sofia Sheik, a graduate student at Pennsylvania State University and the Breakthrough team member leading the signal analysis, tells *Scientific American.*

Though the wobbling frequency helps scientists rule out a terrestrial explanation for the signal, the beam could have come from a travelling satellite or other device. With the large volume of space technology orbiting the Earth and beyond, it can be extremely challenging to pinpoint which signals may be non-human-made, writes astronomer Seth Shostak for SETI.

"Our WiFi, our cell towers, our GPS, our satellite radio—all of this looks exactly like the signals that we're searching for, which makes it very hard to tell if something is from space or from human-generated technology," Sheikh tells Nadia Drake for *National Geographic*.

For nearly four decades, scientists at SETI have searched for signs of extraterrestrial life. In 2015, Silicon Valley investor Yuri Milner and Stephen Hawking began the Breakthrough Initiatives. Using telescopes around the world, astronomers with Breakthrough survey millions of stars closest to Earth, searching for planets in the habitable zone of stars and for transmissions from other intelligent life.

Over the years, astronomers have identified several candidate signals, writes *National Geographic*. Some led to the discovery of natural phenomena like pulsars—quickly rotating neutron stars or white dwarfs that emit electromagnetic radiation beams. Another mysterious low-energy burst of radio waves stumped scientists until they discovered it was no more than a microwave oven in the radio telescope's break room.

"All of our SETI experiments are conducted in an absolute sea of interference. There are tons of signals," Siemion tells *National Geographic.* "It comes down to being able to tell the difference between a very distant technosignature and our own technology."

The team is preparing two papers describing the signal to be published in 2021, according to *Scientific American*. The detection was leaked to *The Guardian* before the papers were complete. The researchers have yet to reobserve the signal, but they will continue to focus attention on Proxima Centauri.

"There's a lot of talk about sensationalism in SETI," Siemion tells *National Geographic*. "The reason we're so excited about SETI, and why we dedicate our careers to it, is the same reason why the public gets so excited about it. It's aliens! It's awesome!"

FCC TO REQUIRE EMAIL ADDRESS ON APPLICATIONS

From ARRL Headquarters Newington CT January 4, 2021

FCC to Require Email Address on Applications Starting on June 29, 2021.

Effective on June 29, 2021, amateur radio licensees and candidates must provide the FCC with an email address on all applications. If no email address is included, the FCC may dismiss the application as "defective."

On September 16, the FCC adopted a Report and Order (R&O) in WT Docket 19-212 on "Completing the Transition to Electronic Filing, Licenses and Authorizations, and Correspondence in the Wireless Radio Services." The R&O was published on December 29 in the Federal Register. The FCC has already begun strongly encouraging applicants to provide an email address. Once an email address is provided, the FCC will email a link to an official electronic copy of the license grant. An official copy will also be available at any time by accessing the licensee's password-protected Universal Licensing System (ULS) account.

The R&O is available online in PDF format at,
https://www.fcc.gov/document/fcc-adopts-electronic-licensing-report-and-order

Licensees can log into the ULS License Manager System with their FRN and password at any time and update anything in their FCC license record, including adding an email address. For questions or password issues, call the CORES/FRN Help Line, (877) 480-3201 (Monday - Friday, 1300 - 2300 UTC) or reset the password on the FCC website.

The only way to refrain from providing an email address on an application would be to submit a request to waive the new rule, providing justification for the request. (The FCC would not be obliged to grant such a request.)

Under Section 97.21 of the new rules, a person holding a valid amateur radio station license "must apply to the FCC for a modification of the license grant as necessary to show the correct mailing and email address, licensee name, club name, license trustee name, or license custodian name." For a club or military recreation station license, the application must be presented in document form to a club station call sign administrator who must submit the information to the FCC in an electronic batch file.

Under new Section 97.23, each license must show the grantee's correct name, mailing address, and email address. "The email address must be an address where the grantee can receive electronic correspondence," the amended rule will state. "Revocation of the station license or suspension of the operator license may result when correspondence from the FCC is returned as undeliverable because the grantee failed to provide the correct email address."

FCC REDUCES AMATEUR RADIO APPLICATION FEE TO $35

The FCC has agreed with ARRL and other commenters that its proposed $50 fee for certain amateur radio applications was "too high to account for the minimal staff involvement in these applications." In a *Report and Order* (*R&O*), released on December 29, the FCC scaled back to $35 the fee for a new license application, a special temporary authority (STA) request, a rule waiver request, a license renewal application, and a vanity call sign application. All fees are per application. Administrative updates, such as a change of mailing or email address, are exempt.

ARRL had filed comments opposing the FCC's $50 fee and application fees and urged its members to follow suit.

As the FCC noted in its *R&O*, although some commenters supported the proposed $50 fee as reasonable and fair, "ARRL and many individual commenters argued that there was no cost-based justification for application fees in the Amateur Radio Service." The fee proposal was contained in a *Notice of Proposed Rulemaking* (*NPRM*) in MD Docket 20-270, which was adopted to implement portions of the "Repack Airwaves Yielding Better Access for Users of Modern Services Act" of 2018 -- the so-called "Ray Baum's Act."

"After reviewing the record, including the extensive comments filed by amateur radio licensees and based on our revised analysis of the cost of processing mostly automated processes discussed in our methodology section, we adopt a $35 application fee, a lower application fee than the Commission proposed in the *NPRM* for personal licenses, in recognition of the fact that the application process is mostly automated," the FCC said in the *R&O*. "We adopt the proposal from the *NPRM* to assess no additional application fee for minor modifications or administrative updates, which also are highly automated."

The FCC turned away the arguments of some commenters that the FCC should exempt amateur radio licensees. The FCC stated that it had no authority to create an exemption "where none presently exists." The FCC also disagreed with those who argued that amateur radio licensees should be exempt from fees because of their public service contribution during emergencies and disasters.

"[W]e are very much aware of these laudable and important services amateur radio licensees provide to the American public," the FCC said, but noted that specific exemptions provided under Section 8 of the so-called "Ray Baum's Act" requiring the FCC to assess the fees do not apply to amateur radio personal licenses. "Emergency communications, for example, are voluntary and are not required by our rules," the FCC noted. "[W]hile the value of the amateur service to the public as a voluntary noncommercial communications service, particularly with respect to providing emergency communications, is one of the underlying principles of the amateur service, the amateur service is not an emergency radio service.'"

The Act requires that the FCC switch from a Congressionally mandated fee structure to a cost-based system of assessment. The FCC proposed application fees for a broad range of services that use the FCC's Universal Licensing System (ULS), including the Amateur Radio Service, which had been excluded previously. The 2018 statute excludes the Amateur Service from annual *regulatory* fees, but not from *application* fees.

The effective date of the fee schedule has not been established. Read more.

LOCAL HAMFEST SCHEDULE

This section is reserved for upcoming Hamfests. They are limited to Ohio and vicinity easily accessible in one day. Anyone aware of an event incorrectly or not listed here; notify me so it can be corrected. This list will be amended, as further information becomes available. To see additional details for each Hamfest, Control Click on the blue title and the magic of the Internet will give you the details complete with a map! To search the ARRL Hamfest database for more details, CTL click ARRLWeb: Hamfest and Convention Calendar …WA8RMC.

The following are the only Hamfests listed that are not officially cancelled. Before assuming these are active, please check the web sites indicated. It is a good bet they could be cancelled if not already done so. The listings below are current as of 1/12/21. Note: Hamvention is now officially cancelled as of 1/11/21.

04/25/2021 - Athens Hamfest
Location: Athens, OH
Type: ARRL Hamfest
Sponsor: Athens County Amateur Radio Association
Website: http://ac-ara.org/

06/05/2021 - FCARC SummerFest
Location: Wauseon, OH
Sponsor: VAN WERT AMATEUR RADIO CLUB
Type: ARRL Hamfest
Sponsor: Fulton County Amateur Radio Club
Website: http://k8bxq.org/hamfest

07/18/2021 - VAN WERT HAMFEST
Location: VAN WERT, OH
Type: ARRL Hamfest
Website: http://W8FY.ORG

08/28/2021 - Cincinnati Hamfest℠
Location: Owensville, OH
Type: ARRL Hamfest
Sponsor: Milford ARC
Website: http://CincinnatiHamfest.org

TUESDAY NITE NET ON ZOOM (We listen to 147.48 also)

Every Tuesday night @ 8:00PM WA8RMC hosts a net for ATV topic discussion. There is no need to belong to the club to participate, only a genuine interest in ATV. All are invited. We usually chat for about an hour so please join us via the internet using ZOOM on your computer. We also listen to 147.48 during the meeting so if there is anyone checking in there you will be heard and included. It would be great if some of the previous ATCO members would join us as it's been a long time since we've heard from you.

To join ZOOM for the first time, simply type **https://zoom.us/join** then download, install the .exe program and run it. ZOOM will start. Click on **join**, enter the **9670918666 meeting ID** then the **191593 password.** Use video or just audio if you don't have a camera.

Note: The DARA ATV Net is on Wednesday at 8PM using this same ZOOM link so feel free to join the discussion there as well.

ATCO TREASURER'S REPORT - de N8NT

OPENING BALANCE (10/24//20)	$ 3634.71
Receipts (dues)	$ 100.00
PayPal fee	$ (4.72)
CLOSING BALANCE (10/24/20)	$ 3729.99

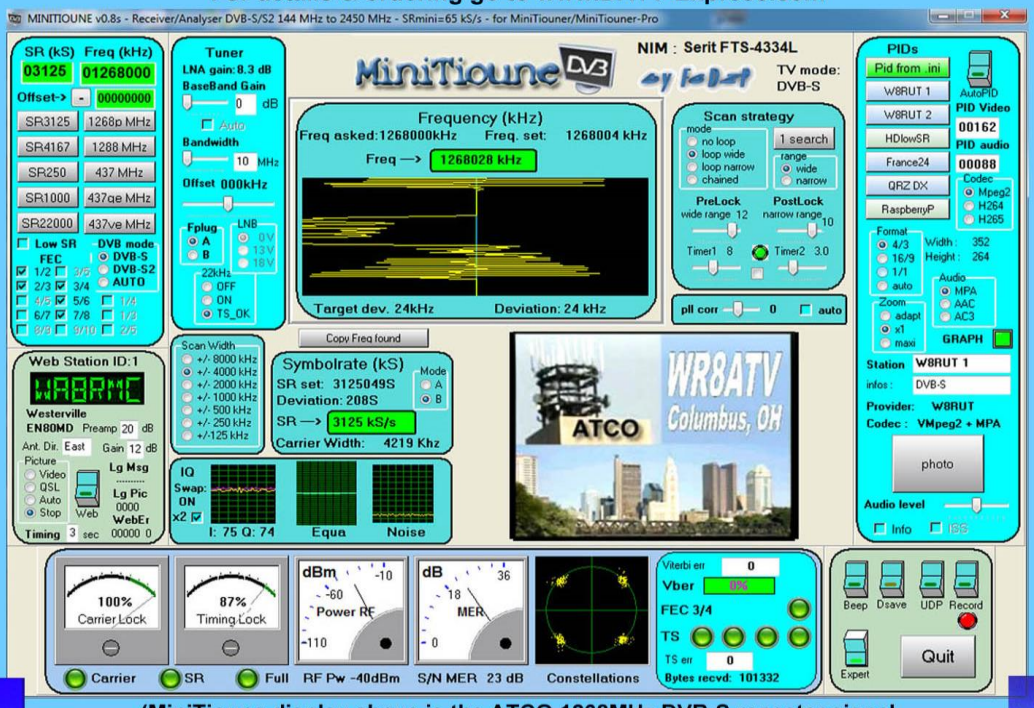
MiniTiouner-Express

Digital Amateur Television DVB-S/S2 Receiver / Analyzer

Available at DATV-Express.com

- Operates with Windows PC using free MiniTioune software from Jean-Pierre F6DZP
- Smaller than a stack of 2 decks of cards (picture above is full size)
- Two independent simultaneous RF inputs with internal preamps
- High sensitivity -100dBm @1288MHz – at 1/2 FEC
- Fully assembled/tested in aluminum enclosure
- Covers 144-2420MHz (ideal for Space Station DATV reception)
- Symbol rates from 75 KSymb/s to >20 MSymbols/sec
- Uses external 8-24VDC supply or +5V from USB-3 port (with small modification)
- Real time signal modulation constellation & dBm signal strength display
- Price: US $75 + shipping – order with PayPal

For details & ordering go to www.DATV-Express.com



(MiniTioune display above is the ATCO 1268MHz DVB-S repeater signal at WA8RMC QTH 15 miles away).

ATCO REPEATER TECHNICAL DATA SUMMARY

Location: Downtown Columbus, Ohio
Coordinates: 39 degrees 57 minutes 47 seconds (latitude) 82 degrees 59 minutes 58 seconds (longitude)
Elevation: 630 feet above the average street level of 760 feet (1390 feet above sea level)

TV Transmitters: 423.00 MHz DVB-T, 10 W cont. FEC=7/8, Guard=1/32, Const=QPSK, FFT=2K, BW=2MHz, PMT=4095, PCR=256, Video=256, audio=257
427.25 MHz Analog VSB AM, 50 watts average 100 watts sync tip (cable channel 58)
1258 MHz 40 watts FM analog
1268 MHz DVB-S QPSK 20W continuous. SR=3.125MS, FEC=3/4, PMT=32, Video=162, Teletext=304, PCR=133, Audio=88, Service =5004)

Two video channels in this output: Channel 1 is fed from all receivers. Channel 2 is fed direct from 439.25 analog receiver only.
2397 MHz Mesh Net transceiver 600mw output (channel 1 minus 2). ID is WR8ATV-2
10.350 GHz: 1watt continuous analog FM

Link transmitter: 446.350 MHz: 5 watts NBFM 5 kHz audio. This is an output used for control signals and to repeat the 147.48 MHz and 449.975 MHz input.

Identification: 423, 427, 1258, 1268 MHz, 10.350 GHz transmitters video ID every 10 min. with active video and information bulletin board every 30 minutes.
423 MHz digital, 1268 MHz digital & 10.350 GHz analog - Continuous transmission of ATCO & WR8ATV with no input signal present.

Transmit antennas: 423.00 MHz - 8 element Lindsay horizontally polarized 5 dBd gain "omni"
427.25 MHz - Dual slot horizontally polarized 7 dBd gain "omni" major lobe east/west, 5dBd gain north/south
1258 MHz - Diamond vertically polarized 12 dBd gain omni
1268 MHz - Diamond vertically polarized 12 dBd gain omni
2397 MHz - Ubiquiti dual polarity omni 13dBi gain slot for channel 1 minus 2 MESH Rx/Tx operation
2397 MHz - Comet Model GP24 vertically polarized 12 dBd gain omni (Used for experimental Mesh operation)
10.350 GHz - Commercial 40 slot waveguide horizontally polarized 16 dBd gain omni

Receivers: 147.480 MHz - F1 audio input with touch tone control. (Input here = output on 446.350)
439.000 MHz - DVB-T QPSK, 2MHz BW. Receiver will auto configure for FEC's. (Input here = output on all TV transmitters)
439.250 MHz - A5 NTSC video with FM subcarrier audio, **lower sideband**. (Input here = output on all TV transmitters & also direct to 1268 MHz DVB-S output channel 2.)
449.975 MHz - F1 audio input aux touch tone control. 131.8 Hz PL tone. (Input here = output on 446.350).
1288.00 MHz - F5 video analog NTSC. (Input here = output on all TV transmitters)
1288.00 MHz - DVB-S QPSK SR=4.167MS, fec=7/8. PIDs: PMT=133, PCR=33, Video=33, Audio=49 (Input here=output on all Transmitters)
2398.00 MHz - F5 video analog NTSC. (Input here = output on all TV transmitters) (inactive at this time because of MESH on 2397)
10.450 GHz - F5 video analog NTSC. (Input here = output on all TV transmitters)

Receive antennas: 147.480 MHz - Vert. polar. Diamond 6dBd dual band (Shared with 446.350 MHz link output transmitter)
438.00/439.250 MHz - Horizontally polarized dual slot 7 dBd gain major lobe west (Shared with 438 & 439 receivers)
1288.00 MHz - Diamond vertically polarized 12 dBd gain omni (shared with analog and DVB-S receivers)
2398.00 MHz - Comet Model GP24 vertically polarized 12 dBd gain omni (inactive at this time because MESH is on 2397)
10.450 GHz - Commercial 40 slot waveguide horizontally polarized 16 dBd gain omni

Auto mode Input control:

Touch Tone	Result (if third digit is * function turns ON, if it is # function turns OFF)
00*	turn transmitters **on** (enter manual mode-keeps transmitters on till 00# sequence is pressed)
00#	turn transmitters **off** (exit manual mode and return to auto scan mode)
264	Select Channel 4 Doppler radar. (Stays on for 5 minutes) Select # to shut down before timeout.
004	Select 10.450 GHz receiver. **(Always exit by selecting 001)**
001	Select 2398 MHz receiver then 00# for auto scan to continue

Manual mode Functions:

00* then 1 for Ch. 1	Select 439.25 analog /438 digital receiver (if video present on digital, it is selected. Otherwise analog)
00* then 2 for Ch. 2	Select 1288 digital receiver
00* then 3 for Ch. 3	Select 1288 analog receiver
00* then 4 for Ch. 4	Select 2398 receiver
00* then 5 for Ch. 5	Select video ID (17 identification screens)

01* or 01#	Channel 1 439.25 MHz scan enable (hit 01* to scan this channel & 01# to disable it)
02* or 02#	Channel 2 1288 MHz digital receiver scan enable
03* or 03#	Channel 3 1288 MHz analog receiver scan enable
04* or 04#	Channel 4 2398 MHz scan enable

A1* or A1#	Manual mode select for 439.25 receiver audio
A2* or A2#	Manual mode select for 1288 digital receiver audio
A3* or A3#	Manual mode select for 1288 analog receiver audio
A4* or A4#	Manual mode select for 2398 receiver audio
C0* or C0#	Beacon mode – transmit ID for twenty seconds every ten minutes
C1* or C1#	No function at this time
C2* or C2#	No function at this time

ATCO MEMBERS as of January 2021

Call	Name	Address	City	St	Zip	Phone
KD8ACU	Robert Vieth	3180 North Star Rd	Upper Arlington	OH	43221	614-457-9511
KC3AM	Dave Stepnowski	735 W Birchtree Ln	Claymont	DE	19703	
AH2AR	Dave Pelaez	1348 Leaf Tree Lane	Vandalia	OH	45377	937-264-9812
W8ARE	Terry Meredith III	6070 Langton Circle	Westerville	OH	43082-8964	
K9BIF	Charlie Short	415 West Pike Street	Goshen	IN	46527-0554	
VK3BFG	Peter Cossins	14 Coleman Road	Melbourne	Au	03152	
N9BNN	Michael Glass	6836 N. Caldwell Rd	Lebanon	IN	46052	
WB8CJW	Dale Elshoff	8904 Winoak Pl	Powell	OH	43065	614-210-0551
N8COO	C Mark Cring	2844 Sussex Place Dr.	Grove City	OH	43123	614-836-2521
N3DC	William Thompson	6327 Kilmer St	Cheverly	MD	20785	301-772-7382
K8DMR	Ron Fredricks	8900 Stonepoint Ct	Jennison	MI	49428-8641	
WA8DNI	John Busic	2700 Bixby Road	Groveport	OH	43125	614-491-8198
WB8DZW	Roger McEldowney	5420 Madison St	Hilliard	OH	43026	614-405-1710
KB8EMD	Larry Baker	4330 Chippewa Trail	Jamestown	OH	45335-1210	
WB4IR	Bob Holden	7725 Tressa Circle	Powell	TN	37849	865-314 - 4285
WA8HFK,KC8HIP	Frank & Pat Amore	P.O. Box 2252	Helendale	CA	92342-2252	760-503-8106
W8KHP	Allen Vinegar	2043 Treetop Lane	Hebron	Ky	41048	
WA8KKN	Chuck Wood	5322 Spruce Lane	Westerville	OH	43082-9005	614-523-3494
WB9KMO	Rod Fritz	8334 E. Culver Street	Mesa	AZ	85207	
WA8KQQ	Dale Waymire	225 Riffle Ave	Greenville	OH	45331	937-548-2492
WB8LGA	Charles Beener	2540 State Route 61	Marengo	OH	43334	
W8MA	Phil Morrison	154 Llewellyn Ave	Westerville	OH	43081	
KA8MID	Bill Dean	2630 Green Ridge Rd	Peebles	OH	45660	
N8NT	Bob Tournoux	3569 Oarlock Ct	Hilliard	OH	43026	614-876-2127
W8NX, KA8LTG	John & Linda Beal	5001 State Rt. 37 East	Delaware	OH	43015	740-369-5856
KB8OFF	Jess Nicely	1888 Woods Drive	Beavercreek	OH	45432	
W6ORG,WB6YSS	Tom, Maryann O'Hara	2522 Paxson Lane	Arcadia	CA	91007-8537	626-447-4565
AE6QU	Ron Phillips	2227Via Puerta unit N	Laguna Woods	CA	92637	
WA8RMC	Art Towslee	438 Maplebrooke Dr W	Westerville	OH	43082	614-891-9273
W8RUT,N8KCB	Ken & Chris Morris	2895 Sunbury Rd	Galina	OH	43021	
KB8RVI	Dave Jenkins	100 Miller Ave Apt. 108	Ashville	OH	43103	740 954-9221
W8RWR	Bob Rector	135 S. Algonquin Ave	Columbus	OH	43204-1904	614-276-1689
W8RXX, KA8IWB	John & Laura Perone	3477 Africa Road	Galena	OH	43021	614-579-0522
WA6RZW	Ed Mersich	34401 Columbine Trl West	Elizabeth	CO	80107	
WA6SVT	Mike Collis	PO Box 1594	Crestline	CA	92325	
NR8TV	Dave Kibler	243 Dwyer Rd	Greenfield	OH	45123	937-981-1392
KB8UWI	Milton McFarland	115 N. Walnut St.	New Castle	PA	16101	
WA8UZP	James Reed	818 Northwest Blvd	Columbus	OH	43212	614-297-1328
KB9VGD	Gary Oaks	472 Storle Ave	Burlington	WI	53105-1028	
KC8WRI	Tom Bloomer	PO Box 595	Grove City	OH	43123	
AA8XA	Stan Diggs	2825 Southridge Dr	Columbus	OH	43224-3011	
AC8XP,KE8GTT,KE8HPA	Troy,Seamus Bonte	5210 Smothers Road	Westerville	OH	43081	
AC8YE	Larry Howell	4080 Dill Road	Centerburg	OH	43011-9771	
KB8YMQ	Jay Caldwell	4740 Timmons Dr	Plain City	OH	43064	
KC8YPD	Joe Ebright	3497 Ontario St	Columbus	OH	43224	
KD8YYP	Anna Reed	818 Northwest Blvd	Columbus	OH	43212	
WB8YTZ	Joe Coffman	233 S. Hamilton Rd	Gahanna	OH	43230-3347	
N8YZ	DaveTkach	2063 Torchwood Loop S	Columbus	OH	43229	614-882-0771
W8ZCF	Farrell Winder	6686 Hitching Post Ln.	Cincinnati	OH	45230	513-218-3876

ATCO CLUB OFFICERS

President: Art Towslee WA8RMC
V. President: Ken Morris W8RUT
Treasurer: Bob Tournoux N8NT
Secretary: Mark Cring N8COO
Corporate trustees: Same as officers

Repeater trustees: Art Towslee WA8RMC
Ken Morris W8RUT
Dale Elshoff WB8CJW
Statutory agent: Stan Diggs AA8XA
Newsletter editor: Art Towslee WA8RMC

NEW MEMBER(S)

Let's welcome the new members to our group! If any of you know anyone who might be interested, let one of us know so we can flood them with information. New members are our group's lifeblood so it's important we aggressively recruit new faces.

No new members this time.

ATCO MEMBERSHIP INFORMATION

Membership in ATCO (Amateur Television in Central Ohio) is open to any licensed radio amateur who has an interest in amateur television. The annual dues are $10 per person. Additional members within an immediate family and at the same address are included at no extra cost.

ATCO publishes this Newsletter quarterly in January, April, July, and October. It is sent to each member without additional cost. All Newsletters are sent via Email unless the member does not have an internet connection. Dues payments are as of the date paid and will expire on the same month/year on the due date year.

Your support of ATCO is welcomed and encouraged.

Membership expiration notices will be sent out via Email starting 30 days prior to expiration date.
NOTE: Dues records on your individual portion of the ATCO website are listed as the date money is received and shows due one year from that date.

ATCO MEMBERSHIP APPLICATION

RENEWAL ○ NEW MEMBER ○ DATE _____
CALL _____
OK TO PUBLISH PHONE # IN NEWSLETTER YES ○ NO ○
HOME PHONE _____
NAME_____
INTERNET Email ADDRESS_____
ADDRESS _____
CITY _____ STATE _____ ZIP _____-_____
FCC LICENSED OPERATORS IN THE IMMEDIATE FAMILY
_____
COMMENTS_____
_____
_____

ANNUAL DUES PAYMENT OF $10.00 ENCLOSED CHECK ○ MONEY ORDER ○

Make check payable to ATCO or Bob Tournoux & mail to: Bob Tournoux N8NT 3569 Oarlock CT Hilliard, Ohio 43026. Or, if you prefer, pay dues via the Internet with your credit card. Go to www.atco.tv and fill out the “pay ATCO dues” section. Alternately, you can use the ATCO web site www.atco.tv/PayDues.aspx directly. Credit card payment is made through "PayPal" but you DO NOT need to join PayPal to send your dues. Simply DO NOT fill out the password details and there will be no “PayPal” involvement.

ATCO Newsletter
c/o Art Towslee -WA8RMC
438 Maplebrooke Dr. West
Westerville, Ohio 43082

FIRST CLASS MAIL

REMEMBER...CLUB DUES ARE NEEDED.
CHECK THE
MEMBERS PAGE OF ATCO WEBSITE FOR THE EXPIRATION DATE.
SEND N8NT A CHECK OR USE PAYPAL IF MEMBERSHIP IS EXPIRED.