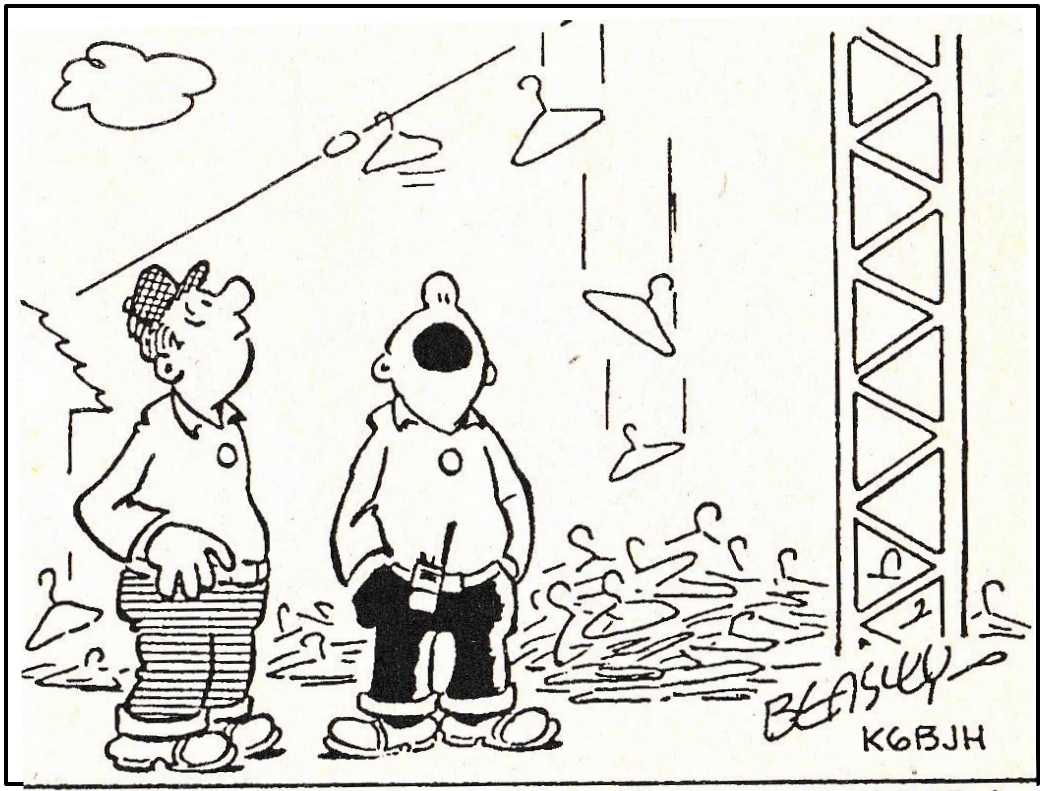
ATCO NEWSLETTER

VOLUME 37 NUMBER 4 **October 2020**

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

Here we go again guys. If we discount the pandemic, there's not much going on. The lockdown and restricted access to the repeater has put a damper on things. Yes, I DO still have access to my basement workshop but somehow, it's not that exciting due to the current environmental restrictions. I know I should take advantage of the restrictions but there is a motivation factor to figure in. Things WILL get better.

The repeater does need attention but access for non-emergencies is not possible at this time. Things that need attention are: AC power supply ripple showing up in the repeater output, there is a blower fan that needs replacing, the 70cm interference is still there (DAMN those FCC people), the mesh antenna /transceiver needs replacing, the video controller needs an upgrade and receiver sensitivity checks are needed.

On the Homefront, I'm busy designing a new DATV standalone receiver but that too is going slow. I have selected an acceptable enclosure and some hardware but until I have enough software written to enable sensitivity testing to see if it is acceptable, I don't want to proceed further. If the tuner turns out to be not as good as our MiniTiouner, it may not be worthwhile to create a product after all.

The International Space Station ID / HDMI converter I'm designing is progressing slowly as all NASA projects usually do. We had a meeting with NASA last Thursday to identify new camera equipment they are getting ready to upload that we need to interface. They are obsoleting their old Canon camera with CVBS output and replacing it with a new Canon HDMI output only camera. That means I must scrap my analog interface and create an HDMI interface. I have that new interface running in my prototype but now I must replicate that in 5 more units for NASA testing. Oh well, fire up my milling machine again and crank out more aluminum enclosures! Then there is the RF radiation and susceptibility testing to be done. Who knows, if it doesn't pass, I may have to start all over again. Joy, Joy!!! I've got until next summer to complete and test it for the next Space-X launch.

That's it, guys. Too bad I don't have more information to share. Looks like no Fall Event will happen either. I think next year will be much better. Until then, join us on ZOOM every Tuesday at 8PM (after November 1) for the weekly net. (I haven't heard anyone on 147.48 in weeks!) On our weekly ZOOM meetings, we usually have 10 to 15 check-ins. Plan to stop by. It's easy. I'm looking forward to seeing or hearing you.

One last thing. It is well known that all aspects of Ham Radio are suffering from loss of activity. As an ATCO group, what can WE do about it? 147.48 activity is now almost non-existent. Why is this? Don't we like each other anymore? ZOOM is helping a little but that's not enough. What can we do to get the younger crowd interested? When this pandemic is declared conquered, we need to meet with a Fall Event or pizza party to share ideas. It seems that MESH activity is turning out to be less than an overwhelming success. What can we do to create more interest in this area? Let me know if you have a magic brain storm or anything else to help. I'm open for ideas on how to create more activity.

Join us on ZOOM using your computer. 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. Click on join, enter **9670918666 meeting ID** then the **191593 password.** Join with 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.
…WA8RMC

ATV NEWS FROM OTHER CLUBS

N8ZM QRP Experiment through the Dayton W8BI Repeater

Last week, Tom Holmes, N8ZM configured his new HV310 transmitter and ran a quick check to determine whether a 14 dBm (25 milliwatts) RF output signal level would bring up the W8BI ATV repeater. Tom has an excellent path into the repeater from his Tipp City, Ohio QTH (approximately 6 miles). Consequently, he was able to bring the ATV repeater up while operating with this extremely low power level. Once his antenna was aligned with the ATV repeater site, his 25-milliwatt DVB-T ATV signal was being received by the ATV repeater at -89 dBm with an SNR of 15 dB with "zero" frame drops. Provided below are snapshots of his initial attempts. His current plan is to put a small amplifier in-line with the HV-310 for some additional headroom. The ATV repeater was in QUAD Screen Mode during his initial transmission and as you can see, the HV110 receiver at the ATV repeater site captured his "last frame received".

Here is another snapshot I took of N8ZM's live video being transmitted through the ATV repeater prior to N8ZM's optimization of his antenna beam heading. The ATV repeater was receiving his signal at -93 dBm prior to correction of his antenna heading.
…AH2AR

NEWS BULLETIN! FOREST FIRE IN BOULDER COUNTY, COLORADO!

Colorado, California and Oregon have been experiencing major forest fires for the past couple of months. We have had heavy smoke here in Boulder on occasions when the wind was right. It finally hit Boulder County yesterday, mid-day. The Cal-Wood Fire broke out in the mountains north-west of the City of Boulder, near the town of Jamestown. The fire moved quite rapidly during Saturday afternoon. As of writing this (Sunday, 18 Oct, 8am), the fire already consumed over 7,000 acres of forest plus an outbreak on the prairie at US-36.

The Boulder ATV repeater, W0BTV, has been broadcasting views of the forest fire. The camera is located at the QTH of KH6HTV, south-east of the city of Boulder, and 13-15 miles from the fire. Using a long tele-photo lens, the KH6HTV TV camera has been able to view the fire along the Front Range as it approached the first ridge of the foothills of the Rocky Mountains. The TV images are being received at the Boulder County ARES (BCARES) command post in the Boulder County Emergency Operations Center (EOC). There they are then being displayed on a large screen video monitor for the EOC staff.

Fortunately, now 8:30 am, there is nothing to be seen on the TV repeater's video image, as a cold front has just rolled in with light rain and fog. That is great news for helping suppress the fire. The URL for our video is: https://batc.org.uk/live/kh6htvtvr. The right audio channel on the BATC stream is carrying the live audio from the BCARES 2-meter FM repeater 146.76 MHz with the emergency net traffic.
…KH6HTV

ARECIBO OBSERVATORY REFLECTOR DISH DAMAGED

An auxiliary cable that helps to support a metal platform above the Arecibo Observatory radio telescope's reflector dish in Puerto Rico snapped in the early morning hours of August 10, causing a 100-foot gash in the reflector dish. Operations at the world-famous observatory, which is managed by the University of Central Florida (UCF), have been halted until repairs can be made. When the 3-inch cable fell, it also damaged about a half-dozen panels in the Gregorian dome above the dish and twisted the platform used to access the dome. The cause of the cable break is not yet clear.

The main collecting dish at Arecibo is among the world's largest single-dish radio telescopes. The reflective dish is 1,000 feet in diameter, 167 feet deep, and covers an area of about 20 acres.

"We have a team of experts assessing the situation," Observatory Director Francisco Cordova said. "Our focus is assuring the safety of our staff, protecting the facilities and equipment, and restoring the facility to full operations as soon as possible, so it can continue to assist scientists around the world."

UCF manages the National Science Foundation (NSF) facility under a cooperative agreement with Universidad Ana G. Méndez and Yang Enterprises Inc. Home to one of the most powerful telescopes on the planet, the facility is used by scientists around the world to conduct research in the areas of atmospheric sciences, planetary sciences, radio astronomy, and radar astronomy. Arecibo is also home to a team that runs the Planetary Radar Project supported by NASA's Near-Earth Object Observations Program in NASA's Planetary Defense Coordination Office, through a grant awarded to UCF.

The facility has endured many hurricanes, tropical storms, and earthquakes since it was built 50 years ago. Repairs from Hurricane Maria in 2017 are ongoing. Through it all, the facility has continued to contribute to significant breakthroughs in space research in the area of gravitational waves, asteroid characterization, planetary exploration, and more.

The largest single-dish radio telescope in the world for decades, Arecibo was bumped into second place in 2016 by the Five-hundred-meter Aperture Spherical Telescope (FAST) in China.

The Arecibo Observatory Radio Club operates KP4AO at the site, mostly on special occasions. -- *Thanks to UCF and other sources*

DIGITAL ATV PARTY LAST AUGUST WAS A SUCCESS

VK3CH put the following together for publishing in a local Radio Club news … (edited version with DATV QSO Party is on next page). He has captured the event very well. Full details are on the following pages.
…Regards Peter VK3BFG

8th Digital Amateur Radio Television Worldwide QSO Party
Friday 28th & Saturday 29th August 2020

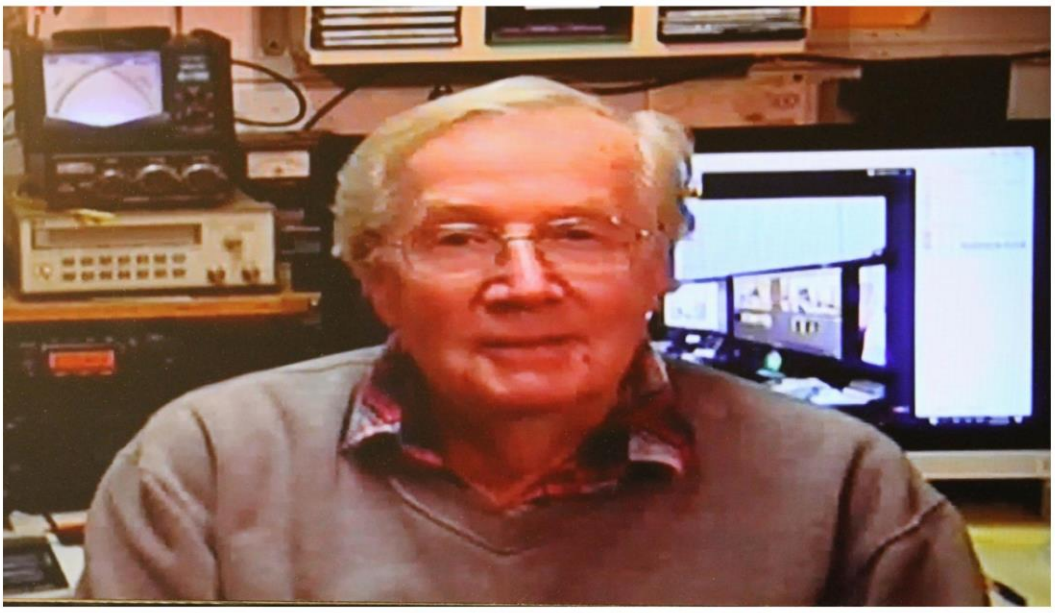
'Every Pixel tells a story'

It has been a while since the 7th DATV QSO Party as the VK3RTV repeater was decommissioned from Olinda and made the move firstly testing mode at Surrey Hills and now at its final location at Mount View.
The previous 7th DATV QSO Party was held on 25th & 26th August 2017.
Now with VK3RTV at Mount View and all testing and improvements complete, the 8th DATV QSO Party can happen three years later – at least COVID-19 won't shut this one down!

The 2020 DATV QSO Party started at on Friday 28th August at 7.30 PM, with stations from Melbourne, Sydney, Whyalla, Port Pirie, Tasmania (North Coast and Hobart) and perhaps Brisbane.
Saturday morning 29th August started 10 AM in Columbus Ohio and then moved across the US to Nevada and then the West Coast. It was live streamed on the BATC as well as well as having multiple access options to VK3RTV for stations external to VK3RTV. Peter Cossins suggested that overs were limited to 4- 5 min max and prepared videos as short, with more short overs better than a few long ones.

LINKED AMATEUR RADIO TELEVISION REPEATERS

VK3RTV	MELBOURNE	VICTORIA
VK2RTS	SYDNEY	NEW SOUTH WALES
VK3RMD	PORT PIRIE	SOUTH AUSTRALIA
WR8ATV	COLUMBUS	OHIO USA
WO8TV	BOULDER	COLORADO USA
W6ATN NETWORK	CALIFORNIA	USA



Peter Cossins VK3BFG Opening Address of the 2020 DATV QSO Party

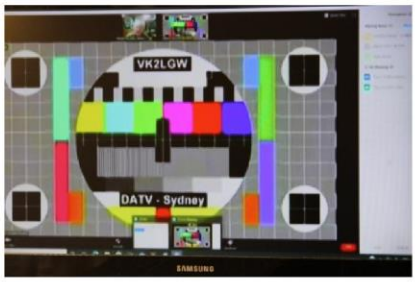
FRIDAY NIGHT – VK LOCAL LINK UP

Well what a marathon, both days went way longer with so much information prepared by everyone. There were audio hassles, but most of these seem to be on the Skype, YouTube or Zoom side, probably as many folks don't use these as often, but in future years these teething problems will get sorted.

Because of a major storm and strong winds the day before quite a few Melbourne stations were not able to come up as they had no mains power due to storm damage.

Stations from Melbourne, New South Wales and South Australia all joined, linked up via Zoom or Skype. The range of topics and equipment and projects on display was staggering, diverse and well presented. There were a few audio hiccups, but as someone said, if it was all perfect, it would be boring…

One difference from VK compared to the States, is we use more on screen display identification, such as names, call signs and location data, you readily know who is live on air at any given time.




QTH Whyalla, SA - PF86sx64uw



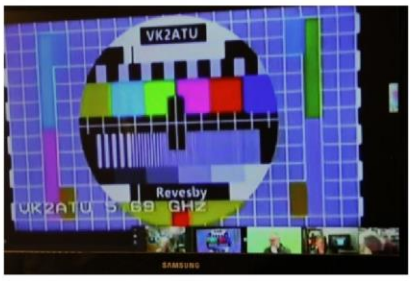
5YYY







Quadrent

EM Software Control

VK2ATU
Revesby



VK3WWW
ATV QSO PARTY


VK3CSJ

SATURDAY – INTERNATIONAL LINK UP

Like the night before the session was way longer due to all the content from all the stations.
VK3RTV fired up at 10.00am and the DATV QSO Party session went for over 5 hours.
Once again audio problems were the main culprit, but this was all on the internet linking side, not ham radio.

Not all USA stations are easy to know as they only speak the call sign not use text identification.
Plus the accent and the speed call signs are said makes it hard to write it down so quickly.
Using phonetics would help. Again the display of what projects people were working on was varied from simple things to major goals. I think we all got the celebrity thumbs up from the guys in the States!
All the pre-prepared videos the VK crew put up was high quality, glad I filmed mine prior to the event.

The first stations to come on were Australia followed by the USA. The power in parts of Melbourne was still out with lots of DATV stations that should have been on were not this year. It was daytime here and mid to late evening, into the night in America. The weather here was perfect, should be have been DATV portable in a park, with a BBQ, instead of a house lockdown.


WR8ATV

WR8ATV



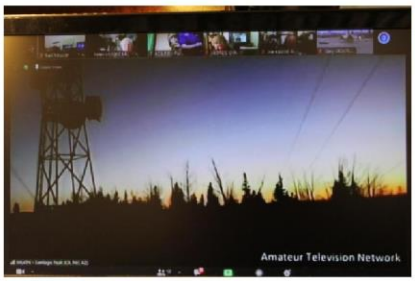



VK3BCU

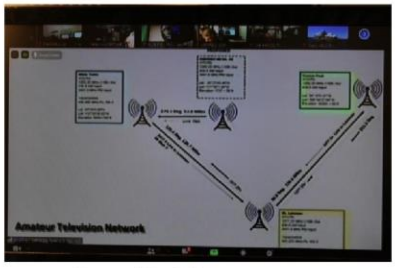


MT. WILSON

K6CCU

1253.25 MHz
(VSB) Out
ATN
W7ATN
White Tank Mountain
ATV Repeater DM33rn

Amateur Television Network

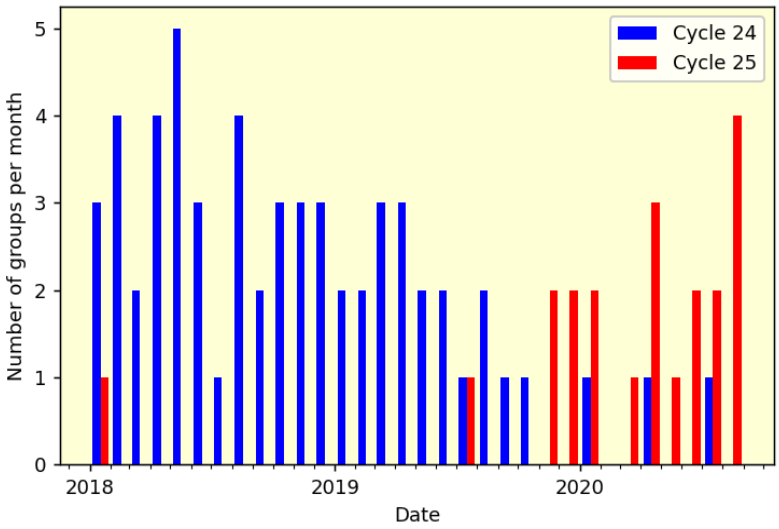

Amateur Television Network

W6ATN
Santiago Peak
Input: 434/2441.5 MHz
Output: 1253.25 MHz/5910 MHz

Amateur Television Network

CURRENT SUNSPOT DETAILS

Sunspot Index and Long-Term Solar Observations (SILSO) in Belgium said this month that the minimum between Solar Cycles 24 and 25 "most probably" took place last December. SILSO, a part of the Royal Observatory of Belgium and formerly known as SIDC, cited as evidence the January 2020 increase in the 13-month smoothed sunspot number -- the first upswing since the Cycle 24 maximum in April 2014.

"For now, this latest smoothed value in January 2020 is the very first point indicating a rise of the activity. So, the date of the minimum still needs a full confirmation over the coming months," SILSO said on its website. "For now, preliminary smoothed values, limited to less than 13 months, hint at increasing values over coming months. If the rising trend indeed continues, this [December 2019] date will become fully definitive."



SILSO said another indication of the transition between the two solar cycles can be drawn from counting individual sunspot groups that belong to either the old or new solar cycle. "While most sunspot groups belonged to the last solar cycle [Cycle 24] until September 2019, the dominance switched to groups of the new cycle in November 2019," SILSO said.

SILSO said that in terms of the number of active regions, the minimum between Cycle 24 and Cycle 25 falls in October 2019. "This is close to December 2019," SILSO said. It attributes the difference to three factors:

The sunspot number also takes into account the total number of spots, and the size of the emerging active regions.

The time of the minimum depends on the respective trends of the declining phase of the past cycle, and of the rising phase of the new cycle, over the 12 months surrounding the minimum.

The date of the minimum has a significant uncertainty range. Near minimum, activity hardly varies and is close to minimum for a few months. "The date of the minimum is thus always less sharply defined than the date of the maximum of the cycles, which are more sharply peaked," SILSO explained.

SILSO noted "a steady stream" of small, active regions since last December, but that activity stagnated at a constant low level. "However, since July -- and even more in the course of August 2020 -- the activity seems to truly take off, with at least one sunspot group visible on almost all days. Such a level of activity had not been reached since early 2019. "This late-breaking upward trend is now expected to accelerate over the coming months," SILSO predicted. "So be prepared for a more eruptive and interesting sun!"

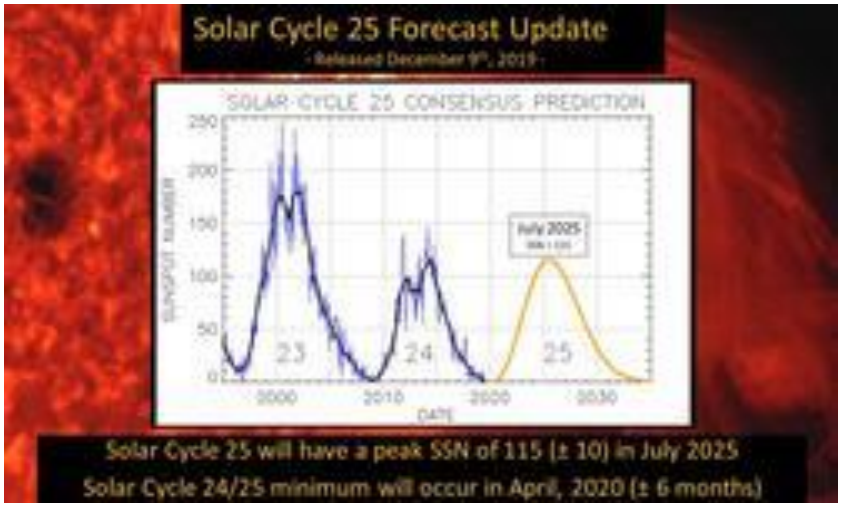
Analysis Determines We Are in Solar Cycle 25 (From ARRL Newsletter September 17, 2020)

It's now official. The solar minimum between Solar Cycles 24 and 25 -- the period when the sun is least active -- occurred in December 2019, when the 13-month smoothed sunspot number fell to 1.8. This is according to the Solar Cycle 25 Prediction Panel, co-chaired by the National Oceanic and Atmospheric Administration (NOAA) and the National Aeronautics and Space Administration (NASA). We are now in Solar Cycle 25, with peak sunspot activity expected in 2025, the panel said. The panel expressed high confidence that Solar Cycle 25 will break the trend of weakening solar activity seen over the past four cycles.

"We predict the decline in solar cycle amplitude, seen from Cycles 21 through 24, has come to an end," said Lisa Upton, panel co-chair and solar physicist with Space Systems Research Corporation. "There is no indication we are approaching a Maunder-type minimum in solar activity."

At 11 years, Solar Cycle 24 was of average length and had the fourth-smallest intensity since regular record-keeping began in 1755, with what is considered Solar Cycle 1. It was also the weakest cycle in a century. At solar maximum in April 2014, sunspots peaked at 114 for the cycle, well below the 179 average.

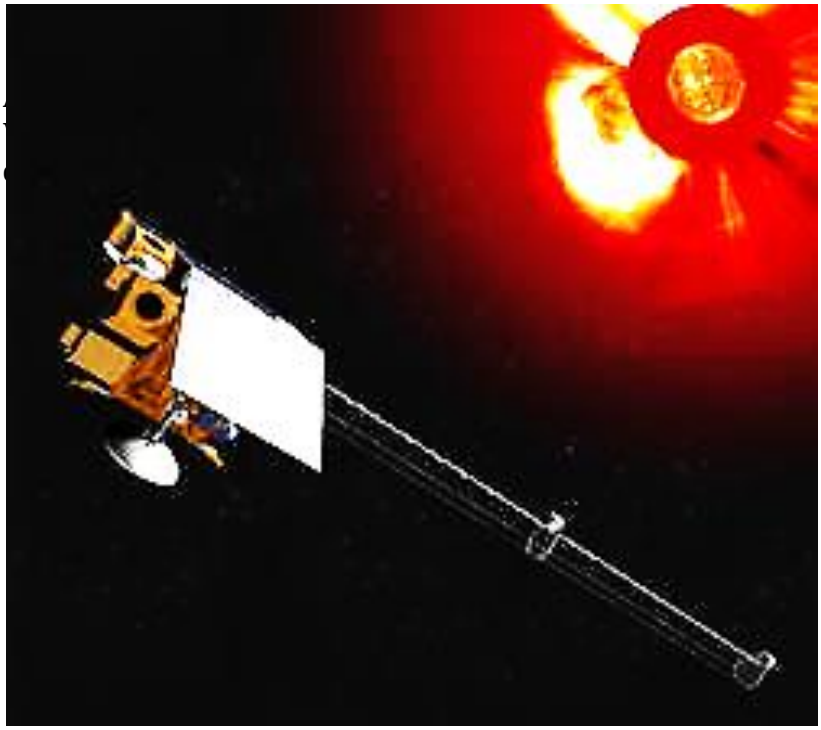
Solar Cycle 24's progression was unusual. The sun's northern hemisphere led the sunspot cycle, peaking more than 2 years ahead of the southern hemisphere sunspot peak. This resulted in fewer sunspots at solar maximum than if the two hemispheres were in phase.



For the past 8 months, activity on the sun has steadily increased, indicating that we have transitioned to Solar Cycle 25, forecast to be a fairly weak cycle -- about the same as Solar Cycle 24. Solar Cycle 25 is expected to peak in July 2025, with a predicted 115 sunspots.

"How quickly solar activity rises is an indicator on how strong the solar cycle will be," said Doug Biesecker, the NOAA-NASA panel co-chair and a solar physicist at NOAA's Space Weather Prediction Center (SWPC). "Although we've seen a steady increase in sunspot activity this year, it is slow."

"While we are not predicting a particularly active Solar Cycle 25, violent eruptions from the sun can occur at any time," Biesecker added.



Before Solar Cycle 25 peaks in 2024, NOAA is slated to launch a new spacecraft dedicated to operational space weather forecasting. The Space Weather Follow-On L-1 observatory (SWFO-L1) will be equipped with instruments that sample the solar wind, provide imagery of coronal mass ejections, and monitor other extreme activity from the sun in finer detail than before. NOAA's next Geostationary Operational Environmental Satellite (GOES-U) is also scheduled to launch in 2024. GOES-U will carry three solar monitoring instruments, including the first compact coronagraph, which will help detect coronal mass ejections. Enhanced observations of the sun from these satellites will help improve space weather forecasting.

ARRL SEEKS TO PRESERVE PROPOSED FCC 9CM BAND DELETION

From ARRL Newsletter September 17, 2020

ARRL efforts are under way to preserve amateur radio access to the 3.3 - 3.5 GHz (9-centimeter) band. In an 80+ page draft *Report and Order and Further Notice of Proposed Rulelmaking* (*R&O*) in WT Docket 19-348, the FCC announced its intention to delete the 3.3 - 3.5 GHz amateur secondary allocation, subject to a phased withdrawal tied to its licensing of new primary users. According to the FCC, the 3.450 - 3.550 GHz spectrum will be put up for auction as early as December 2021. Incumbent users will be permitted to continue operating in the band until licensing to commercial interests -- presumably 5G -- begins. That's estimated to be about 3 months after the spectrum auction concludes, or around mid-2022. No alternative spectrum was proposed to replace the 9-centimeter spectrum for amateur radio operations. In an associated *Further Notice of Proposed Rulemaking*, the FCC said it seeks comment "on whether it is in the public interest to sunset amateur use in the 3.3 - 3.55 GHz band in two separate phases," -- first above 3.4 GHz, and later below 3.4 GHz.

"We find that removing the existing secondary non-federal allocations from the 3.3 - 3.55 GHz band and clearing these non-federal operations from the band is in the public interest, and therefore, we adopt this proposal," the draft *R&O* says. "Because the [Department of Defense and the National Telecommunications and Information Agency] agree that commercial users operating pursuant to flexible use licenses can be accommodated in the 3.45 - 3.55 GHz band at full power, and given continued interest in the 3.3 - 3.45 GHz band for future sharing for flexible-use licenses, we find that retaining the secondary non-federal allocations across this spectrum would hinder the Commission's ability to offer flexible-use licensing in the future and would undermine the intensive and efficient use of valuable mid-band spectrum."

"Further, to prevent adjacent-channel issues and to preserve the possibility of additional clearing for flexible use licensing below 3.45 GHz, we find that sunsetting the secondary amateur allocation from the entire 3.3 -- 3.5 GHz portion of the band is in the public interest," the FCC said.

Last February, ARRL filed comments opposing the FCC's proposal to delete the 3.3 - 3.5 GHz secondary amateur allocation, pointing to amateur radio's long history of successful coexistence with primary users of the band.

In August, the White House and the Department of Defense announced plans to allow for commercial 5G systems to operate in the 3.45 - 3.55 GHz band throughout almost all of the contiguous US. The plan would leave radio amateurs to "individually determine appropriate alternate spectrum from existing available spectrum allocations."

The 3.3 - 3.45 GHz segment is not immediately available for reallocation and auction, because more work is needed to accommodate the Department of Defense. Under the rules as proposed, amateur operations will be permitted to continue in this spectrum until sometime in the future, when FCC rulemakings establish new rules and conduct a spectrum auction and commercial licensing.

FCC ORDERS AMATEUR ACCESS TO 3.5 GHZ BAND TO "SUNSET"

Despite vigorous and continuing opposition from ARRL and others, the FCC has ordered the "sunsetting" of the 3.3 - 3.5-GHz amateur radio secondary spectrum allocation. The decision allows current amateur activity on the band to continue, "grandfathering" the amateur operations subject to a later decision. The FCC proposed two deadlines for amateur operations to cease on the band. The first would apply to the 3.4 - 3.5 GHz segment, the second to 3.3 - 3.4 GHz. The FCC will establish the dates once it reviews additional comments.

"We adopt our proposal from the Notice of Proposed Rulemaking to remove the amateur allocation from the 3.3 - 3.5 GHz band," the FCC said in its R&O. "We adopt changes to our rules today that provide for the sunset of the secondary amateur allocation in the band, but allow continued use of the band for amateur operations, pending resolution of the issues raised in the Further Notice."

The Report and Order (R&O) and Further Notice of Proposed Rulemaking in WT Docket No. 19-348 adopted on September 30 followed a 2019 FCC Notice of Proposed Rulemaking (NPRM) in which the FCC proposed re-allocating 3.45 - 3.55 GHz for "flexible-use service" and auctioning the desirable "mid-band" spectrum (generally defined as between 1 GHz and 6 GHz) to 5G providers. These and other recent spectrum-repurposing actions stem from the MOBILE NOW Act, enacted in 2018, in which Congress directed the Commission to make additional spectrum available to auction for mobile and fixed wireless broadband. The FCC action is consistent with worldwide allocations adopted by the ITU for these frequencies.

In the run-up to the Commission's decision, ARRL met with the FCC's professional staff to explain its concerns and to answer questions. Subsequently, ARRL met with the wireless advisors to the FCC Chairman and two Commissioners. In those meetings, ARRL reiterated that continued secondary status for amateurs will not impair or devalue use of this spectrum by the primary licensees intending to provide 5G or other service. ARRL noted amateur radio's long history of successful coexistence with primary users of the 9 cm band, sharing this spectrum with the federal government users and secondary, non-federal occupants.

ARRL pointed out that vital links in amateur television and amateur radio high-speed mesh networks using the band have been especially valuable during such emergency situations as the wildfires currently raging on the west coast. Deleting the amateur secondary allocation will result in lost opportunities for experimentation and public service with no public interest benefit to make up for that.

ARRL argued that deleting the secondary allocation would waste the scarce spectrum resource, particularly in areas where commercial services often do not construct full facilities due to small populations. The FCC action means that amateur radio will lose access to the 3.5-GHz secondary allocation even where commercial operations do not exist. ARRL told the Commission that it should not intentionally allow this spectrum to be vacant and unused, wasting the public resource, when amateurs can use some portion of it in many geographic areas with no detriment to any other licensee, just as it has in the past. ARRL argues that amateur operations should be permitted until and unless an actual potential for interference exists.

Deletion of the 3.3 - 3.5 GHz secondary amateur allocation will become effective on the effective date of the FCC's order, but amateur radio operation as of that date may continue while the FCC finalizes rules to license spectrum in the 3.45 - 3.55 GHz band and establishes deadlines for amateur operations to cease. The FCC proposed allowing amateur operation in the 3.3 - 3.4 GHz portion of the band to continue "pending further decisions about the future of this portion of the spectrum," the timing for which is unknown. The Commission proposed to mandate that operations cease in the 3.4 - 3.5 GHz portion when commercial licensing commences for the new 3.45- 3.55 GHz "5G" band, which is predicted to begin in the first half of 2022.

"We seek comment on whether it is in the public interest to sunset amateur use in the 3.3 - 3.55 GHz band in two separate phases, e.g., first above 3.4 GHz, which is the focus of [the R&O] and later in that portion of the band below 3.4 GHz," the FCC said.

ARRL expressed gratitude to the many members and organizations that joined ARRL in challenging the FCC throughout this nearly year-long proceeding. They included multiple radio clubs, weak signal enthusiasts, moon bounce participants, and the Amateur Radio Emergency Data Network (AREDN), the Amateur Television Network (ATN), AMSAT, and Open Research Institute (ORI).

"We recognize that any loss of our privileges will most directly impact radio amateurs who use the frequencies to operate and innovate," said ARRL President Rick Roderick, K5UR. "Such instances only embolden ARRL's role to protect and advocate for the Amateur Radio Service and Amateur Satellite Service. There will be continued threats to our spectrum. So, I urge all amateurs to strengthen our hold by being ceaseless in our public service, experimenting, and discovery throughout the radio spectrum."

DAYTON HAMVENTION HARA ARENA IS BEING DEMOLISHED

Hara Arena, the former venue for Dayton Hamvention® and myriad sports, entertainment, and other presentations over the years, will soon be history. In the wake of a failed attempt to revitalize the tornado-damaged complex, officials in the city of Trotwood, Ohio -- where Hara Arena is located -- announced plans last week to raze the complex and rezone the property from commercial recreation to light industrial.

"The complex suffered extensive damage during the 2019 Memorial Day tornado outbreak," a city news release recalled on September 25, taking note of hopes to salvage the complex. "However, redeveloping the property would be a challenge due to the extent of the damage, so the decision was made...to demolish the legendary venue."

The city said the zoning change will allow manufacturing, distribution centers, and call centers to establish their businesses in the area.

"We are excited for what the future holds for this property," Trotwood Mayor Mary McDonald said.

"This is going to create some momentum for redevelopment," City Manager Quincy Pope told *Dayton Daily News*.

According to the *Dayton Daily News*, the property's owners have said the iconic marquee spelling out "Hara Arena" atop the main arena will be preserved and auctioned off, with the proceeds donated to charity.

The Hara complex and the surrounding real estate occupy some 128 acres.

Co-owner Corey Heitz told the *Dayton Daily News* that it will take up to 6 months to tear down the buildings completely, and he hopes to have "something" there in the next 12 months.

Hara Arena had served as the venue for Dayton Hamvention from 1964 until 2016. Hamvention announced in July 2016 that Hara Arena would be closing but that Hamvention would continue. The show is now held at the Greene County Fairgrounds & Expo Center.

Over its six-decade history, Hara Arena hosted concerts by performers that included the Rolling Stones and the Grateful Dead; it was also where hockey legend Wayne Gretzky played his first professional hockey game.

Known Digital-ATV DX Records

updated 2020-10-13

by Ken W6HHC

76 GHz

35.6 KM G8GTZ/P & G4LDR/P 2019-01-28
DVB-S2 at 333 KS/s RB-DATV.
Locations Coombe (IO91GI) and Cheesefoot Head (IO91JB)

12 KM G8GTZ/P & G4LDR/P 2018-06-10
DVB-S at 250 KS/s RB-DATV.
Locations IO90LX and IO90LU

47 GHz

115 KM JA0RGP/0 & JA0RUZ/0 2015-06-07
DVB-S protocol - each station SR-Systems excitor SR=6000KS/s - 150 mw final out
Locations PM97MT (Niigata City) and PM96FV (Nozawa Onsen Ski Resort)

24 GHz

136 KM G8GTZ/P & G4FRE/P 2019-06-09
DVB-S2 Protocol - 333KS/s FEC=1/2 approximately 0.5 watt, 60cm dishes
Locations Dunkery Beacon (IO81FD) and Cleeve Common (IO81XW81)

124 KM JA6DME & JA6EES 2011-11-12
Locations Mont Ten-Zan and Mont Ge-Zan

113 KM JA0RGP to JA0RUZ 2020-06-20
ISDB-T JA0RUZ EMB220 TX at 150mw out JA0RGP HV-320J at 300 mw final out
Locations PM97LU (Niigata City) and PM96FV (Nozawa Onsen Ski Resort)

10 GHz

463 KM JA0RUZ & JA0DAE 2012-07-28
DVB-S protocol SR-Systems excitor SR=6000 KS/s
Locations Akita prefecture (Cold Wind Mt) and Toyama prefecture (Mt.Iozan)

450 KM HB9JBC & F4CXQ 2005-06-21
Locations JN40CT (Sardinia) and JN12OH (Spain)

407 KM M0DTS/P & G4UVZ 2018-10-24
Intense tropo-ducting all bands. RB-DATV using DVB-S at 125 KS/s & 333 KS/s
Locations IO94MJ (Danby Head) and IO80KX (Hollybank Blagdon Hill)

258 KM F1MPE/P & HB9AFO 2019-09-14
DVB-S at 333kS/s using Portsdown exciter - HB9AFO w/ 8W out and 1M dish
Locations JN26JL and JN36GN reflections against Mont Blanc

167 KM JA0RGP/0 & JA0RUZ/0 2020-08-10
ISDB-T protocol - 64QAM OFDM FHD with self-made TX at 500mw final out
Locations PM96FV (Nozawa Onsen Ski Resort) and PM98RE (Murikami City)

5.7 GHz

464 KM JA0DAE/9 & JA0RUZ/7 2012-07-28
Locations PM86JM and PM99WW - DVB-S - AR Sys and SR-Sys excitors

341 KM JL1BLF & JH1GED 2011-08-06
Locations Mont Chokai-san and Mont Kashimayari-gatake - DVB-S SR-Systems

287 KM JA0RUZ/9 & JA4JKE/4 2018-06-02
ISDB-T - JA0RUZ using XHAED-2 TX - JA4JKE use HV-320J - at 500mw final out
Locations PM86JS (Tottori City) and PM75AM (Mt Hodatsu)

167 KM JA0RUZ & JA0RGP 2020-08-10
ISDB-T protocol - 64QAM OFDM FHD with self-made TX at 500mw final out
Locations PM96FV (Nozawa Onsen Ski Resort) and PM98RE (Murikami City)

3.4 GHz

154 KM GW4CBW/P & G3NWR/P 2018-06-10
DVB-S at 333 KS/s RB-DATV. Locations IO83FD and IO84ML

2.4 GHz

~ 1000 KM OR4ISS to IØKPT (one-way) 2014-03-08
~ 1000 KM OR4ISS to IK1SLD (one-way) 2014-03-08
Initial DVB-S protocol live video transmissions from HamTV in orbit aboard ISS
SR = 1.34 MSymb/sec and 2.0 MSymb/s using SR-Systems exciter & MPEG2
Locations Orbit to Matera, Italy and also Orbit to Casale Monferrato, Italy

252 KM JA6SPI & JA5MFY 2009-11-03
Locations PM63LN and PM51PS SR-Systems exciter and loop-yaggi

1.2 GHz

440 KM G4KLB to G1LPS 2010-10-11
Locations IO90BR and IO94EQ
(tropospheric ducting - one-way DATV)

419 KM G4KLB & MØDTS 2010-10-11
Locations Bournemouth, England and Yarm, England

379 KM VK3RTV(Repeater) & VK7EM 2011-02-23
(operators VK3BFG, VK3DQ , VK3WWW and VK3TRX)
Locations Mount Dandenong, Victoria and Penguin, Tasmania

Known Digital-ATV DX Records - Page 2

updated 2020-10-13

by Ken W6HHC

1.2 GHz - continued

252 KM JA5GYU & JA6JNR 2009-11-03
(1 Watt)

70 CM

696 KM F1FY to G8GTZ 2013-09-24
(DVB-S 2MS/sec FEC=1/2 - - one way reception)
696 KM G8GTZ to F1FY 2013-09-25
(DVB-S 2MS/sec FEC=1/2 - - one way reception reported by FM)
Locations IO91KH (near Basingstoke) and JN16VB (near Roanne, France)

600 KM DBØTAN (repeater) to F9ZG 2014-11-28
DVB-S - one-way DATV - Tropospheric ducting (signal 25 dB S/N over ca)
Locations Wasserkuppe (Germany Hesse state) to IN99KC (Normandy France)

528 KM G3PYB & F5AGO 2013-09-24
(DVB-S 2MS/sec)
Locations near W YORKSHIRE and JN06DP (near Poitiers, France)

501 KM W4HTB & WB8LGA 2014-07-26
(DVB-T QPSK FEC=1/2 2 MHz Bandwidth) - Tropospheric ducting
Locations Bowling Green, KY and Marengo, OH

235 KM G8GTZ & F9ZG 2016-06-12
H.264 video - DVB-S protocol at 125 KSymb/s using DATV-Express w/ 19-ele yagi
Locations JO00HU (Fairlight near Hastings) and IN99KC (near Cherbourg)

121 KM KH6HTV to KØRZ 2011-11-21
(video resolution HDTV 1080i - protocol ITU-T/J.83B QAM-64 - one-way DATV)
Locations Cheyenne, Wyoming and Boulder, Colorado

144 MHz

407 KM M0DTS/P & G4UVZ 2018-10-24
DVB-S at 333 KS/s RB-DATV.
Locations IO94MJ (Danby Head) and IO80KX (Hollybank Blagdon Hill)

403 KM PI4D to G4YTV (one way) 2020-08-22
DVB-S2 at 125 KS/s using H265 with FEC=1/2 on 144.600 MHz. (100W into Yagi)
Locations Dordrecht , Netherlands and IO93UU82FR (East Yorkshire , England)

380 KM PA0JCA to G4YTV (one way) 2020-08-22
DVB-S at 125 KS/s using H264 with FEC=1/2 on 145.300 MHz. (80W into 4el Yagi)
Locations Amstelveen Netherlands and IO93UU82FR (East Yorkshire , England)

313 KM GI7UGV & G4CBW 2018-07-14
tropo-ducting - H.264 video - 8W DVB-S protocol at 333 KSymb/s with Portsdown tx
& MiniTiouner rx with 7-ele yagi at GI7UGV. G4CBW used DATV-Express tx (7W)
& MiniTiouner with 5-ele beam. - on 146.5 MHz - UK temporary band allocation
Locations IO74AU93XP (Larne, N. Ire) and IO83UB93 (Newcastle-Under-Lyme)

294 KM G0MJW/A & G8LES 2016-12-29
tropo-ducting - H.264 video - DVB-S protocol at 125 KSymb/s with DATV-Express
and 9-ele yagi at GØMJW. G8LES also used DATV-Express with 10-ele X-yagi.
Both produced 25W ERP. - on 146.5 MHz - UK temporary band allocation
Locations IO83RO (Winter Hill) and IO91LC (Four Marks)

50 KM MØDTS & G0LPS 2015-02-21
H.264 video - protocol DVB-S at 333 KSymb/s using experimental DATV-Express
transmitters & MiniTiouner RB-DATV receivers. 146.5MHz UK temp band allocation
Locations North York Moors, England and Spennymoor (County Durham) IO94EQ

70 MHz

230 KM G4FRE to G4FRE/P (one-way) 2018-12-27
DVB-S protocol - Pluto xmtr at 250 KSymb/Sec with FEC=7/8 and 5-ele beam
Locations Malvern (IO82UC) to Isle of Sheppey (JO01KK)

160 KM G8GTZ/P & G4FRE/P 2018-12-09
DVB-S protocol - Portsdown 125 KSymb/Sec FEC=7/8 & 5-ele beam on 71.0 MHz.
Locations Win Green (IO80WX) and Titterstone Clee (IO82QJ)

136.6 KM G8VPG & G4BVK 2018-09-14
H.265 video - DVB-S protocol at 333 KSymb/s with DATV-Express transmitter,
MiniTiouner receiver and 3-ele yagi at both stations
Both transmitted 20W - on 71.0 MHz - UK temporary 4M band allocation
Locations IO81FD19QU (Dunkery Beacon) and IO81XW90 (Cleeve Hill)

50 MHz

228 KM G4FRE to G4FRE/P (one-way) 2018-12-26
DVB-S protocol - Pluto 250 KSymb/Sec with FEC=7/8 & 5-ele beam on 51.0 MHz.
Locations Malvern (IO82UC) to Isle of Sheppey (JO01JK)

140 KM G4FRE/P & G8GTZ/P 2019-04-06
DVB-S2 protocol at 250 KSymb/Sec with FEC=1/2
G4FRE used Portsdown/MiniTiouner with 5-ele F9FT yagi
Locations Titterstone Clee (IO82QJ) and Walbury (IO91GI)

See more details (including analog-ATV and SSB, etc) at **https://www.hb9afo.ch/records/default.htm**

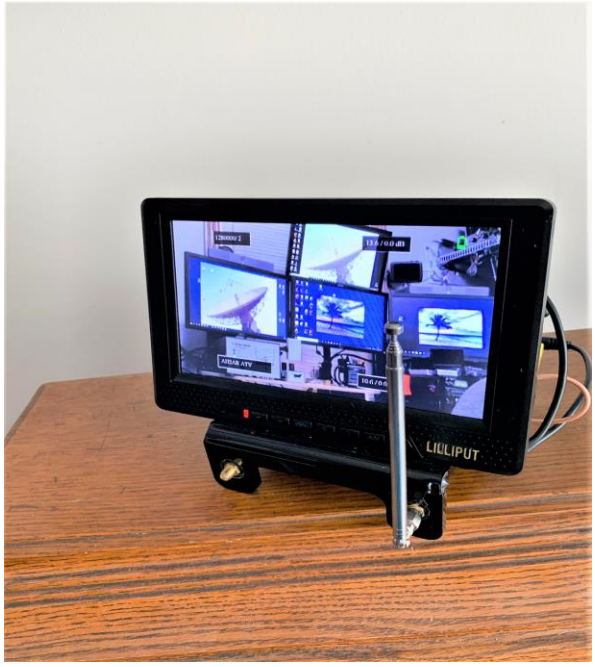
PORTABLE TEST DVB-T RECEIVER, MONITOR & POWER SUPPLY

There are many ways to provide portability for DVB-T receive capability when the need arises at remote sites or during Field Day Operations. One idea for configuring a DVB-T Test Receiver/monitor for such requirements is presented here. Keep in-mind that this approach can use the same hardware as presented, or you could opt to use other hardware items that could easily serve this same purpose. This configuration integrates an FT-817 Lexan stand, a TalentCell Rechargeable Lithium battery pack, and a Liliput HD test monitor.

LEXAN STAND: Note that the Lexan stand is available either through Amazon or E-bay. Using the search terms --Support Bracket Mount FT-817 Black Stand-- will provide a number of links where this bracket can be purchased. A photo of the stand by itself is provided here:

POWER SUPPLY: The power supply being used for this application is a TalentCell 12vdc/9vdc/5vdc Rechargeable Lithium Power Bank. Note that there are a number of different TalentCell models that can be employed. For this project, I opted to use a YB1208300-USB Power Bank with a capacity of 12vdc/8300 mah. The 12VDC power output connection is used to power the HV122A and the 9VDC output is used to power the Liliput video monitor. For this application, the 5vdc USB output isn't needed, but still could be used to power an HV110 receiver that requires 5vdc.

DVB-T RECEIVER: For the DVB-T Receiver, an HV122A is used in this configuration as I needed a DVB-T test receiver that would provide receive capabilities on 23cm at 1 MHz bandwidth. The receiver requires 12vdc, and for this application, the HDMI output is ported into the Liliput HD monitor.



INTEGRATED CONFIGURATION: Coincidentally, the "side wings" on the Lexan stand that normally is supposed to center a QRP transceiver on the stand, ended up perfectly cradling the Lithium Battery pack. Keep in mind that this "coincidental fit" to the lexan stand will only work with the YB1208300 Power Bank. Other power banks will work but the power banks would have to be affixed to the Lexan stand in a different manner. I secured the HV-122A with Velcro hook-and-loop tape to the back of the monitor, and also used a very short six inch HDMI cable to interface between the monitor and receiver. Lastly, all Liliput monitors normally come with a ¼ inch threaded tripod mount interface. A ¼ inch bolt used in tripods connects the monitor securely to the Lexan stand.
… Dave Pelaez AH2AR

SUPER DATV STATION / CORRECTION FROM ROD!

Art, I always enjoy your excellent newsletters. It was cool to see the picture that Mike WB6SVT sent you for the last ATCO Newsletter. He gave me a heads up that you published incorrect info about it. To make the record straight, it's a photo of downtown Santa Barbara from the WB9KMO-ATN repeater site at 2500 feet elevation, a few miles north of town.

With help from Mike and several others, we just did a significant overhaul of the repeater site, which has been in operation for 40 years. Our first ATV repeater contact there was to a station in San Diego in 1980. I attached a photo that shows our repeater equipment in the KTYD transmitter building on the site at 3130 Gibraltar Road. The site is known as Rattlesnake Pass.

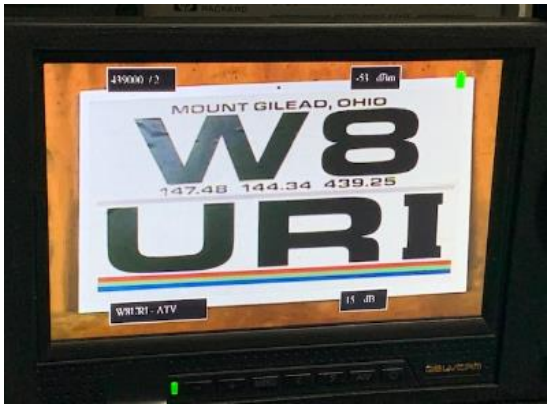
We installed a 5 GHz data link to a Cox Business account at Santa Barbara Hackerspace in Goleta that give us a 30 Mbps down and up data throughput. I have Grandstream GXV3500s installed on site that gives me full-duplex video between to my other ATV repeater site in Mesa AZ.

I'm fine tuning the installation on the Mesa end. Soon, we'll have Santa Barbara integrated in with our Arizona ATN network. At the same time, we enhanced our two-way ATV and FM RF links from Santa Barbara to Santiago Peak in southern California. That makes Santa Barbara a redundant link between all of the ATN-CA repeaters and ATN-AZ repeaters. I'm already enjoying the Santa Barbara audio and video in Mesa. Soon, I'll be sharing it with the rest of the world.

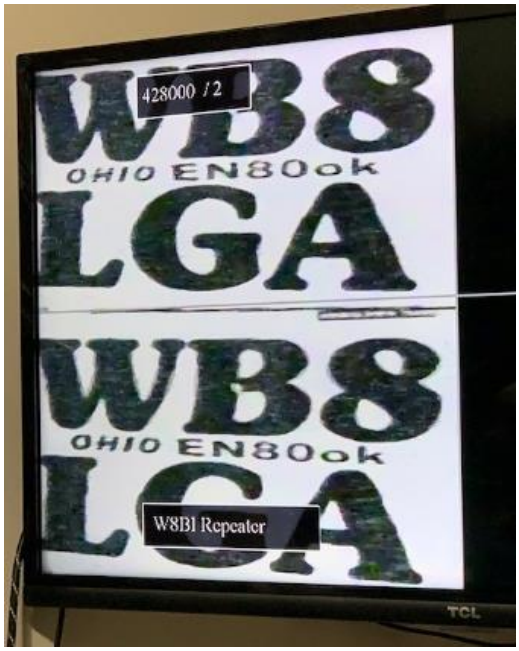
Keep up the good work that you're doing. I'm looking forward to the upcoming DATV QSO Party. See you there.
…Regards, Rod Fritz WB9KMO WB9KMO-ATN Repeater Trustee rod@sbatv.org

RECENT BAND OPENINGS

Throughout the first week of September 2020, there has been multiple early morning 70cm ATV DX band openings. Provided here are a few photos of what was being received. Typically, it's possible to view the APRS propagation map (for 2 meters) to indirectly determine whether 70cm may be also open.

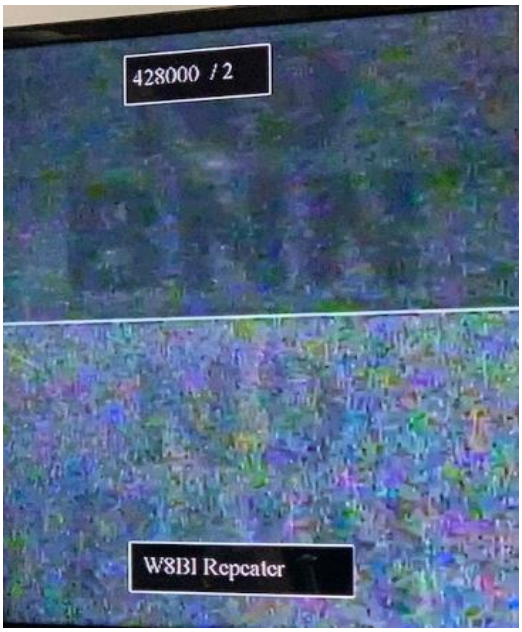


At left is W8URI's callsign (DVB-T) being received direct by AH2AR in Vandalia, Ohio (Approx. 84 miles).

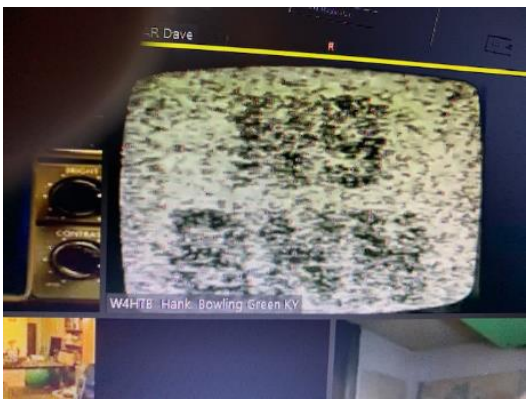


At right is WB8LGA's analog (A5) 70cm video in Morrow county Ohio passing thru the W8BI ATV repeater in Huber Heights, Ohio. This band-opening path is also approximately 80 miles. When enabled, the QUAD Screen function on the ATV repeater allows you to view what the repeater is receiving on the input (on the bottom screen), whereas the top screen is what the repeater is re-transmitting. For whatever reason, the re-transmitted video appears to slightly clean up some of the callsign noise artifacts as it passes through the repeater.

The right 2 images are from N9BNN's analog (A5) 70cm video in Lebanon, Indiana passing thru the W8BI ATV repeater in Huber Heights, Ohio. This band-opening path is approximately 126 miles. When enabled, the QUAD Screen function on the ATV repeater allows you to view what the repeater is receiving on the input (on the bottom screen), whereas the top screen is what the repeater is re-transmitting. For whatever reason (possibly due to the Analog-to-Digital encoding process when the analog signal is passed through for re-transmission through the receiver chain), the re-transmitted video appears to markedly clean up some of the noise artifacts as it passes through the repeater.



Below is N9BNN (Mike) in Lebanon Indiana being received by the Grand Rapids Ridgetop Receive Site in Michigan. This is approximately 200 miles between the two locations.
…Dave AH2AR



At right is N9BNN (Mike) in Lebanon Indiana being received by W4HTB (Hank) in Bowling Green Kentucky, a 220-mile 70cm ATV DX path.

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 too will be cancelled if not already done so.

12/07/2019 | Fulton County ARC Winterfest

Location: Delta, OH
Type: ARRL Hamfest
Sponsor: Fulton County Amateur Radio Club
Website: http://k8bxq.org/hamfest

11/01/2020 - Massillon Hamfest

Location: Green, OH
Type: ARRL Hamfest
Sponsor: Massillon Amateur Radio Club
Website: http://www.w8np.org

03/07/2021 - WINTERHAMFEST

Location: Elyria, OH
Type: ARRL Hamfest
Sponsor: Northern Ohio Amateur Radio Society

TUESDAY NITE NET ON 147.48 MHz SIMPLEX

Every Tuesday night @ 9:00PM WA8RMC hosts a net for the purpose of ATV topic discussion. There is no need to belong to the club to participate, only a genuine interest in ATV. All are invited. For those who check in, the general rules are as follows: Out-of-town and video check-ins have priority. A list of available check-ins is taken first then a roundtable discussion is hosted by WA8RMC. After all participants have been heard, WA8RMC will give status and news if any followed by late check-in requests or comments. We usually chat for about ½ hour so please join us locally or via internet at https://batc.org.uk/live/wr8atv/. Click on WR8ATV.

ATCO TREASURER'S REPORT - de N8NT

OPENING BALANCE (07/24/20)	$ 3595.89
Receipts (dues)	$ 40.00
PayPal fee	$ (1.18)
CLOSING BALANCE (10/24/20)	$ 3634.71

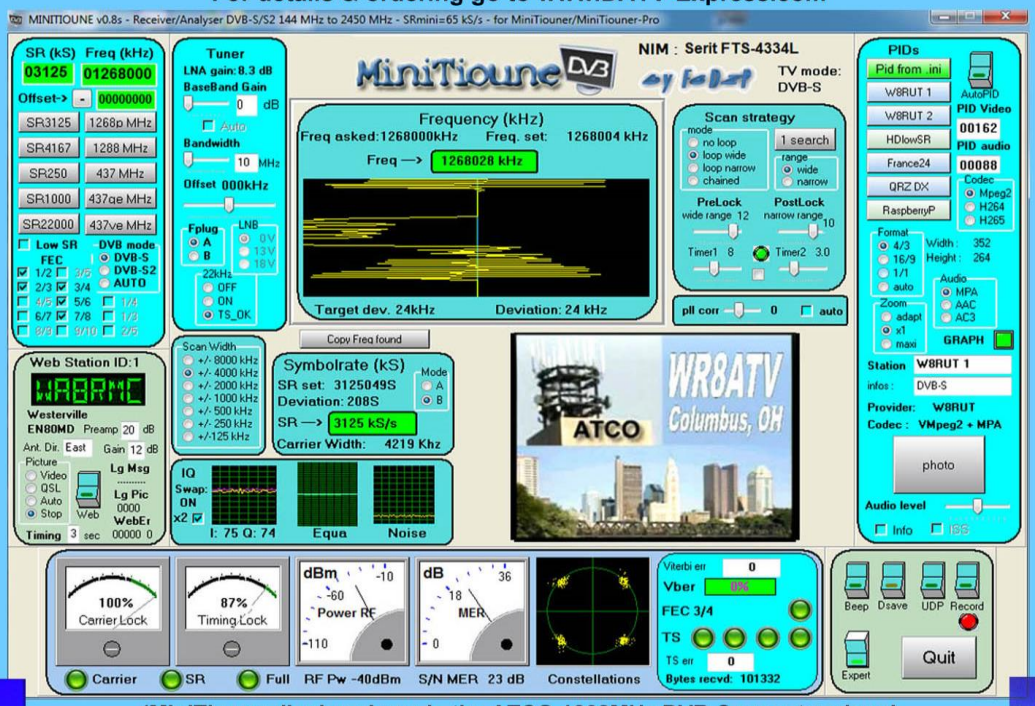
MiniTiouner-Express

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 October 2020

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	David Jenkins	100 Miller Ave Apt 108	Ashville	OH	43103	614-853-0679
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
N8ZM	Tom Holmes	1055 Wilderness Bluff	Tipp City	OH	45371	

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.