

IRVING AMATEUR RADIO CLUB

Serving Amateur Radio Since 1955

WA5CKF REPEATERS:

146.72 PL 110.9/TSQL 110.9

224.40 PL 110.9/TSQL110.9

442.675 PL 110.9/TSQL110.9



September 2021

September Club Meeting Is Online

The August club meeting will be online. John KF5PFP will be talking about WSPR (Weak Signal Propagation Reporting). The Webex session will open at 6:45 PM on Thursday, September 23, 2021. The actual meeting will start at around 7:00 PM. You must register in advance at:

<https://webex-488.my.webex.com/webex-488.my/j.php?>

RGID=ra29b782df63ebb122124d9b8b1826ec1

President's Corner

Ken Hansen N2VIP

Hello again, well it's been a busy month, we didn't accomplish all we hoped for this past month, but things are moving forward. With the weather getting cooler (or at least less hot), it's time to start thinking about any needed antenna work.



Work Party 9/11

Several club members participated in the work party on 9/11 – we focused mainly on decommissioning the 442.375 repeater (the pair will go back on the air when we are finally able to set up at the new Irving Emergency Operations Center), some light cleaning up, and straightening out the shack internet service. The Shack has two Internet feeds – the one from the Bingo Hall and the one we pay for – we consolidated the computers to both be on the Club's Internet connection, and both have access to a donated laser printer.

Work Party 9/18

A couple club members assisted me in capturing photographs of much of the SK Estate items the club has to offer – details will follow, and while some of the items are still owned by the SK Estates (who are seeking monetary compensation for the items), the vast majority are the property of the club, and we can do as we please with those items. Our method of offering the items to the club members will be to take the photos, collect them into a booklet, share the booklet with the club members, and solicit offers on items by a date certain. The inventory breaks down into a couple dozen “boxes” of various content, and as a club most items will be dealt with in “box lots”. There are some standout items that we will likely itemize, but the goal is to reduce the volume of donated items in the shack. I plan to review this process and fill-in details at our upcoming meeting later this week.

Also, while Tom Schuessler, N5HYP, was working the Texas QSO party from the Bingo Hall Shack we found that even on the new 20 meter vertical there was still a little bit of interference with the PA system. It seems that in Betcha Bingo 2 the Bingo Caller uses a PA system with powered speakers, meaning they are fed with line-level signals, and the amplifiers pick up a small bit of interference from the transmitter and if you stand right next to the speakers, you can hear the transmissions. We've discussed it and it looks like a couple clamp-on ferrites on the speaker audio lines might just solve the problem.

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Jerry Aberdeen KB3RWT

Newsletter Editor

John Cheyney KF5PFP

General/Business Meeting:

Sep 23 @ 7:00 pm

Weekly Meeting Nets:

7:00 pm each Thursday on the WA5CKF repeaters.

Contact Us

Irvingarc.org

P.O. Box 153333

Irving, Texas 75015-3333



I also took the opportunity to set up the Club IFR500 Service Monitor on the VHF Operation Desk in the Shack – if you want to test a radio you own, feel free to contact a club officer and arrange to stop by the shack and give it a go – it’s a pretty straight-forward device, great for measuring frequency accuracy, power output, FM deviation and a few other radio tests. The device we have operates up to 500 MHz, so HF thru UHF radios can be checked.

Future Work Parties

James Shugart, N5BKL, and I have been discussing replacing many/most of our concrete lollipops on top of the bingo hall with actual commercial “non-penetrating mounts” – these are flat bases designed to accept 6, 8 or as many as a dozen concrete blocks to hold a short 5-10 foot mast up securely. (If you’ve ever ridden the monorail at DFW airport, the terminal roofs are littered with these types of mounts.) The fear is that one (or more) of our buckets might break loose in bad weather and just roll off the roof, and that is just too dangerous. Also, while I keep hoping to set aside time to set the club’s IC-7300 up for remote access, I never seem to find the time to actually get it done. I hope to get to it soon. Finally, once we go back on the roof and start installing the Non-Penetrating Mounts, I think we need to take the opportunity to install the AREDN node hardware we purchased a while ago and put it in service. The only thing we will need to secure will be connecting cables and RJ-45 surge (lightning) suppressors, we already have everything else.

Club Two-Meter Go-Box

Elsewhere in this newsletter you’ll see a write-up on the new club Go-Box – I assembled the pieces a couple weeks ago, and have been testing it casually – it’s very nice, and having a similar “go-box” is a great way to make something a little better than an HT using an old radio you may have lying around the shack.

2022 Irving Hamfest

We need to decide if we want to try and plan on holding our annual hamfest again next year. It’s impossible for us predict the future, but if we want to hold a hamfest next year, now is the time to start planning – QST and CQ magazines all want about six months notice to ensure our event will be included in their hamfest calendar. If things turn bad, we can always cancel the event without penalty, but we need to decide soon – we’ll discuss this at the upcoming club meeting.

Irving Foundation Scholarship

Earlier this year we awarded a \$1,000 scholarship to a deserving student from the Irving area, we need to decide if we want to award another scholarship, as I expect the Irving Foundation will be reaching out to us again soon.

Micro-Grants

Its that time of year to start thinking about Micro-Grants. Typically we reach out to neighboring clubs for proposals around the holidays, and I think that’s a bad time for clubs to put something together – perhaps we should start the 2022 Micro-Grant process before the holiday season, now would be the time to get started on that effort, should we choose to offer Micro-Grants again this coming year.

Conclusion

Now that the weather is starting to break it’s a great time to think about those antenna project you were thinking about this past summer. I hope you can make it to the Virtual Meeting this Thursday – remember to register in advance for the Webex event.

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IARC Two-Meter Go-Box

Ken Hansen N2VIP

I recently completed assembling the club's new Two-Meter Go-Box, and I wanted to share a few details about the build with the club.

The major components are the radio, at Retevis RT-98V (a Two-Meter mono-band radio), a 9 Amp, 12 Volt LiFePo4 battery and charger from Bioenno, along with a handful of Anderson power pole accessories.



The Box

The components of the Go-Box were attached to a cutting board from Harbor Freight that was EXACTLY as wide as the inside of the 50 Caliber Ammo Box, also sourced from Harbor Freight. I needed only to trim the length of the cutting board to fit inside the Ammo Box when the lid is closed. That was a happy surprise. The Ammo box holds/contains not only the radio, battery, microphone, power distribution block AND the Bioenno charger for the battery.

The Radio

The radio is an impressively tiny radio – it is only slightly larger than a deck of playing cards, and when I bought the radio CHIRP claimed to support the radio (more on that later). In operation, it is a convenient, good-sounding radio, but the controls are a bit confusing – the knob on the radio is NOT a channel section knob, it is a volume knob, I can't tell you how many times while testing the Go-Box I reached over to change channels, only to turn the volume up instead. To change the channel you need to press the UP/DOWN buttons on top of the microphone.

There were two challenges with this radio – neither a show-stopper – one was the realization that the microphone cable is permanently attached to the front of the radio, necessitating attaching the radio further back on the cutting board than I previously planned. The other challenge was that though CHIRP said the radio was supported, it turns out there are two “models” or revisions of this radio, distinguishable by their serial numbers. The radio that we purchased is one of the early models, and while fully supported by the manufacturer's software, the CHIRP program wouldn't work with it. Working with a CHIRP developer, we quickly determined the issue, and over the course of a few days the programmer patched the code to support both revisions of the radio.



An Antenna

As the Go-Box stands now, there is no antenna mount attached to the Ammo Box, instead the radio has an attached 3' coax jumper (male-female) that allows you attach any antenna with a PL-259 connector. We may decide to change that in the future, but I decided it was preferable to keep the Ammo Box water-tight and not put any holes in the box.

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The Battery

The Battery I selected is a 9 Amp 12 Volt battery, and as a LiFePO4 has a discharge profile that has the battery maintaining it's voltage until it is almost completely depleted, compared to a Sealed Lead Acid (SLA) battery which loses voltage as the battery is drained. Also, as a LiFePO4 it weighs considerably less than a similar capacity SLA Battery.

The radio operates at 15, 10, and 5 watt output levels, and consumes less than an estimated 2.5 Amps when transmitting at the 15 watt level. Assuming operation at the highest output level, the radio can operate for almost 4 hours if transmitting the entire time, but if we factor in listening more than transmitting, and transmitting at a less than maximum power level, it becomes obvious this Go-Box can likely operate off it's internal, fully-charged, battery for at least 8 hours. The battery charger attaches to a small jumper, and as a 2 Amp charger will fully-recharge the battery in about 4 hours. Note: the radio should not be operated while attached to the battery charger.

The power distribution block has an "open" pair of Anderson Power Poles, allowing for a connection to an external 12 Volt power source, if uninterrupted operation for extended period is needed.

Operation

I have not done extensive testing yet, but at lower RF output levels, the Go-Box has sufficient empty space inside to allow for operation without overheating. If extended operation at higher RF output levels is needed, the internals can all be slid out of the Ammo Box to increase ventilation.

Currently the Radio is programmed for the WA5CKF and W5FC repeaters at each power level (15, 10, and 5 watts), and W5EBQ 146.700 repeater, as well as the NOAA Weather channels for our area. The radio stores 199 channels, so there is plenty of space for additional repeaters, if desired.

I envision this radio being deployed as Net Control for a typical non-emergency deployment (for example, a Fourth of July parade) – were there a need for an emergency deployment, we might be better-served by deploying one of our other dual-band radios, which would allow for fail-over to a repeater on the UHF band.

As mentioned earlier, the Go-Box includes no attached antenna, the assumption being you would simply hook up one of the club's many dual-band J-Pole or mobile magnet mount antenna nearby the operating position to the short jumper's SO-239.

I am very pleased with the results, and I plan to take everything I learned from this Go-Box and make one for myself. In my current plans, I expect to use a similar-sized dual-band mobile, but also a slightly smaller LiFePO4 battery from a second-tier supplier (Miady, available from Amazon), and use a terminal strip to distribute the power, rather than a small handful of Anderson Power Pole connectors. Another change I expect to make would be to actually pierce the side of the Go-Box and install an external Anderson Power Pole connector to attach an external power source.

Building a Go-Box is almost a rite of passage for many Hams, many building at least one and a few building several in rapid-succession, adding new features to each iteration - they may start with an old Two-Meter radio, then a dual-band radio, then they might want to add support for packet operation, and then when they've upgraded their license they start plotting to add HF capabilities to their next Go-Box. There's no right or wrong configuration, every Go-Box is different, reflecting the priorities, preferences, and needs of their owner/builder.

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There are a few design suggestions older hams (elmers) like to share with first-time Go-Box builders:

- a) Never put a radio in a box you aren't willing to walk away from if the situation calls for it, and
- b) Don't add so much to your Go-Box that you can't carry/transport by yourself.

The first one is really just common sense – if you are building a Go-Box for emergency deployment, the situation may require you to abandon the Go-Box to ensure your personal safety. The second is a reaction to the common ham obsession to keep adding ever more to any operating position – if you can't transport the Go-Box to the deployment, it doesn't make any difference how wonderful the capabilities of your Go-Box back has in it.

If you're thinking you may want to put together a Go-Box like the one described here, there are a seemingly unending supply of web pages and YouTube videos to help you decide what you want to build into your Go-Box. I found this YouTube video interesting, and it was an inspiration to my design of our Go-Box:

<https://www.youtube.com/watch?v=-opfjeYPx24>

In the video, KB9VBR describes his simple dual-band Go-Box.

I hope you'll get a chance to try out the club Go-Box, and I hope it inspires you to maybe take an older radio you may have lying around, lash it up to a battery, install it in a case or tool box, and share your creation with the club.

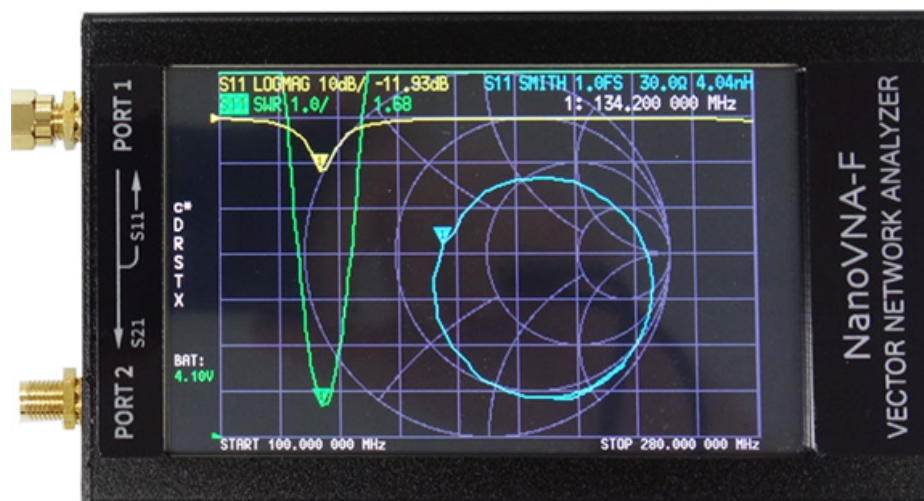
Comparison of Rig Expert AA-600 and NanoVNA-F

Tom Schuessler N5HYP

Several years ago, in a previous newsletter article, I showed the operation of the Rig Expert AA-600 antenna analyzer. This device is available to members of the club to check and improve the operation of their antenna systems. The AA-600 can work with frequencies up to about 600 Mhz. It has a simple but affective interface for reading parameters of SWR and other antenna parameters to help you tune the antenna system so it is most effective in radiating your signal, and thus also receiving signals of interest. Contact one of the club officers if you are interested in borrowing this short term for your use.

Rig expert does market a range of devices that have highest frequencies from as low as 35Mz for about \$240 to 2000MHz for upwards of \$1500. The AA-600 is well above \$500 but covers the 70 CM ham band which is of interest to many amateurs.

I was interested in testing and tuning V/U antennas I own but could not justify the price of a device like the AA-600. Then I heard about the "NanoVNA".



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Here is a little history. A few years ago, some hams from Texas, working on some already published ideas, developed a device called “NanoVNA”. VNA stands for a “Vector Network Analyzer”. Unlike a standard antenna analyzer, a VNA has two ports and can characterize complex RF circuits like filters. (The Rig Expert models can do these measurements of filters as well, but with a different procedure). This NanoVNA original design became open-source PC boards and software and was copied by Chinese electronics entrepreneurs and marketed through non-traditional means. There has been a continual stream of versions developed and sold with usable frequency ranges from 1000 to 1500 Mhz. Newer versions are now able to stretch that range up to 2000-3000MHz. You can easily buy the standard sized versions of the “V2” version for between \$50 and \$70, or a larger screen version going for less than \$120. Because they are from a host of foreign manufacturers, it may be hit and miss if you get a full item with all the accessories, or just the device itself.

I bought one of the Nano VNA’s a year ago before Field Day to help me characterize my Buddypole antenna configurations. This article is to show that these are useful devices for working with your antennas and worth the investment by even the most frugal hams. They prove to be reasonably accurate but take a little more patience to work with.



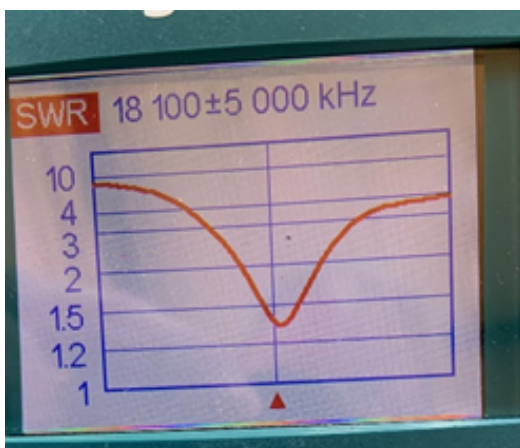
Our AA-600 pictured here, is an easy to work device that you connect to your antenna coax and can give you useful parameters such as SWR (Standing Wave Ratio), radiation resistance and complex impedances over an user definable range of frequencies. The NanoVNA, as an antenna analyzer, can do the same things, but how you get to these conclusions takes slightly different steps. Here is a link for the full manual for the AA-600,

<https://www.rigexpert.com/files/manuals/aa1000/aa-600-1000-1400-manual.pdf>

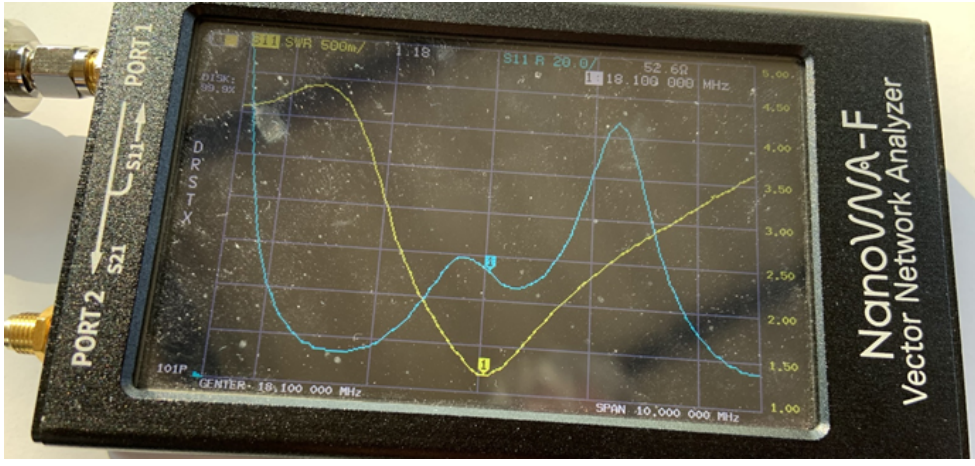
On Labor day weekend, I set up the BuddyPole as a 17 meter dipole. 17 meters covers a limited piece of RF frequencies between 18.068 to 18.168 Mhz. I recently added some extra 33 inch arm extenders to my kit and so did not need to extend the 9.5 foot whips unfortunately, you cannot make these adjustments close to the ground as the affect of the conductivity of the earth below a quarter wavelength, especially on HF frequencies has the tendency to lower the frequency of resonance.

$234/F$ or $234/18.1 = 12.92$ feet per dipole side, $\times 12 = 144$ inches per side. One should be a half wavelength above ground to minimize interaction to it, and my mast is only about 18 feet so I had to shorten the whips a bit to get it resonant.

First, I used the AA-600 and got this result of about 1.32:1 for SWR at about 18.2 Mhz. You can see the Z and R readings are close to 50 Ohms but a little low.



I did the same measurements with the NanoVNA. I got a lower reading of 1.18 for the SWR, the yellow line, and a slightly higher Resistance level of 52 Ohms, the blue line. The SWR graph is also basically similar at the point of the dip.



While the values were somewhat different, and the NanoVNA showed a lower SWR indication, the difference at frequency of resonance at these HF frequencies was negligible. And for all intents and purposes, the affects on antenna system efficiency would be minimal as well. My conclusion is that while the Rig Expert is a great device, has a very easy to read display, and has options like computer software control, many of the same functions can be accomplished with the less expensive NanoVNA devices on the market. I would suggest if you are not too dexterous with your fingers, that you spring for the larger displays as they are both easier to read and control.

If you want to compare the descriptions on using the Rig Expert models, here is a basic NanoVNA user guide to look over., <https://qsl.net/g0ftd/other/nano-vna-original/docs/NanoVNA%20User%20Guide-English-reformat-Oct-2-19.pdf>

Modern tools make it fun to play with antennas and actually know what your changes are affecting.

Have fun with whatever device you use.

Irving ARES/RACES Report Aug 2021

Billy Geer KA5OZC

- Total number of ARES members: 13
- Change since last month: (-) _____ or (+) _____ or same: >__X_____
- Local Net Name: Irving RACES/ARES
- Total sessions: 4
- NTS liaison is maintained with the: DFW Net
- Number of ARES drills, tests and training sessions this month: 4
- 2 Dallas Training
- 1 Irving Training
- 1 City of Irving Siren Test
- Person hours: 38
- Number of ARES public service events this month: 0
- Person hours:
- Number of ARES emergency operations this month: 0
- Person hours: 0
- Total number of ARES operations/activations this month: 4
- Total Person hours: 38

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- Newsletter Editor**
John Cheyney KF5PFP



IARC Meeting Minutes August 2021 (Pending Approval)

Tom Schuessler N5HYP

1. Meeting Called to Order 7:12PM, Ken Hansen, N2VIP club president presided
2. Concerns Bill Byrom Brother still with health issues.
3. Prayer
4. Pledge of Allegiance
5. Introductions. No formal presentation tonight, instead:
 - i. a roundtable discussion facilitated by Club Officers focused on the Club Repeaters
 - ii. A discussion on In-person meetings for the rest of the year?
 - iii. Discuss the possibility of a private, IARC-only "Hamfest (of sorts)" to help clean out the Club Vault of SK estate items
 - iv. We will have a couple door prizes to award at the end of the meeting
6. Old Business a. Review and Approve
 - i. July Meeting Minutes (as published in club newsletter) N5BKL moved, N5BB seconded, minutes approved.
 - ii. July Treasurer Report (as shared by Ken Hansen prior to meeting). Moved by N5BKL, Seconded by KA5OZC Approved.
7. New Business
 - a. New Members Application by K5JAL, Jeffry Whitaker. Moved to accept in membership by N5BKL, N5BB seconded, membership application approved.
 - b. Thanks to Ron Tabb & Dennis Brady for installing 20 Meter Vertical Antenna at Bingo Hall, we can now operate on 20 meters without interfering with the PA system.
 - c. Ken announced that he is Planning a work party at the Bingo Hall for September 11th
 - i. Update both computers with all applicable updates, add printer to both, consider cloud backup options (OneCloud, Dropbox, etc.)
 - ii. Configure Shack Internet to allow remote operation 1. Remote 12v power controller (radios, antenna disconnect), to allow for Remote control of IC-7300 using remotehams software
 - iii. Connection of dual-band radio to single-band antenna (2 meters)
 - iv. General Clean-up of operating room
 - v. Evaluate need for additional antennas on roof and/or Non-penetrating mounts
 - vi. Decommission DR-2X repeater on 442.375 +5 PL 110.9?
- 8.. Tom Schuessler Discussed applying to IPAR for use of TW. Richardson park for DARC Lecture and Lab on October 23rd, A9-2P. IARC members are encouraged to participate as this event is open to all.
9. N5BB presented on basic repeater theory and specifics on the Irving setup of it's repeaters.
 - a. Current status.
 - i. Presentation/Discussions a. Repeater Discussion i. Review of current repeater setup at Hospital
 - ii. Review of recent repeater hardware issues
 - iii. Status of new Repeater Site - Irving EOC
 - iv. What to do with "Spare" repeater pair (442.375, +5, PL 110.9)
10. Repeater Committee
 - i. Seeking volunteers to help plan for new repeater site at Irving EOC. N5BB, Ka5OZC N5BKL agreed to be a part of it. Ken N2VIP will invite email to get things started.
Purpose of the committee will be as follows.
 1. Determine Functional Requirements
 2. Measure Performance of current repeaters
 3. Poll area clubs about experiences with various repeater brands
 4. Decide on needed equipment for new location, seek approval for purchase, and install equipment when the site is available
 5. Measure performance of new repeaters against Functional Requirements
 6. Issue final report

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11. Hamfest (of sorts)

- i. Organize a brief display of various SK items currently in the club's possession, open only to IARC club members, on a Saturday morning (Sept. 25th?)
- ii. Items would be put out on tables in the non-smoking area in Betcha Bingo II, many items would be free, some would have reasonable prices, for example, the ICOM HF radio we received from a recent estate or other valuable items
- iii. The intention is to free up space in "the vault" and put these items into the hands of club members, remaining item would be held for the 2022 Hamfest (?)
- iv. Ken believe the chosen location allows for sufficient social distancing, but if the club does not agree, instead we could organize a virtual Hamfest (of sorts), documenting the items and sharing them online, arranging pickup later.

Ken proposes having several people to come in on the 18th, get the gear photographed and distributed. Then at a later time, open up to either a virtual or in person event.

John Cheyney reported on ARES involvement with helping the city in monitoring the monthly siren test first Wednesday of the month. Need more people to help with the effort. Next test for test is Wednesday, September 1st. John will open up the repeater at 12:30 and then operators can report the results at 1P. John will send out an email on Tuesday asking for volunteers.

Door prizes of gift cards to were awarded to N5BKL and KA5OZC.

Ken took names for 9/11 work part 9AMy. Also asked for help for the above mentioned work party on 9/18 to continue the SK equipment liquidation project

Meeting adjournment called for moved by N5BKL and KA5OZC. And ended at 9:10PM.

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