



Propagator

The Monthly Newsletter of the South Orange County Amateur Radio Association

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General Meeting

November 16,
2020 7:00 PM
via
[GoToMeeting](#)

Presidents Message - November 2020

Greetings to all SOARA members and other readers. This month, I'd like to remind folks who use our repeaters and or participate in our SOARA HF nets, of a long standing (25+ years, at least) SOARA policy and guideline for topics of discussion on our nets .

SOARA has long strived to be, and has fairly successfully been an Inclusive organization, welcoming members and guests of every ethnicity, religion, political leaning, etc., all with the overall goal of promoting learning, teaching, growth and camaraderie, in the advancement of the art and science of amateur radio. It is to this end of building a welcoming atmosphere for all, that we have the above mentioned policy and guideline: Please refrain from religious or political discussions during SOARA sanctioned activities and events, including meetings and nets. This is merely an effort to keep our club activities light and enjoyable to everyone

I mention this longstanding policy and guideline, because of a recent SOARA event (net) where the topic was turning to the political, and our Communications Director attempted to remind participants of the policy. That attempt was met by an accusation of infringing upon first amendment rights, and that under FCC rules, that SOARA had no legal authority to "restrict free speech" on our nets. Yes, the member who pointed out the legal and Constitutional limits is correct, and no legal action can be undertaken to enforce the political or religious, speech, This is why it is a policy or guideline.

This "No politics or Religion Policy" was implemented as a result of an unfortunate and unpleasant occurrence where some of our members were deeply hurt and offended. In short, what started out innocently got ugly, and caused serious upheaval in the club. That's when SOARA decided to borrow form Emily Post's good manners advice, and avoid discussing politics and religion in polite company. This has served us well over the years, and is in no way intended to prevent free speech, but rather to keep SOARA activities and events welcoming and

enjoyable for all Hams and guests. Good Amateur operating practice reminds us all to be courteous and respectful of others.

In the Hyper-charged super partisan political atmosphere that now seem to grip our great nation, it behooves all of us to consider how, what to us is an innocuous comment relative politics or religion, may be received by another fellow ham, who may have strongly opposing views. Please, all of us. let's keep our hobby, and SOARA light, friendly, welcoming, and fun!

**73 to all,
Ray, AE6H**

[General Meeting - November 16 via GotoMeeting](#)

Please join us online for our November General Membership Meeting to be held on the GoToMeeting platform.

Our guest speaker for the November meeting will be Ed Fong WB6IQN. As many of you know, he is the inventor of the DBJ-1 and DBJ-2 antenna that was featured in the February 2003 and March 2007 QST. His latest article in QST was the TBJ-1 - a tri-band base antenna published in March 2017. The DBJ-2 won the Plaque of the Month Award. There are over 25,000 of these antennas in use today. About half are used by hams and the other half by government and commercial entities. In this months presentation, Ed will first review how the original DBJ-1 works and then how he managed to convert the original DBJ-1 into a portable antenna. He will have some limited antennas for sale.

Ed Fong was first licensed in 1968 as WN6IQN. He later upgraded to Extra Class (he has a real Extra Class license when 20 WPM was required) with his present call of WB6IQN. He obtained the BSEE and MSEE degrees from the Univ. of California at Berkeley and his Ph.D. from the Univ. of San Francisco. A Life Senior Member of the IEEE, he has 12 patents and over 40 published papers and books in the area of communications and integrated circuit design. Presently, he is employed by the University of California, Santa Cruz (previously with Berkeley from 1997-2010) as an instructor teaching graduate classes in RF design and high speed interface. In his 35 year career, he has done work for Stanford University, National Semiconductor, Advanced Micro Devices, and numerous start-up companies in the Silicon Valley.

Our General Meetings have always been open to the public and our online platform using GoToMeeting is also open to anyone that wants to join in. You can join our GoToMeeting using either the GTM plug-in or access it via the Chrome web browser.

This is the [link](#) to joining the meeting or you may call in by phone **(571) 317-3112** using this Access Code: **135-682-101**

Erik, W6INE

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

Membership Report

October is when all membership dues are due. Please read your dues email, about half way down, it shows how much you owe. Many new members and some older members may have a significant dues balance. This balance is based on the way we prorate the dues. Dues are how we pay all the bills to keep the repeaters going and many other functions.

When paying online with Braintree, If you have an odd dues balance, simply select pay other amount. I will figure it out. No, I don't know how to do PayPal. Sorry... If you pay by check, we have to go get the check from the PO box. Sometimes it takes awhile.

We are now at 229 active members with 166 paid dues already! Thank you for paying dues quickly. I plan to send another reminder near month's end.

Welcome to SOARA!

Steve, KN6HI

If You know someone that wants to join SOARA, the application signatures have been temporarily waived by the board. Applications are available on www.soara.org. The process is: fill out the application, email it to membership@soara.org, pay your new member dues & initiation fee \$90, when the board meets we will review and vote on your application.

Once approved, I will verify your email and send you the SOARA Repeater User's Guide & Membership Manual electronically in PDF. Now, the hard part. You need to participate to maximize your membership value! Something as simple as participating in a net will get you going. Check out www.soara.org for event details.

**73,
Ed, WA6ED - SOARA Membership Director**

SOARA Elmer Saturday/Tech Net

We have fun at SOARA Saturday events talking about all types of topics. Since we can't meet in larger numbers at the Murray center or Gilleran park, we are having virus free radioactive technical nets. The log is here: <https://www.soara.org/soara-saturday-log/>

Join us Saturdays 9am, on Laguna Beach 147.645 or Santiago Peak 447.180 repeaters. Bring your questions, be there to help others, or listen in. Try having some radio fun!

No ham badge article this month. I'm still waiting for the PCBs.

73,
Ed, WA6ED
wa6ed@soara.org
SOARA Elmer Saturday Coordinator

SOARA Statement of Revenue and Expenses Year End as of 30 October 2020

SOARA FYTD Revenue and Expenses

	OCT
Starting Cash Balance	23,666.04
Starting Operating Balance	20,660.89
Starting PayPal Balance	550.37
Starting Drawing Balance	2,454.78
Starting Holiday Party Escrow	112.47

Revenue:

Membership Dues	4,918.00
Initiation Fees	0.00
Total Membership Income	4,918.00
Activities:	0.00
Auction Commissions	0.00
Estate Sale	256.00
Donations - Unrestricted	0.00
Donations - Restricted	0.00
Asset Disposal	0.00
Drawing	0.00
Total Other Revenue	256.00

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Total Revenue 5,174.00

Expenses:

Site Rental:

Santiago Peak	350.00
City of San Clemente	0.00
Laguna Beach Water Dist	0.00

Utilities:

DSL Extreme	62.64
AT&T	35.81
Frontier	39.14

Website:

Linode	12.50
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Insurance

Hartford	0.00
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Post Office Box	0.00
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Postage	0.00
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Corporate Fees	0.00
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Activities:

SOARA Saturday	0.00
Field Day - Food	0.00
Field Day - Operations	0.00
Picnic	0.00
Drawing	0.00

Equipment and Repeater Maintenance	0.00
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Other/Miscellaneous	0.00
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Total Expenses 500.09

Net Revenue 4,673.91

Ending Cash Balance	27,946.44
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Ending Operating Balance	25,334.80
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Ending PayPal Balance	550.37
Ending Drawing Balance	2,061.27
Ending Holiday Party Escrow	112.47

[Adventures in Radioland](#) [Part 2](#)

What started out as a simple project turned into an “adventure” driven by a desire to understand how well a design works. One of my favorite quotes is by Lord Kelvin:
“When you can measure what you are speaking about, and express it in numbers, you know something about it, when you cannot express it in numbers, your knowledge is of a meager and unsatisfactory kind; it may be the beginning of knowledge, but you have scarcely, in your thoughts, advanced to the stage of science.”

We ended Part 1 (published in the October 2020 Propagator) with the first of many mysteries uncovered in my quest to build and quantify the operation of my tape measure antenna.

When trying to characterize the SWR and resonance characteristics of the antenna, the Nano VNA gave a SWR of 1:1.85. However, when a transmitter was hooked up, a Bird 43 indicated lower than expected forward power (3.7 W) and a much higher than expected reverse power (1.3W), that calculated to be about 1:3.9 SWR.

The Bird , while quite rugged, is not a precision instrument. Its rated accuracy is 5% of full scale. This means that the Bird can only give a rough idea of power and thus SWR, but there is a lot of difference between 1:1.85 and about 1:3.9.

There is a saying that a man with one clock knows the time, but a man with two clocks can never be sure, unless they agree. It is the same with test equipment. Unless it has been recently calibrated to a high quality standard and is being used exactly as specified by the manufacturer, one can never be absolutely sure that the results obtained are correct.

I needed some more ways to measure SWR. Fortunately, I had at least two more: a MFJ-259B and a HP 8753C VNA (heavy iron). With the MFJ-259 hooked up to the end of the 30 foot LMR-400 feed line, it indicated a SWR of 1:3.5 at 146 MHz. So, it appears the NanoVNA was the odd man out and the antenna was working very poorly.

Now I had a choice, go down a rabbit hole and find out what was wrong with the nanoVNA or my use thereof, or finish the antenna. Well, rabbit holes are my specialty, especially when they deal with tools or instruments that are seemingly broken. I guess I want to be sure that the problem is not with my technique that resulted in an incorrect measurement or that somehow damaged the instrument.

I re-ran the calibration procedure on the NanoVNA several times using the Short, Open, Load and Through (SOLT) standards provided with the NanoVNA. The antenna

measurements did not change. I then used a much higher quality R&S SOLT set and the antenna measurements did not change significantly. The antenna was replaced by a non-inductive 50 ohm dummy load. Now, the NanoVNA measured 1:1.09 SWR. After a one port calibration with the R&S SOLT standards, the HP 8753C VMA measured the 50 ohm dummy load SWR at 146MHz as 1:1.12, as did the MFJ-259. Reconnecting the antenna to the feed line, the 8753 measured the SWR a 1:3.27.

More data points were needed. I found a 150 ohm 1% non-inductive resistor. The 8753 measured the SWR at 1:3.002 with a resistance of 149.8 ohms. The NanoVNA measured 1:1.68/81 ohms, which is quite low. The ideal value would be 1:3.00, if the resistor was precisely 150 ohms.

Redoing the the NanoVNA calibration and being extremely deliberate, I noticed something unusual. As calibration with the SOLT standards is done, the NanoVMA will update whatever traces that were being displayed prior to the calibration. There happened to be a Smith chart, a SWR trace and a complex impedance value. The impedance and SWR displayed for the Short (1:infinity/ 0 ohms) and Load (1.1.0 /50 ohms) were as expected. The Open read a SWR of 1:2.38/118 ohms, instead of infinity. The Smith charts for all three tests did not vary noticeably over a minute or two, so the results were not changing due to some intermittent fault.

The bottom line was that the NanoVNA's reflected power measurement circuit appears to have become insensitive, leading to the unit being inaccurate to the point of being useless.

The important take way is to pay close attention while performing calibrations to make sure what one sees is as expected. If I had noticed the Open standard showed a non-infinite SWR, I could have stopped using it and avoided fooling myself. Also important is to calibrate any instrument for the frequency range being swept,

The NanoVNA, purchased in September 2019, is now in the scrap pile and I'll probably salvage the LCD and perhaps some other components. A NanoVNA V2 was ordered from the HCXQS group who designed the V2. This should ensure that I'm not getting a clone of unknown origin. The NanoVNA V2 gave somewhat reasonable calibration results, infinite SWR for open and short, 1:1.0 for a 50 ohm load. However, it measures my 150 ohm test load as 140 ohms, which is still not correct. The 8753 measured that resistor as 150 ohms +/- 1 ohm. That said, the NanoVNA V@ is "good enough" for casual use. I wouldn't use it for precision work, but it was only \$60, plus shipping.

Verify proper calibration of your instruments before use!

In part 3, we will get back to the antenna. Thanks for reading. If anyone has any comments about my approach to this problem, please email me at w6edt@soara.org.

**73,
Dale (W6EDT)**

SOARA Nets

We are running a number of nets on our repeaters to help all of us stay in touch and keep ourselves occupied while we are mostly staying at home. Except as noted below, the nets are held on the 2M (147.645) and 70cm (447.180) linked repeaters.

Some of these are what we have been doing for a while such as the Tuesday night 2000 net on the 2M/70cm repeaters, the Dstar net Wednesday nights at 2000 on 146.115 MHz and the HF nets on Saturday 40M (7.200 MHz) at 0800 and 10M (28.415MHz) at 0900.

There are new nets as well:

Astronomy Net - Wednesday evening at 1900 on 146.115MHz (Dstar)

Dinner Net - Friday evening at 1900 on 2M/70cm

Tech Net - Saturday morning at 0900 on 2M/70cm

Dale, W6EDT

SOARA Equipment For Sale Online Site

Based on numerous requests from SOARA members for a place to post Ham Radio related items for sale to other club members, we have set up an opt-in based Mailman mailing list on our server. Interested SOARA members are invited to join the mailing list. The SOARA organization and Board of Directors do not provide any warranty or guarantee for the items being advertised, buyer beware!

To subscribe, navigate to:

<https://soara.org/mailman/listinfo/forsale>

Enter your "real" email address, not your at "soara dot org" alias. You must be able to send and receive email from the address you provide.

Once subscribed, you will receive email when other members post items for sale. When posting to the list, you should provide an accurate description of the item for sale, its condition, and asking price. Replies to postings should be sent to the poster of the item, and not the list.

The archives of postings are publicly available on the web here:

<https://soara.org/pipermail/forsale/>

This mailing list may be suspended or discontinued at the discretion of the SOARA Board of Directors should that become necessary.

Brian, NJ6N

GotoMeeting Information

WHAT TO EXPECT MONDAY EVENING

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

When you join Monday's meeting, it is highly recommended you use Google Chrome if you plan on entering via browser. It is also recommended to use a headset or earbuds with a mic. Avoid a laptop mic as the speakers that sit right next to the mic tend to produce echo and feedback. Your webcams will be disabled.

The meeting will be locked in order for Soara Board members and our Presenter to arrive first. Please email me if you would like to make an announcement to the other members so I'll know in advance to call on you. You will be in a waiting room until 7pm when I'll open up the meeting. Please keep your microphones muted when not talking. I will Mute all attendees if there is an unmuted mic disrupting the meeting.

You can use the Chat feature to request to ask a question. When, acknowledged, you can unmute your mic and ask away. You may ask the question in the chat if you prefer and we'll ask the question for you. You may comment as well if you like, just keep it clean. You can also chat with a specific individual privately. Just be sure of what you are saying and where it is going.

As this meeting is open to the public and announced as such on the website, we expect a smooth meeting. If we, by chance, get a disruptive guest they will be Dismissed from the room by the Moderator and the meeting room will then be locked to prevent re-entry.

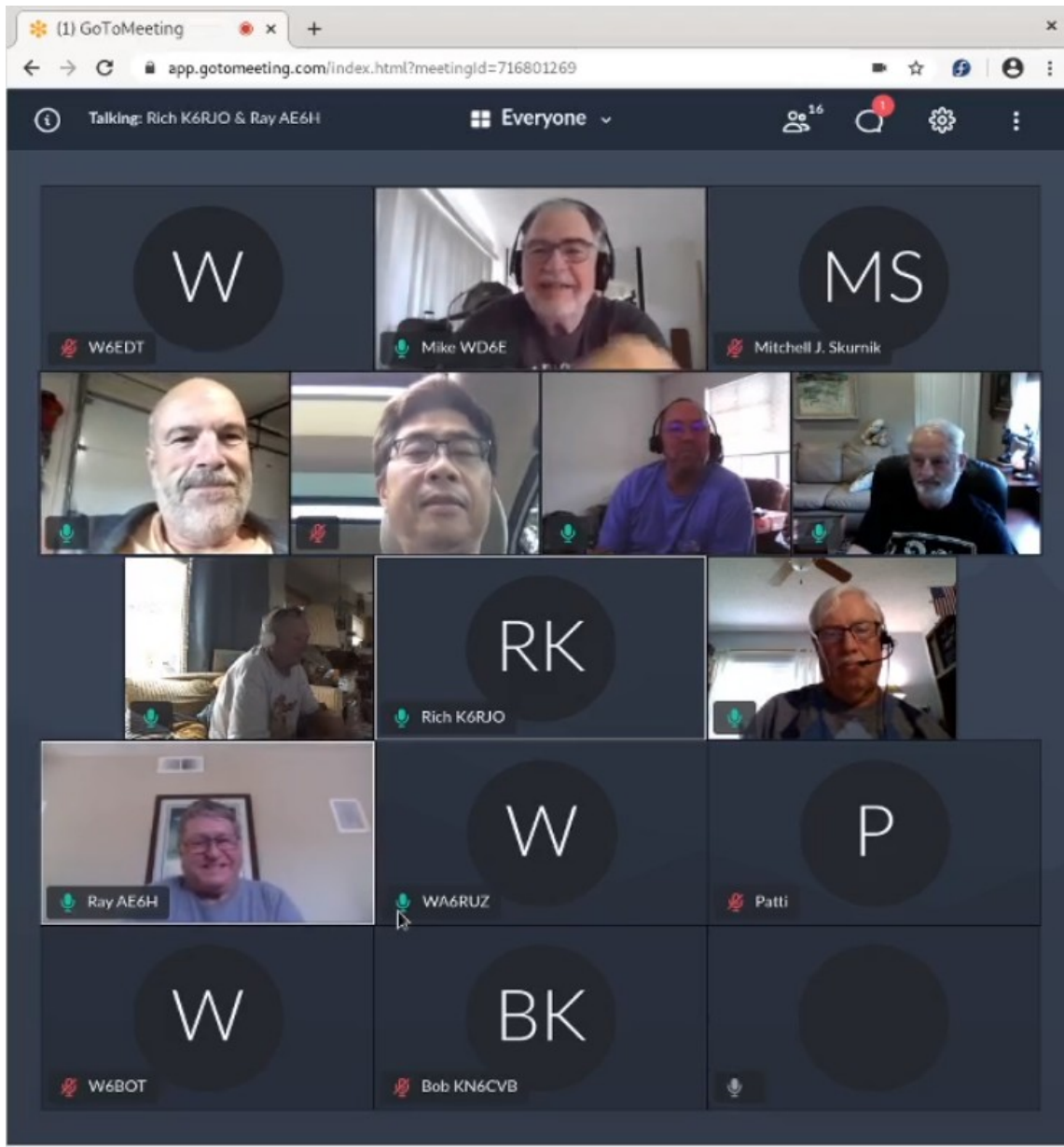
Let's have a great online meeting!

Erik, W6INE

Some additional notes from Dale Tyler. Meeting details and links, etc. will be sent out Monday afternoon and will also be available on the soara.org website.

So far, the only browser that I have seen work is Chrome. The meeting link will look something like SoaraMeeting_**subject to change - check email or soara.org**). When you follow the link you will see a screen similar to this
Be sure to choose "Join Meeting in Browser". Next you will have an opportunity to enter your name and ID. Please use your callsign for your ID. For example, I used W6EDT and my name was Dale. If you have previously used GotoMeeting, your name and ID will be stored in cookies associated with the site. You may or may not want to change them,

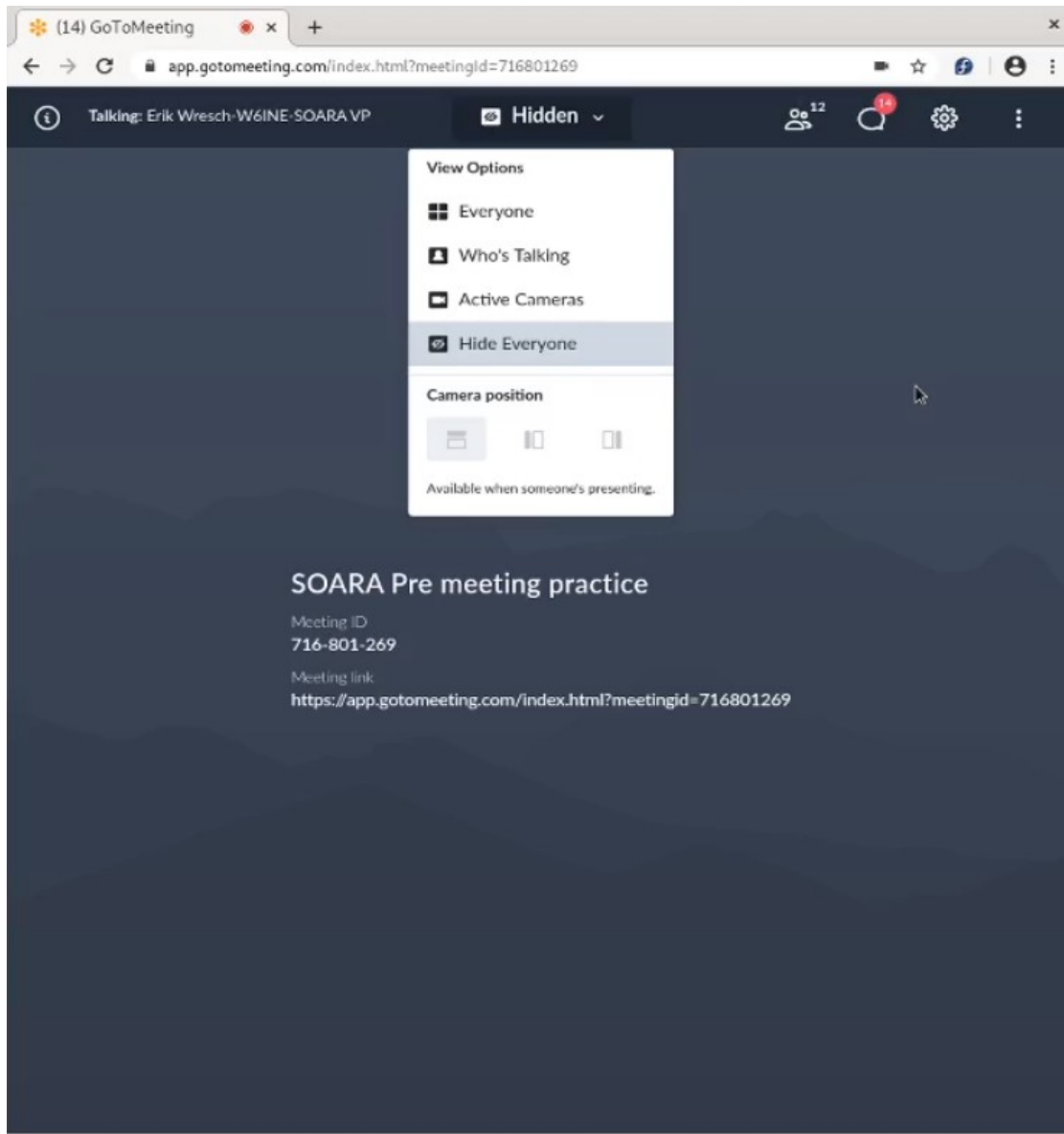
As was mentioned above, a headphone is best, but as long as you do not unmute your mike, the PC speakers will also work.



Once you enter the meeting you will see something like this (I am the “W” in the upper left):

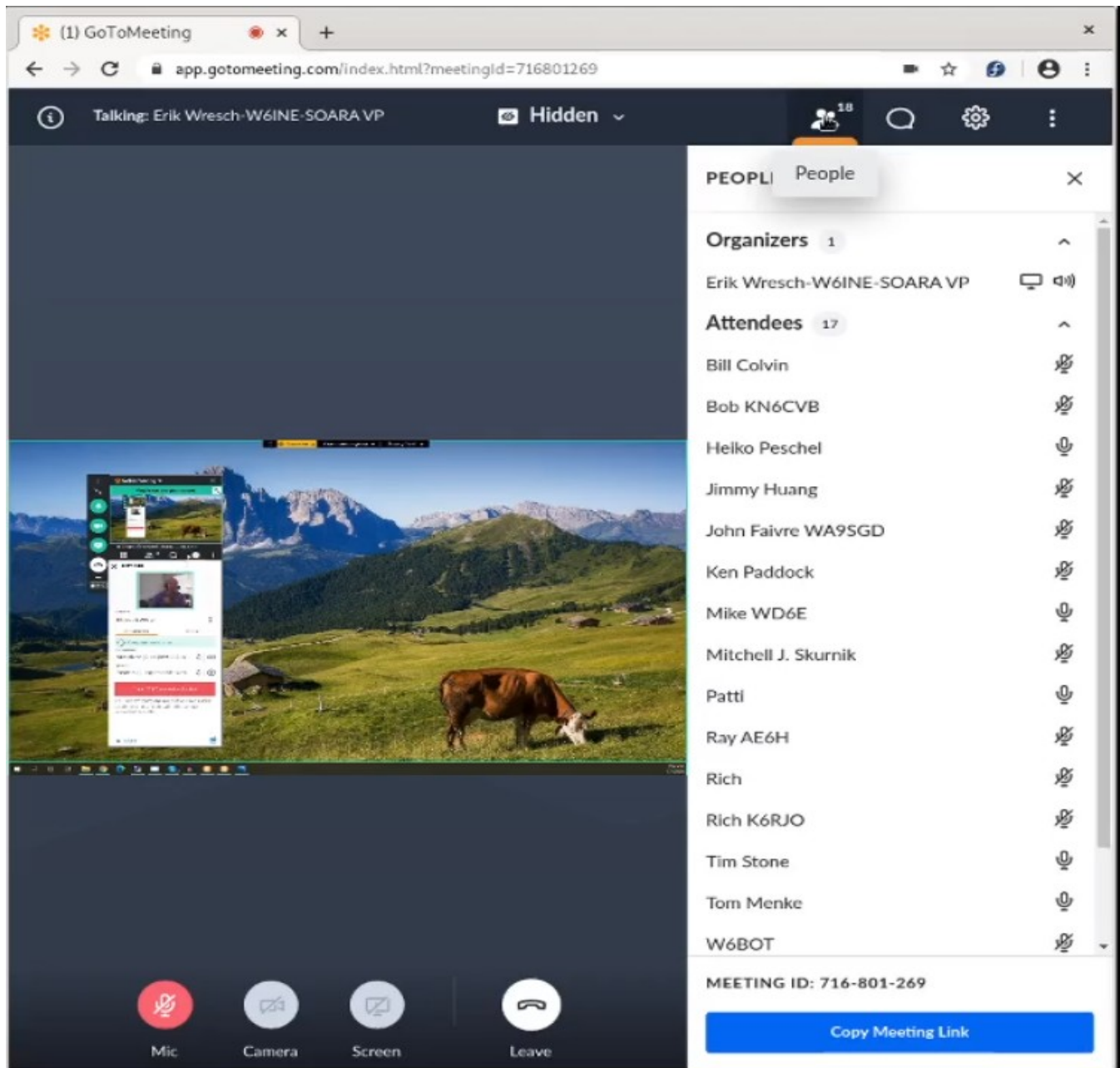
I would suggest you click on 'Everyone' at the top of the screen and change the display to 'Hide Everyone'. This will make the presentation, larger and easier to see.

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Finally, if you need to update your name or simply want to see who is logged in, use the people icon at the top right of your screen. To update your name or ID, click on your name and press "Edit" in the drop down menu.



Please leave your Mic icon as shown (muted **RED**), which prevents noise at your location from disrupting the meeting.

There will also be a telephone number you can call on a telephone and an access code to allow you to listen to the presentation, if a computer is not available. Please be sure you have unlimited long distance, as the number will not be toll-free.

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If you wish to join the meeting on a phone or tablet, either Android or Iphone, you will need to install the GotoMeeting App from you phone vendors approved 'store' The App is free, but may require certain permissions to function.

If you need help getting connected, please place a call on the Santiago repeater and I'll try to help you.

Also, if you would prefer to watch a live stream on YouTube, the link will be announced on the soara.org web site. The meeting will be available for playback later on YouTube as well.

This is a great way to participate in our club's meetings even when staying home to be safe.

**73,
Dale, W6EDT**

2020 SOARA Calendar

Month	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sept.	Oct.	Nov.	Dec.
General Meeting 7:00 PM	27	24	16	20	18	15	20	17	21	19	16	-
Program	-	-	-	-	Spring Auction	Field Day Prep	-	SOARA Fair	-	-		-
FCC Ham Exam 6:00 PM	27	24	16	20	18	At Field Day (2pm)	-	17	21	19	16	-
Education Classes 8:00 AM	Tech 25	General 22	-	-	Tech 16	-	-	Tech 15		-		-
SOARA Elmer Saturday 9:00 AM	11 Murray	8 Murray	14 Gilleran	11 Gilleran	9 Murray	13 Gilleran	11 Murray	8 Gilleran			y	12 Gilleran
SOARA T-Hunt 1:00 pm	-	-	-	-	-	-	-	-	-	-	-	-
Board Meeting	Feb 3	Mar 2	23	27	26	-	27	24	28	26	23	-
Special Events	Quartz-fest 19-25	Yuma 14-16		Visalia DX 24-26	Dayton Ham-vention 15-17	ARRL Field Day 26-28	HRO Ham Jam -	SOARA Picnic 3		JOTA 16-18		SOARA Holiday Party 6
Major HF Contests		ARRL DX-CW 15-16	ARRL DX-SSB 7-8 CQWPX SSB		CQWPX CW 30-31	ARRL Field Day 21-23			CQWW RTTY 26-27	CQWW SSB 24-25	CQWW CW 28-29	
Volunteer Events	OC Chili Run	Paws Fur Pink OC Chili Run	OC Chili Run Baker to Vegas	Dessert Storm Rally Ride for Rwanda	HD Trails OC Marathon LH Marathon	ARRL Field Day 26-28	MV Fire-works 4					Run for a Claus

Dates subject to Change - Check the SOARA Web Site (<http://www.soara.org>) to verify locations and times

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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:

UHF/VHF (447.180, 147.645 & 224.640): Tuesdays @ 8:00PM

D-STAR (146.115 C module): Wednesdays @ 8:00PM

40 meter HF (7.200 MHz +/- for QRM), Sundays @ 8:00AM

10 meter HF (28.410 +/-) Sundays after the 40m net.

Gordo HF (7.250 MHz +/- for QRM), Weekdays @ 8:30AM



SOARA OFFICERS

President: Ray Hutchinson, AE6H 949-322-8468
ae6h@soara.org

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w6ine@soara.org

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SOARA DIRECTORS

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w6edt@soara.org

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ae6sh@soara.org

Communications: Heiko Peschel, AD6 949-859-3868
ad6oi@soara.org

SOARA APPOINTMENTS

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

Activities Coordinator: Dana Wresch, KM6LZG
km6lzg@soara.org

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

Raffle: Bill Colvin KM6FOY km6foy@soara.org

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Website: John Zimmer, KM6BEE
km6bee@soara.org

Ambassador: Spencer Ammermon, NG6K
ng6k@soara.org

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