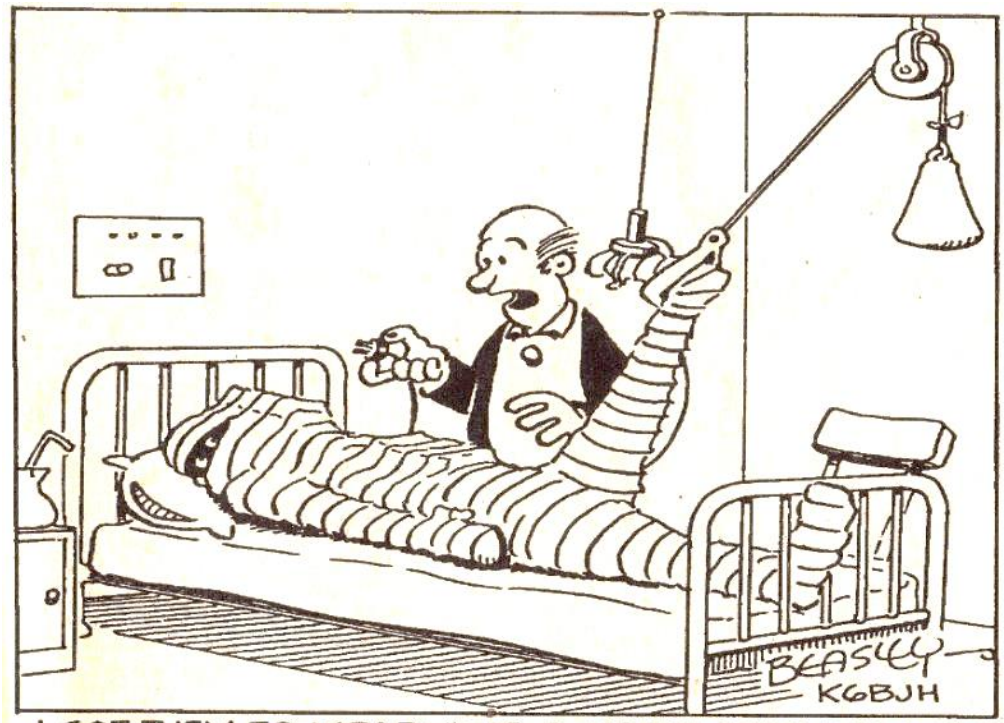
ATCO NEWSLETTER

VOLUME 42 NUMBER 4 **October 2025**

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, October)

ATCO SPOTLIGHT TOPIC



ACTIVITIES ... from my Workbench

Well, here we go again. It's Newsletter time and I don't have any sarcasm to start my dialogue….I paused here for a while but still nothing so I'll go straight to the "on topic" stuff.

Really, there's not much going on lately. The repeater seems to be working OK but now that I mention it things may change. I hate to go looking for something when it's working normally but sooner or later, I'm due for a trip there to make sure the vent fan is still running. Also, I've had a report that someone couldn't get into it during a good opening lately so maybe that's cause to go there and do some snooping around to check sensitivity. Now, if the preamps are OK by inserting a signal at the input to the first filter, how do I check the antenna? I can't get to it and an outside signal close to it is useless. I really should have done a sensitivity check at my house (14 miles away) some time ago to use as a reference but didn't. Once upon a time I remember getting a P2 or 3 picture there with a watt or less at my house but that was when the trees around me were shorter. It's worth a try again just to see where the threshold is. I COULD check the antenna by changing it to the transmitter and check the SWR. If I had a nano vector network analyzer, I could check it with that so maybe this is a good time to get one. Nope, not now because of the learning curve and unraked yard leaves outside to tend to. I just can't win at this can I? But wait! A friend of mine said he'd conduct a training course for me to explain the basics of a Nano VNA so maybe I can do both. We'll see.

An unfinished task right now is to complete DVB-T transmit unit tests so I can test low level signals for a proposed DVB-T2 receiver I'm considering building. More on that one later when you read about my VersaTune receiver project. Speaking of the VersaTune, it is complete now and ready for production. However, there is a big surprise which I'll explain with a little more detail when you read about the VersaTune later in this Newsletter. Stay tuned.

Lastly, I don't hear anyone on 147.48 anymore. I keep my rig on whenever I'm in the workroom but so far, I've only heard a couple of weak short conversations in the last few weeks. Let's step it up guys.

That's about it for this time guys. 73 for now.

ANALOG TV 439.250 MHZ INTERFERENCE ON I-70 FOLLOW-UP

This is a snapshot of the 439.250 MHz A5 transmission being re-transmitted by the W8BI ATV repeater via the DVB-T ATV repeater output, and then received at the W8CWM (Bill McCoy) QTH.

ATV Interference Being Experienced within the Ohio Region in April has been Resolved. The Midwest ATV group had been receiving analog television signals, on an intermittent basis, during weekdays. The video signals had been in the form of a live video feed (see photo) of a front-facing camera from a moving vehicle. These signals had been observed by ATVers located in Englewood, Ohio and throughout the Columbus, Ohio region. The signals were emanating from semi-trucks in motion on the Interstate highway thoroughfare. Since Bill lives adjacent to Interstate 70, he has experienced very strong simplex signals as the trucks have passed by. Note that other ATVers have received the video, likely out to distances of 40 miles or more. The above photo helped narrow the source down as the semi-truck mirror is the same mirror mounted on the semis involved in the platooning test. We speculated that it appeared that the video link on 439.250 MHz is being used for the situational awareness of the "trailing" semi driver in the platoon. It was further speculated that the video was likely not being used for in-lane navigation, but just for situational awareness since the trailing truck follows very closely behind the lead truck and the additional view provides the trailing driver a "front seat" view of what the lead driver is experiencing. The source of these signals was associated with two large Semi-trucks, and the signals have been only noticed during the Weekday Midwest ATV nets. We determined that the TV signals were part of a test involving an Ohio Department of Transportation $8 million dollar grant to test "Semi-Autonomous Truck Platooning". A pair of tractor-trailers with automated truck platooning technology began traveling Interstate 70 between Columbus, Ohio, and Indianapolis, Indiana. Note that the trucks have drivers and are not fully autonomous. I notified the entities involved, along with the FCC to let them know the signals were being detected through the ATV repeater in Dayton, and also by amateur radio ATV operators (mainly within Ohio) involved in simplex operation. JULY UPDATE: The FCC contacted me in early May, as the field agent was in the Ohio region and was able to subsequently contact the company involved in the test activities. The interference ATV Journal-191.doc (7/30/2024, kh6htv) p. 5 of 14 immediately ceased. The FCC couldn't comment or address closed, ongoing or future investigations, so other than the cessation of the interference, no other details were provided.

…73 de David Pelaez, AH2AR, DARA, Dayton, Ohio

70 CM HAM RADIO USERS CLASH WITH STARLINK RIVAL

Watch out for this one, guys! The intent is for non-USA operation but you know how it goes when they get a foot in the door. They are asking for "worldwide operation" but say the intent is "only for ***non-USA use"****. It doesn't look good any way you slice it! It may turn out to be detrimental to our current 70 cm use We'll see! WA8RMC*

From Apple News. Read details in PC Magazine: noop
By Michael Kan Senior reporter. July 18, 2025. I've been working as a journalist for over 15 years. I got my start as a schools and cities reporter in Kansas City and joined PCMag in 2017.

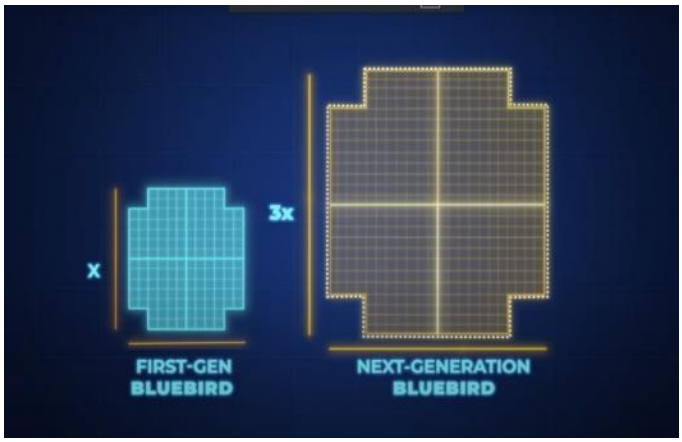
Ham Radio Users Clash with Starlink Rival AST SpaceMobile Over Spectrum Use. AST wants to use the 430 to 440 MHz band for a satellite-to-phone service. Ham radio enthusiasts say the company's plan is vague and could interfere with their slim slice of spectrum.

AST SpaceMobile and its giant satellites are facing opposition from a surprising group: Amateur "ham" radio operators.
The community is protesting AST SpaceMobile's request to use the 430 to 440 MHz band, which includes spectrum already allocated for ham radio operations, including emergency communications.

An amateur radio operator in Germany named Mario Lorenz is asking the US Federal Communication Commission to deny AST's proposal to use the spectrum outside the US. (Why is the FCC ruling on non-USA business?) AST seeks worldwide access to a significant portion of this spectrum in a way which would almost guarantee significant international harmful interference," Lorenz says.

Texas-based AST wants to use the spectrum outside the US to track and control its proposed fleet of 248 satellites, which promise to deliver internet connectivity to everyday smartphones in cellular dead zones. However, Lorenz claims AST's application is "vague" and lacks details about how it'll harness the spectrum and avoid interference with ham radio operators.

Thus, in a worst-case scenario, the proposal is an "unprecedented grab of spectrum, and in violation of applicable Radio Regulations," Lorenz told the FCC. "Unlike Amateur Radio stations in the US, who have a much larger 70 cm allocation (420 MHz to 450 MHz) and other bands (220 MHz) not available to Amateur Radio stations in Region 1 (Europe), amateur radio activity is much more concentrated," he added. "The 70 cm band is heavily used. It is one of the few bands available to Novice class operators in Germany."



Since then, other ham radio users have been rallying the community and sending complaints to the FCC, warning about the risk of interference. "Amateur radio has a proven track record of saving lives in wildfires,

hurricanes, earthquakes, and other disasters," said another user. "It is widely used for public-service events, community coordination, search-and-rescue, and auxiliary communications for local agencies when all else fails."

The complaints arrive as the FCC has kicked off a process to review and possibly greenlight AST's proposal to power a commercial satellite-to-phone service through the company's emerging satellite constellation. AST currently has five BlueBird satellites in orbit, but plans to launch dozens of larger second-generation satellites in the coming months and years to compete with SpaceX's cellular Starlink service.

AST didn't immediately respond to a request for comment. But the turf battle highlights how next-generation satellite constellations can rankle existing services by harnessing radio spectrum already in use. SpaceX, for example, has been waging a regulatory battle to use the radio spectrum that Globalstar and EchoStar currently rely on in an effort to bolster the cellular Starlink service for T-Mobile.

AST's application to the FCC shows it plans on using different radio frequencies to track and control the satellites in the US. The company also notes the FCC cleared it to use the 430 to 440 MHz radio bands for its first five BlueBird satellites.

But in his letter to the FCC, Lorenz argued: "With a planned total of 248 satellites in orbit, almost certainly there would always be one or more satellites in view, causing significantly more interference potential.

"At the very least, the FCC should require from AST a clear showing and commitment to protect the Amateur Radio and Amateur Radio Satellite services," he added.

uencies	Use	Direction
.0 GHz	Gateway/Feeder Links, Routine TT&C	space-to-Earth
.2 GHz	Gateway/Feeder Links, Routine TT&C	Earth-to-space
.4 GHz	Gateway/Feeder Links, Routine TT&C	Earth-to-space
Additional Non-U.S. Capabilities[29]		
uencies	Use	Direction
0 MHz	*Non-U.S.* Off-Nominal TT&C and Orbit-Raising Maneuvers	space-to-Earth Earth-to-space
0 MHz	*Non-U.S.* Emergency TT&C Communications	space-to-Earth Earth-to-space
.0 GHz	*Non-U.S.* Gateway/Feeder Links	Earth-to-space
110 MHz	*Non-U.S.* Off-Nominal TT&C and Orbit-Raising Maneuvers	Earth-to-space
290 MHz	*Non-U.S.* Off-Nominal TT&C and Orbit-Raising Maneuvers	space-to-Earth

Table 1 – Gateway/Feeder Link and TT&C Frequencies

ARRL Files Comments to Protect 70-Centimeter Amateur Band

ARRL has filed comments with the Federal Communications Commission (FCC) to oppose part of an application that would impact the 70-centimeter amateur band for telemetry, tracking and command (TT&C) of satellites. The application, from AST & Science, LLC (AST), requests "unprecedented authorization to 430-440 MHz for a constellation totaling 248 satellites to communicate with five ground stations using up to five channels with up to 256 kHz bandwidth."

The formal opposition, filed by ARRL's Washington Counsel, asserts that the permission AST seeks to use the 430 – 440 MHz band "should be denied because AST does not demonstrate need for TT&C spectrum beyond that available within existing allocations."

The filing goes on to highlight just how unprecedented the request is: The Requested Spectrum Is Not Allocated for the Requested Purpose The 430 – 440 MHz band is not allocated domestically or internationally for the requested space-to-Earth and Earth-to-space satellite TT&C operations. As others already have noted in this proceeding, signals in this band from AST's current 5-satellite constellation have been observed throughout the world, including in the United States, notwithstanding that the satellites are authorized to communicate only with five ground stations well outside the United States. From the operations by the current five satellites, it appears that the satellites at times have transmitted continuously in the 430 – 440 MHz band throughout their orbit, not just when in communication with one of the authorized ground stations. This activity defeats the purpose of preventing interference in the United States by limiting operations in this band to ground stations distant from the

United States. Authorizing an additional 243 satellites to use this band, which would result in multiple satellites over the U.S. at all times, would effectively usurp this band's allocated use.

The 70-centimeter band is also used in emergency communications. As recently as early July, ARRL volunteers serving in the Amateur Radio Emergency Service® (ARES®) made headlines for providing critical communications in flood-ravaged areas of the Texas Hill Country. Allowing the 70-centimeter band to become overrun with TT&C operations could impact the ability for the Amateur Radio Service to be used in future disasters. "TT&C operations in the 430 – 440 MHz band are capable of causing harmful interference to radio amateur communications, including to amateur satellites operating in 435-438 MHz " the comments state. The comments go on to outline why the application would be non-compliant with ITU Radio Regulations Treaty.

Reply comments to the application are due by August 5, 2025. ARRL will continue to fight to ensure amateur radio operators have reliable, interference-free access to the spectrum they depend on -- especially in times of emergency and to serve our communities.

Michelle Thompson W5NYV, weighs in on the TT&C application with some useful information. WA8RMC

"Greetings all!
ORI's FCC Comment on Proceeding 25-201 Opposition to AST & Science LLC (AST SpaceMobile) Request for Amateur Radio Band Usage July 21, 2025 Executive Summary We respectfully submit this comment in strong opposition to AST & Science LLC's (AST SpaceMobile) request to utilize the 430-440 MHz amateur radio band for Telemetry, Tracking, and Command (TT&C) operations for their planned 243-satellite constellation. We urge the Commission to deny this application and direct AST SpaceMobile toward established commercial satellite frequency allocations that are much more appropriate for their commercial operations. Background and Technical Concerns First, we have currently unauthorized operations going on. AST SpaceMobile currently operates five Bluebird commercial satellites launched on September 12, 2024, using amateur radio frequencies at 430.5, 432.3, 434.1, 435.9, and 439.5 MHz with 50 kHz bandwidth for telemetry links. This existing operation has already demonstrated the potential for interference with legitimate amateur radio operations. The scope of the proposed expansion is a problem. AST SpaceMobile seeks to expand this usage to a 243-satellite constellation, with each TT&C beam supporting command and telemetry channels with bandwidths between 64-256 kHz. This massive expansion would fundamentally transform the character of the amateur radio band from experimental and emergency communications to commercial satellite operations. Amateur Radio uses this band and is important. The 430-440 MHz band serves a variety of critical Amateur Radio applications including amateur space communications, weak-signal SSB, digital television, data communications, repeaters and other applications. The amateur radio service in this band supports: Emergency Communications: Amateur radio operators provide vital public service during disasters when commercial communications infrastructure fails. Space Communication: Educational and experimental satellite communications that advance the radio arts. Technical Innovation: Experimentation and development of new communication technologies. Where do we think new engineers come from? Many of them come from amateur radio. International Coordination: The proposed constellation will cause interference to amateurs worldwide. This is opposed by a wide variety of international amateur radio organizations. Regulatory and Precedential Concerns This is a very inappropriate band allocation. The 430-440 MHz band is allocated to the Amateur Radio Service, not commercial satellite operations. ITU study groups investigated potential TT&C frequency allocations in the frequency ranges 150.05–174 MHz and 400.15–420 MHz, specifically excluding the amateur allocation at 430-440 MHz. Permitting a commercial satellite constellation to operate in amateur radio spectrum sets a dangerous precedent that could lead to further commercial encroachment on bands reserved for experimental, educational, and emergency communications. Frequency coordination frameworks exist. Satellite frequency coordination, particularly in these frequency bands, relies on a global regulatory and technical framework maintained by the Telecommunication Union (ITU). AST SpaceMobile should utilize this established framework rather than seeking unauthorized access to amateur spectrum. ITU study results are clear. ITU study groups conducted sharing studies in various bands which yield that no new allocations are suitable for small satellite TT&C on a co-channel sharing basis. Proper commercial

allocations exist that would not interfere with amateur operations. Proposed Alternative Solutions We recommend the Commission direct AST SpaceMobile to utilize appropriate commercial satellite frequency allocations: 1. S-Band Operations: Migrate TT&C operations to established S-band satellite allocations (2025- 2110 MHz and 2200-2290 MHz) 2. X-Band Implementation: Utilize X-band frequencies (8025-8400 MHz) which offer excellent propagation characteristics for satellite communications 3. Ka-Band Adoption: Consider Ka-band frequencies for high-capacity operations 4. Proper ITU Coordination: Work through established international coordination procedures for legitimate commercial satellite spectrum technical feasibility is not an issue. Modern satellite technology readily supports operations in these higher frequency bands. The primary frequency bands of S, X, and Ka are more advantageous than using the UHF band, which has a higher probability of local interference. Economic and Public Interest Considerations Protecting Public Service is important. Amateur radio operators provide critical emergency communications during disasters. Interference from commercial satellite operations could compromise this vital public service capability. The amateur radio service serves as a proving ground for new technologies and provides STEM education opportunities. Commercial encroachment limits these important societal benefits and harms our national competitiveness. Precedential impact is negative. Approving commercial use of amateur spectrum without compelling technical justification would invite similar requests from other commercial operators, potentially destroying the character of amateur radio allocations. Conclusion and Recommendations: We respectfully urge the Commission to: 1. DENY AST SpaceMobile's request to operate in the 430-440 MHz amateur radio band 2. DIRECT AST SpaceMobile to utilize appropriate commercial satellite frequency allocations in S, X, or Ka bands 3. REQUIRE proper ITU coordination for international satellite operations 4. REAFFIRM the Commission's commitment to protecting amateur radio spectrum for its intended non-commercial, experimental, and emergency communications purposes The amateur radio bands serve critical public interest functions that would be compromised by large-scale commercial satellite operations. Abundant alternative spectrum exists that is specifically allocated for commercial satellite TT&C operations. We urge the Commission to preserve the amateur radio bands for their intended purposes and direct AST SpaceMobile toward appropriate commercial spectrum. References: FCC DA 25-532 (June 20, 2025), AMSAT-UK Technical Analysis, ITU Radio Regulations and Study Reports, and NASA Small Satellite Guidelines page 7 page 8 …Michelle Thompson W5NYV

MORE ON GRANT'S NARROW BAND 29 MHz DESIGN EFFORTS

This weekend I received my HF driver amplifier and here is what I got out of it. The output level from the HackRF is very low, therefore needed to add to extra amplifier stages. I had a number of Mini-circuit amplifiers in my workshop that I pick up over the years, one with max output of 23 dBm and other that was around 31 dBm. These made up the low-level gain stages, they used 12v and 24v DC power in, providing for good linearity. The driver you can see in the image is what I got off Ebay, that also requires 24v DC in, the gain works out to just over 30 dB. The power meter is reading on the high side, as I was getting good 2 Watts out RMS with very good linearity on 29.15 MHz. The testing was done using the NBTV encode connected to the modulator via a UDP connection sending out the 192 carriers of OFDM. It took a few hours to set all RF levels, the output spectrum was clean, but I still would like to add in a 29 MHz band-pass filter at the input. The driver stages are now setup, once I can save up enough funds, I will look at getting in the 1kW power amplifier block with the switching low-pass filters. I will end up using two voltages 24 and 48, as this should provide good all round performance. Once have a working power amplifier I can start looking around for someone who has a tower and a 10m Yargi for on air testing.

…Grant VE3XTV

QUARTER CENTURY WIRELESS ASSOC. DEMONSTRATES HDTV

https://www.qcwa.org • August 2025 • Volume 74, Number 8

This month's cover At the Northwest Division Convention (SeaPac) in Seaside, Oregon, QCWA Vice President Chuck Farnham, WD6CHC, and Chapter 190 member Jim Shepherd, W6US, put on a demonstration of High Definition Amateur Television at the QCWA booth. This was to show there is more cutting edge technology being done in ham radio than just what was there when most QCWA members were first licensed. The system shown (see bottom picture on the front cover) consisted of a HD camera connected to a DVB-T modulator in the 70 cm band. It was putting out a four milliwatt signal into a small antenna borrowed from a handheld radio. It was transmitting across the booth to a receiver with a similar antenna that was attached to a monitor. Visitors could see themselves on the monitor screen of the system. The picture they were seeing was broadcast quality and the signal could be reduced to less than -90dBm and the picture did not degrade. This is a whole lot better than the old analogue systems that gave a snowy picture at -60 dBm. Also, there was a TinySA, which allowed everyone to see the signal on the 70 cm band. This made for a good technical display. In several areas around the country, there are DATV repeaters. The Amateur Television Network has helped with linking of these systems. This is allowing for lots of content, nets and contacts via Amateur Television. There was a scannable QR code to help the visitors learn more about Amateur Television. Most hams are totally unaware of this technology. This is only one of the many things that can be done with a ham license that members are doing.

… Submitted by: Chuck Farnham, WD6CHC

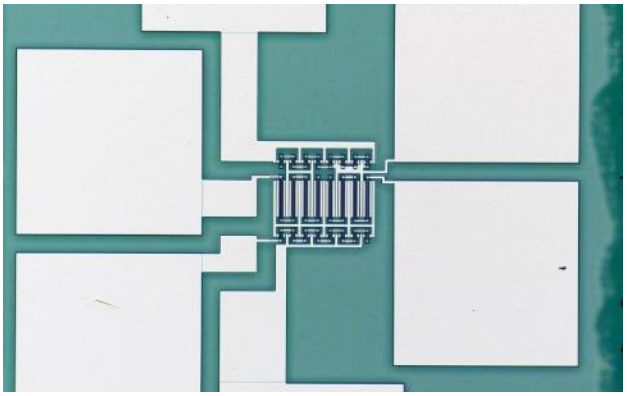
NOW, I'VE SEEN (ALMOST) EVERYTHING!

Yes,
but does it overpower the smell of an exploding capacitor?

SEMICONDUCTOR RIVALRY RAGES ON IN HIGH-TEMP. CHIPS

OK, here I go again showing topics not directly related to ATV or DATV. However, it's good to see what is going on around us in the "electronics" industry. Pardon me but this is good education material. WA8RMC

Gallium nitride transistors reach 800°C New gallium nitride transistors could operate at a blistering 800°C.
Rongming Chu/Pennsylvania State University



gallium nitride silicon carbide wide bandgap high temperature electronics journal watch extreme electronics

This article is part of our exclusive IEEE Journal Watch series in partnership with IEEE Xplore.

Two semiconductors—silicon carbide and gallium nitride—are the rivals in a (quite literally) heated competition to make circuits capable of performing at the highest temperatures. Silicon carbide chips had taken the lead, operating at 600° C. But gallium nitride, which possesses unique features that make it more functional at high temperatures, has now surpassed SiC. Researchers at Pennsylvania State University led by Rongming Chu, a professor of electrical engineering, have designed a gallium nitride chip capable of operating at 800°C —hot enough to melt table salt.

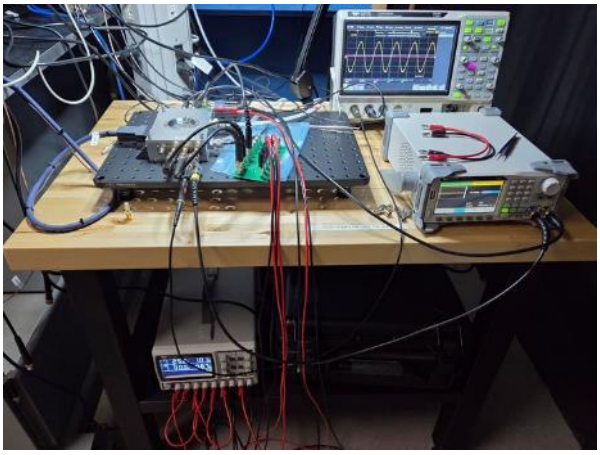
The development could be critical to future space probes, jet engines, pharmaceutical processes, and a host of other applications that need circuits for extreme conditions. Silicon carbide high-temperature chips have allowed scientists to put sensors in places they weren't able to before, says Alan Mantooth, a distinguished professor of electrical engineering and computer science at the University of Arkansas, who was not involved in the new gallium nitride result. He explains that the gallium nitride chip could do the same in monitoring the health of natural gas turbines, energy-intensive manufacturing processes in chemical plants and refineries, and systems no-one has even thought of yet.

"We can put this kind of electronics in places silicon simply can't even imagine going," he says.
Both silicon carbide and gallium nitride's potential to perform under such extreme conditions comes from their wide bandgaps. Those are the energy gaps between the materials' valence bands, where electrons are bound to the molecule, and the conduction band, where they are free to contribute to the flow of electricity. At high temperatures, electrons in materials with a narrower bandgap are always excited enough to reach the conduction band. This presents a problem for transistors, because they will then be unable to switch off. The wide bandgaps of silicon carbide and gallium nitride require more energy to excite electrons to the conduction band, so that the transistors aren't unintentionally always switched on in high temperature environments.

Gallium nitride also has unique features compared to silicon carbide which allow its chips to perform better under high heat conditions. Chu's group's IC, which they described this month in *IEEE Electron Device Letters*, is composed of what are called gallium nitride high electron mobility transistors (HEMT). The structure of GaN HEMTs involves an aluminum gallium nitride film on top of a layer of gallium nitride. The structure draws electrons to the interface between the two materials.

This layer of electrons—called a two-dimensional electron gas (2DEG)—is highly concentrated and moves with little resistance. This means charge moves much faster in the 2DEG, leading the transistor to be able to respond to changes in voltage and switch between its on- and off-states more quickly. Faster electron movement also allows the transistor to carry more current in response to a given voltage. The 2DEG is harder to produce using silicon carbide, making it more difficult for its chips to match the performance of gallium nitride devices.

To coax a GaN HEMT into operating at 800° C took some alterations to its structure, explains Yixin Xiong, Chu's graduate student. Some of those measures involved minimizing leakage current, charge that sneaks across even when the transistor is supposed to be off. They did this by using a tantalum silicide barrier to protect the device's components from the environment and by preventing the outer layer of the metal on the sides of the device from touching the 2DEG, which would have further increased leakage current and instability in the transistor.



Penn State engineers tested high electron mobility transistors at 800°C.Rongming Chu/Pennsylvania State University

Chu says that the research and fabrication process of the chip went much faster than he had anticipated. The team had been confident that the experiment would work, he says. But it was "faster than my best guess," he says.

Despite the notable benefits it presents, Mantooth is concerned about gallium nitride's long-term reliability compared to silicon carbide. "One of the things that people have been concerned about with GaN at those extreme temperatures, 500°C and above, is microfractures or microcracking [which is] not something that we're necessarily seeing in silicon carbide, so there may be reliability issues" with GaN, he explains.

Chu agrees that long-term reliability is an area for improvement, saying "there are a few technical improvements we can make: one is making it more reliable at high temperature. Right now, we can hold at 800 °C for ~ 1 hour."

Gallium Nitride vs. Silicon Carbide: There is still a lot of work to be done to improve the device, says Xiong. He explains that other than minimizing leakage current, one function of the tantalum silicide barrier is to prevent titanium in the device from potentially reacting with the AlGaN film, which could destroy the 2DEG. Eventually, Xiong wants to remove titanium from the device altogether. "The ultimate goal, I would say, is to not rely on titanium," he concludes.

Despite its potential longevity challenges, the group's chip is pushing the limits of where electronics can operate, such as on the surface of Venus. "If you can hold it for one hour at 800 °C, that means that at 600 or 700 °C, you can hold it for much longer," Chu explains. Venus' ambient temperature is 470 °C, so GaN's new temperature record could be useful for electronics in a Venus probe.

The 800 °C figure is also important for hypersonic aircraft and weapons, explains Mantooth. Their extreme speeds generate friction that can heat up the surface to 1500 °C or more. "One of the things a lot of people don't realize is that when you're flying at Mach 2, or Mach 3, the air friction creates an extreme environment on the leading edge of the wing…And guess what? That's where your radar is located. That's where other processing equipment is located. These applications are why the U.S. Defense Department is interested in electronics for extreme temperatures," says Mantooth.

As far as plans for the future, Chu says the next steps are to "scale the device to make it run faster." He also thinks that the chip may be ready for commercialization not too far down the line, because there are so few suppliers for chips capable of operating at such extreme temperatures. "I think it's quite ready. It requires some improvements, but the nice thing about high-temperature electronics is there's nothing else there," he says. The gallium nitride circuit's victory against its silicon carbide companions may not last long, however. Mantooth's lab also fabricates high-temperature chips, and is working on getting silicon carbide to hit the heat levels that Chu's chips have. "We'll be fabricating circuitry to try to attack the same temperatures with silicon carbide," says Mantooth. Though it's unclear who will eventually finish on top, at least one thing is certain: the competition is still heating up.

NASA'S ARTEMIS II ORION DOPPLER MEASUREMENTS TRACKING

Hams Needed to Track NASA Moon Mission

The National Aeronautics and Space Administration (NASA) is seeking volunteers to passively track the 2026 Artemis II Orion spacecraft as the crewed mission travels to the Moon and back to Earth.

PHOTO: Artemis II NASA astronauts (left to right) Reid Wiseman, KF5LKT; Victor Glover, KI5BKC; and Christina Koch, along with Canadian Space Agency (CSA) astronaut Jeremy Hansen, KF5LKU. [NASA Photo by Frank Michaux]

The Artemis II test flight will send NASA astronauts Reid Wiseman, KF5LKT; Victor Glover, KI5BKC; and Christina Koch, along with Canadian Space Agency (CSA) astronaut Jeremy Hansen, KF5LKU, on an approximately 10-day mission around the Moon.

Targeted for no later than April 2026, the mission will rely on NASA's Near Space Network and Deep Space Network for primary communications and tracking support throughout its launch, orbit, and reentry. However, with a growing focus on commercialization, NASA wants to further understand industry's tracking capabilities.

This collaboration opportunity builds upon a previous request released by NASA's Space Communication and Navigation Program (SCaN) during the Artemis I mission in 2022. Ten volunteers successfully tracked the uncrewed Orion spacecraft on its journey thousands of miles beyond the Moon and back.

One of those volunteers tracking in 2022 was Scott Chapman, K4KDR, of Montpelier, Virginia. "Sometimes it's what you don't know that makes this kind activity interesting," said Chapman. "All I had was a small S-band dish and receiver and wasn't sure what I could or couldn't hear...but when I started hearing the signals...it made everything worth it."

Chapman said he felt good about the whole process and, while it was interesting, it was also lot of fun!

There were also other participants during the Artemis I mission, including international space agencies, academic institutions, commercial companies, nonprofits, and private citizens who were also attempting to receive Orion's signals. Chapman added that NASA is also looking for commercial partnerships to share in the process.

If you're interested in volunteering for next year's event, all of the information can be found at SAM.gov. The response deadline is October 27, 2025, at 5:00 PM EDT.

PS: I would like to try this but would prefer to partner with someone to discuss it first. I don't know how much equipment it involves so it would be great to bounce ideas off each other. If anyone is interested, let me know. All I have is a 4 foot 2.4 GHz dish and some downconverters with my Icom R7100 receiver. There's not much time left to sign up so if you're interested let me know soon.
…WA8RMC art.towslee@gmail.com

One of those volunteers tracking in 2022 was Scott Chapman, K4KDR, of Montpelier, Virginia. “Sometimes it’s what you don’t know that makes this kind activity interesting,” said Chapman. “All I had was a small S-band dish and receiver and wasn’t sure what I could or couldn’t hear...but when I started hearing the signals...it made everything worth it.”

NASA's Artemis II Orion One-Way Doppler Measurements Tracking Active Opportunity.

Notice ID
RFI-ArtemisII-Tracking-SCaN-2025
Related Notice
(blank)
Contract Opportunity Type
Sources Sought
Contract Line Item Number
(blank)
Inactive Dates
Dec 31, 2025
Inactive Policy
Manual
Response Date
Oct 27, 2025 5:00 PM EDT
Published Date
Aug 26, 2025 5:12 PM EDT

Department/Ind. Agency
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Sub-tier
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
Office
NASA GODDARD SPACE FLIGHT CENTER
Classification

Original Set Aside
(blank)
Product Service Code
(blank)
NAICS Code
(blank)
Place of Performance
(blank)
Initiative

- None

Description

I. Introduction:
Building on the success of the 2022 Artemis I One Way Doppler Tracking Demonstration (RFI-GSFC-CIS-2022), and in the support of the Space Communication and Navigation (SCaN) Program’s commercial services strategy, this Request for Information (RFI) presents an opportunity for organizations with ground station capabilities to inform NASA on how they may be able to execute tracking of the upcoming Artemis II mission, expected to launch no later than April 2026. All participation will be passive, with no impact on, risk to, or RF radiation emitted towards, the Orion spacecraft.

II. Description:
This RFI seeks to facilitate NASA SCaN's increasing use of industry assets and services by demonstrating the potential of non-NASA ground stations to collect one-way Doppler tracking measurements of the Orion spacecraft in Earth orbital and cislunar space. NASA anticipates the activity would encompass multiple phases of NASA's Artemis II Orion mission, with ground station owners/operators engaging in pre-mission coordination, real-time mission tracking, and sharing their Doppler measurement performance with SCaN during and after the Artemis II Orion mission.
This is solely an RFI potentially leading to mutual, voluntary collaboration; nothing in this document should be interpreted to suggest that NASA, nor any part of the United States Government, will pay any expenses a party might encounter while responding to this RFI or conducting any subsequent collaborative activity.

III. Technical Overview and Details:

- Radio Frequency (RF) One-way Doppler Measurements:
    - The methodology involves observing the Doppler shift on the Orion S-band return link carrier signal when it is received at a partner ground station.
    - This is a passive operation; no transmissions or uplink signals from the ground station will occur.
    - The objective is to achieve and maintain carrier lock on the signal for tracking purposes; collecting or tracking telemetry data is not part of this activity.
    - **Orion is configured to transmit S-band signals within the frequency spectrum of 2200 to 2290** MHz, a range earmarked for Space Operations.
    - For one-way Doppler measurements, Orion's transmission power specifications are anticipated to be in sync with antenna apertures having a diameter of 9-meters or more (or equivalent gain for a non-parabolic dish antenna). Smaller apertures may be suitable depending on their capabilities. ***(A 9 meter dish is 27 feet in diameter. Who in the Ham arena has a dish that big? Are they kidding? It seems like a misprint to me. We do moon bounce with a quad array of long yagis so direct reception of a satellite circulating the moon should be no problem with even a single yagi. Therefore, we should have no problem receiving this signal as long as their transmitter is in at least the watt and up range… WA8RMC)***
    - NASA Centers across the nation may be among the recipients of this service data.
- Additional Technical Insights:
    - Upon submission, organizations having access to operational assets capable of delivering S-band Doppler measurements will be provided with technical details required to track Artemis II mission.

IV. NASA's Ambition with Artemis II:

- Mission Overview:
    - The Artemis II mission will send four astronauts in the first crewed Orion Multi-Purpose Crewed Vehicle (MPCV) spacecraft into a lunar flyby using the Block 1 variant of the Space Launch System (SLS).
    - The 10-day mission profile consists of several phases: launch, spacecraft system checkout, trajectory maneuvers, lunar flyby, and Earth return. The Orion spacecraft will be launched from NASA's Kennedy Space Center and enter Earth orbit. After conducting 24 hours of spacecraft system verification, a series of main engine burns will establish a 4-day outbound transit to the moon. After a lunar flyby at an altitude of approximately 4000 miles, the Orion spacecraft will return to Earth and splashdown in the Pacific Ocean.
    -

V. Objectives Behind this RFI
The objective of this RFI is to help NASA identify organizations with the capability to support one-way Doppler measurements in cislunar space while also offering a unique opportunity for industry and academia to refine their capabilities while contributing to the historic Artemis II mission. Following the success of the Artemis I One Way

Doppler Tracking Demonstration RFI, SCaN aims to utilize this as another opportunity to accelerate industry participation in a mutually beneficial relationship to meet Agency needs and goals.

VI. Information to Include in Your Response:

- NASA is seeking potential collaborators who can provide Artemis II one-way Doppler data at no financial burden to the agency or United States Government.
- Submission Criteria for Organizations:
    1. Specifications regarding functional performance metrics of the proposed ground station(s).
        - RF Tracking: Ground station(s) gain-to-noise temp. ratio (G/T) and aperture dimensions.
        - Time and Frequency Reference (TFR): Ground station TFR system and/or part name/number and performance characteristics (phase noise, Allan deviation over observation times [τ] from 1 up to 10.5 seconds, etc.).
        - Any additional relevant ground station performance characteristics.
    2. Expertise in capture and consistent monitoring of the Orion signal and/or similar S-band signals.
    3. Ability to generate and document one-way Doppler tracking data.
    4. Proficiency to deactivate ground station transmission functionalities, ensuring zero radiation towards Orion.
    5. Tracking data format compatibility and the proficiency to send this information to NASA.
        - Tracking data to be compliant with CCSDS Tracking Data Message (TDM) standard.
    6. Geodetic Information for each proposed tracking antenna to include "Station Name", "East Longitude", "Geodetic Latitude", and "Height (km)", as defined in the WGS 84 coordinate frame.
- Additional Required Supplemental Information:
    1. A historical record of one-way Doppler tracking during past launch and/or trajectory sequences.
    2. Experiences in conducting spacecraft RF signal tracking and furnishing Doppler tracking for celestial assets positioned beyond GEO.
    3. Procedures in place to preempt Uplink radiation.

VII. Information Submittals:

Organizations interested in providing the above information should submit the information in 5 pages or less, (excluding brochures) to the e-mail address shown below. Use single space, 12 –point, Times New Roman format. The following file naming convention should be used: Artemis II Tracking_RFI_company name.doc. For example, Ford would name its file Artemis II Tracking _RFI_Ford.doc.

Authorized file formats include: Microsoft Word, PowerPoint, Excel, or PDF format.

Although all submissions received will be carefully reviewed and considered for inclusion in any possible later action, NASA does not commit to adopt or include any particular recommendations in a subsequent document (e.g., a solicitation). Respondents will not be notified of the results of the review.

No solicitation exists; therefore, do not request a copy of the solicitation. If a solicitation is released it will be synopsized in Sam.gov. It is the responsibility of potential offerors/bidders to regularly monitor these sites for the release of any solicitation or synopsis.

VIII. Response Submission Deadline:

Interested parties that currently possess assets that can provide S-band telemetry Doppler measurements should respond to Marta Shelton at marta.b.shelton@nasa.gov for more technical details concerning this activity. Responses to this RFI must be submitted no later than 5:00 PM Eastern Daylight Time, on October 27, 2025, to the points of contact identified below. RFI submissions will be accepted as email attachments only.

IX. Points of Contact:

Antwan Reid, Program Support Procurement Office
antwan.g.reid@nasa.gov
Marta Shelton, CIS Office
marta.b.shelton@nasa.gov
Contact Information
Primary Point of Contact
Marta Shelton Email: marta.b.shelton@nasa.gov

Phone 3012868420
Contracting Office Address
GREENBELT MD 20771
GREENB
Alternative Point of Contact
Antwan G Reid
Email
antwan.g.reid@nasa.gov

VENTURE TECH. SLAMS PROPOSALS FOR ATSC 3.0 SUNSET MANDATE

By George Winslow published September 23, 2025 in TV Tech Magazine

ATSC 3.0 will not revive broadcast television in an era defined by streaming, the station group said in a filing that it paints a bleak view of broadcasting's future.

Venture Technologies has joined the ranks of smaller and mid-sized station groups opposing a mandatory transition to ATSC 3.0/NextGen TV broadcasts in a filing with the Federal Communications Commission that paints a bleak picture of the future of broadcasting. Other smaller and midsized station group owners such as Weigel Broadcasting and many LPTV station owners have opposed the mandate and an ATSC sunset, which is universally backed by the NAB, state broadcast groups and larger station groups that comprise Pearl TV.

While the Venture Technologies station group owns and operates 20 full-power, Class A, and low-power television (LPTV) stations that include five ATSC 3.0 facilities, the filing strongly opposed a mandated transition to ATSC 3.0 and a fixed date for the end for broadcasts using the current ATSC broadcast standard.

- **CTA, NCTA, LPTVBA Meet With FCC to Oppose NAB's ATSC 3.0 Petition**
- **NAB Slams NextGen TV Critics for 'Protecting Their Turf'**
- **TA Blasts Pearl TV's 'Conflict of Interest' Claims on NextGen TV Tuner Mandates**

"Broadcast television in the United States stands at a crossroads as streaming services offer viewers more options," the filing said. "Yet millions still depend on free, over-the-air television for local news and entertainment—particularly in underserved communities where it remains a vital source of information. It is therefore troubling that, just as broadcasters seek better ways to serve their audiences, powerful industry groups are pressuring the Federal Communications Commission (FCC) to mandate a nationwide transition to ATSC 3.0, or "NextGen TV." Such a mandate would create barriers to access for the very viewers broadcasters are meant to serve. These private television interests—some burdened with heavy debt—promote the transition as "necessary modernization." In reality, it would impose significant costs on both consumers and broadcasters while offering no meaningful advantages over what streaming services already provide."

"Venture Technologies believes that broadcast television faces long-term challenges as audiences steadily migrate to streaming platforms, that ATSC 3.0 will not alter this trajectory, and that a forced transition would accelerate the collapse of free, over-the-air TV," the filing concluded. "The push for such a mandate is not driven by the public interest but by entrenched corporate interests seeking to profit through patent royalties, licensing fees, and equipment sales. Just as past late-stage technology "upgrades" failed to save obsolete formats, ATSC 3.0 will not revive broadcast television in an era defined by streaming."

 More specifically, the filing cites extensive statistics and analysis arguing that broadcasters have already lost the competition for viewers to streaming and that its existing audiences are old. "Over the next decade, much of the traditional television audience will age out, leaving broadcasters with an eroding and unsustainable base," the filing noted. "Younger generations have already abandoned linear TV for streaming and will not return."

"The FCC should not mandate a transition to ATSC 3.0," it continued. "Such a policy would impose unnecessary costs on both consumers and broadcasters while disregarding current market realities. Everything ATSC 3.0 promises—higher resolution, HDR, immersive audio, and interactivity—is already available through streaming, without the need for new tuners or TVs. Broadcasters would be forced to invest heavily in transmission upgrades even as their audiences shrink, while consumers would shoulder the expense of new hardware they don't need."

The filing also criticized the cost of "the ATSC 3.0 Security Authority (A3SA)—a private consortium that includes ABC/Disney, CBS/Paramount, NBCUniversal/Comcast, Fox Corporation, Univision, and Pearl TV

members—serves as the mandatory gatekeeper for device certification. Because all compliant receivers must use A3SA-issued keys, this group retains the ability to enforce DRM restrictions and even revoke tuner access, ensuring ongoing influence over device manufacturers and, by extension, consumers. Together, these patent owners, station groups, and gatekeeping bodies profit from the rollout of ATSC 3.0 whether or not it succeeds in the marketplace."

The full filing can be found here.
George Winslow is the senior content producer for *TV Tech*. He has written about the television, media and technology industries for nearly 30 years for such publications as *Broadcasting & Cable*, *Multichannel News* and *TV Tech*. Over the years, he has edited a number of magazines, including *Multichannel News International* and *World Screen*, and moderated panels at such major industry events as NAB and MIP TV. He has published two books and dozens of encyclopedia articles on such subjects as the media, New York City history and economics.

HAM TV AGAIN FROM THE INTERNATIONAL SPACE STATION !

From the ATV Journal August 2025.

Ham TV again from the International Space Station ! News Bulletin from 29 July --- Following years of work by the ARISS team, the HamTV module has been successfully reinstalled and is now active. You can see live video from the ISS as received by a chain of stations at: https://live.ariss.org/hamtv/ HAMTV is the name of the Digital Amateur Television (DATV) transmitter on board the Columbus module of the International Space Station (ISS). It transmits Digital video and audio in MPEG-2 format using the DVB-S protocol in the 13 cm band. The original HamTV unit was installed on the ISS in 2013 and commissioned in April 2014 and was used for a number of ARISS school contacts in 2016 - 2018. The unit failed in 2019, and was brought back to earth for repair. It was returned to the ISS on the SpaceX SpX-30 flight on March 21st 2024. Unfortunately, a lengthy "topology reassessment" was then required due to space issues in the Columbus module. ATV Journal-192.doc (8/15/2024, kh6htv) p. 2 of 13 For more information and details on how to receive the ISS DATV signal, see the BATC web site: https://wiki.batc.org.uk/HAMTV_from_the_ISS

ARRL WANTS EVERY HAM TO HELP PASS THIS BILL

Does your neighborhood prohibit outdoor TV antennas? If it does, you REALLY need to help pass this Bill! I sent in my response. You should too! *WA8RMC*

ARRL needs every radio amateur in the United States to send letters to Washington as we continue our nationwide grassroots campaign to pass the Amateur Radio Emergency Preparedness Act (H.R. 1094 / S. 459) to secure antenna rights. The process is simple: click the button at **www.arrl.org/HOA**, put in your call sign, and press the red **SEND MY LETTERS** button. **That's all you need to do!**

The letters will automatically be sent to your elected officials encouraging them to support the bipartisan bills. This legislation is intended to prevent restrictive homeowners' association (HOA) rules that currently prohibit or severely limit the installation of amateur radio antennas. Passage would give amateur radio operators the same rights to install antennas on their property as those enjoyed by users of TV antennas, wireless internet, and flagpoles.

Spreading the Word

ARRL CEO David Minster, NA2AA, was the guest on the Ham Radio Crash Course YouTube channel. Host Josh Nass, KI6NAZ, talked with Minster for 45 minutes about this important letter writing campaign.

ARRL West Gulf Division Director John Robert Stratton, N5AUS, shared insight into the importance of getting every ham to send a letter on the W5KUB Amateur Radio Roundtable podcast with Brett Glass, WY7BG, and Glen Popiel, KW5GP. See that discussion on YouTube, listen to it on Podbean, or view it on Facebook.

"You don't have a be a member," said Stratton. "Any amateur radio operator in or out of an HOA should go to the website." Go to **www.arrl.org/HOA**.

ARRL is also encouraging radio clubs to provide letters of support, and is urging each club officer to sign the letters. There are instructions for clubs on how to complete the letter [PDF] and a sample letter that each club can customize with their information [DOCX].

Send your letters now.

IS AN ATV AMATEUR SATELLITE A POSSIBILITY IN OUR FUTURE?

[Ground-station] FutureGEO workshop participation was a success
From Michelle Thompson 10/5/25 Re-print with permission
The FutureGEO workshop for Amateur Radio in Space happened in Bochum, Germany on 19 September 2025. This workshop was held immediately before the AMSAT-DL symposium. This was an important step forward for the amateur radio satellite service. We had two volunteer participants and our message about open-source digital radio and modern amateur-focused solutions came through loud and clear.

There's a clear plan forward from here. The rest of 2025 is documenting lessons learned from QO-100, and making sure that the European Space Agency has input from stakeholders.

2026 is demonstrating prototypes.

Linear transponders to advanced digital regenerative payloads are under consideration.

Our memo about the event can be found here:
https://github.com/OpenResearchInstitute/documents/blob/master/Papers_Articles_Presentations/Articles_and_Announcements/FutureGEO_Workshop_Memo.md

FutureGEO Workshop Memo
A FutureGEO Workshop was held 19 September 2025. The event was organized by AMSAT-DL with sponsorship and support from the European Space Agency (ESA). The workshop was immediately before AMSAT-DL's Symposium and Membership Meeting, which was 20-21 September 2025.
Presentations
Peter Gülzow, President and Member of the Board of Directors of AMSAT-DL, opened the workshop, expressing hope for good results.
Peter described the timeline and progression of payloads from SYNCART to QO-100 to FutureGEO. The QO-100 timeline from 2012 to 2018 was explained. QO-100 had some iteration along the way. In the end, AMSAT-DL provided the specification for custom hardware from Es'Hail. QO-100 is not a "detuned commercial transponder", as some describe, but is composed of mostly custom circuits. There are some off the shelf components in the system. For example, the traveling wave transformers (TWT) are one of the backups for the commercial functions. Volunteer amateurs were unfortunately not involved in the building of the satellite. Peter explained that the entity that builds the host payload makes a tremendous difference in what the payload looks like, how much power is available, and what policies the hosted payload will be operated under. QO-100 was build by MELCO in Japan, and their decisions set the possibilities and the limitations for the QO-100 hosted payload.
For FutureGEO, multiple designs are expected, covering a range of options and systems design theories.
The 47 degree West footprint shown in slides and online is "a wish". No launch or orbital slot has been chosen.
Presentations continued with Frank Zeppenfeldt PD0AP, from the European Space Agency Satellite Communications Group.
Frank explained that there is interest from ESA on a follow-up to QO-100. This lead to the formal solicitation as described in ESA ARTES Future Preparation 1A.126. The FutureGEO outreach and community building process started in 2023. Frank admitted that the communications from ESA have not been as frequent or consistent as desired over the past 18 months. Frank highlighted this workshop as demonstrating an improved FutureGEO community and consensus building state of activity.
AMSAT-DL will help evaluate proposals and is responsible for completing tasks outlined in ARTES solicitation. GEO opportunities are hard to get. It's is hard to get a slot. As a way to move the process forward, ESA is providing 200,000 Euro through ARTES. This funding includes some amount of prototyping.
Amateur built payloads are unlikely to fly. But, we must have a number of ideas documented and prototyped so that we are ready to fly something that we want as a community. For example, 18 months ago there was a missed opportunity in the 71-81 GHz band. Ideas need to be developed, and then there will be financing.

Peter then explained about attempts to get EU launches. This was very difficult. Peter said that not everyone was welcoming of an amateur payload, and that there were complicated and challenging discussions.
Peter reviewed the objective & scope of the ARTES Statement of Work, then outlined the progress on Tasks 1-3. Task 1 was to identify parties and stakeholders in amateur radio that should be reached out to, and to provide basic storage for data from consultations. Also, to provide background and briefing material about FutureGEO. AMSAT-DL set up a GitLab instance for FutureGEO documents and has provided a chat server for participants. Task 2 work products are an actively maintained discussion forum on the website, documentation of lessons learned with QO-100, documentation describing requirements formulated by amateur community, documentation describing and analyzing the initial payload proposals from the amateur community, including synergies with other amateur initiatives, and an actively updated stakeholder's database. These parts of the task fall to AMSAT-DL. ESA support in this task will be providing additional contacts of individuals and industry active in the amateur satellite world, initial publicity using ESA's communication channels, and technical support in assessing payload and ground segment options.
Task 3 is to analyze and consolidate 3-4 big/small HEO/GEO designs. The designs need to be interesting for a broad community and also address the need for developing younger engineers. Technologies considered may include software defined radio (SDR), communication theory, field programmable gate arrays (FPGA) and more. A report on the workshop discussions and conclusions is expected along with a report describing the consolidated satellite amateur missions.
Task 1 has been satisfied. This FutureGEO workshop was part of the process of completing Tasks 2 and 3.

900 MHZ IS A JUNK BAND!

0.9 km clear line of sight RF path NOYE to KH6HTV

From the ATV Journal August 2025.
We hams have been given authorization from the FCC to use a large number of radio frequency bands. They start at a very low frequency of 135 kHz (2.2km) and go up to 250 GHz, plus all frequencies above 275 GHz. Unfortunately, we have to share some of these bands with the general public with FCC part 15 and ISM devices. The most impacted bands are 900 MHz (33 cm), 2.4 GHz (13 cm) and 5.8 GHz (5 cm). For more reading on this subject, check out what the ARRL has to say https://www.arrl.org/part-15-radio-frequency-devices While typically any one single FCC part 15 device is not a big RFI source, what really hurts our use of these bands is the composite RFI ambient environment of thousands of these devices all radiating in the same chunk of spectrum. It is especially bad in urban environments. 0.9 km clear line of sight RF path NOYE to KH6HTV Our recent efforts to do "Worked All Bands with DATV" vividly demonstrated the issue of part 15 RFI for DATV, especially on the 33 cm, 900 MHz band. Still wanting to make a simplex two-way contact on the 33 cm band, Don and Jim decided to try it again, but at a very short distance of only 0.9 km with a true visual line-of-sight path between transmitters. Don set up his gear on his back deck. Don lives on a ridge line with a great view to the north over the city of Boulder. Immediately below him is a a city park. Jim parked his car with his gear in it on Knox Dr. on the far side of the park. Don's camera looking at Jim's Saab on Knox Dr ATV Journal-192.doc (8/15/2024, kh6htv) p. 6 of 13 Don was running a +16 dBm transmitter into a home-brew, 10 element yagi antenna. Jim was running a 3 watt (35 dBm) transmitter into a commercial, 7 element yagi antenna. The received signal strengths were very strong. Don received Jim's signal at -45 dBm with 20 dB s/n. Perfect P5/Q5 with no RFI. Jim received Don's signal at -61 dBm with 17 dB s/n, --- BUT with lots of RFI causing lots of freeze framing. Don's -61 dBm signal was 40 dB above the threshold sensitivity of the receiver used, yet it was still being clobbered by the ambient RFI on the 33 cm band. intermittent good picture from Don So what is the 33 cm band good for? typical RFI freeze frame on Don's signal It is useful to do a one-time attempt at Worked All Bands. Beyond that it is a total waste of time for us BATVC ATV hams. 73 de Jim, KH6HTV, Boulder, Colorado

VERSATUNE PROGRESS

As many of you know, we are working on the design of a completely self-contained DVB-T / DVB-S receiver for DATV use. However, the progress has come to an abrupt halt. We finally developed software free enough from bugs to release the design for production but after I went through a parts availability and cost edit, I found that the tuner we need is now obsolete and all parts have been liquidated. There are no parts available and no alternate sources found. With that information I declare the project dead….or is it???

It's too bad the tuner vendor did not tell us that they were obsoleting their tuner without any chance of a last time buy opportunity. We found they stopped production and liquidated all parts almost 2 years ago without any notification to anybody. (It's sure good I found out about this before I purchased any production parts!!!!)

I guess it's partially my fault for not checking availability from time to time. However, some time ago we did have a discussion with the vendor who said they had stock and would continue availability into the "foreseeable future". It turns out that after COVID-19, the picture significantly changed and the foreseeable future ended at that time.

Well, what to do now? I have a couple if "irons" in the fire at the present time which look promising so I haven't given up just yet. I'm about to test a new option. More info later. I'll keep you posted.
…WA8RMC

USA ATV REPEATER DIRECTORY July 2025

NOTES:

1. All repeaters are NTSC, VUSB-TV, 6 MHz channel, unless otherwise noted. Some repeaters use non-standard lower sideband inputs VLSB to reduce interference with FM repeaters in upper portion of band. The frequency listed is the video carrier frequency.
2. Digital TV lists center frequency. 6 MHz channel, unless otherwise noted.
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(s)	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 2441.5	VUSB FM DVB-T FM	wb9kmo@gmail.com kwjacob@icsaero.com
Mesa	W7ATN	421.25 1289.25	 434.0 434 / 2 2441.5	VUSB VUSB FM DVB-T FM	wb9kmo@gmail.com kwjacob@icsaero.com
Tucson, Mt. Lemmon	W7ATN	1277.25	 434.0 434 / 2 2441.5	FM VUSB DVB-T FM	wb9kmo@gmail.com kwjacob@icsaero.com
CALIFORNIA					W6ATN rptrs linked to AZ & NV
Orange Santiago Peak	W6ATN	 1253.25 5910	434.0 434 / 2 2441.5	VUSB FM DVB-T FM	www.atn-tv.org wa6svt@gmail.com
Los Angeles, central Mt. Wilson	W6ATN	1265.25	 434.0 434 / 2 2441.5	FM VUSB DVB-T FM	www.atn-tv.org wa6svt@gmail.com
Los Angeles, north Oat Mtn.	W6ATN	919.25 3380	 434.0 434 / 2 2441.5	VUSB DVB-T FM FM	www.atn-tv.org wa6svt@gmail.com
Jobs Peak	W6ATN	 1253.25	434.0 434 / 2 2441.5	VUSB FM DVB-T FM	www.atn-tv.org wa6svt@gmail.com
San Bernardino Snow Peak	W6ATN	1242 / 4	 434.0 434 / 2 2441.5	DVB-T VUSB DVB-T FM	www.atn-tv.org wa6svt@gmail.com
Santa Barbara	WB9KMO	1289.25	434.0 434 / 2 2441.5	VUSB, DVB-T FM	www.atn-tv.org wb9kmo@gmail.com linked with W6ATN
San Diego	KD6ILO	423 1243 1268	441 1286 5885	DVB-T DVB-T DVB-S FM	kd6ilo@yahoo.com also AREDN mesh
San Jose	W6SVA	427.25	 910 1255	VUSB FM FM	www.k6ben.com :w2nyc@pacbell.net
Clayton	W6CX	1244.5	1292.5 1273 915	DVB-S, FM	www.mdarc.org info@mdarc.org
Palomar	W6NWG	 1241.25	915	FM VUSB	w6nwg@palomararc.org mountain.michelle@gmail.com
COLORADO					
Boulder	W0BTV	423 / 6 421.25 5905	1243 / 6 441 / 6 439.25	DVB-T, DVB-T VUSB VUSB FM	www.kh6htv.com kh6htv@arrl.net
Pueblo	W0PHC	423 / 6t	441 / 6	DVB-T	billn@billnicoll.com www.puebloradio.org
DELAWARE					
Wilmigton	KC3AM	423 / 6	 439.25	DVB-T VLSB	KC3AM@verizon.net

Location	Call Sign	Output	Input	Mode	Web Site & Contact info
FLORIDA					
Cape Coral	W1RP	421.25	439.25	VUSB	paul@cardlink.com
Cocoa Beach	K4ATV	427.2	439.25	VUSB	www.lisats.org
Panama City	KV4ATV	434.0	919.25	?	kv4atv@gmail.com
S.W. Idaho	WI7ATV	1257 426.25		FM VUSB	ka7anm@yahoo.com
IOWA					
Davenport	W0BXR	421.25	439.25	VUSB	http://www.arcsupport.com/drac/

KANSAS					
Wichita	KA0TV	421.25	439.25	VUSB	k0wws@arrl.net
KENTUCKY					
Bowling Green	KY4TV	421.25 423.0 /2	439.25 1280	VUSB FM DVB-T	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	VUSB	www.qsl.net/w3bab
Towson	W3BAB	1291 434		FM VUSB	www.qsl.net/w3bab
Baltimore	W3WCQ	439.25 911.25	426.25 1253.25	VUSB	http://bratsatv.org/ brats@bratsatv.org
MICHIGAN					
Jackson	KC8LMI	923.25	439.25	VLSB	KC8LMI@hotmail.com
Grand Rapids	K8DMR	421.25	439.25	VUSB	ron_fredricks@att.net
Flushing	KC8KCG	1253.25	439.25	VLSB	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	W0ATN	426 / 4	440 / 4	DVB-T	k0pfx@arrl.net
NEBRASKA					
Omaha	WB0CMC	421.25	434.0	VUSB	wb0cmc@cox.net
NEVADA					
Las Vegas	N7ZEV	1253.25 912	434.0 434.0 / 2 2441	VUSB FM DVB-T FM	frank.n7zev@gmail.com linked to W6ATN S. CA & AZ
NEW JERSEY					
Vernon	W2VER	5885	5665	FM	jaythienel@yahoo.com
OHIO					
Columbus	WR8ATV	423 / 2 427.25 1258 1268 2397 10350	439 / 2 439.25 1288 1288 10450	DVB-T VLSB AM DVB-S MESH FM	www.ATCO.tv gkenmorris@gmail.com art.towslee@gmail.com
Dayton	W8BI	421.25 428 / 2 1258	439.25 439 / 2 1280 1280	VUSB DVB-T FM DVB-S	www.w8bi.org dpel@aaahawk.com
Van Wert	W8FY	434.0	923.25	VUSB	ka8zge@w8fy.org
OREGON					
Portland	W7AMQ	1257 426.25		FM VUSB	belles73@comcast.net
Portland	WB2QHS	 426.0	910 fm	FM VUSB	emellnik@emavideo.com
PENNSYLVANIA					
Delaware County	KC3AM	421.25	439.25	VLSB	KC3AM@verizon.net
PUERTO RICO					
Aguas Buenas	KP4IA	426.25	439.25 1252	VUSB FM	kp4ia@yahoo.com
WASHINGTON					
Seattle	WW7ATS	1253.25	434.0	VUSB	https://www.qsl.net/ww7ats/ ww7ats@gmail.com qrz.com

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.

11/02/2025 - 2025 MARC Hamfest at MAPS
Location: N. Canton, OH
Type: ARRL Hamfest
Sponsor: Massillon ARC
Website: http://www.w8np.net

11/08/2025 - GARC Hamfest
Location: Georgetown, OH
Type: ARRL Hamfest
Sponsor: Grant Amateur Radio Club

11/15/2025 - 11/16/2025
Fort Wayne Hamfest & Computer Expo
Location: Fort Wayne, IN
Type: ARRL Hamfest
Sponsor: Allen County Amateur Radio Technical Society
Website: https://www.fortwaynehamfest.com/

12/06/2025 - FCARC Winter Hamfest
Location: Delta, OH
Type: ARRL Hamfest
Sponsor: FCARC
Website: https://k8bxq.org/hamfest

01/18/2026 - SCARF Hamfest
Location: Shade, OH
Type: ARRL Hamfest
Sponsor: SCARF members

01/31/2026 - Struthers ROAR Mid-Winter Hamfest
Location: Struthers, OH
Type: ARRL Hamfest
Sponsor: Struthers Regional Operators of Amateur Radio
Website: https://www.facebook.com/profile.php?id=61580196127715

04/11/2026 - Cuyahoga Falls Amateur Radio Club 70th Hamfest
Location: Cuyahoga Falls, OH
Type: ARRL Hamfest
Sponsor: Cuyahoga Falls Amateur Radio Club, Inc.
Website: https://www.cfarc-hamfest.org

ATCO TREASURER REPORT - de N8NT

OPENING BALANCE (7/23/25)……..……..……$ 4402.04
CLOSING BALANCE (10/20/25)…….... $ 4402.04

ATCO CLUB OFFICERS

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

Repeater trustees: Art Towslee WA8RMC
Ken Morris W8RUT

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. It is now a free publication so all people on my Email list are automatically either members or guests.

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.

Your support of ATCO is welcomed and encouraged.

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 average street level of 760 feet ASL (1390 feet above sea level)
TV Transmitters: 423.00 MHz DVB-T, 10W FEC=7/8, Guard=1/32, Const=QPSK, FFT=2K, BW=2 MHz, PMT=4095, PCR=256, Vid=256, Aud=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 SR=3.125MS, FEC=3/4, PMT=32, Video=162, Teletext=304, PCR=133, Audio=88, Service =5004)
Two video channels on this output: Channel 1 is fed from all receivers. Channel 2 is fed from 439.25 analog receiver.
2397 MHz Mesh Net transceiver 600 mw output (channel 1 minus 2). ID is WR8ATV-2
10.350 GHz: 1W continuous analog FM
Link transmitter: 446.350 MHz: 5W NBFM 5 kHz audio. This output used for control signals & to repeat 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.
423 MHz DVB-T, 1268 MHz DVB-S & 10.350 GHz FM - Continuous transmission of ATCO & WR8ATV with no input signal present.
Transmit antennas: 423.00 HHz - Single slot rib cage horizontally polarized 5 dBd gain "omni"
427.25 MHz - Dual slot horizontally polarized 7 dBd gain "omni" major lobe east/west, 5 dBd 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, Upper sideband. (Input here = output on all TV transmitters & also direct output 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, Vid=33, Aud=49 (In here=out on all Transmit.)
10.450 GHz - F5 video analog NTSC. (Input here = output on all TV transmitters)
Receive antennas: 147.480 MHz - Vert. polar. Diamond 6 dBd dual band (Shared with 446.350 MHz link output transmitter)
439.00/439.250 MHz - Horizontally polarized dual slot 7 dBd gain major lobe west (Shared with 439 digital & 439.25 analog 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 analog) Functions:

00* then 1 for Ch. 1	Select 439.25 analog /4389 digital receiver (if video present on digital, it is selected. Otherwise,
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 analog /439 digital rec. scan enable (01* to enable & 01# to disable)
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 Newsletter
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