Newsletter of the TAMIAMI AMATEUR RADIO CLUB, (TARC), Venice, Florida

THE COMMUNICATOR

Mailing Address: P. O. Box 976, Nokomis, FL 34274

W4AC Repeaters: 444.100 MHz (DMR) & 146.805 MHz (-) (PL100Analog)

Incorporated 1984 | http://www.tamiamiarc.org | October, 2021

In this issue:

Next month - Give Thanks!

Next meeting
Wednesday, October 13, 7:00 PM via
ZOOM
Check groups.io for link to connect

President's message.....NS4P

As we head into Fall and the license plates start to change colors here on the Suncoast, we can look forward to a bit of cooler weather. And cooler weather brings an opportunity for taking care of all those outside projects we have been putting off.

It is easy to forget how hard the environment here in Florida is on outdoor equipment. Everything gets blasted with UV from the unrelenting sun, soaked with the copious amounts of rainfall, flogged by high winds, and depending on your proximity to the coast, attacked by salt air. In some cases, even the furry creatures decide that some of the plastic bits taste good! It's a hard life for anything that spends a lot of time outside in Florida.

Slow, gradual degradation of equipment can really sneak up on us. Catastrophic failures are easy to spot and hard to ignore but losing a couple of dB here and there due to aging feedlines and crusty connectors can slip by unnoticed. For those of us lucky enough to have outdoor antennas, the "endless summer" here can really take a toll on the fiberglass and plastic, corrode the aluminum, and degrade the coax and connectors.

The cooler weather is a perfect time to inspect our gear and make sure that everything is in top notch condition. Here are a few things that come to mind:

- Take some time to check the connections to your station ground (you do have a station ground, don't you?) and that the tie-in to the house ground is secure.
- Check all the coax connectors to make sure that they are still watertight. If you find one where the weatherproofing has been compromised, take it apart and look for evidence of corrosion or water intrusion into the coax. Wet connectors and wet coax are really not compatible with RF, especially if you are QRO.
- Look at the coax jacket where it is exposed to sunlight. Look carefully for cracks, splits, weather checking, and rodent damage. If the jacket is damaged to the point that the braid is visible, it's probably time to consider replacing the cable.
- Inspect accessible parts of your antenna system. Corroded joints can be a source of RFI and can significantly compromise antenna performance. For those lucky hams that have big beams on tall towers, a set of good binoculars can be useful to look for bird nests and other critters living rent-free in your matching network.
- I have found that, if possible, disconnecting the antenna at the feed point and substituting an appropriate dummy load can help test the feedline system under high power – this helps reveal an arcing or flashover occurring at high power.

Remember that the antenna and feedline are in many ways the most important parts of a radio station. A little TLC now and then can keep everything in peak condition so you are ready for that rare DX! ***73, Steve***

TAMIAMI AMATEUR RADIO CLUB *Minutes of the 09/08/21 Meeting*

The monthly club meeting was conducted on Zoom and was called to order at 7:00 PM by President Phillips, NS4P. Steve recited the pledge to the flag. Attendance was captured via the Zoom session .The club welcomed new members Gordon Holtby, KO4HHC; Richard MacCready, KK4AHZ; and Scott Smith, KO4SQK; all are active in their neighborhood CERT programs. In addition, Dan Munson, KD9WLS, from Denver and Ron Serinuk from Venice were present too.

MINUTES: Steve, NS4P, requested a motion to accept the minutes of the June 9, 2021 meeting as published in The Communicator. Motion was made by Nancy Heinrich, N4ZM, seconded by Chet Fennell, KG4IYS, and approved.

CORRESPONDENCE: Patti Phillips, N4IGI, completed paperwork for tax exempt status for TARC through May 2026. She also wrote a thank you note to the Hudson Foundation for their generous donation.

TREASURER'S REPORT: Treasurer Frank Wroblewski, W2XYZ, provided the June, July, and August Treasurer's reports. The club started with a beginning balance of $18,935.10, receipts of $767.78, reserve fund contribution of $501.00, expenses of $2,667.00, Englewood site reserve fund expenditure for hardline of $911.10, and an ending balance for the month of August of $16,625.78. Motion was made by Jesse Snyder, KW4IT, seconded by Ken Magill, KK4IGK, and the Treasurer's reports were approved.

COMMITTEE REPORTS:

SUNSHINE: N/A

VE TESTING: Steve, NS4P, announced we were back at the library for the August VE session and we had eight candidates who passed.

LIAISON TO QCWA: The monthly QCWA meetings will begin again on October 4 at Denny's on Bee Ridge in Sarasota at 11:00 AM. Spouses and significant others are encouraged to attend.

REPEATER / TECHNICAL: Frank, W2XYZ, reported the 2m repeater was out for about a month, but has been repaired and is working fine. The digital net is held on the club 444.100 DMR repeater using Talk Group TAC 315. The digital net opens Tuesdays at 7:30 PM. The club 2m analog repeater frequency is 146.805 MHz (-) PL 100. The 2m net opens Thursdays at 7:30 PM. Hams can participate on the analog net via EchoLink using a computer, an iPhone, or an Android system based phone. Click on W4AC-R (Node 513309) on the EchoLink directory screen to establish EchoLink contact. The 10m net is on frequency 28.450 MHz, Upper Side Band, and begins immediately after the conclusion of the 2m net.

Tom Wilson, W1ICU, continues to host via Zoom a Virtual Breakfast gathering on Wednesdays at 10:00 AM. For details, please refer to the Groups.io site.

MEMBERSHIP: Paul Nienaber, KN4BAR, reported there are now 117 regular members, 15 first year members, 5 associate members (no call sign), 8 life members, and 1 comp for a total membership of 146. All members are listed on the Members Only page on the TARC website.

OLD BUSINESS: 1. Repeater Maintenance Team Update. Chet, KG4IYS, reported the tower guys are very busy as this is their peak season so our tower projects are on hold. The remote HF station is working fine. If you have remote access privileges, please do not share the password so we can track users.

2. Fox Hunts. Paul, KN4BAR, has set up practice fox hunts on September 11 and 18 at the North Jetty Park. Remember pre-registration is required for the Tamiami Fox Hunt on October 23. [Since canceled].

3. National Lighthouse Day. Andy Durette, KB1HIP, said the club made 93 contacts from the Boca Grande Lighthouse on August 7.

4. Club Meetings. The Board will determine the location of club meetings on a month-to-month basis.

5. Holiday Party. Jim Shortill, KJ4NDO, and Steve, NS4P, will discuss the feasibility of a holiday party. Randy Aitken, KO4PIV, suggested renting a pavilion for an outside party.

NEW BUSINESS: **1.** Paul, KN4BAR., explained the Amateur Radio Emergency Data Network (AREDN) to the group and the necessary equipment needed for the Englewood repeat site. He then made a motion for the club to purchase the equipment at a cost of

Continued >>>>>

TARC Minutes, continued

$1,719. Tom Babcock, KN4ONE, seconded the motion and it was approved unanimously.

2. Life Member Proposals: San Yoder, K3SY, made the motion to approve Gary Hagens, K6OC, and Don Jansen, KI4VGE, for life membership for their service to TARC. Both were VEs and held officer and director positions for many years. Tony DiCenzo, KX1G seconded the motion and membership approved unanimously.

ADJOURNMENT: Steve Froggatt, KN4NFX, made the motion to adjourn the meeting, Randy, KO4PIV, seconded, and the membership adjourned at 8:18 PM. There were 21 members and two visitors at the meeting.

Program: The AREDN presentation by Paul, KN4BAR, during the meeting replaced the after meeting program.

Editors note *- The October and November issues of The Communicator are being prepared "on the fly" while traveling the northeast to visit family and friends for the first time in two years. Working on my old laptop with its small screen is not conducive to getting things aligned and without errors. I hope you will find the content acceptable and excuse the typos and goofs. 73, San*

KI4VGE, K6OC, Elected to Life Membership

The TARC bylaws read "Honorary Life Membership may be granted by vote of the Club to those regular members in good standing who may no longer be able to attend meetings, or have performed some exemplary service to the Club."

At the September meeting two members were granted Life Membership for their long-time service as officers of the Club. Both have moved from the Venice area.

Don Jansen, KI4VGE, who moved to New Mexico, served as Treasurer and Director for a number of years while keeping membership records, and stepped in as VE liaison when W4JS retired from that function.

Gary Hagens, K6OC, who moved to Idaho, served as Vice President and Director for several years, and was a faithful VE examiner.

We thank Don and Gary for their service to the Club, and wish them many happy years at their western homes.

K6OC working with the Club & at Peaches

KI4VGE at a Club function & at Peaches

DX Jack's page — • • — • • — By Jack Sproat, W4JS

MAJOR CURRENT/UPCOMING DX ACTIVITY & PROPAGATION HIGHLIGHTS

CURRENT and/or SCHEDULED DX ACTIVITY

COUNTRY – CALL SIGN	ACTIVITY PERIOD	BEAR-ING	HF BANDS and BEST OPENING TIMES (UTC)							
			80	40	30	20	17	15	12	10
Malawi – 7Q7CT, mostly FT8, some SSB	Resident Op	93	NO	23-03	22-04	20-06	18-23	16-23	13-22	15-21
Rodriguez Is - 3B9FR, **	Active Again	88	NO	23-01	22-02	20-01	19-22	17-21	12-19	14-17
Antarctica – 8J1RL, CW/FT8	Now to 31 Dec	158	NO	NO	0200	22-05	1200	NO	NO	NO
Tanzania – 5H3MB by IK2GZU, all modes	Now to 20 Nov	81	NO	23-02	23-04	21-05	18-23	17-23	14-22	16-20
Tonga - A35JP by JA0RQV, CW/SSB/FT8	Now to 01 Nov	252	0900	05-12	04-13	02-14	20-21	18-02	18-01	19-24
Niger – 5UAIHM by F4IHM,**spare time op	Now to 22 Oct	80	--	22-07	--	18-04	--	--	--	--
Mozambique – C92R by IV3FSG, SB + Digi	01 to 30 Oct	104	NIL	23-03	22-05	20-01	19-22	17-19	12-18	14-17
Sao Tome & Principe – S9OK by 8-op team	02 to 16 Oct	90	00-06	22-07	20-08	18-04	11-24	12-23	13-22	15-21
Mauritius – 3B8??? by G0VJG, SSB + Digi	02 to 16 Oct	88	NO	00-01	23-02	21-03	19-22	17-21	12-19	14-17
Guinea Bissau – J5T & J5HKT by 7-op team	09 to 22 Oct	90	23-07	21-09	20-10	17-04	11-23	12-22	18-20	NIL
Canary Is – EA8/DL4FO, **	10 to 21 Oct	72	--	21-10	20-11	16-23	12-20	13-19	1700	NIL
Suriname – PZ5ZS by PF9Z, ++	12 to 20 Oct	124	23-11	21-12	19-13	11-24	12-23	13-22	19-21	NO
Svalbard – JW6VDA by LA6VDA, ++	12 Oct - 01 Nov	12	03-07	23-11	23-06	19-21	NIL	NO	NO	NO
Suriname – PZ5G by 3-op team, CW & SSB	15 to 18 Oct	124	23-11	21-12	19-13	11-24	12-23	13-22	19-21	NO
St Barthelemy – FJ/K2LIO, ++	16 Oct - ???	113	--	20-14	--	10-08	--	12-24	--	19-21
Sint Maarten – PJ7JA by W5JON, SSB/FT8	18 to 23 Oct	113	--	20-14	00-24	10-08	12-24	12-24	13-23	19-21
eSwatini – 3DA0RU by 6-op team	21 Oct – 08 Nov	106	NIL	23-04	22-05	20-01	19-20	1800	12-17	14-16
Gambia – C5C by 4-op team	24 Oct – 19 Nov	88	23-08	21-10	20-06	17-23	12-22	12-21	1900	1700
St Eustatius – PJ5/W5JON, SSB & FT8	24 Oct – 01 Nov	114	--	20-14	00-24	10-08	12-24	12-24	13-23	18-22
Bahamas – C6AHB by NN2T & others	25 Oct – 06 Nov	113	18-16	11-09	12-23	14-22	NO	NO	NO	NO
Galapagos – HD8R by 14-op team	26 Oct – 07 Nov	196	00-12	22-14	20-15	13-09	14-24	15-23	19-22	14-17

Prepared 29 September 2021 based on https://www.ng3k.com/, *The Weekly DX* 21-38, and the *Ohio/Penn DX Bulletin* No. 1533.
Notes: Times shown are for S-5 or better signals and 50% opening probability. ??? = Call Sign or Date not yet known; ++ = Mostly SSB; ** = Mostly CW; NO = No Opening forecast, NIL = band is open but signals below S-5 threshold. Long Path bearings and opening times are underlined. All forecast opening times are calculated using VOACAP http://www.voacap.com/hf/.

-- SEPTEMBER SOLAR ACTIVITY --

From 01 through 29 September, the 10.7 cm Solar Flux ranged from 73 to 102, with a mean value of 86.9. The A_p index was $\geq$ 7 on 17 days during that period. Sunspot regions were visible on 26 days, varying from one to six groups. There were 27 C-class solar flares on 16 days, and two M-class flares during the month.

-- OCTOBER FORECAST –

Solar activity is expected to be at very low levels during October.

Geomagnetic field activity is expected to range from quiet to active conditions. Active conditions associated with coronal hole activity are likely on 05 Oct, 10 Oct, 19 Oct and 24-26 Oct. Unsettled conditions are likely on 04 Oct, 18 Oct, 20-21 Oct and 31 Oct. The remainder of the month is expected to be at quiet levels.

The solar flux should range from 74 to 88 and average 81.3 for the month of October.

(From *NOAA Weekly Highlights and Forecasts*, 27 September 2021, *NOAA 27-day Space Weather Outlook Table*, 27 September 2021, and *45* Day *AP Forecast, USAF*, 27 September 2021.)

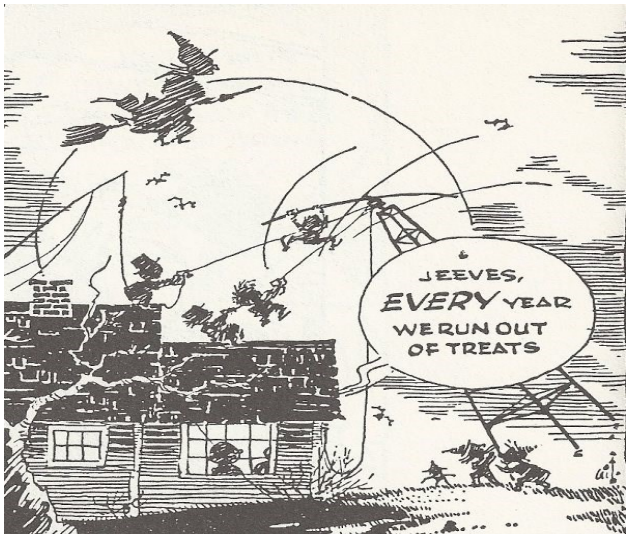
-- 3Y0J BOUVET ISLAND UPDATE --

The following news was posted on the 3Y0J (https://www.facebook.com/groups/3093983840726129) on September 22nd [edited in OPDX Bulletin No. 1533]:

Want to be closer to the adventure and follow our journey from the inside? The team has implemented a new feature via Zoom meetings - there you can follow our journey to Bouvet island. You can get the latest news, discuss with us on various topics, get feedback and hints, interact with the operators, Q&A and much more. Check out our website for this feature - you can buy an unlimited access to the meetings – and at the same time help us in our fundraising efforts. (https://www.3y0j.no/funding)

People have already started to sign up for these meetings! Will you? 73, The 3Y0J Team

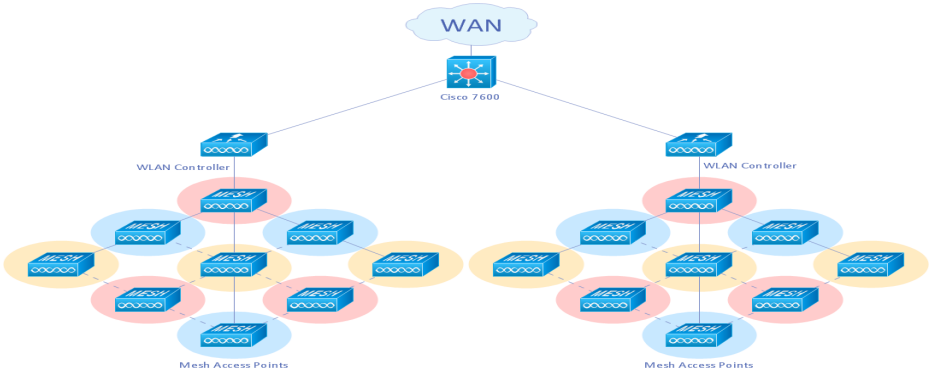
-- AVOID HALLOWEEN HARASSMENT --



AREDN Equipment - Ins and Outs

By Paul Nienaber, KN4BAR

Amateur **R**adio **E**mergency **D**ata **N**etwork (AREDN®) hardware is readily available, off-the-shelf, commercial WiFi equipment using standard network routers and switches you can buy from Amazon or directly from other vendors and manufacturers. It is inexpensive to own and operate. Most of us understand and make use of routers and switches in our home networking systems, and we have all been in hotels and large commercial venues where hundreds of low power WiFi access points provide customers and patrons with access to the internet from anywhere in the building. It is this common and ubiquitous network equipment that is used by AREDN®.



The adaptation of this equipment is accomplished by replacing the device's original WiFi firmware with the ARDEN® project-developed firmware. This firmware is device specific and available for download, free, from the ardenmesh.org website. Just click on the "Download" menu link and find the firmware download for your device. Instructions for flashing the firmware to your device can be readily found on the "Documents" menu link along with a very good overview of the entire AREDN® project and architecture.

Currently AREDN® supports dozens of device models from manufacturers including GL-iNet, Mikrotik, TP-LINK, and Ubiquiti Networks. My experience so far has been with equipment from Ubiquiti, Mikrotik, and Netgear, so this discussion will focus on those vendors.

The new firmware functions to create a private IP network of devices (nodes), each having a unique 10.x.x.x IP address and node name. The network has its own private Domain Name Service (DNS) server on every node of the mesh network to match node names with IP addresses. Once logged in to the mesh network, any node, anywhere in the AREDN® universe becomes accessible to you if you know its IP address or node name, and a viable RF or internet pathway exists to that node. The IP address is generated by the firmware using the device's mac address to create a unique and random IP address. The user gives their device its unique node name. By convention, AREDN® node names begin with the users call sign followed by a description of the device hardware; e.g. KN4BAR-NSM2. Using call signs like this helps to guarantee node names will be unique across the entire mesh network.

Node names may contain up to 63 letters, numbers, and dashes, but cannot begin or end with a dash. Underscores, spaces, or any other characters are not allowed. Node names are not case sensitive, but the case will be preserved on the node status display. Amateur radio operators are required to identify all transmitting stations. The AREDN® node name is beaconed automatically by the node every five minutes, so the node name must contain your call sign.

Hams have privileges and dedicated ham-only channels, on the 2.4, 3.5, and 5.8 GHz microwave bands used for consumer (Part 15 unlicensed) WiFi connections. In 2021 the FCC started the process of removing amateur radio channels (Part 97 licensed) from the 3.5 GHz band and to reduce the number of channels for ham-only use on the 5.8 GHz band. Currently, the Sarasota Emergency Radio Club (SERC) AREDN® mesh uses the two ham-only 2.4 GHz channels for

2.4 GHz	Channel	-2	-1	0	1	2	3	4	5	6	7	8	9	10	11
	Freq	2.397	2.402	2.407	2.412	2.417	2.422	2.427	2.432	2.437	2.442	2.447	2.452	2.457	2.462
	Status	Unshared		Cannot Use	Shared with wifi/unlicensed										

AREDN, continued

downstream end points (channels -1 and -2). They use the 5.8 GHz ham channels for point-to-point back-haul connections. SO, local users should consider purchasing 2.4 GHz equipment to connect to the Sarasota County mesh.

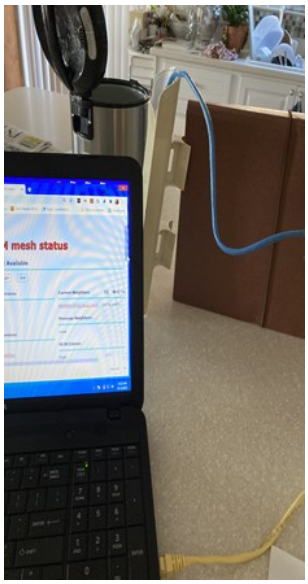
A home QTH node consists of a flashed WiFi radio and antenna connected to a computer using CAT5 or CAT6 twisted pair Ethernet cable. As with any Ethernet cable, wire lengths of up to 100 meters (333 feet) can be used to

make this connection. Most radios are powered by a Power Over Ethernet (POE) injector. The injector has two Ethernet ports; one to deliver power to the radio along with an Ethernet connection, and the other to make an unpowered normal connection to the local area network or to a single computer.

Depending on manufacturer and type of antenna, the radio itself may be an integral part of the antenna, or it may have an attachment point to the antenna, or it may be totally separate from the antenna. The radios themselves are low power devices operating at mW levels. The antenna selection is what will determine the effective radiated power and range of your station. An omni or sector antenna may only offer 6 to 15 dB of gain while a dish antenna may offer 25 to 30+ dB of gain and greatly increase your effective radiated power. Do you want the wider coverage of an omni to allow connections with near neighbors in many directions, or do you want the tight, narrow beam of a dish antenna to reach a distant Access Point (AP) with high speeds.

For my home station, I chose an Ubibuiti NanoStation M2 (NSM2) radio/antenna combination unit. It has a 55 degree beam width and is designed for point-to-point connections. It provides a modest 11 dB of gain. The picture here shows the

NSM2 mounted on a PVC pole at 15 feet (4.5 meters). I used about 100 feet of CAT6 heavy duty and UV resistant Ethernet cable to connect the unit to my shack, laying it in the mulch along the side of my home, and then running it up into the attic space via a vent in the eave. The antenna is pointed at the W4AC tower in Englewood and ready to connect to an access point at that location. The model estimated throughput is 28.2 Mbps for this station.



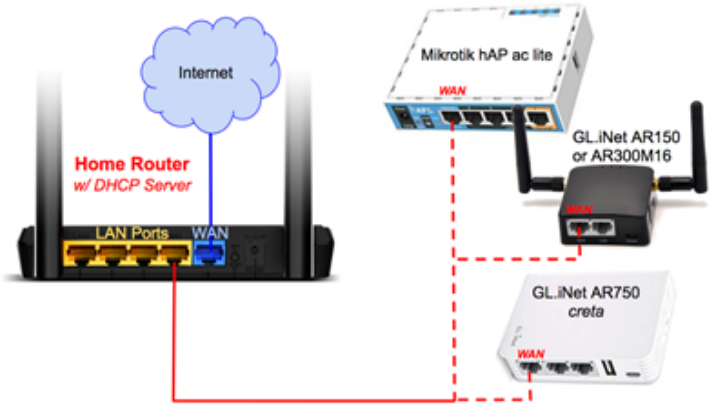
The picture at left shows the simplest connection possible to a computer for a node. In this case, I have a borrowed NSM2 propped up behind the laptop with the blue Ethernet cable going to the power port on the POE injector. The yellow Ethernet cable comes from the LAN port of the POE and serves to connect the laptop to the NSM2 node. This kitchen-countertop node is pointed out my lanai sliding glass doors to the NSM2 mounted on the pole shown above. The mesh status screen on the laptop shows a 100 percent connection with 35.3 Mbs of throughput speed.

My actual home station is a little more complicated as I make use of a dedicated router for the mesh network connections thus creating my own personal AREDN® local area network (LAN). I have the Microtik hAP lite router ($49), flashed with their firmware, connected to my home's Comcast router. This gives the device an IP address (10.0.0.187) on my home LAN as well as internet access through the Comcast gateway (IP

Con't >>

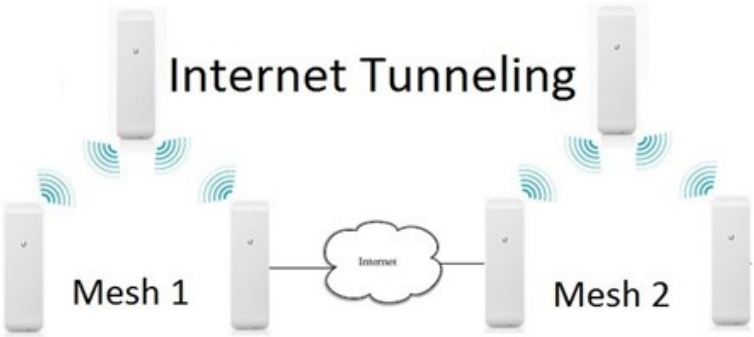
AREDN, continued

(10.0.0.187) on my home LAN as well as internet access through the Comcast gateway (IP 10.0.0.0). On the mesh side of the Microtik hAP lite router the device is given the IP address of 10.17.146.33 by the firmware firmware world-wide in the AREDN® private network DNS servers so that anyone, anywhere, could access my node on the mesh network. I use the four available LAN ports to connect my laptop computer, a Grandstream digital phone, a Raspberry Pi 4, and my NSM2 radio/antenna. Yes, a digital phone!!! The SERC folks have established a PBX (private branch exchange) service on the mesh that supports a digital, VoiP phone system!



Although it defeats the emergency communications purpose, connection to the mesh is also possible via an Internet Tunnel. Many nodes on the mesh network offer tunneling servers that allow registered clients to log in to the mesh via the internet. Also, nodes and other devices on the mesh can be Tunnel Clients. If you are unable to obtain the required line-of-sight RF connection to an AREDN® access point then you can be given client credentials to allow you to login via the internet and have full access to any node on the mesh. This does require that you have an AREDN® firmware flashed device (node) running their Tunnel Client software that is connected to the internet. See my simple laptop to NSM2 connection shown above for the <$100 solution. Even though the NSM2 may not have an RF connection possible it can run the Tunnel Client software and use the connection to your laptop to access the Internet for a tunnel log-in.

So, if you're interested in emergency communications, interested in computer networking, interested in exploring GHz RF operating, interested in developing and providing data, digital messaging, VoiP, or video services on a private data network, then start looking into getting an AREDN® station up and running. Contact KN4BAR, Paul, at paul9aber@gmail.com to setup a Tunnel Client to get you started while we wait for our tower climbers to put up the antennas for south county. Think dish antenna, as high as possible, with an unobstructed line of sight to the W4AC tower. The coordinates for the club repeater tower AP in Englewood are 26.965079, -82.320456 (elevation 185 feet). You can use modeling software at this link (https://link.ui.com/#) to determine the estimated connection quality and throughput from your home QTH to our tower using 2.4 GHz, Airmax Ubiquiti equipment. You could also use the new Sarasota Memorial Hospital (SMH) on Laurel Road by I-75 as a possible AP (27.136237, -82.412914) depending on your best line of sight and distance to the AP (elevation 60 feet).



EZ Slim Jim

by Tom, KN4ONE

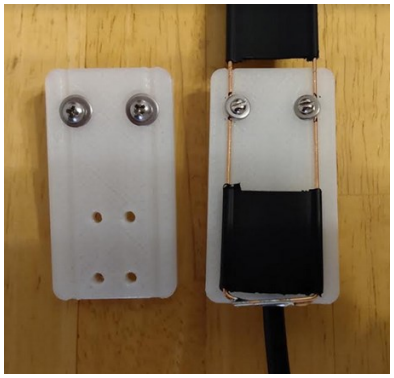
There are many internet sites with information on constructing a Slim Jim antenna. When made from twin lead or ladder line (window line) they make good light weight roll up antennas for a go box or back pack. In my previous builds tuning for SWR was a bit frustrating because it required soldering the feed line at the correct point, and moving it if not correct. There had to be an easier way!

A simple small 3D printed plastic piece allows the use of screws and washers to attach the feedline to the twin lead. This makes adjustment as simple as loosening the screws and sliding the twin lead up or down.

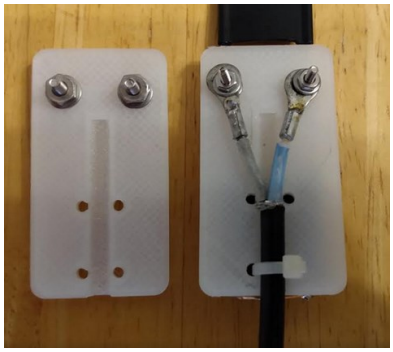
Some features of the plastic part are:

- ⇒ Slots to align the ladder line
- ⇒ Pocketed washers to clamp the wire in place
- ⇒ Holes for tie wraps to secure the feed line in place
- ⇒ A trough to keep the feed line centered

450 ohm ladder line is much easier to work with than 300 ohm TV twin lead. I had a few feet left over that NS4P gave me for the flag pole project.



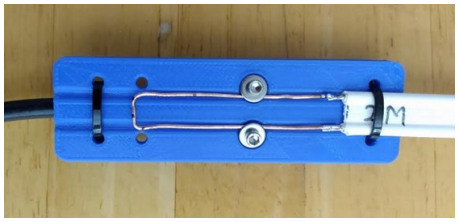
450 Ohm Version



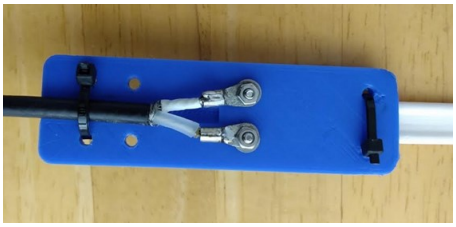
The entire printed piece is 30mm x 65mm and 4mm thick.

I made two designs. One is for #2 hardware and one is for #4 hardware. (#2 is preferred for smaller contact with the ladder line) I used an online calculator for the antenna dimensions and they were very accurate. (Link below). One hint – when laying out the dimensions, make sure the gap cut is located on the ladder line where there is solid webbing. This avoids having a cut at the side of the window which leaves you with just a single wire supporting the rest of the antenna. (D'oh!) Another hint – know the velocity factor for the twin lead you are using. It makes a difference! I am 9.5 miles from the TARC repeater, and using a HT inside my house, I made good contact. Minimum SWR is about 1.3 with a band width of 9 MHz.

A 300 ohm twin lead version was also made (Slim-Slim Jim). Actually, this one is technically a J-Pole. The twin lead (previously donated by W2XYZ) had stranded conductors and was difficult to work with. I found that making the bottom loop from solid wire and soldering it to the twin lead worked much better. Minimum SWR was about 1.2 with a band width of about 4.6 MHz.



300 Ohm version



The Fat Slim Jim seems to work much better than the Slim-Slim Jim. When tuning, tune for minimum SWR by sliding the wire up or down, then trim the ¼ wavelength section for frequency. Trim very small amounts at a time. Like 1/16" at a time. It's a good idea to make the gap by making the upper cut first, and making the gap shorter than specified. This makes the 1/4wavelength section long, leaving some length for tuning. A NanoVNA is a great tool for tuning.

For those with printers, I can send you the stl files. For those without printers, a fellow club member may be kind enough to print you a piece, as long as you buy them a second cup of coffee at Peaches.

https://m0ukd.com/calculators/slim-jim-and-j-pole-calculator/

2 Meter Fat Slim Jim

Radio Frequency Exposure Assessment for Your Station

by Steve Phillips, NS4P

Since about 1996 the FCC has required that all amateur radio operators take steps to ensure that our stations do not cause exposure (either to the general public or to our family) to RF energy above specified limits. As part of this process, required by 47 CFR 97.13 (c), we are required to perform and document an RF exposure assessment for our station. The process for performing this assessment is found in FCC Bulletin OET 65 -

https://www.google.com/search?lei=JddVYe-0KK63qtsPtZWAkAI&q=fcc%20oet%20bulletin%2065%20supplement%20a&ved=2ahUKEwiv24mRgafzAhWum2oFHbUKACIQsKwBKAB6BAgxEAE&biw=1024&bih=615&dpr=1

Up until recently, amateur radio stations operating below specified transmitter power levels were exempt from doing any difficult math, but in May of this year the FCC changed the rules and eliminated these categorical exemptions. Now, regardless of power level, every fixed amateur radio station (I believe that most amateur radio mobile and portable installations are still exempt) must have a documented RF exposure evaluation on file at the station - (the evaluation does not have to be sent to the FCC).

For existing stations, the FCC has given us 2 years to comply with the new rules unless we make a change to RF safety related operating parameters (new antenna, more power, etc.) in which case a revised evaluation must be done immediately. The FCC did not change the actual exposure limits, they just made more people do the work to prove they meet the limits.

OET 65 contains about 85 pages of FCC legalese and technical jargon and can be tough to wade through. Note that OET 65 also contains information applicable to services other than amateur radio, and some of these services are subject to more stringent requirements.

It also appears that OET 65 is due for an update, as the version available on-line still has a table of exemptions for amateur radio stations, which I believe no longer apply. I would ignore "Table 1" and proceed with an actual RF radiation evaluation for your station.

There are several methods to comply with the revised rules and some of the methods are explained in an ARRL FAQ document -

http://arrl.org/files/file/Technology/RFsafetyCommittee/RFXFAQ.pdf

As explained in the FAQ, the easiest method for most amateurs is to perform some calculations taking into account transmit power, antenna gain, and frequency. To make these calculations less complex, the ARRL has provided an on-line widget to perform these calculations –

http://arrl.org/rf-exposure-calculator

The on-line calculator is quite easy to use, but here are some hints to make the process even easier:

- For most amateur radio stations the "worst case" frequency range is 30-300 MHz, so if your station is capable of high-power operation on 6 meters, that is probably the operating frequency of concern - unless you have a 2M EME station in your back yard.
- Since the app uses power at the antenna, you should take "credit" for feed line losses, which can be substantial at VHF frequencies.
- Antenna gain is in "dBi", not "dB" so make sure you are using the correct reference for your antenna gain (an explanation of the difference can be found here) – ***https://www.wilsonamplifiers.com/blog/db-vs-dbi-what-gain-actually-means/***
- Choose your duty cycle and transmit/receive times appropriately. Many of us spend much more time listening than transmitting.
- The ARRL has provided several links to FAQs and other resources that will help you determine the appropriate values for your specific situation.

Once you have provided the appropriate values, you can calculate and print out the results. Keep the printed copy in your station files to comply with the FCC rule. I found it interesting to adjust the various parameters and see the effect of the changes on the "safe distance" results.

Obviously, it is possible that some stations may have a "safe distance" for an uncontrolled environment (e.g. an area where we cannot legally control access - such as a space on the other side of an apartment or condo wall) that exceeds the actual distance to this area. If these situations, we are legally obligated >>

RF Exposure, continued.....

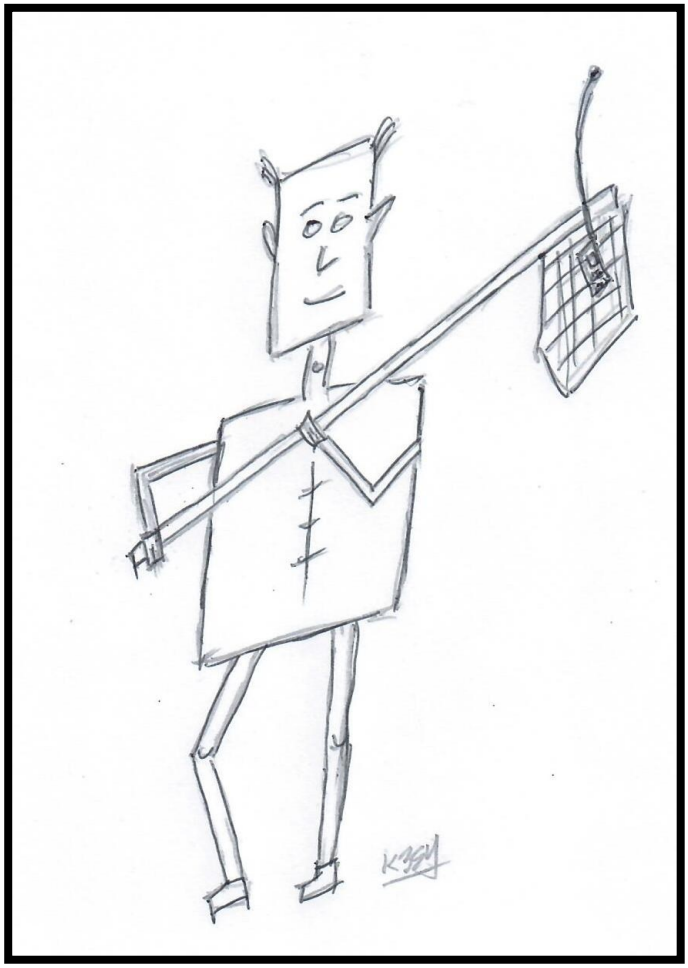
to modify our operating parameters to reduce RF exposure to an acceptable value. If it's not possible to move the antenna to increase the distance to the uncontrolled environment, then it's likely the only alternative is to reduce power output.

Calculations alone are not the only method of compliance, and if you have the proper (calibrated) equipment you can perform actual field strength measurements to prove that you meet the limits.

Performing this evaluation is a condition of your FCC license. Thankfully the tools are available to help us comply with the law and operate safely.

73, Steve

Crossing the new Tappan Zee at night - quite a sight!

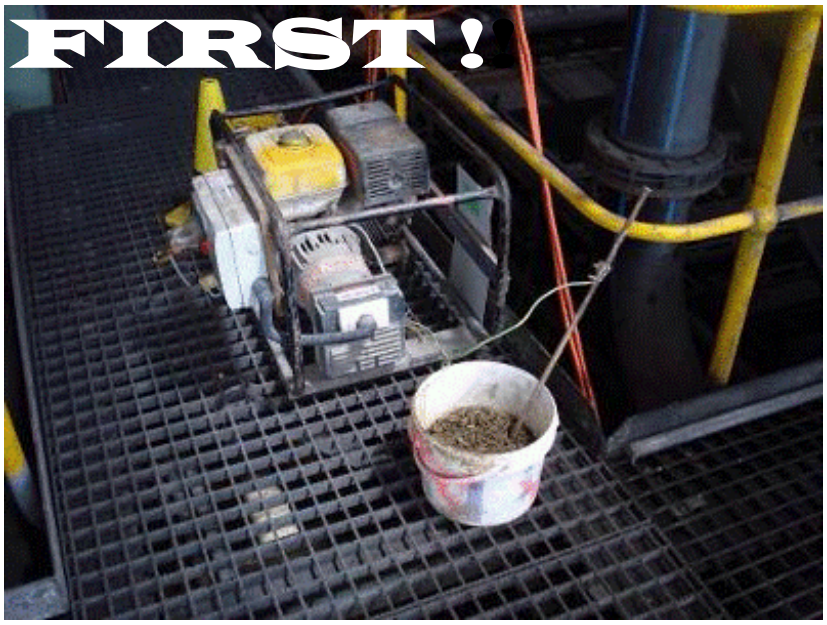


Lidar Lid seemed to have a problem understanding the concept of checking into a net with his new handi!

SAFETY FIRST !

NEVER run a portable generator without a ground !

AND, Never leave home without a portable ground !



October 2021

Sun	Mon	Tue	Wed	Thu	Fri	Sat
** Peaches opens at 6:00 AM. Orders taken at 7:00*			*# See Groups.io for sign-on to virtual breakfast*		1 *Breakfast @ Perkins 9A*	2
3	4	5 *Breakfast @ Peaches * DMR net @ 7:30 PM W4AC 444.1*	6 # Virtual breakfast via ZOOM 10 AM	7 *TARC net @ 7:30 PM W4AC / RPT 146.805 ** +10M net*	8 *Breakfast @ Perkins 9A*	9 *TARC VE session @ Venice Library 10 A*
10	11 *DARN net 11:00 AM Starts on NI4CE/rpt 145.43 pl100*	12 *Breakfast @ Peaches * DMR net @ 7:30 PM W4AC 444.1*	13 *# Virtual Breakfast 10 AM* ***TARC meeting 7:00 PM via ZOOM***	14 *TARC net @ 7:30 PM W4AC / RPT 146.805 ** +10M net*	15 *Breakfast @ Perkins 9A*	16
17	18	19 *Breakfast @ Peaches * DMR net @ 7:30 PM W4AC 444.1*	20 # Virtual breakfast via ZOOM 10 AM	21 *TARC net @ 7:30 PM W4AC / RPT 146.805 ** +10M net*	22 *Breakfast @ Perkins 9A*	23 
24	25	26 *Breakfast @ Peaches * DMR net @ 7:30 PM W4AC 444.1*	27 # Virtual breakfast via ZOOM 10 AM	28	29	30
31 						

THE COMMUNICATOR *is a publication of the Tamiami Amateur Radio Club (TARC). It is published monthly; except during the summer months, the July and August issues will be combined. The Communicator is forwarded to all members via e-mail, and is available for viewing on the club's web site - www.tamiamiarc.org - Webmaster - Paul Nienaber, KN4BAR.*

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Articles of general interest to club members are solicited and welcomed. Please submit photos and/or copy (preferably in Word) to : k3sy@arrl.net. 73, San

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NAME _____ Call Sign _____ Class _____ ARRL ? Yes ___ No ___

YL/OM or
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LOCAL ADDRESS _____ CITY _____ ZIP _____

PHONE _____ CELL _____ e-mail _____

SUMMER ADDRESS _____ *CITY* _____ *STATE* _____ *ZIP* _____

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Application date _____ PAYMENT: Amount _____ *by: Check* ___ *Cash* ___ *PayPal* ____ **First year free* ___

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*New licensee tested through the TARC VE program:
1/1 to 10/31 - free to year end. 11/1 to 12/31 - free thru next year.

Please note: After two month grace period thru Feb., non-renewals will be dropped.

TARC web site: http://www.tamiamiarc.org
Contact: Secretary, Patti Phillips, N4IGI - secretary@tamiamiarc.org