The January 2024

Propagator

The Monthly Newsletter of the South Orange County Amateur Radio Association

In This Issue

General Meeting

NPM Center
Jan 22, 2023
7:00 PM
Norman P. Murray Center
23492 Veterans Way, Mission Viejo, CA 92692

President's Message

SOARA TURNS 50!

This year, 2024, is the Fiftieth Anniversary of the founding of SOARA! Unfortunately, the history is scant, and the dates fuzzy after all these years, but that doesn't diminish the fact that SOARA has been serving both the Amateur radio and greater local communities since 1974.

We have expanded from a small group supporting a single repeater, 147.645 to 7 analog and 3 D-Star repeaters, 2 of which are dual mode. We have several regularly scheduled nets and have expanded our annual ARRL Summer Field day in June. Last year we also started holding the Winter Field Day in January. We are planning to do the same again this year, on January 27, 2024, weather permitting.

As you probably know, SOARA serves not only our membership with activities and repeaters, we also provide communications infrastructure to several South Orange County Emergency Communications organizations: The Cities of Mission Viejo, Laguna Niguel, and Tri-Cities ARES / RACES as well as the OC Parks / Irvine Ranch Conservancy Fire Watch program.

SOARA has long been an ARRL Special Services Club making us among a select group of Amateur Radio clubs that provide and support a wide range of amateur radio service and activities.

For our Fiftieth Anniversary we will be holding some special commemorative activities, including but not limited to, Special Event Station activities, commemorative T-shirts and more. We encourage and request our members to come up with ideas that we can use to celebrate. Send any or all of your celebratory suggestions to board@soara.org.

So again, SOARA turned 50 this year, and we want your ideas as to how we may celebrate. We're looking forward to hearing your ideas and suggestions!

Best 73 de Ray, AE6H

Contacting Soara: Questions about SOARA? Postal mail: P.O. Box 2545, Mission Viejo, CA 92690
Send e-mail to membership@soara.org or leave a message at 949-667-0173
Facebook: K6SOA Twitter: @K6SOA

SOARA Membership Report

We're currently at 219 active members. Of those, 41 of you still have not paid your 2023-2024 dues. If you haven't paid yet, **please check the email notices I sent you to see how much you owe before submitting your payment** (it's in the subject line as well as in the message). Some of you have credits from previous years, so you don't owe the full $50/$25. If you haven't received a dues notice, please check with me first (membership@soara.org) before submitting a payment.

If you need a new badge or a copy of the repeater manual, send me an email at membership@soara.org.

73, Greg, N6PM

SOARA Membership Director

SOARA Saturday December Report

We had another good SOARA Saturday at the Murray center. A total of 13 attended. We had $32 in donations to the coffee and donut fund. Donuts cost $22.07. Last month balance was $50 with a final balance this month of $60 after rounding. I track change in the bottom of the SOARA donation can.

First, I want to thank Bill and Greg for their help. Bill KM6FOY brought the coffee cups and sugar, creamer, etc. Greg N6PM brought the donuts & holes. It would cost much more to operate SOARA Saturday's if I didn't make coffee and volunteers helped. I also had decaf coffee available for the first time this month!

Attendees: WA6ED, W6DS, W6WK, N6PM, KM6FOY, W6TRG, W6EDT, W6CAG, K0PGE, AE6H, K6NOV, WE4BY, N5KZV.

Ray, AE6H, demoed the 15W QRP RS-918 HF rig on the table. This is a clone of the mcHF MONKA.

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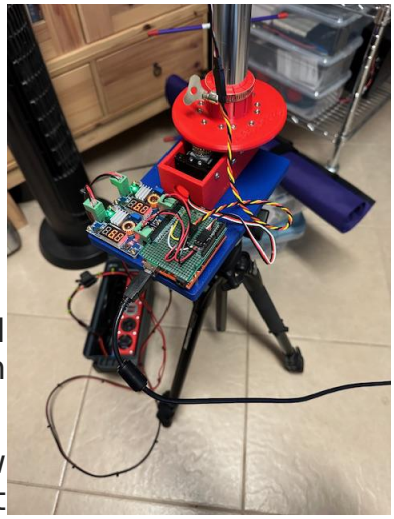

Greg, WE4BY, left at table, brought his Prusa MK4 3d printer and demoed 3D printing. Bill KN6FOY, right, was soldering an oscilloscope kit.

I demoed the antenna tracker (Oct 2023 QST) with the new camera cheese plate mount to the tripod. The previous mount was a plastic part that attached to the tripod ball head. This part broke once I installed the antenna. The camera cheese plate is much stronger. This rotor tracks well with SatPC32 using the Arduino serial interface. A 30 foot USB printer cable doesn't work well, so I will try a 20 foot. The radio is the next step. I hope to getting an FT-857D working soon with automated frequency adjustments for Doppler shift.

No donuts or holes survived.

73,

Ed, WA6ED

SOARA Elmer Saturday Coordinator

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SOARA - Statement of Cash Income & Expenses
October 1, 2023 Through December 31, 2023

SOARA - Statement of Cash Income & Expenses
October 1, 2023 Through December 31, 2023

Three Months Ended:	December 31 2023	December 31 2022	Increase (Decrease)
Cash Income:			
Memberships	7,590	7,639	(50)
Other	1,746	3,283	(1,537)
Total Cash Income	9,336	10,922	(1,587)
Cash Expenses:			
Repeaters including site rental, utilities & insurance	1,437	1,448	(11)
Member Activities	2,979	632	2,347
Other expenses	589	709	(120)
Total Cash Expenses	5,005	2,789	2,216
Cash Net Income	4,330	8,133	(3,803)
Beginning Cash-October 1	24,917	25,860	(943)
Ending Cash - December 31	29,248	33,993	(4,745)

Note: If any member has questions about the financials, please contact the Treasurer or any Board member.

Ron Mosher - K0PGE
SOARA Treasurer

Static Protection for your NanoVna

Dale emailed me a YouTube link and said this would make a great SOARA Saturday project for less than $10. I watched the video and then I watched it again. Wow, what an informational video! Did you know you can blow up your NanoVna with static? Apparently, lots of folks are destroying their NanoVna's and likely similar test equipment with static electricity. As described in the video, you should always discharge the antenna signal / coax prior to connecting test equipment.

I suggest reviewing the schematic below and then watching the video.

Here's the link: https://www.youtube.com/watch?v=totwu4IbavE

You can also search YouTube for NanoVna protection and find the video. While watching the video for the second time I drew a schematic. Joe Smith's goal is for you to understand how to make a protection circuits for various applications and not just copying his work. So, you will learn the 7dB attenuator doesn't have resistor values and

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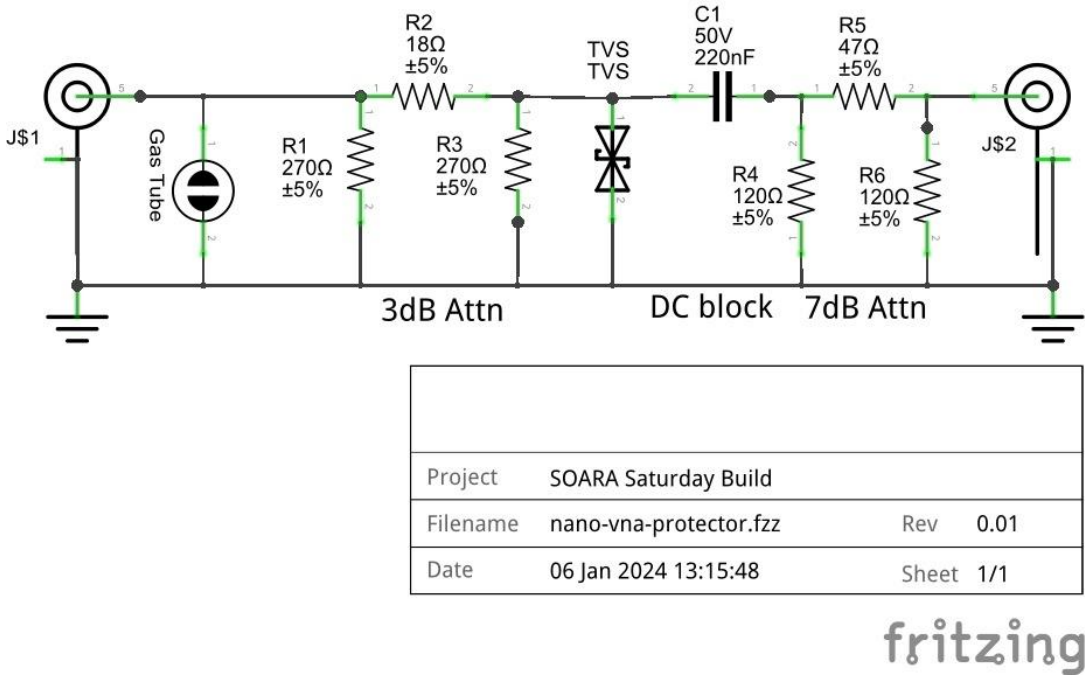
components are not selected for you. The 7dB resistor values came from an electrical app on my iPhone. It's called Electronic TB, or Electronic Tool Box Pro. By Marcus Roskosch.

Next, I wanted to draw the below schematic in some type of schematic capture. I choose fritzing. I paid the $8 to download the executable. I entered the schematic in about half-hour. Then, I started playing around with the PCB layout with SMD components. After spending several hours and learning more details about fritzing, I would recommend biting the bullet and learn KiCAD first.

This circuit uses a gas discharge tube which is slower than the TVS. So, there are at least two layers of protection. John Smith explains in the video. I liked the DC blocking capacitor. Dale changed the 7dB attenuator from T to Pi to make the PCB layout smaller. Good idea!



After communicating with Dale, he chose KiCAD. So, KiCAD is next on my learning todo list. I already knew about KiCAD and it's a much better tool. Here is the KiCAD version of the schematic.

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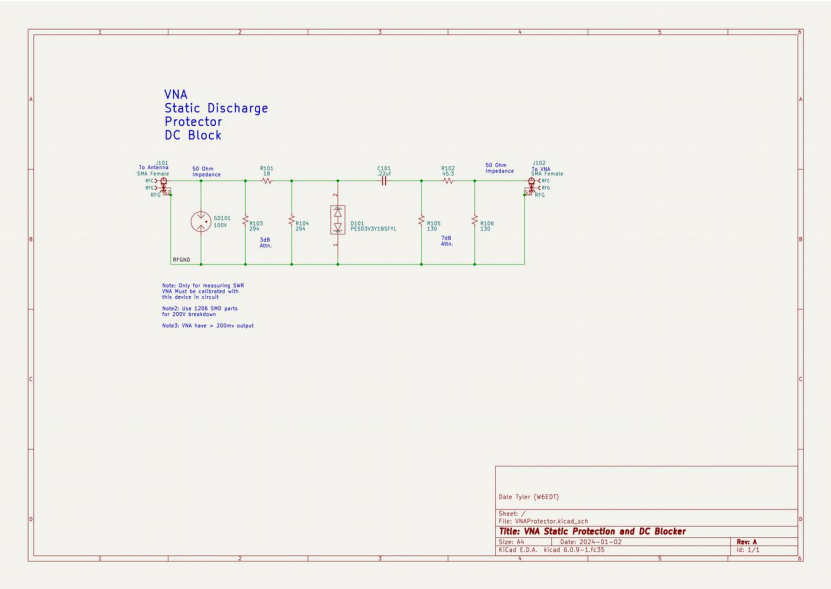
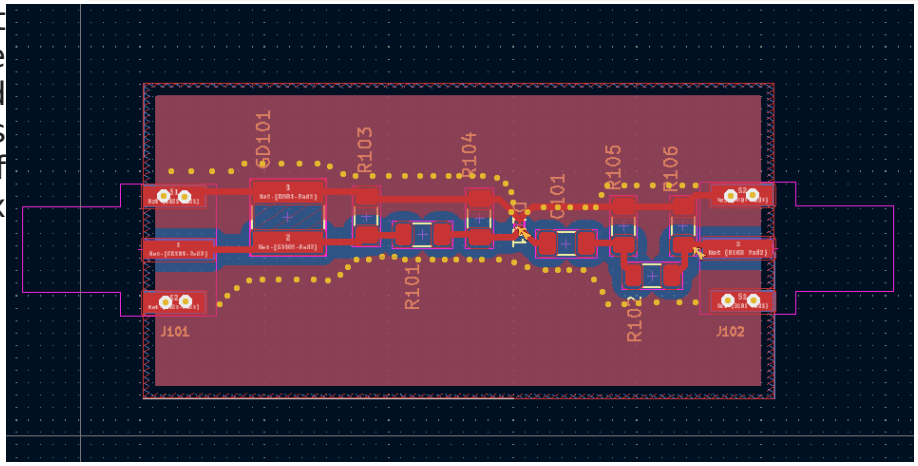


Here is a sample of a layout using KiCAD. The bottom of the board is all copper (blue) and the gold dots are connections from the top to the bottom of the board (vias). This is a 2” x 1” board.



If you are interested in a kit let us know. We will likely have a SMT PCB fabricated and a 3D printed case. $10 is the best estimate so far. The most expensive parts will be the gas discharge tube, TVS, and the PCB. If you cannot SMT solder, we will likely help you at SOARA Saturdays.

Next steps will likely be to build a prototype and then we will test similar to the video. Parts selection will be important.

There are a few things to understand about this device. First, because it does change the amplitude response of the input to the NanoVNA, it is only really useful for SWR measurements. Since this is what you would almost always want to do with and already installed antenna, this limitation is not really much an issue. Because of design choices made for the components, it should only be used below 300 MHz, which is the practical accuracy limit for many NanoVNA clones.

When this device is used, the NanoVNA will need to have a full calibration performed (Short, Open, Load, and maybe Through) with the device connected. After that the input of the device can be connected to the antenna.

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This design will work to protect any test equipment connected to an antenna, not just a NanoVNA. However, one should not ever transmit through this device. It will also block the DC coming from a feed point mounted LNA.

One thing that we are working to overcome is the selection of the TVS diode. TVS diodes intended for very high frequency operation need to have low capacitance to avoid distorting the signal. The one that was initially selected had a capacitance of 0.2pf at 1MHz. Unfortunately this requires a very small package: 0201 (0.024 x 0.012 inches). If we move up to a 2pf TVS diode, then the package size might be 0603 (0.063 x 0.031 inches). 0603 parts are relatively easy to handle with magnification and a good soldering iron. If we use this type of part, we will make sure they are pre-populated on the PCB should you decide to build the kit.

73,

Dale W6EDT & Ed WA6ED

SOARA Nets and Repeaters

As many of you already know, SOARA has nets two nights a week and both Saturday and Sunday. There are also many other nets on our repeaters as well.

We have about seven or eight different net controls for over two dozen available positions every month, depending on whether the month has four or five turns available.

We are always looking for more Net Control operators so please apply if you want to join our select group.

In general our nets are friendly and easy going but there are some rules that we should follow, not many thank goodness.

- The FCC requires you to identify with you call sign within ten minutes of getting on the air and every ten minutes thereafter including when you finish the conversation.
- We (SOARA) as well as almost all organizations with repeaters ask you to identify yourself with your FCC issued I.D. when you first get on the air and then follow the FCC guidelines, including when signing off.
- Other than that we try to avoid controversial subjects that might displease or anger others.

Now to the fun part.

- First of all, all SOARA nets are directed nets and the Net Control is in charge.
- In a conversation with a friend recently we came up with some thoughts and ideas on how to run an amateur radio net and also how to respond to it.

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- As Net Control you should try to let your guests do the talking. Guests please feel free to express yourselves.
- Prime them with a good general topic that they can expound on. Guests, if you have topical suggestions for the Net please address the Net Control operator with your thoughts.
- Net Controls, prepare yourself with some good leading questions ahead of time to ask when you need to get a response.
- If it is a small group let them do a round robin, being sure to remind them who is before and who follows. This will make it easier for you.
- Round robin is from Net Control to the first operator A, then to operator B, then to operator C, and so on until everyone has had a chance to express themselves.
- If one operator has a question for another operator, let the operators go directly one to another as necessary, this will save you time and effort.
- In general make sure that they are enjoying themselves.
- Never put anyone in a position where they might feel uncomfortable.
- As a special note for my Emergency Communications friends, this is for our casual SOARA nets, Emcom lives by a different set of rules.

Nota bene: been there and done that.

Heiko AD6OI

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Calendars

Upcoming SOARA Events

Dates are subject to change. Check the SOARA Web Site (http://www.soara.org) to verify locations and times

This Month...

- January 20 9 AM - Noon - SOARA Elmer Saturday, Murray Center
- January 22 6 PM - HAM Radio License Exams, Murray Center
- January 22 7 PM - General Meeting, Murray Center
- January 27 9 AM - dark - Winter Field Day, Gilleran Park
- January 29 7 PM - Board Meeting, Murray Center

Next Month...

- February 26 6 PM - HAM Radio License Exams, Murray Center
- February 26 7 PM - General Meeting, Murray Center
- March 2 9 AM - Noon - SOARA Elmer Saturday, Gilleran Park
- March 4 7 PM - Board Meeting, Murray Center

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SOARA Information

SOARA meets at the Norman P. Murray Center, 24932 Veterans Way, Mission Viejo, CA on the third Monday of every month at 7:00 PM. For the months of January and February the third Monday is a holiday and the meeting is held on the fourth Monday.

License Exams: Amateur License Exams are given prior to SOARA meetings, except June. Exams are at 6pm. Prior registration is not required and walk-in applicants are welcome. For June, exams are held at Field Day. For further information, email Sean Reigle, AJ6B, at aj6b@soara.org.

SOARA Library: SOARA has many amateur radio related books such as hand books, books about electrical theory, etc. available to lend out to club members. Contact Heiko Peschel ad6oi@soara.org for more info.

Web Site: SOARA maintains a web site with current club information. The URL is: http://www.soara.org/

Repeaters: The Laguna Beach, San Clemente, and Trabuco repeaters are open. The Santiago Peak repeaters are closed. For details or questions on the repeaters contact the repeater director, or repeater@soara.org.

	2m — 147.645 – (110.9)	Laguna Beach
	2m — 146.025 + (110.9)	San Clemente
	2m — 145.240 – (110.9)	Trabuco
D-STAR	2m — 146.115 + (K6SOA C)	Laguna Beach
	220 — 224.100 – (110.9)	Laguna Beach
	220 — 224.640 – (pvt)	Santiago Peak. (C)
	440 — 445.660 – (110.9)	Laguna Beach
D-STAR	440 — 445.705 – (K6SOA B)	Laguna Beach
	440 — 447.180 – (pvt)	Santiago Peak. (C)
D-STAR	1.2G 1282.600 – (K6SOA A)	Laguna Beach

Nets:

- 40 meter HF (7.200 MHz +/- , Sundays @ 8 AM
- 10 meter HF (Technicians Welcome) (28.415 +/-) Sundays @ 9 AM
- General Membership Net - UHF/VHF (447.180, 147.645 & 224.640): Tuesdays @ 8 PM
- D-STAR (146.115 C module): Wednesdays @ 8 PM
- Tech Net - 147.645, 224.640, 447.180: Saturdays @ 9 AM

- California Rescue Communications (Gordo Net) HF (7.250 MHz +/– for QRM): Weekdays @ 8:30AM
- MVRACES – 447.180: Tuesdays @ 7PM
- Tri-Cities RACES – 146.025: Wednesdays @ 8 PM
- LNACS – 147.645: Thursdays @ 7 PM
- OC Parks Fire Watch – 447.180: Thursdays @ 8 PM

SOARA OFFICERS

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V.P.: Erik Wresch, W6INE — 714-883-7694 *w6ine@soara.org*

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Past President: Tom Hobbs, AE6SH — 949-830-8131 *ae6sh@soara.org*

Activities Coordinator: Joe Perrigoue, *K7KCE* *k7kce@soara.org*

S. Saturdays: Ed Barnes, WA6ED — 949-468-7706 *wa6ed@soara.org*

Raffle: Bill Colvin KM6FOY km6foy@soara.org

Testing: Steve Kuver K6UVR k6uvr@soara.org

Website: Open

Ambassador: Heiko Peschel, AD6OI *ad6oi@soara.org*

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