THE NUGGET

Mother Lode DX/Contest Club

The Newsletter of the Mother Lode DX/Contest Club

November 2024 **Volume 29 Number 11**

Treasurer's/Secretary's Report

MLDXCC Treasurer's Report - September/October 2024

8/31/2024	Opening Balance		$2,509.07
	Income		$40.00
	2024 Dues - Checking	$30.00	
	Donation - Checking	$10.00	
	Expenses		$0.00
	none		
10/31/2024	Ending Balance		$2,549.07

8/31/2024 Ending Balance $2,509.07

Sue Allred, K6SZQ

A big thanks to Skip / N6NFB for stepping in as secretary.

Meeting date - 11/9/24
Treasures report, moved (N6NFB) and seconded (NA6O).
No secretary report

2025 officer & board nomination now open

Discussion of CW & SSB Sweepstakes

Possible Dec meeting / date to be announced.
Meeting location in Martel @ Round Table Pizza

DELETED COUNTRIES

Farquhar

Farquhar Atoll was discovered by Joao da Nova in 1504 on an expedition to India. It was named after Robert Townsend Farquhar, a merchant in the 1800s who worked for years for the British East India Trade Company.

Which country owned the atoll was in dispute for quite a while. It bounced between Mauritius and Seychelles eventually passing to the Seychelles which became part of the British Indian Ocean Territory. In 1976 the Seychelles was given their independence and Farquhar was part of that nation.

There is very little infrastructure on the island. It primarily was a base for fishing and had a small farm and cattle ranch for a time. Now it is only visited by fishing and nature groups. That is about all that can be said about the island.

Thanks to the Southern California DX Club Newsletter

Tube of the Month

F-123A

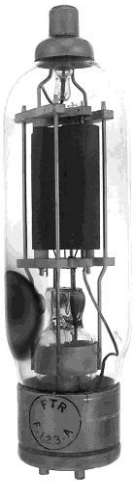
Before the United States entered WWII, the British were losing many merchant ships to the Axis powers. They wanted the U.S. to build replacement ships using a design they had been using. The U.S. agreed to the project, but wanted to alter the design to speed production. British ships were built with rivets. This is a slow process and requires well trained workers. The American shipyards wanted to build all the parts on an assembly line and weld everything together. A worker could be trained to weld in a short time. They also wanted to power with oil and not coal. The final design was called the "Liberty Ship".

Most of these ships were built in Richmond, California with their power plants constructed in Sunnyvale. With the draft and volunteers removing many of the available construction workers, large numbers of women were hired. "Rosie the Riveter" was replaced by "Wendy the Welder". "Wanda the Welder" was busy making aircraft and war ships in the East. It is relatively easy to maintain a good arc weld with a steady hand and lots of current, but attention must be made for foul smells that may indicate that your clothing and/or hair may be on fire.

The contract for the ships was "out the door" so all operational equipment including radios and antennas were required. Federal Telephone and Radio was contracted to provide radio equipment for the early ships. The Federal F-123A was chosen, or may have been developed, especially for this application. I have identified no other use for this tube except for the Liberty ships. This 125-watt triode is slightly longer than the 211 tube at 8.25 inches. Maximum plate voltage is 2000 volts at 300 ma. The filament is 10 volts at 4 amps. The tube's mu is 14.5 so it could be used as an RF amplifier or as a modulator. The 240-watt CW transmitter that FTR built was the 129A and used one tube as the driver and two in the final amplifier. The tube was capable of full power up to 30 MHz. Marine transmitters operated on CW to pass traffic with coastal stations and other ships. They also had to operate on 500 KHz or 600 meters. This was the emergency frequency and it had to be monitored at all times. The lifeboat radios were also on this frequency and could send CW with a built-in key or use a motor driven SOS (HELP!) or SSS (under submarine attack) wheel as shown in the photo of my Navy TCY-1 lifeboat transmitter.

Mackay Radio & Telegraph (ITT Mackay Marine) provided service for many of the Merchant Marine ships. They contracted spare tubes for the older transmitters and the MR-123-A was produced for them.

Visit the museum at N6JV.com
Norm N6JV (amateur welder)



Antenna of the Month

Gary, NA6O

November, 2024

Half-Sloper

Of all the oddball antennas I've worked with, the **half-sloper** is definitely one of them. It consists of a vertical element (typically a tower) and a single sloping quarter-wave counterpoise wire, fed at the junction at the top. It will provide primarily low-angle vertical radiation, a slightly directional pattern, and good SWR bandwidth. The trick is to get it adjusted for a decent match, something nearly every builder struggles with. One thing is for sure, every half-sloper installation is different and it's almost mandatory to do some simulation to get an idea of how it might work out.

These antennas are most commonly chosen for 80 and sometimes 160 m when no other geometry will work. That was the case at my remote station, W6SRR, where the tower is quite short and the property owner could barely be convinced to allow us to run even a single wire across the property let alone a nice stand-alone vertical or something more elaborate.

Operating Principles

In *Low-Band DXing*, ON4UN comes to the same conclusions that I have regarding how the half-sloper works: Both the vertical tower and the sloping element contribute to the basically omnidirectional pattern. Most of the low-angle vertical radiation comes from the tower, and a significant amount of horizontally-polarized radiation at high angles comes from the horizontal component of the sloping wire. Directionality will depend upon ground qualities, likely being more directional over poor ground. In effect, it's more like a top-loaded vertical with a single tuned counterpoise.

Antennas on top of the tower act as capacity hats, effectively lengthening the tower, which can be helpful. Having a tower that's near an electrical quarter-wavelength seems to make it easier to obtain a good match. Also, it's not unusual to see the SWR of the half-sloper vary a bit as a Yagi is rotated, especially if the sloping wire is very close. Keep in mind that *any wire antenna anywhere near a Yagi can easily alter it's pattern* on frequencies where that wire is resonant!

Ground radials are required though the demands are typically not as great as for a regular ground-fed vertical because the current at the base of the tower is diminished. Having the high-current point well-elevated improves effectiveness of a half-sloper.

Because there is high RF current flowing on the surface of the tower, all cables leaving the tower near the base require robust common-mode chokes. Otherwise they will act as additional radials and will conduct significant amounts of RF current into the shack. Running all cables *inside* the tower is helpful.

Another problem can arise at the balun on any antennas atop the tower. High common-mode current may be present. If the choking impedance of the balun is insufficiently high, it may heat up, possibility to destruction.

Simulation of my system showed very high dissipation (tens of Watts) in the balun. For that reason, a relay was added that shorts the driven element of the Yagi to ground. This same problem can happen anytime a tower is driven, for instance with a shunt-feed arrangement.

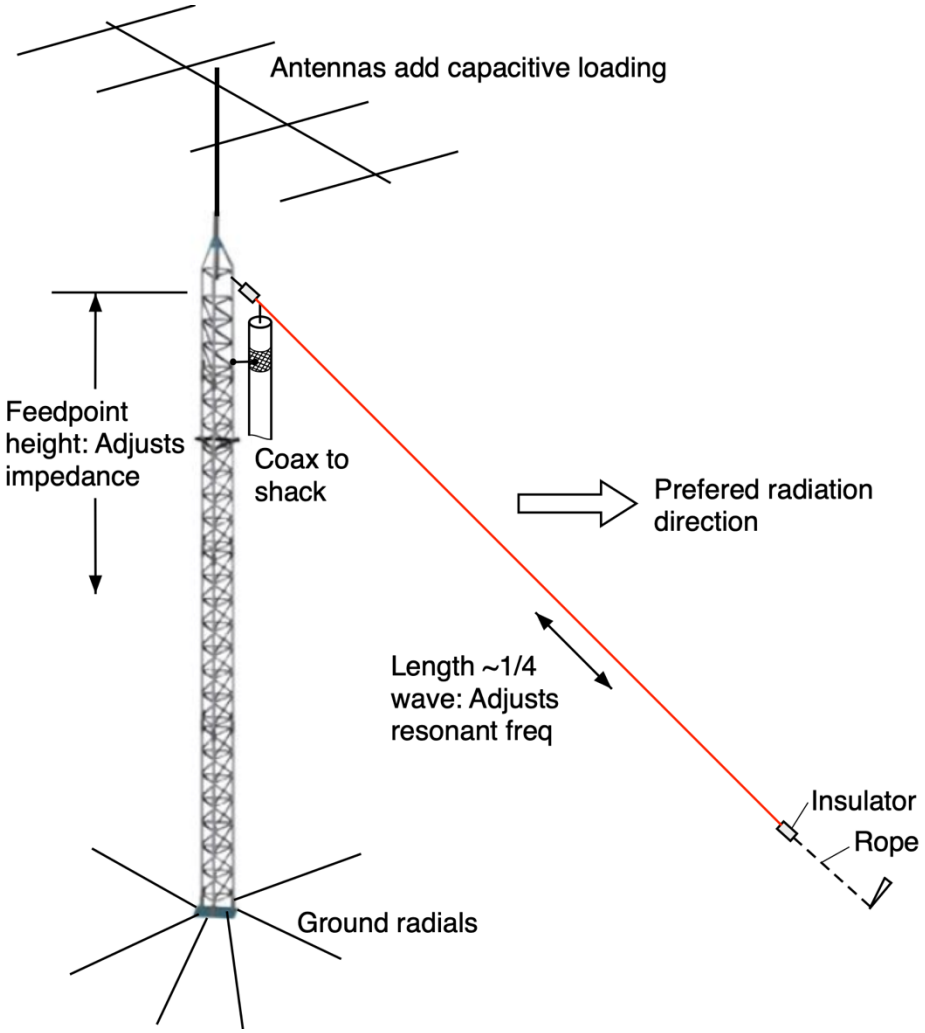


Figure 1. Overview of the half-sloper geometry.

Matching

Simulation and experiment have shown that a reasonable impedance match to 50 ohms can often be obtained by adjusting the feed point elevation. Then the counterpoise wire is trimmed for resonance. These adjustments interact and experimentation is required. This is like any off-center fed antenna, where the choice of feed point location will set the basic impedance. And as I said, every installation is different so it's impossible to give you simple rules of thumb. Some stations seem never to obtain anything near 50 ohms and require a matching network.

For my 80 m half-sloper, simulation showed that moving the feedpoint upward increased impedance by 3.4 ohms per foot and increased resonant frequency about 30 kHz per foot. Your setup will no doubt be completely different. But having tuning estimates like these available makes it easier to adjust in the field and that's another good reason for simulation.

Performance of the W6SRR 80 m Half-Sloper

I simulated my 80 m W6SRR setup in EZNEC with the NEC5 engine. We have a 30-ft tower with 14 ft of mast and multiple antennas on that. There are a 9 radials in the ground covering a half-circle. The sloping wire actually goes down a real slope since we are on a hilltop and it is oriented toward Europe. The effects of that physical slope can't be modelled with NEC but are usually beneficial in lowering the takeoff angle [Ref 1].

Figure 2 shows the currents in each conductor. Note that the highest current is actually on the upper part of the tower rather than the lower part, which makes the radial field less critical. The match ended up nearly perfect and the 2:1 SWR bandwidth is about 200 kHz, typical for wire antennas. We then used the a quarter-wave coaxial matching section trick popularized by Dave Leeson, W6NL [Ref 2] to allow our antenna tuner to cover the entire 80 m band.

Patterns are shown in Figs. 3 and 4. Peak gain is fairly low, a bit below 0 dBi at a takeoff angle of 36 degrees. A low dipole would be even worse, so I consider this a win. Assuming my choice of ground constants was in the ballpark, we might have as much as 10 dB of rejection off the back which is toward Oceania. And yet we are able to work them just fine so it may not be that much. As expected, there is significant horizontally-polarized radiation off the side and straight up. This antenna works fine for short-haul contacts.

By the way, we also built a 160 m half-sloper with a similar arrangement as the only possible way of accessing that band. Gain is even lower, -6 dBi at best, and we have a difficult time getting out. We do hear very well with both of these antennas, which is the good news. This one is a case of. "just because you can hear them does *not* mean you can work them."

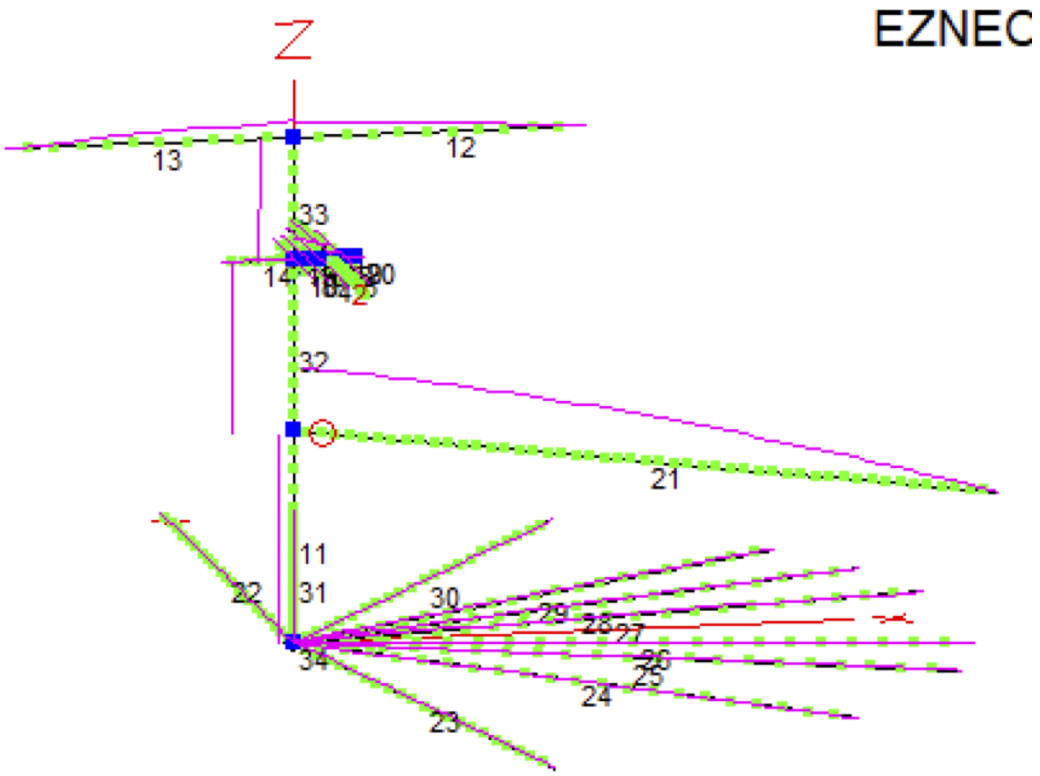


Figure 2. Current distribution in my 80 m half-sloper. Pink lines are current magnitudes.

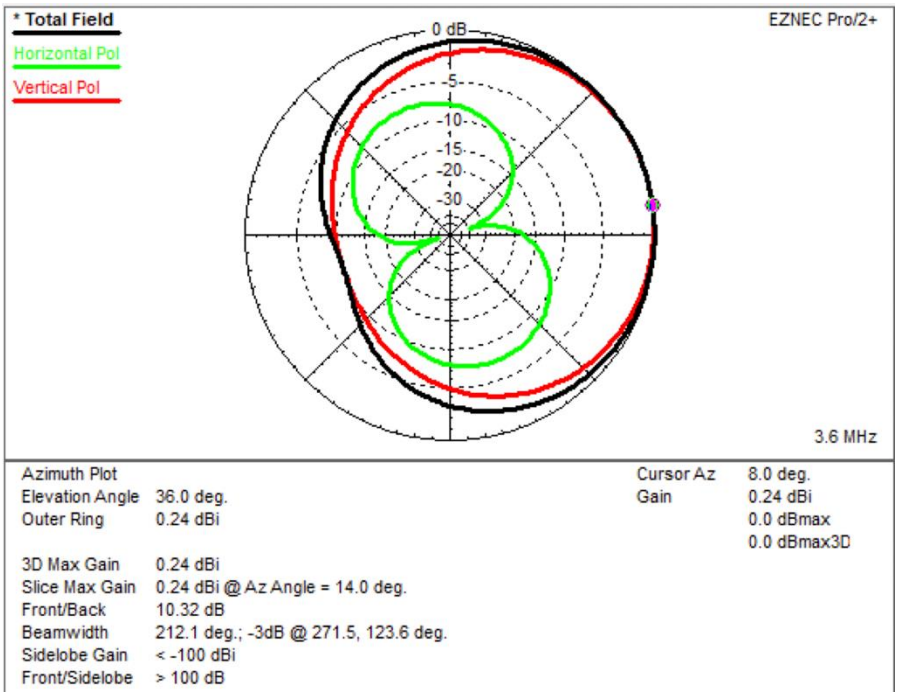


Figure 3. Azimuth pattern. Peak gain (0.24 dBi) is in the direction of the sloping wire.

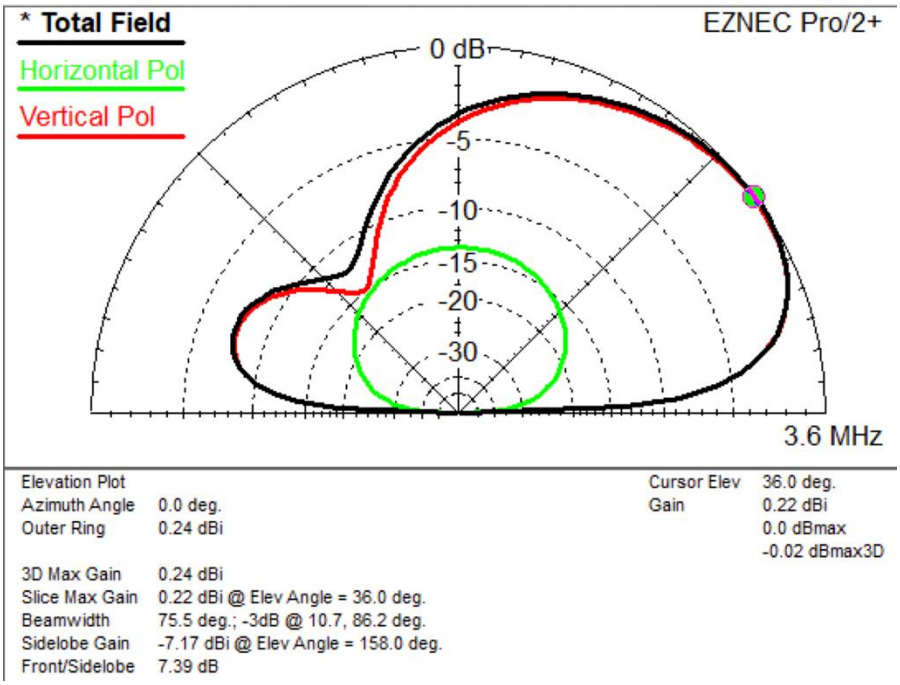


Figure 4. Elevation pattern in the direction of peak gain.

Conclusion

Half-slopers performance is a bit unpredictable but can fill a need in some situations. I would prefer an inverted-L or some other design but it's certainly better than no antenna. Before building one of these, you really need to simulate it to get an idea of how it might behave. At least it's not complicated or expensive to build.

References

1.Tom Schiller, N6BT, *A New Look at Verticals*, https://ncjweb.com/features/mayjun19feat.pdf

2. Dave Leeson, W6NL, *The Story of the Broadband Dipole*. http://ncjweb.com/features/QEX-Leeson-Broadband-Dipole.pdf

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Club Log Standings 2024

Overall

1	W1SRD	Steve Dyer	249
2	NK7I	Rick Bates	241
3	W6DE	Dave Engle	233

CW

1	K6YK	John Lee	189
2	W1SRD	Steve Dyer	148
3	W6DR	Dave Ritchie	128

Phone

1	W1SRD	Steve Dyer	171
2	K6YK	John Lee	142
3	NC6R	Steve Allred	120

Data

1	NK7I	Rick Bates	236
2	W1SRD	Steve Dyer	218
3	W6DE	Dave Engle	213

Awards Checkers ARRL

Rick Samoian, W6SR

(DXCC, WAS, VUCC, 160M)

MLDXCC Focus Contests

ARRL SS CW/PH
California QSO Party

The NOAA Solar Update

Click the link below to display the latest NOAA solar predictions.

http://www.swpc.noaa.gov/products/weekly-highlights-and-27-day-forecas

Upcoming Events

For the latest contest info. click on the following link:

http://www.contestcalendar.com/contestcal.html

Need QSL cards, business cards, club banners?
Contact Vina K6VNA vina@sign-tek.com

Upcoming DX and DXpeditions

Click the link below to display upcoming DXpeditions.

http://www.ng3k.com/Misc/adxo.html

MLDXCC Reflector

The MLDXCC reflector is maintained at groups.io. Visit https://groups.io/g/mldxcc

We also maintain a spotting reflector at https://groups.io/g/MLDXCC-Spots

We are also on Facebook!
https://www.facebook.com

Classifieds

Members are requested to review their classified ads each month for accuracy and to resubmit their ads or confirm their desire to keep it running in the next issue.

W6SR

I have two items for sale/trade.

1. Recently I acquired a Johnson KW tuner (site unseen) from a friend. My plan was to modify it for the remote radio setup at W1RH. However, after I inspected the unit, it is way too nice to modify. It's (IMHO) collector quality, original in and out. It even has the original, working SWR meter, relay, relay power supply and directional coupler cable. But not the directional coupler. Couplers are more available than the KW tuners since they were used on the 250W tuners also. I hate to see a vintage piece of collector quality gear hacked. Anyone interested in one of these? Price, you tell me, best offer takes it.

My portable Honeywell generator is excess to my needs, and needs a good home.
Used very little, mostly for microwave (10GHz) contesting and to power up tools in the field at the old place.
I always ran it out of gas when stored, and it was EZ start. Runs hours on 1 gal of gas.
What's it worth? You tell me, offer.

Contact me at ricksamoian@outlook.com
de Rick, W6SR

KN6TZK is looking for an amplifier. Any suggestions may contact him on the reflector.

Area Clubs

Northern California Contest Club -
https://www.nccc.cc

Lodi Amateur Radio Club -
http://www.lodiarc.org

Stockton Delta Amateur Radio Club -
http://www.w6sf.org

Pizza Lovers 259 –

https://www.pl259.org

El Dorado Amateur Radio Club -
http://edcarc.net

Sierra Foothills Amateur Radio Club -
http://www.w6ek.org

Redwood Empire DX Association -
http://www.redxa.com

Calaveras Amateur Radio Society
http://calaverasars.org/

Tuolumne County Amateur Radio Electronics Society (TCARES)
https://tcares.net/

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The MLDXCC NEWSLETTER