COMMUNICATOR

March 2023

Arlington Amateur Radio Club • P.O. Box 1702, Arlington TX 76004-1702 • K5SLD.org

Club Meetings

Meetings are held the third Friday of each month in the Human Services building located at:
501 W. Sanford in central Arlington at 7:30 p.m.
Members generally begin arriving at 7:00 pm.
The executive board meeting is held prior to the general member meeting at starting at 6:30 pm. All members are welcome to attend the executive board meeting.

K5SLD Repeaters

147.14+ PL 110.9

224.8– PL 110.9

444.2+ PL 100.0

President's Corner

Greetings to all. I hope this letter finds you in good health and that you have been enjoying some of the many facets of amateur radio as the current solar cycle remains active and continues to mature.

Spring is upon us, inviting all to engage more and more in outdoor activities. It's a great time to repair, replace, or install additional antennas on your antenna farm. It's still cool on the roof and in the attics, but here in Texas, that won't last long. So don't dilly dally, or the summer heat will "pour it on" and put those antenna projects on hold in no time flat.

One of the outdoor activities we like to participate in is the St. Paddy's Pickle Parade & Palooza! Last year we entered a float in the parade on behalf of the AARC, and we are working to do the same this year on Saturday, March 18. More on that at the meeting this Friday.

It was great seeing many of you at the Irving Hamfest on March 4th. Virginia (NV5F) and I (AA5VZ) worked together with Tom Schussler (N5HYP) at the AMSAT table to talk about amateur radio in space and to describe how easy it is for ANY ham to talk with other hams using the satellites configured for amateur radio communications. Virginia used her CubeSat Simulator to demonstrate one of the types of satellites we use. Tom gave a demonstration in the parking lot making some successful contacts on a popular AO-91 satellite pass. Meanwhile, the door prizes were fantastic, and the fellowship was second to none! There were goodies to be found everywhere.

So, if you scarfed up some treasure at the Irving hamfest, be sure to tell us what you got and how you will use it, at our monthly meeting on Friday.

I really enjoyed the program David Walker, W5DJO, brought to us in February. His inspiring presentation on How to Build a Go-Kit was met with high interest by everyone. Thanks David, for sharing.

The program this month will be presented by Virginia Smith (NV5F). Virginia will demonstrate the CubeSat Simulator she recently built and wrote an article on, which was featured in a recent publication of the AMSAT Journal. You won't want to miss it!

That's all for now. We'll have more information, announcements, and topics to discuss on Friday. I'm excited! I hope you are. See you then!

'73
Jack Weaver, AA5VZ
President - AARC

Announcements

February 2023 program

Building My First Simulated Satellite

Virginia Smith, NV5F will be sharing her adventure of building a simulated CubeSat. Can't wait to hear about building a CubeSat? You can read all about it in the article she wrote detailing her adventure, included here. Enjoy the article!

Building My First Simulated Satellite… or How I learned to Stop Worrying and Love Digikey!

Virginia Smith NV5F

When I decided to build an AMSAT CubeSat Simulator last summer (2021) it was kind of like when I had decided to build Bob Heil's Pine Board Project (AM phone tube transmitter) in 2017. I scarcely imagined how many parts I would have to get or how much time it would take to build or how much I would learn when things didn't go exactly according to plan or how practical an experience it would be for someone beginning electrical engineering studies. With high hopes I ordered the CubeSat Sim version 1.0 printed circuit boards from AMSAT as soon as I heard they went on sale and vowed to build this thing! Since then, two friends from my amateur radio club (Arlington ARC in Arlington, Texas) have also expressed an interest in the project. I strongly encourage this, since this is an ambitious project and there is safety in numbers, not to mention that many parts can not be bought individually and it's a great way to pool resources. I have recently assisted in designing a few simple amateur radio kits, but I'd never dealt with a bill of materials (BOM) on quite this scale, and even with Alan Johnston's wonderfully exhaustive and detailed online construction manual, I still found the gaps in my own knowledge and experience to be daunting at times. I realized how much is apparently second nature to many of today's code-savvy, 3-D printing-friendly maker crowd. On this front I found that having had one computer programming course a couple years ago did aid me in getting through the detailed business of setting up and grabbing code for the CubeSat Sim microcontroller, and that a generous friend with a 3-D printer can be gold!
I could never hope to write a succinct description of my complete experience, however I'd like to share some of the things I took away from the process of building a CubeSat Simulator from the perspective of someone who is still relatively new to all this, including to satellites in general. As always, I will make my account and accompanying advice as much fun as possible and take care to acknowledge those who helped me out on the journey. My desire is to embolden other potential satellite builders and to ease their way as best I can.
When I began the endeavor, a friend helped me out by ordering the parts for the main board only on my behalf, with the fair assumption that one could build the sim as a peace-meal effort. However, one of the first things I found out is, you can't build this thing one board at a time. The building process is like solving Rubik's Cube: it can seem like disjointed chaos until the magic moment when everything comes together at the end. The nature of the carefully ordered building and testing process means that the main board is built and tested in stages, interspersed with other tasks involving testing hardware or setting up software or building part of another board. Though I do suggest trying to get the complete BOM at one time, I did find that one advantage of waiting on parts now and then was that I could not get too impatient or anxious to finish, and the breaks between sections helped me keep my head clear. I have found that this can really help a less experienced technician not to get in a rush or to make mistakes caused by overconfidence or simply being in a hurry. Needless to say, I still made my share of errors! And I had some excellent help fixing them.
Studies and life and some frustration with getting a Raspberry Pi to talk to a PC got in the way during the fall and winter of 2021/2022, and this little satellite fell off my radar for a while. In the spring of this year, I felt up to it again and decided to make another go at it. I solved the problem of getting a PC to be a terminal for a Raspberry Pi by just leaving the PC out and buying some adapters that would allow me to directly connect a monitor and a keyboard. Sometimes it takes me awhile to realize that spending a few dollars can save a lot of time, and that the extra expense can be worth it. I ordered the remaining parts from the BOM and began again in earnest. This time around I discovered that over the previous year things had become harder to come by and more expensive. As I got back underway, I would periodically discover this or that part was missing or that I had ordered the wrong thing. My little bit of previous experience sourcing parts for a couple small kits did come in handy, in addition to the BOM for this project being thorough in source information. Now and then I had to search for a part where the link had changed or the part was out of stock. These days sources need to be updated constantly as supplies deplete rapidly and prices change constantly, especially if a neat project comes along and creates a run on specific parts! So, expect to do a little searching, even when the BOM is excellent. At times I found myself combing the internet and digging deep in the big

supplier sites. It was a nice low-pressure opportunity to get to know the likes of Digikey, Adafruit and Ali-Express better than before. Amazon also proved a great resource for obscure parts.

As I revisited the CubeSat Sim in the spring and continued my build, I actually found the computer stuff, like setting up SDR# and Foxtelem and remembering conventions of a UNIX shell, just as challenging as building and testing the sim. However, I took my time with construction and setup and felt gradually more and more accomplished until… the day of the great sensor debacle.

So, it seems that in the gap between summer of 2021 and spring of 2022 a new version of the Cubesatsim PCBs had been released. One very useful update was a place for a test header to deal with the issue that a large number of the small purple INA219 voltage/current sensor boards were turning up bad (likely due to a quality control issue). There are eight of them on the main board of the simulator to monitor the voltage on the power supply, the batteries, and the six solar panels which recharge the batteries. I noticed in the build manual that there was an option to install these sensors with or without sockets, and, since I was unaware of the issue with their quality, I installed them directly onto the board with the supplied pin headers. When it came time to test them, I got all kinds of inconsistent results and soon my confidence was replaced by frustration. At least half of the INA219 sensors were not functioning as expected, and the harder I tried to fix things by reheating solder, and troubleshooting, the worse it seemed to get. My friend Rob May W5WS, who is expert in building and fixing things came to my rescue but was also stumped and found that forcibly removing the three or four bad sensors from the main board would likely do some damage.
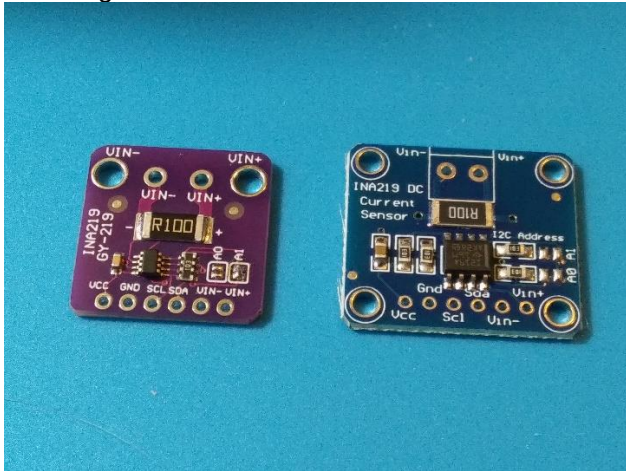

Figure 1: INA219 sensor boards. On the left is the smaller purple board. On the right is the larger blue board.
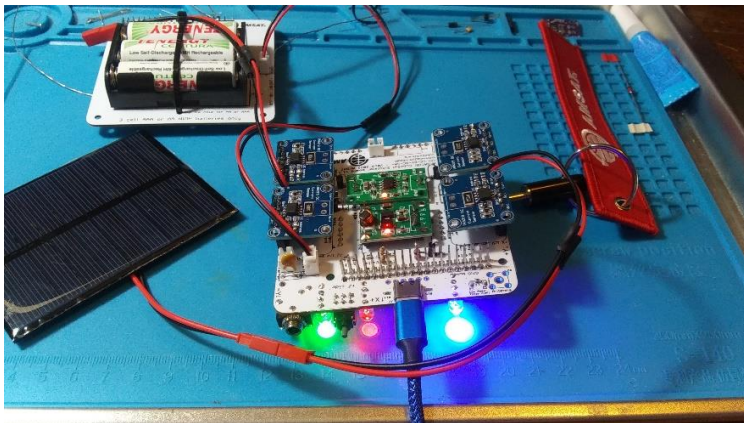

Figure 2: blue INA219 sensors installed in sockets on the Cubesat Simulator main board

Project director Alan Johnston kindly helped supply me with a new version 1.2 main board and I ordered more sensors. Alan recommended that I get the more ubiquitous and less expensive BLUE INA219 sensors since they have turned out to be more reliable. Getting them to fit neatly would be a little bit of a challenge, but hey, this is real engineering! Another story, which is too long to tell here, is how I ended up with a whole mess of the little purple sensors but decided to go with the blue ones just to be safe. Though I did not relish the idea of practically starting over, I did so, carefully and with some replacement parts from Rob, who had also decided to build a sim and had ordered some duplicates for me when buying his own parts. In my second attempt I used a combination of right-angle sockets and regular tall headers and found the test header on the main board version 1.2 to be invaluable. And – wouldn't you know it – all the

spare purple sensors I had ordered tested good! I still decided to go with the blue ones and found my combination of sockets to be quite satisfactory, albeit a little tightly spaced. I took a construction tip from Mike McPherson KQ9P on the github CubeSat Simulator project discussion board and notched the edges of a couple of the sensors with a Dremel tool so they would clear the standoffs used to stack the boards in final construction. I also enjoyed the peace of mind that a bad sensor can be easily replaced at any time.
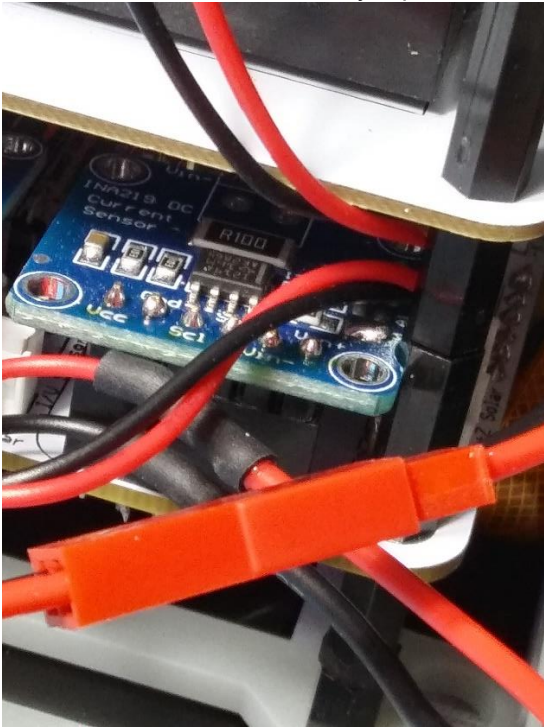

Figure 3: making a small notch in the edge of the INA219 sensor with a Dremel tool allows it to fit up against the standoff. Thanks to Mike McPherson KQ9P for this simple solution.

This is where I will suggest that before installing the sensors on the main board that builders go ahead and set up the ground station with Foxtelem and use this to test them with the test header on the board   and then to test them again, one at a time, as they are installed. Though this process slowed things down, it kept me patient and clear-headed, and I knew if something failed, I'd be very certain of what it was and why it wasn't working.   I would even dare to suggest that setting up the ground station be moved up in the order in the construction manual for this very reason. I will also encourage CubeSat Simulator builders to join the project on https://github.com. It is a chance to find knowledge, encouragement, updates, and advice from others who are working on the project.
And for those less initiated in the world of Arduino-based microcontrollers I will recommend the Sparkfun Pro Micro as the controller of choice. I started with a STM32 "Blue Pill", but I found the setup to be long and daunting.   With the Pro Micro there is simply less "computer" stuff to handle and yet plenty to learn. My biggest hang-up at this stage was actually a bad USB cable! I won't talk about how many hours I lost thinking the drivers would not install, when all I needed to do was switch to a new cable and they magically installed themselves! I am constantly being reminded of the basics of troubleshooting 101.
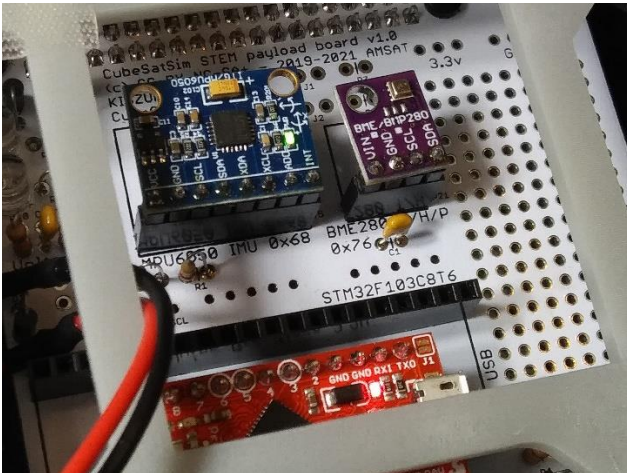
Figure 4: Sensors in the sockets on the Cubesat Sim payload board

The building instructions get one through the basics of dealing with loading programs and compiling and running them with no need to learn specifics of code or libraries, though the idea is that we, mostly uninitiated, might be inspired to learn more in order to use the payload board for more and cooler experiments. I will openly admit this is a weak area for me, but learning new things is what the Cubesat Simulator is al about. Note: when you save a bit of code, don't think you're going to be smart and put the file where you think it should go. It needs to go right in the main Arduino directory where the development tool saves it by default, so that the libraries and header files are all where they need to be for it to access them when it compiles and runs. (Don't ask me how I know this!) Once I learned that lesson, I found it quite rewarding to see all the sensor fields in Foxtelem come to life with data for pressure, altitude, and temperature!
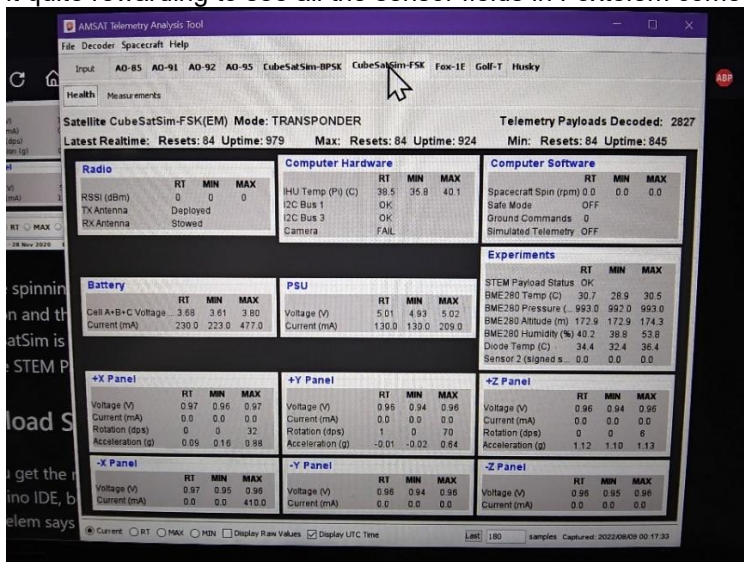

Figure 5: Testing sensors with Foxtelem: battery and power supply voltage show normal; experiments tab shows telemetry from the environmental sensor on the payload board; lower half of the screen is telemetry from the six solar panels, which are disconnected.

In an interim while I was waiting for some part or another, I also decided to add the Pi camera option so my sim could transmit live slow-scan TV pictures. This feature had been so much fun at the last two Frontiers of Flight Moon Day events in Dallas! People get a real kick out of seeing the picture of themselves come up on screen as the ground station copies it with SS TV software! But be sure when you order the Pi camera to get the correct cable. The Pi Zero requires a smaller one than the standard one that comes with the camera, and, of course, the configuration for the side of the sim with the camera calls for two smaller solar panels instead of one large one. Due to ongoing supply issues, the ones on the BOM were nowhere to be found at the time, so I found similar ones on Amazon and had to improvise a little. And one starts to see how this whole project is a chain reaction where one thing leads to another and, before you know it, you have bought a bunch more parts!
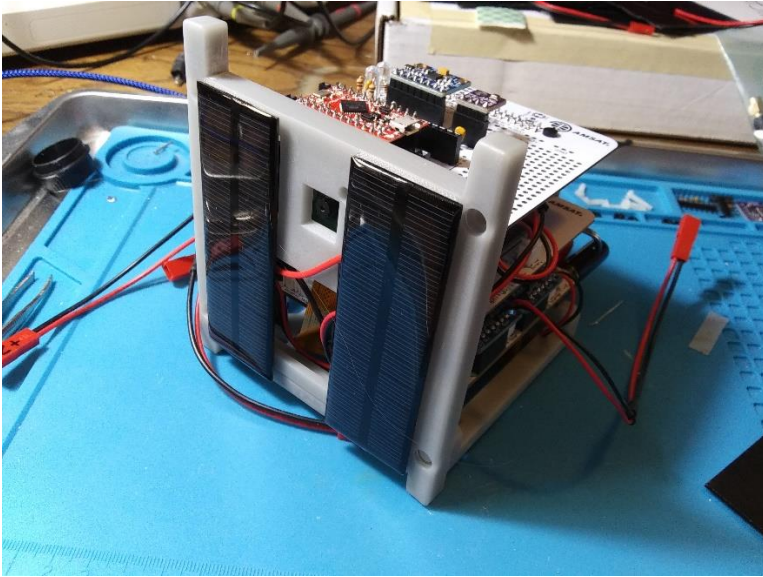
Figure 6: +Y side of the sim with the Pi camera installed: the small solar panels had a slightly different configuration of the power contacts than the ones on the BOM, so connecting them in parallel left a wire or two showing.

The camera worked great, and all tests were successful, so it was time to stack everything up and put it together. And here, at the very end, came the last little challenge. I, being mostly ignorant in the 3-D printing world, struggled to feel clear on the exact hardware needed to install the Pi camera board onto the 3-D printed frame piece. (When I ordered it, I assumed the installation hardware would come with the camera). There was no source for these tiny screws and insets – which were mentioned in the instructions - on the BOM, and knowledge of exactly what parts to get seemed to be taken for granted. I did OK figuring it out, though the insets I found were not tapered, so I used the Dremel to ream out the 3-D printed holes a little, just enough to hammer the inserts in. The lack of precision in my solution caused things to not quite line up, so the fourth tiny screw would not go in, but I think three is enough to keep the camera in place.

With this, the final stage was straightforward. Cutting up little strips of Velcro to affix the solar panels was the hardest part! I tested through the five CubeSat Sim transmit modes and found everything functioning and all the solar panels and sensors were operational. In addition, my little herd of stuffed purple aliens seemed quite impressed with the result. My next objective is to explore the use of APRS and to comprehend the finer points of the payload board and its possibilities, and to get a little turntable for the CubeSat Simulator to spin around on!

Figure 7: the Cubesat Simulator completed and functioning

Figure 8: my team of alien advisors approving the final product

For me building the AMSAT CubeSat Simulator, with every misstep and all the long moments of waiting and contemplation, was a wonderful chance to see the basics of CubeSat function, more so than if everything had gone off without a hitch. The idea of eventually making – or possibly even designing - a real satellite with an uplink and a repeater and the thought that I could have the confidence to troubleshoot, repair, and understand its more advanced functions is most compelling. I still have a long way to come and plenty more to learn from this little simulator and my experiences teaching what I have learned from it. I hope, in the future, to contribute to the AMSAT CubeSat Simulator educational curriculum with accounts of my own adventures and my creative approach. I also hope this article is a start in that direction and that other new builders and aspiring engineers find it helpful right here in the present.

Items of Note

The World's Only St. Paddy's Pickle Parade & Palooza

March 17-18, 2023
The AARC has an entry in the parade!
Parade starts at Noon on March 18th and lasts for an hour or so. There will probably be room in the bed of the truck for one or two people. You can help decorate too. Let Philip, KD5WBW know at the meeting if you want to join us.

Meet Gherk, he is the real dill. I guess I could take the tag off.

2023 R.A.C..E.S. Training Classes
In the next few weeks we will have our first R.A.C.E.S. Training classes for 2023.
Sign up on Better Impact.
March 25th - New Member class. Attend this one if you do not have a R.A.C.E.S. ID Card yet.
April 1st - R.A.C.E.S. Renewal class - Attend this one if your card has expired or will expire this year
The classes will be at the Fort Worth JEOC at 275 West 13th, Fort Worth.   See Google Map Location by clicking here:

MAP
<http://maps.google.com/maps?q=275+West+13th,+Fort+Worth,+Texas&hl=en&ll=32.747625,-97.330745&spn=0.004746,0.006813&sll=37.0625,-95.677068&sspn=36.589577,55.810547&vpsrc=6&hnear=275+W+13th+St,+Fort+Worth,+Texas+76102&t=h&z=17>

Our class will begin promptly at 8:30am. Parking is in the City Hall lot on the south side of City Hall on Monroe, or at the bagged meters next to the building on 13th street.. Entry into the JEOC is by controlled access so please use the phone to the left of the door and press 3 to get access. Talk-In will be on 146.94. We will have folks on-site beginning about 7:45am.   Please arrive early so that we can complete your New Member or renewal paperwork, take your ID picture, and we can start on time at 8:30am. The class will run until about 12:30 noon.

As part of the class you will be participating in an exercise where you will need a hand held radio. Please bring your 2 Meter or Dual Band portable radio with you to the class. If you do not currently have a hand held radio we will have a few extras available for you to use. Please be sure to bring a pen/pencil and a notepad too. We have a lot of material to cover so be prepared to listen and ask questions.

Chuck

Newsletter Submissions

Submissions for the newsletter are due by the Saturday preceding the monthly club meeting. I would prefer receive them in Word format or in a text editor like Notepad.

Birthdays

Kent Anderson,KC7KDA	3/4
Russell Frazier,N5RGR	3/17
Kathleen Holley,KG5CVO	3/3
Darren Shelton,KI5TPL	3/13

If I missed your birthday, let me know (I won't include the year, it makes me feel old) – Trey

Calendar of Events

March 17: **Board Meeting** 6:30 pm,
501 W. Sanford, Arlington, TX, 76011
All members are welcome attend.

March 17: **General Membership Meeting**

7:30 pm, 501 W. Sanford, Arlington, TX, 76011

Join Zoom Meeting
https://us02web.zoom.us/j/82552509850?pwd=RnhlNGl1SlJ4L3N1ZXJtZlVHSm1SZz09

Meeting ID: 825 5250 9850
Passcode: 636413
One tap mobile
+13462487799,,82552509850#,,,,*636413# US (Houston)
+12532050468,,82552509850#,,,,*636413# US

Dial by your location
        +1 346 248 7799 US (Houston)
        +1 253 205 0468 US
        +1 253 215 8782 US (Tacoma)
        +1 669 444 9171 US
        +1 669 900 6833 US (San Jose)
        +1 719 359 4580 US
        +1 312 626 6799 US (Chicago)
        +1 360 209 5623 US
        +1 386 347 5053 US
        +1 507 473 4847 US
        +1 564 217 2000 US
        +1 646 931 3860 US
        +1 689 278 1000 US
        +1 929 205 6099 US (New York)
        +1 301 715 8592 US (Washington DC)
        +1 305 224 1968 US
        +1 309 205 3325 US
Meeting ID: 825 5250 9850
Passcode: 636413
Find your local number: https://us02web.zoom.us/u/kdFXui2cxn

==== Dining Out (March 18, 5:00PM) ====

Catfish Sam's, 2735 W Division St, Arlington, TX 76012

==== Breakfast (March 4, 8:30 am) ====

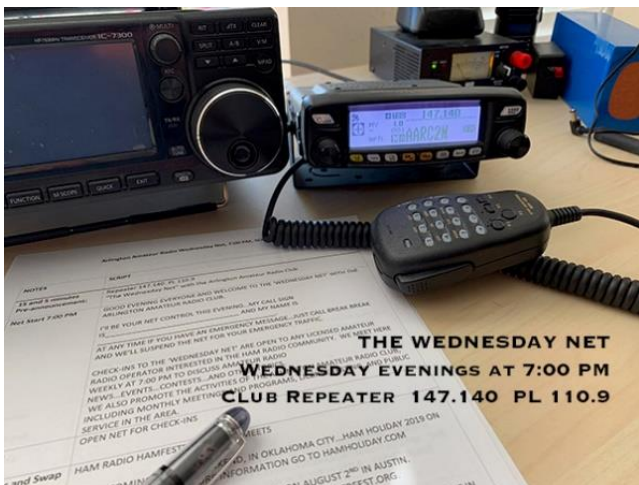Pioneer Restaurant   306 109th St, Arlington, TX 76011

Testing:

There is a $14 cash fee for taking the test (if you pass and want to take the test for the next level, the $14 covers the additional test(s) as well).

As of April 13, 2022 the FCC will begin charging an application fee of $35.00 for license applications.

Also note you will need your FRN number and a valid email prior to taking that first test.

March 18: Testing - 10:00 am, 401 W. Sanford. Enter on north side of the building.

April 4: Testing - 10:00 am, 401 W. Sanford. Enter on north side of the building

Join us for the Wednesday Net

Need a Badge?

Warning sirens

The City of Arlington tests its outdoor warning sirens at 1:00 pm on the first Wednesday of each month, using volunteer observers, most of whom are hams reporting into a net held on the AARC's 2m repeater (147.140+, PL 110.9). Check-ins begin during the noon hour, and the test typically concludes before 1:30 pm. More observers are always needed, so please consider helping with this valuable effort if you can spare about an hour at lunchtime once a month.
For more information, contact the Office of Emergency Management (817-459-6939).

Meeting Minutes

February 2023 Membership Meeting Minutes
submitted by Andy Kapushoc KB2VQA, Secretary

The regular meeting of the membership of the AARC was called to order on February 17th, 2023, at 7:31 pm by the President, Jack AA5VZ, accompanied by a teleconference simulcast. Other board members present included Vice President, Torre AA5CX; Secretary, Andy KB2VQA; Treasurer and Repeater Trustee, Maurice KM5RF; Training Coordinator and Agent of Record, Phil N5PWW; Emergency Coordinator, Clayton K5CWS; and Editor, Trey AF5XS.

Jack AA5VZ called the meeting to order, and asked attendees to introduce themselves by name and call sign.

Jack informed the membership that David W5DJO would be presenting the evening's program on building a go-kit. The club participated in winter field day for the first time. Next year the club may wish to make changes to deal with inclement weather. The warning siren test was not conducted in February due to poor weather. Torre was the alternate net control for the Wednesday night net, and the club is looking for one additional volunteer to conduct the net.

Torre AA5CX mentioned that David W5DJO would be providing the presentation this evening on the topic of assembling a go-kit. Next month, Virginia may be able to present on the topic of the AMSAT CubeSat simulator.

Philip KD5WDW, continuing in the role of Public Information Officer, informed the membership that he submitted the application to participate in the Mansfield St. Paddy's Pickle Parade. The Cowntown Marathon will be held on February 25th-26th and volunteers are still needed to assist with communications.

Andy KB2VQA noted that the February newsletter contained the minutes from the January meetings. A motion was made and carried to accept the minutes as published.

Maurice KM5RF reviewed the financial report for January 2023. A motion was made and carried to accept the report for audit as published.
He is keeping track of Zoom usage to determine if the Zoom license should be renewed in 2024. The audit of the financial records for 2022 was conducted, and no irregularities were found.
The repeater is functioning. He visited the repeater site last week, and he discovered the Henry amplifier was not tuned correctly. Maurice tuned the amplifier and there is no longer a detectable hum.
Jim Stiffler donated a copy of the ARRL 2022 Handbook to the club to be auctioned off at the club meeting during the break.

Trey AF5XS compiled and distributed the newsletter for February 2023. Submission of content is welcomed, and Trey thanked those who submitted content for the February newsletter.

Phil N5PWW continues to hold testing sessions promptly at 10 am on the first and third Saturdays of the month at 401 W. Sanford Street (use the entrance on the north side). An FRN and valid email address is required prior to taking an exam.
The test fee is $14, and the FCC fee is $35.

A training session for the Technician Class exam was scheduled, however no one attended. Another attempt will be made to schedule a class.

Clayton K5CWS mentioned that Field Day 2023 will be on June 24th.

Old business: No old business was presented.
New business: No old business was presented.

A break was taken at 8:25 pm. The meeting resumed at 8:43 pm with a presentation by David W5DJO on the topic of go-kits.

The meeting adjourned at 9:33 pm. The sign-in sheet showed 28 people in attendance, 21 indicating AARC membership. Zoom attendees numbered 5.

February 2023 Executive Board Meeting Minutes
submitted by Andy Kapushoc KB2VQA, Secretary

The regular meeting of the Executive Board of the AARC was held on February 17th, 2023, at 6:33 pm, accompanied by a teleconference simulcast. Present were President, Jack AA5VZ; Vice President, Torre AA5CX; Secretary, Andy KB2VQA; Treasurer and Repeater Trustee, Maurice KM5RF; Emergency Coordinator, Clayton K5CWS; Training Coordinator and Agent of Record, Phil N5PWW; and Editor, Trey AF5XS.

Jack AA5VZ called the meeting to order.

Jack mentioned that the program for the evening would be presented by David W5DJO on the topic of building a go-kit. Jack said the winter field day event was attended by approximately 9 people, with 5 stations being set up. He would like to ask the membership about changes that could be made for next year's participation. Perhaps a change of venue could be made to contend with potential inclement weather. Irving hamfest will be held March 4th.

Torre AA5CX ran the Wednesday net, covering for Price while he was out of town. Virginia might be able provide a presentation next month on the AMSAT CubeSat simulator.

Philip KD5WBW, continuing in the role of Public Information Officer, submitted the club's application to participate in the Mansfield St. Paddy's Pickle Parade. The Cowtown Marathon will be held on February 25th-26th, and volunteers are needed to assist in providing assistance with communications.

Andy KB2VQA confirmed that the February 2023 newsletter contained the minutes from the January 2023 meetings.

Trey AF5XS published the February 2023 newsletter.

Phil N5PWW continues to hold face to face testing sessions promptly at 10 am on the first and third Saturdays of the month. A training session for the Technician Class exam was organized on short notice, however no one attended.

Clayton K5CWS mentioned that 127 days remained before Field Day 2023.

Maurice KM5RF reviewed the financial report for January 2023. He filed the 990-N form. The bill for the Zoom subscription was paid, and he sought a partial refund due to a discount for 501(c)(3) organizations.

Jim Stiffler donated a copy of the ARRL 2022 Handbook to the club to be auctioned off at the club meeting.

The meeting adjourned at 7:18 pm.

February 2023 Financial Report

		DESCRIPTION	CATEGORY	BALANCE
BALANCE	1/31/2023			
			GENERAL FUND	2,335.94
			GOOD & WELFARE	742.84
			REPEATER FUND	783.47
			CHECKING	**3,862.25**
			SAVINGS	2,235.44
			PETTY CASH	25.00
			NET TOTAL	**6,122.69**

EXPENSES

EFT	NAME CHEAP	WEB HOSTING K5SLD	WEBPAGE	38.88
CHK# 2050	STORAGE HUT	STORAGE	STORAGE	305.00
EFT	GRANDBURY FLOWERS	GOOD & WELFARE	G&W	90.71
			TOTAL	434.59

INCOME

		DUES	2023 DUES	264.85
		AARL HANDBOOK	DONATION N5SVX	40.00
		GOOD & WELFARE	G&W	22.00
		AMAZON SMILES	DONATION	7.40
			TOTAL	334.25
			OVERALL NET CHANGE	-100.34
BALANCE	2/28/2023			
			GENERAL FUND	2,264.31
			GOOD & WELFARE	674.13
			REPEATER FUND	823.47
			CHECKING	**3,761.91**
			SAVINGS	2,235.44
			PETTY CASH	25.00
			NET TOTAL	**6,022.35**

Membership

Want to join the club

2023 Club Dues are due
Print a membership form from our website [k5sld.org](k5sld.org) and join us.
Annual dues are $25.00 Individual, $35.00 Family, or $15.00 Associate
Membership dues received after July 1st from applicants that were not members the previous year shall be one-half of the annual dues

2023 Club Officers

President: Jack Weaver, Jr. AA5VZ - jmw1709@hotmail.com – 972-567-7815
Vice President: Torre Quinn, AA5CX – aa5cx.tx@gmail.com -
Secretary: Andy Kapushoc, KB2VQA – kb2vqa@optonline.net – 817-652-0307
Treasurer: Maurice Martin, KM5RF – km5rf1@charter.net – 817-266-9906
Editor: Trey Seastrunk, AF5XS – trey01@swbell.net - 817-891-6372
Training Coordinator: Phil Stage, N5PWW – n5pww@sbcglobal.net – 817-465-5624
Emergency Coordinator: Clayton Starkweather, K5CWS – clayton.starkweather@gmail.com -
Trustee: Maurice Martin, KM5RF – km5rf@att.net – 817-266-9906
Agent of Record: Phil Stage, N5PWW – n5pww@sbcglobal.net – 817-465-5624
Public Information: Philip Scoggins, KD5WBW - KD5WBW@arrl.net – 817-939-7623
Webmaster: David Lucas, KF5CFW – kf5cfw@gmail.com – 817-781-7256
Repeater Committee: Maurice Martin, KM5RF (chair), Rob May, W5WS,
        Don Kovatch N5YAK, Gerry Dalton, W5MAY