B-PLUS

Albany **A**mateur **R**adio **A**ssociation – AARA

October 2023

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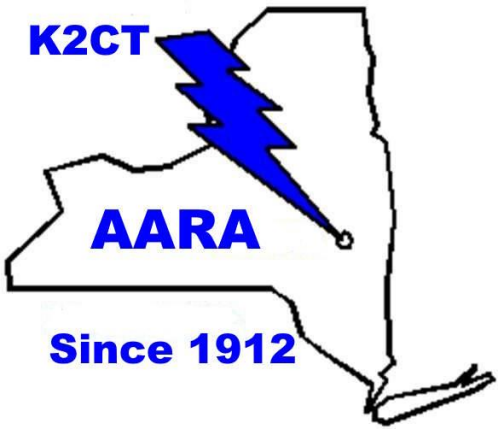


AARA October Meeting
October 4th , 2023 @ 7:30 PM
Slingerlands Fire Dept.

Topic: QSL-ing By KM2O

PLEASE Pay Your Dues
Dues are $20
Checks can be sent to:

Saul Abrams, K2XA
307 Maple Rd.
Slingerlands, NY 12159

It's Time to Start Thinking About…

Winter Field Day 2024

Dave Galletly KM2O

As the leaves start turning and the temperature descends from the highs of Summer, many hams thoughts turn to **Winter Field Day**. The weekend of January 27-28, 2024, is now just a few short months away. But first, a quick look back to 2023. Here is a summary of how our group made out

Callsign	Location	Cat	Class	Claimed	Raw	Final	Mults
K2ALB	ENY	I	5	11251	11229	10811	11

Operators: W2EG WA3AFS K2TR KB2LZ K2QY KD2ROS KM2O KC2EBA N2KAD KD2MPX

Add to that an additional 23,487 points made by Justin KG2RG in a 1 Outdoor operation with 17 mults, John W2QCY (1 Home) and Matt W2MRD (1 Home) and submitted as part of the K2ALB club score for a dazzling club score of 34,309 points. The winterfieldday.org site is a bit difficult to navigate in breaking down the individual categories, but the K2ALB effort at Lawson Lake was indisputably the top Indoor score in ENY. It was #2 overall in ENY, beaten only by the heroic 23,352 scored by KG2RG's effort which went to our club score anyway.

We are pleased to report that our application to reserve Lawson Lake County Park has been submitted and, pending final approval by Albany County Parks & Recreation, we hope to get the band back together at Waldman Lodge this coming January.

Final rules are not yet posted for this next WFD but no major changes are expected. Start making plans to assist now!

Inside the Lodge – Winter Field Day 2023

Fred's Sandbox – Solid state or Tube type amplifier?

What factors should a ham use to determine which type of amplifier should they buy next?
Today's answer is not the same as it was a few years ago. My experience with commercial tube type amateur amplifiers has never been impressive. Here's a list of what I've owned and how they worked out for me.

1. Collins 30L1: The rating of this amplifier was 1000 watts of input power. I picked up this amp as a basket case. All four 811A tubes were shot, the power supply arced, and the meter didn't read. After fixing these problems and buying new tubes ($30.00 for all four) the amp put out 1200 watts when driven with the 200 watt output of a CX-7. This amplifier never failed me.
2. Heathkit SB-220: I built this amp brand new from Heathkit. This amplifier came out as the amateur power limit changed from 1000 watts of input power to 1500 watts output. The pair of 3-500Z tubes put out 1300 watts, and lasted as long as I owned the amplifier. This amplifier failed several times, once the plastic fan melted. Next, I found the tube socket wasn't making contact with the filament pins on the tube. Later the plate transformer failed, but the replacement from Heathkit was much smaller than the original. It did not last long. Give credit to the 3-500Z tubes, they outlasted everything else.
3. Alpha 70A air-cooled: This was a secondhand amplifier with the optional 160-meter Pi-L coils installed. The tube that it used was the 3CX1000A7. When the first tube failed, the amplifier tripped out with high plate current. The second tube did the same thing a couple years later. That cost two $800 tubes in a short period of time. When a tube runs away with high plate current that means that emissive material from the cathode has been deposited on the grid because the filament was too hot. This is a design flaw in an amplifier built by Dick Earhorn, a well-respected designer who got this one wrong.
4. Alpha 76A three tubes: This was a well-built amplifier that lasted years without any failures. Eventually the tubes became soft and would not put out full power. The cost of three new 8874s was too high to make it worthwhile to fix. So, why did the tubes go soft? Here's where experience yields an answer that is not obvious to most, the filaments were too cold. The original design of that amplifier used two tubes. The transformer was designed to get the proper filament voltage to two tubes. When the three-tube version came out, they used the same transformer as the two tube version, but the extra current of the third filament caused more voltage drop internal to the transformer. What this means is that the tubes are capable of putting out more power at first, but they won't last as long. Yet if you ran that amplifier at the same power as the two-tube version, the tubes would last almost forever. To me this was Dick Earhorns second filament voltage error.

5. Ameritron AL-1500: I bought this amplifier new but without an 8877 tube. I obtained a salvaged special pulse-rated 8877 to use in it. That amplifier never

even hiccupped!

Experience with TV broadcast tubes:

The first TV transmitter I worked on used a 4X150 modulated by a pair of 6146 tubes. That drove three additional stages until it made 50 KW on channel 13. The problem was that the linearity changed as the 4X150 aged, and the transmitter needed constant adjustment. I don't blame the designer, as it was a B/W transmitter tweaked until it could pass color. On a whim I tried a 4CX250R in the same socket and the linearity drift went away. I concluded that the ruggedized filament was capable of additional emission, so the tube stayed stable for a longer period of time. The extra cost of the 4CX250R was well worth the performance improvement, and actually saved money because it lasted longer.

The next transmitter I used had a total of four 8807 tetrode tubes. They cost 5-7 grand each. The secret to keeping them running was to lower the filament voltage until the power dropped during the sync pulse, and then increase the filament voltage very slightly. Then, use the tube until it starts dropping in power, increasing the filament voltage as the tube aged, and next move it from the visual amplifier to the lower power aural amplifier.

The first DTV transmitter I installed used a total of 16 solid state modules, for an average power of 7.25 KW and a peak power of 29 KW. None of the RF modules ever failed, but the 28-volt power supplies were problematic.

Yet, this was not my first exposure to solid state transmitters. My first real job was working on the final amplifier in the AN/ARC-116. That was a 220-400 MHZ 10 watt AM frequency synthesized transceiver. The first design used 5 bipolar transistors in a pentagon with all 5 collectors soldered in parallel. It was not reliable in the field due to SWR problems. I was testing a new design that used four 10-watt modules added together using a hybrid made out of ribbon cable. The designer was Gil Boelke, W2EUP, whom some of you may remember as the ham who made the first frequency synthesizer for 2-meter FM. (GLB Electronics)

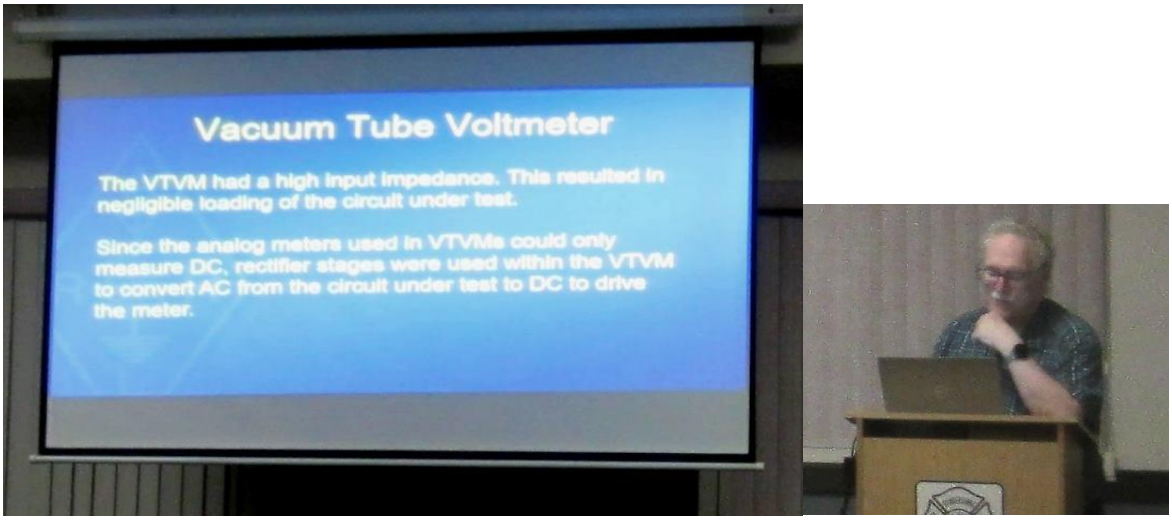
My next TV digital TV transmitter was 30 KW average, 120 KW peak, using an inductive output tube. The cost of one tube was $40,000. The manufacturer of the transmitter coached the users to watch the grid current. If it started to rise over time, the filament was too cold. If the grid current dropped slightly negative, that was perfect. If the grid current dropped too far, the filament was too hot. I watched it like a hawk and kept lowering the filament voltage to keep the tube happy, but then the transmitter tripped because of a fault with low filament current! I had to increase the filament voltage to stop the filament under-current trips, but then the grid current increased several months later. The tube manufacturer sent out a technician who “fixed” the tube by “scrubbing the grid”. This process moves the extra emissive material from the grid and makes it go back to the cathode where it belongs. The transmitter manufacturer did not admit to any problems, so I soldered a 10-ohm resistor across the filament, the apparent filament

current increased, and then I could reduce the filament voltage even further. This lengthened the time period between grid scrubbings. Eventually the transmitter detected the low filament voltage and displayed an error but didn't trip off. I suggested to my replacement at WRGB to add a .01-ohm resistor in series with the filament, but after the filament meter, to further bury the software limitations of the transmitter. That tube lasted until the end of the repack when it was replaced with a 40 KW average power solid state transmitter.

So, here's the bottom line; if you want the familiarity of a tube-type amplifier, make sure that you can control or verify the filament voltage. (I am not aware of any that can.) Try to find one that doesn't use a tube made in Russia or the Ukraine. Buy a spare tube or two when you buy the amplifier and put a spare plate transformer on your shelf. By the time you do all of those things, a solid-state amplifier looks like a better solution!

Be aware that if you intend to push a solid-state amplifier beyond its rated power it will eventually fail. This limitation is especially important in today's ham operations as the duty cycle of FT8 is higher than SSB and almost as much as RTTY. When kept below its ratings, a solid state amplifier should put out its full rated power for a very long time. Why is that? It has no filament!

September Meeting – September 6th, 2023



Gerry WA2IWW gave a presentation on restoration of vacuum tube audio equipment. He described how to build and use a “dim bulb” tester using an incandescent light bulb.

K2QY's Section Manager Talk

Now that it's A.C. (After Covid) PLUS 1 - What's been happening at the ARRL?

ARRL is now fully open, but many folks have retired, replaced by several new faces. My direct contacts: Steve Ewald WV1X and Leona Adams W1LGA are both working and covering Field Services.

Still, anything ordered arrives slow (pubs, etc.) partly because supply chain issues still going on.

Many clubs still not meeting (mostly because of locations still not allowing outsiders)

License classes and testing is still sporadic, even though there is a good demand. During the shutdown people had nothing to do, so many people looked to study for a tech license.

Field Day, Winter Field Day and Contests rules changed to allow operating from home and cumulating scores with your club

Not much going on for SMs (Section Managers) nationwide, but nice editorial in October QST

SMs first existed in 1984, 71 total, talks about SMs vs Division Directors

SMs are field services - Division Directors are league policy

Directors by law MUST put the organization above themselves.

SMs should prioritize time to ensure that clubs are health and welcoming.

For ARRL members, I recommend you go look at your profile and edit it for any changes or corrections. There have been multiple adjustments to the ARRL.ORG web site. Make sure you are getting email and newsletters.

2024 Dues increase

$59/year or $174/ 3 years includes all ARRL benefits and 4 online digital magazines

ADD PRINT QST +$25/year and/or PRINT On The Air +$25/year

ARRL is still printing QST, there will be an extra charge for print (LARGEST EXPENSE)

Family member: $12 Student under 26: $30 Blind: $12

The last dues increase was 2018……8 years ago

ARRL applies staff and resources to a variety of efforts that promote and protect Amateur Radio for the benefit of our members (and NON-members). Chief among these efforts are spectrum defense, regulatory advocacy at the International, Federal and State levels, support for licensing and operator training, work to promote Amateur Radio in schools, and more. ARRL also allocates resources to member benefits and programs such as Field Day, LoTW, contests, EmComm programs, member technical support, product reviews, and other programs. It is essential that ARRL continue these efforts to ensure the continued existence of Amateur Radio worldwide.

I still hold a ZOOM Pro account and several clubs are occasionally using it. If with the new Covid variant some clubs are shut out of meeting locations, they can always use my account.

On line exam sessions, technically possible, are fairly common now Exam Candidates: You are REQUIRED to register in the FCC CORES system and receive a FCC Registration Number (FRN) before exam day.

ARRL currently fighting the “Shortwave Modernization Coalition” (SMC), which represents certain high-frequency stock trading interests. This petition seeks to put 50 kHz wide, 20,000-watt signals immediately next to seven different amateur bands with weaker protections against interference than required in other services. The potential interference that would result from using digital schemes with 50 kHz bandwidths and 20,000 watts of power, SMC also proposes to substantially lessen the protections required to protect adjacent and neighboring licensees.

ARRL ENY Club Coordinator Adam Nowik AE2AN has been doing a very good job helping cubs stay league affiliated.

There have also been several recent changes with ARES staff as a couple ECs have asked to be replaced. Central Dist. DEC is now Wayne Gearing K2WG, ECs have also changed. Almost all 5 ECs in the Southern District have changed.

Are you guys aware of the RATPAC (Radio Amateur Training and Activities Committee) which is made up of all the SMs and Field Appointees. They meet 2 nights a week (Wednesday and Thursday) via ZOOM 9PM Eastern time. Meeting programs have been recorded and there is a huge resource of over 150 on line programs which can be downloaded and presented to your club at no charge. You do not need to be an ARES officer to use this resource. Topics cover everything from digital modes, emergency communications, antennas, legal topics, etc. I did one on off the shelf satellite communications.

For ARES members: while ARES Connect has “sunset” currently the ARRL is tracking volunteer hours with a new process where ECs submit their hours and the SEC totals them and submits to the ARRL. Last quarter in ENY we are showing 448 ARES members, with approx. 220 volunteer hours. There were 29 exercises and 26 public service events. These numbers reflect only 1/3 of the ECs reporting in ENY.

As of 08-22-23 New data from Independent Sector places the latest estimated national value of each volunteer hour at $31.80. The same data places the value of a volunteer hour in New York State at $35.71. So those reporting gave $7,850 of value.

FCC license fees now $35:

The same fee will apply to new licenses, renewal licenses and vanity call signs

There have been much consternation on how to renew licenses and the ARRL has reported in QST, there is a video produced by ARRL. I had difficult time myself, I found it was easier to just call the number at the bottom of the page, maybe 10 minutes on hold and about 15 minutes the person walked right thru the entire process step by step. The problem is that renewing your license and paying the fee are thru 2 different web sites

So, remember those $s for the man hours? If all man hours nationwide were reported perhaps we could get the FCC to drop the fees because the volunteer hours are of more value than the license fees?

SHARES: ARRL now has MOU with US Department of Homeland **Security The SHAred RESources (SHARES) High Frequency (HF) Radio program provides an additional means for users with a national security and emergency preparedness mission to communicate when landline and cellular communications are unavailable. SHARES members use existing HF radio resources to coordinate and transmit messages needed to perform critical functions, including those areas related to leadership, safety, maintenance of law and order, finance, and public health.** Currently we are at the very beginning and just starting to figure out what this means for us as a group.

Upcoming SET October 7th

Director: Nomar Vizcarrondo, NP4H Tenafly, NJ 07670-0245 (917) 443-2664

E-Mail: np4h@arrl.org

Vice Director: Ed Wilson, N2XDD Shirley, NY 11967-1954 (631) 484- 8826

E-Mail: n2xdd@arrl.org

Wants to have a Division convention in 2024

ENY, Orange County, perhaps OC Fairgrounds

I am up for my 4th term as Section Manager this year

Upcoming events:

October 1st Delmar Duathalon…..I can use some help K2QY@arrl.org

Pumpkin Patrol …….October 30, 31 Karen KS2O

Operating events:

POTA SOTA right now the most popular ham radio activity

VOTA check the leader board on ARRL site

DXpeditions:

SWIANS Island (atoll in Pacific North of Samoa) October 4-17;

Temotu Province (eastern most province of the Solomon Islands)

October 28-29

Tuvalu (Pacific West of Samoa) October 10-30

Nauru (South of the Marshall Islands) occasionally active

Lord Howe, East Kiribati, Wallis and Futura, Samoa, Marshalls, Chatham, Vanuatu all in October and November

Contests? Google Contest Calendar: WA7BNM list every contest.

November Sweeps …CW on Nov 4-6 SSB on Nov 18-20

AMSAT news:

Chandrayaan-3's lander and rover are safely on the Moon and their scientific work has begun. On August 23, the Vikram lander completed a successful autonomous descent and landing to touch down near the Moon's south pole, only about 350 meters away from its target. On August 26, the Pragyan successfully rolled onto the lunar surface and navigated its first small crater.

With this success, India became the fourth nation (after the U.S., Soviet Russia, and China) to soft-land on the Moon.

ISS news: The crossband repeater continues to be active (145.990 MHz up {PL 67} & 437.800 MHz down). If any crewmember is so inclined, all they have to do is pick up the microphone, raise the volume up, and talk on the crossband repeater. So give a listen, you just never know.

The packet system is also active (145.825 MHz up & down).

Saratoga Hamfest – September 9th, 2023

Linda K2QYL and John K2QY Manned the ARRL Table

Searching for Bargains at Saratoga

Important Links:

Find a license class in your area: www.arrl.org/class

Find a license exam in your area: www.arrl.org/exam

The Eastern Iowa DX Bulletin:

http://www.eidxa.org/EIDXBulletin.html