

Nacogdoches Amateur Radio Club

2020 CLUB OFFICERS

Pres: Bill Rascher - KT5TE

Vice Pres: Steve Bartlett-WB5IDY

Sec/Treas: Army Curtis - AE5P

Visit our web site at

<https://w5nac.com/>

MISSION STATEMENT

The Mission of the Nacogdoches Amateur Radio Club is to support and promote Amateur Radio by public service, offering training to unlicensed interested parties and licensed Amateurs, mutual support of other Amateurs, engaging events that promote Amateur radio to the general public and other Amateur radio operators, and continuing fellowship by regularly scheduled organized meetings and events and having fun.



AUGUST MINUTES

The August meeting of the Nacogdoches Amateur Radio Club (NARC) was held as scheduled on August 5th. Because of the Wuhan virus, the meeting was again held as a virtual meeting using the club's 146.84 repeater. The club's 147.32 repeater has failed and is off the air. **President Bill KT5TE** opened the meeting at 7:00 p.m. Twelve members and guests checked in. Minutes of the previous meeting were approved as published. The Treasurer's report was read.

Reports were made on Club participation in the July CQ VHF contest, which saw 6 members out as Rovers on Saturday, and 5 on Sunday. This contest is a little different in that it only uses 6 and 2 meters, which makes it go a little quicker. Not twice as fast as the ARRL VHF contests where our rovers use 4 bands, but quicker none the less.

The North American QSO Party, CW version, saw several club members participate. Most of them agree that CW contests are much easier than phone contests to play in.

Thanks to **Steve WB5IDY** for once again making facilities available at the North Street Church of Christ for VE testing in July. Five individuals were tested, and all five were

successful in either upgrading an existing license, or qualifying for a new license. Full details later in this newsletter.

Other contests and special events coming up in August were mentioned. All club members are encouraged to participate in as many of these as possible. They are a wonderful way to improve your communications skills as a Radio Amateur.

There being no further business, the meeting was adjourned at 7:26 p.m.

Program: Steve WB5IDY presented a program on the ARRL Go Kit recently donated to the club. Steve plans to set up the Go Kit along with one of the Club's Orange Box VHF/UHF kits at City Hall. New antennas are planned to be installed on the roof of City Hall, and they will be available for use during emergencies. The publicity from having the kits at City Hall won't hurt either.

FROM THE PRESIDENT

Not sure about the rest of you, but if I'm working in this summer heat by 1300 hrs I'm done. So steps taken to cool off involve taking a plunge into the pool with ice cold water. Lauren keeps the ice cream tubs which she fills with water and freezes. Then she tosses them into the pool for temperature control. We have an umbrella setup over the pool edge for shade, and I usually pitch in a weighted SCUBA tank with regulators before hopping in the pool. Step one after I'm neck deep in the water is to finish off a pickle juice Popsicle. Step two is to chug a bottle of cold water down. Step three is to go to the bottom of the pool where the SCUBA tank is located. After about 30+ minutes lying on the bottom it's time to warm up. Water will pull the heat out of your system eight times faster than air.

Last year in early May I purchased a RigExpert Stick 230 antenna analyzer, but it didn't arrive until late January 2020. It seems that everyone jumped on the discounted first release of the Stick 230. Army, AE5P, challenged me to tell him what the device was called while at breakfast prior to the VHF contest. I was puzzled because I thought it was obvious. I must have had a goofy look on my face, so he repeated his challenge: this is a single-port vector network analyzer (VNA). The week after the VHF contest weekend in which the question was posed I noticed an article in QST about the Stick 230. What is really nice about this VNA is the output via bluetooth can be displayed on your smartphone. When your vision is getting as bad as mine this is important since the display can be enlarged. You can also have the information displayed on a computer, but there was a problem

with using my computer since the program is built for Windows, Macs and Ubuntu Linux. A lot more information can be displayed on the computer, so I really wanted to get the software up and running on my desktop and laptop. Problem is they both are running openSUSE Linux which wasn't supported. The software is completely open source and available on RigExpert's website. This software is written in C++ (*.cpp). Since I'm getting lazy and spoiled to "one click install" I went searching for someone with some experience to help compile RigExpert's desktop software called AntScope2. What I discovered was Walter, DL8FCL, compiles and keeps updated repositories for several openSUSE ham radio applications. He lives pretty close to where I was stationed in Germany. So I started up a conversation and asked him the big question. "Could you help me compile AntScope2?" His

reply was to ask where the source code was maintained and kept. I gave him a link to the site and he replied with a compiled program asking me to install and test AntScope2. The end result is now AntScope2 is now on software.opensuse.org as a 1 click install for several distributions. Plus Walter is maintaining the repositories.

https://software.opensuse.org/package/AntScope2?search_term=antscope2

I've included a screen shot with the article and you might notice that it looks like 40m isn't too bad. This is an end fed half wave antenna from MyAntennas.com. Don't pay attention to the weird people and animals. My radio's tuner goes to 10:1 so most bands are covered. The antenna is up about 35' which is a little low for 40m. One of these days I might push the middle up to 45' to see what happens or set it up as a 70' sloper.

For now I'm happy. Well, sort of since I still have to swap rotators on the 70' tower.

So mom was right, it doesn't hurt to ask. <grin>

73, Bill KT5TE

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FROM THE VP CHAIR

Not all rubber ducks are what they are quacked up to be

I was fortunate enough to be the high bidder on a white elephant gift at our Christmas club dinner. Remember when we had in person meetings? To my surprise I opened a Yaesu VX-2. Even as a guy, I can respectfully call it "cute". It is a multiband radio that receives from 1 MHz to the 800 MHz range and will transmit 1.5 watts on 2 meter and 70cm. It is smaller than a pack of cigarettes, as we used to say, and is great for travel. I wanted to use it for a weather radio as well, but it simply would not pick up the Lufkin or Palestine NWS stations. Okay even my evil Baofeng would do that. After attaching it to a 19' tall antenna outside, 4 weather stations came in just fine. Yes, that is the definition of overkill.

It convinced me that even if the front end of the receiver was a bit weak, it was possible to improve on what I had. I began a search for a new rubber ducky antenna.

Having recently purchased a MFJ Antenna Analyzer, I decided to put it to good use looking at a host of antennas. Yes, I have been warned by some of my great mentors to "throw that thing away" as it will only frustrate you. They were right, and in my pursuit of radio perfection I tested every antenna that did not run away, often only to be disappointed!

What is a rubber duck antenna? It is an electrically short monopole antenna that functions somewhat like a base-loaded whip antenna. After its invention in 1958, the rubber ducky antenna became the antenna of choice for many portable radio devices, including walkie-talkies and other portable transceivers, scanners and other devices due to its space saving profile. It was never intended to

be a model of efficiency; sacrifices come with size. Rubber ducky antennas have lower gain than a full size quarter-wavelength antenna, reducing the range of the radio. They are typically used where maximum coverage is not a requirement. Their design is a compromise between antenna gain and small size.

After some research, I decided on a Nagoya 701. It was 7-3/4" long and still allowed the radio to fit into a pocket. Low and behold, inside my house, I could now receive the Lufkin and Palestine weather stations. All for the Chinese equivalent of \$11. Yes, I am ashamed, but happy.

This got me to wondering on a rainy day, how do these antennas actually test for SWR? I used a SMA adaptor and a 19" pigtail, just to help me feel more dipole like. In reality, your radio body acts as the push side of the antenna, so some sort of counterpoise was needed during my tests.

The SWR results for 146 mhz:

Abbree multiband - 4.2

Baofeng stock - 3.5

Nagoya 701 - 3.2 to 4.0 (various antennas)

Yaesu stock 6.25" - 2.4

Yaesu stock 4.75" - 3.2

Remember, the results are relative and do not take into account gain or actual resonate frequencies. The reason the Nagoya 701 out performed on my VX-2 for weather reports is because it was tuned for a mid-range between 144 and 222 MHz and was electrically longer with possibly some extra gain.

The moral of the story is that there are some slightly better monopoles out there, but generally they all sacrifice gain for size. You will probably find the longer the length, the better the results and the multiband antennas all have some sacrifices on certain frequencies. Test them and see!

73, Steve WB5IDY

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NOTES FROM OUR EC

I'm writing my column the evenings of 25 and 26 August. Hurricane Marco has come and gone becoming a low pressure system. I don't think we even noticed it.

Cousin Laura is now a hurricane. She is expected to make landfall as a Cat 4 Thursday morning. Looking at the weather cone she's not far off.

You will probably read this after Laura has moved past. Nacogdoches had been pretty lucky. We have not been called upon for sheltering or other services.

There are a number of web services out there to help us keep up with the weather. As always, web addresses to follow at the

end of the column. The National Oceanic and Atmospheric Administration (NOAA) has 3 agencies of interest, well at least to me and maybe a few others: Storm Prediction Center (SPC) in Norman OK, the National Weather Service Regional Offices and the National Hurricane Center (NHC) in Miami, FL.

The SPC handles severe thunderstorms and tornadic activity across the contiguous US. They provide regionalized data and information during severe weather activity. You will note they are based in Norman right in the middle of Tornado Alley.

We are already familiar with the Shreveport NWS office. They provide our day-to-day weather information. They provided our SKYWARN training and have an open line during severe events. There is a lot of data there and they have a number of products just for the casual weather person or those of us who

need to do some research. They develop the script for the local NWS transmitters in their region and issue the alerts that are broadcast via the Emergency Alert Sys. Aaron (KI5FIQ) has volunteered a couple of times to be our SKYWARN interface with Shreveport during severe weather events. Again, Aaron, thank you for doing that.

The last office getting a real workout is the NHC. They provide regular and timely updates especially graphically of the life of hurricane potential storms. The FORECAST CONE is handy to see land fall, course and storm levels. I spend a lot of time between the NHC and Mike's Weather page when tropical weather might impact Texas and particularly East Texas.

I mentioned Mike's Weather page above. He aggregates a number of tools which will give you more of a sense of the storm. Check out some of the plots and you will see

why he calls it Spaghetti Models

The Weather Channel and Accuweather both have good websites, I like the Weather Channel's radar return the best. Like everything, Your Mileage May Vary.

Lastly, I was contacted by a Tim Lewellen, WX5CG. At first blush I thought it was Tim Lewallen a former member of NARC. Tim and his wife are from Orange and evacuated here, having come in from West Texas. He checked in via email and provided his availability. He is familiar with strong winds, so he wasn't too worried about coming. He is camped close to Lake Naconiche. If you hear him on the repeaters, please make him welcome.

Don't forget our nets, the 32 may or may not be fully functional come net time.

Please stay smart and stay safe,

Storm Prediction Center:
<https://www.spc.noaa.gov/>

National Hurricane Center:
<https://www.nhc.noaa.gov/>

NWS Shreveport:
<https://www.weather.gov/shv/>

Mike's Weather Page:
<https://spaghettimodels.com/>

Weather Channel:
<https://weather.com/>

Accuweather:
<https://www.accuweather.com/>

NOAA Weather Radio:
Lufkin: 162.550 MHz
Center: 162.525 MHz

73 de John Chapman
KC5MIB

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VE TESTING

Thanks to Steve WB5IDY, we were again able to continue our VE testing on July 15th. Due to the Wuhan virus, we were forced to cancel the test sessions originally scheduled for March, April and May. Man is it ever nice to be able to resume testing. We met at the North Street Church of Christ and hope we may be able to continue there in future months.

The July VE session saw 5 candidates and produced the following results:

KI5JSB - Michael Hooks upgrade from Tech to General.

KI5KEY - Floyd Ramin new Technician.

KI5KEZ - Nic Farmer new Technician.

KB5DHA - Ozay Ford upgrade from Tech to General.

KI5KFA - David Moen new Technician.

Congratulations to each of these Radio Amateurs. If you hear them on the air,

please make them feel welcome.

For August VE testing, we had to relocate to the International Church of Nacogdoches. Many thanks to Andy Delgado, KE5EXX, for making arrangements for us to meet there. We had one candidate who passed his Technician examination. No callsign has been issued as of the date of this newsletter.

For the latest updates, please check the club website at:

<https://w5nac.com/about/testing/>

73 de AE5P.

email: ae5p@arrl.net

TWO METER CLUB NETS

Remember to join us each week for the two meter nets sponsored by NARC. Each **MONDAY** is the **NARC ARES/RACES** net, at 8:00 p.m. on the club's 146.84 repeater (PL 141.3). Second, on

THURSDAY evenings at 8:00 p.m. is the **Deep East Texas Skywarn Emergency Weather Net** on the 147.32 repeater (PL 141.3). Please join us for one or both.

NEXT MEETING

The next meeting will again be a virtual on-air meeting **Wednesday September 2nd at 7:00 p.m.** on the 147.320 repeater (PL 141.3). All stations participating are asked to check-in giving their callsign and name when asked for. An on-air program is planned.

UPCOMING EVENTS OF NOTE

Mark your calendars for the following events coming up in the next few months. Full information on these events and much more can be found at <http://www.hornucopia.com/contestcal/contestcal.html>

Note that all dates shown here are local, CST dates while all contest logging uses UTC dates and times.

ARRL ROOKIE ROUNDUP RTTY

Aug 26, 2020
<http://www.arrl.org/rookie-roundup>

WORLD WIDE DIGI DX

Aug 29-30, 2020
<https://ww-digi.com/>

ARRL SEPTEMBER VHF

Sept 12-13, 2020
<http://www.arrl.org/september-vhf>

CQ WW RTTY

Sept 26-27, 2020
<http://www.cqwwrtty.com/>

CQ WW SSB

Oct 24-25, 2020
<http://www.cqww.com/rules.htm>

ARRL SS CW

Nov 7-9, 2020
<http://www.arrl.org/sweepstakes>

ARRL SS SSB

Nov 21-22, 2020
<http://www.arrl.org/sweepstakes>

CQ WW CW

Nov 28-29, 2020
<http://www.cqww.com/rules.htm>

GREY LINE PROPAGATION

by

Thomas Atchison W5TV

Many of us have heard the phrase 'Grey Line Propagation'. Since I wasn't sure exactly what causes the 'propagation' I thought it would be good to research the subject. Here is some of the information I found.

What we call the 'grey line' is a band around the Earth that separates daylight from darkness. Why does this create an environment for propagation of radio signals? First, your radio station needs to be in the region of the grey line band, i.e. either at dawn or dusk. This region is sometimes called the **terminator**. In this region some frequencies are attenuated much less than usual therefore signals at those frequencies can be heard over longer distances. These frequencies are usually in the lower HF spectrum because D-layer absorption is not as great in the terminator. That is, the F-layer is higher than the D-layer; therefore, the ionization of the F-layer is increased before the D-layer is impacted at sunrise and lower HF signals are propagated further. At sunset the D-layer loses its ionization before the F-layer creating the same effect. Actually, the D-layer ionization begins to fade before dusk and the F-layer ionization continues into early darkness so grey line propagation may last longer than expected.

When you consider grey line propagation remember that there are many variables associated with propagation. Obviously, the stations that benefit from the grey line propagation must both be located in the grey line region. This certainly limits the areas for a given station to communicate with using this form of propagation. Another variable to consider is that the radio terminator does not always follow the day/night terminator as seen on the Earth's surface. For example, since the ionization regions are above the Earth's surface and are illuminated longer the effects described above are not directly above the day/night terminator. This means there is a 'radio signal propagation' terminator that actually yields the propagation we are discussing. This means that the day/night terminator as seen on the Earth's surface is merely a guide for radio signal propagation.

We should also consider the time of year we are in. For example, in the winter the Northern Hemisphere of the Earth is tilted away from the Sun, whereas, in the summer the Earth is tilted toward the Sun. This means that the angle subtended by the Sun's rays is greater in the summer than in the winter, therefore, more ionization is anticipated. The width of the grey line also changes depending on where you are

located on the Earth. That is, the grey line is much wider at the poles because the line between dark and light is less well defined since the Sun never rises high in the sky at the poles. The result is that grey line propagation is active for longer at the poles than at the equator.

The frequencies that may be utilized for grey line propagation usually go up to about 10MHz. You may see the most remarkable results on 160 meters and 80 meters. On 80 meters you could experience communications with stations thousands of miles away, even on the other side of the Earth.

The time of year may make some difference. If you try grey line propagation around the spring and autumn equinoxes you will not have problems that would normally occur during the middle of the summer or the middle of the winter when propagation is not so good.

An opening via grey line propagation may only last for half an hour or so, but it gives the opportunity for radio communication to be established between stations as far away as the other side of the globe.

You can see some additional information at the following sites:

<https://rsgb.org/main/technical/propagation/greyline-around-the-world-propagation/>

<https://www.robkalmeijer.nl/techniek/electronica/radiotechniek/hambladen/qst/1992/11/page80/index.html>

THE SAGA OF THE 32 REPEATER

By

Army Curtis - AE5P

Sometime recently, the 147.32 repeater quit repeating. A visit to the repeater site confirmed what we pretty well already knew: the repeater had failed.

A little background music maestro, please.

The 147.32 repeater was first put together using a Motorola Micor mobile for the repeater. Because a mobile radio is not designed for continuous service as found in repeater service, it left a bit to be desired and required a whole bunch of fans to blow air on it to keep it cool.

In 2004, the opportunity presented itself to purchase several Motorola MSR-2000 repeaters, removed from service by the Ontario Provincial Police in Canada. Now here was a real repeater radio, designed for repeater service. Big, beefy, and designed to run keyed up forever. We installed one for the 147.32 repeater and one for the 146.84 repeater. Of course, they had been in service in Canada for more than 20 years, and were being replaced because of their age. For us though, they were great.

In 2015, Yaesu announced a program of deep discounts for clubs to purchase their new analog/digital repeater, the model DR-1x. The DR-1x was synthesized and could operate on either the 2 meter or the 70cm bands. The club purchased two of these new repeaters and installed them at the City Radio site, replacing the existing radios used for 146.84 and 444.050 MHz. In reading the fine print of the specifications after we received the radios, we discovered they were rated at only 20 watts for 100% duty cycle, as you have in FM repeater service. But we put them in anyway, and they have worked very well.

Now comes 2020, and the MSR-2000 radio used for the 147.32 repeater has failed. In discussing the issue with some club members, the question was asked "Why don't we just buy new ones?"

Good question. A little research found that Yaesu still had a program of offering deep discounts on their analog/digital repeaters, which now were new and improved. The DR-1x was now upgraded to the DR-2x, which was rated for 100% duty cycle at 50 watts, a decided improvement over the DR-1x. The DR-2x also supported the use of an external

controller, which was one of my major gripes about the earlier model. On August 17, an application to purchase two DR-2x repeaters was sent to Yaesu in California. On August 19, we were informed our application was approved and the repeaters were delivered on August 22.

We are currently working to remove the old MSR-2000 from the repeater site (remember what I said earlier about it being big and beefy) and install the new DR-2x. I am very optimistic that this can be done in time for our Skywarn Net on August 27. It will be a temporary installation at first without all the bells and whistles we had previously, but it will get us back on the air. The bells and whistles will come later.

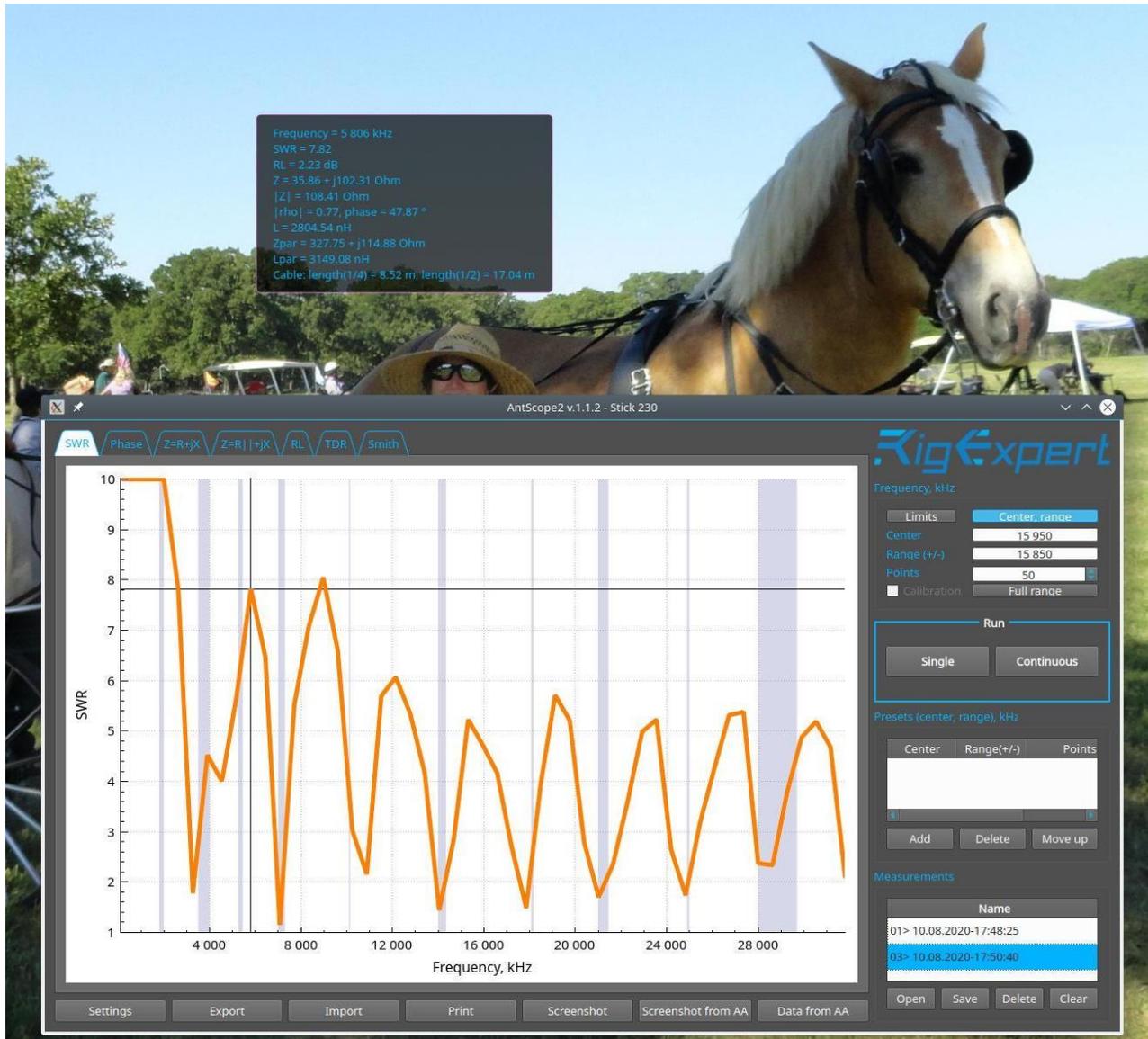
Now for some even better news. NARC has a sister organization NCEC (Nacogdoches County Emergency Communications). NCEC is a 501c3 entity, which allows donations to NCEC to be tax deductible. NCEC was formed to fund capital expenditures, such as the purchase of new repeaters, and this is what was done to fund the purchase of the new DR-2x radios. There may be some minor expenses required by this project that will be funded by NARC, but the major expense will be covered by NCEC.

So, keep an ear on 147.32. You may hear some initial testing as the new radio is installed at the repeater site. And come net time Thursday, check out 147.32 first. I'm hopeful it will be back on the air.

By the way, I was rather surprised the other day to discover I have gotten a little bit older. I knew I was going to get older, but I sure didn't know it would happen so soon. Anyway, I would be delighted to have a younger member of the club step up and express an interest in learning how the repeaters work and to work towards taking on the responsibility for them in the future. Free training will be provided. Just call me.

Editor's note: Thanks to help from Rusty KD5GEN, and from a couple of strong young firemen, the old MSR-2000 repeater and a very large, very heavy battery were removed on Tuesday, August 25, and a new Yaesu DR-2x was installed and put on the air. It's a temporary installation as it does not include the external controller, so no voice announcements, yet. That will come hopefully in the not too distant future. Stay tuned!

PICTURE TIME



Screen shot from President's Column



Picture from Vice President's Column