ECA Newsletter

Volume 22, Issue 5 **Special Holiday Issue 2021**

Introduction

It's already the holiday season again and we find ourselves still under the shadow of COVID-19. At this writing, it's 18 months and counting. At least with the vaccines, we are starting to come back together as a group and engage in some work days and exercises. Simulated Emergency Test is always a big event for us and we are looking forward to it on the second of October. We have an exercise plan and will be working on the details and securing the park for the activities. We will have a cook-out there in the park after the exercise and use that time to have our hot-wash.

Along with this newsletter, there is a form to fill out and send back to help us try to improve ECA for the membership. We want to hear your ideas on how to make ECA into a vibrant and exciting group. Tell us what you like to do, what programs you would like to see, what activities you would like to participate in and what you would like to see in the newsletter. We would like to hear from you – the membership so lay it on us.

This issue of the newsletter is the infamous holiday issue so you never know what you might see but rest assured, it will hopefully be encouraging and, perhaps a little on the lighter side. As always, we look for articles from the membership so if you have something you would like to see in a future newsletter, please send it to william.a.grimsbo@carter.net and we will make every effort to get it into the next issue. If the very next issue is full, we will get it into the next. Rest assured, it will make it into a newsletter. If you need help motivating your creative side but are not sure how to start, ask for help and we will get you going.

We appreciate all of the folks that have participated in weather nets this year. It has been an interesting weather year and your participation in the nets is critical. Exercises and work days are also important and we appreciate the turn-out for those as well.

ECA has started meeting at the County Emergency Operations Center off of T.R. Hughes Blvd, just North of Tom Ginnever in O'Fallon. We meet every second Thursday of the month at 1900 (7:00 pm). Please arrive around 1845 (6:45 pm) so we can get you all escorted in to the building. Our nets are at the following times:

- EM Net - Monday at 1900 (7:00 pm) on the DEM-VHF-1 Public Safety Repeater
- ARES® Net – Monday at 2000 (8:00 pm) on 145.490(-) CTCSS 141.3 Hz repeater.

The ARES® net is open to all amateur operators so feel free to check in and make yourself at home.

That's it for now. Happy Holidays and we hope you can enjoy the holiday season with friends and family.

- That's all for now. 73 DE N0PNP

EMCOMM and You

Recently, we have had some questions related to the relationship between Amateur Radio Emergency Service (ARES®) and Radio Amateur Civil Emergency Service (RACES. The following is from the 2015 edition of the ARES® Handbook:

"2.3 ARES and RACES

RACES was never intended to be an organization unto itself. RACES is not an autonomous entity affiliated with an emergency management agency. It is a capability available to emergency management officials to utilize their volunteers who have Amateur Radio licenses to engage in official government emergency communications. RACES is a Radio Service, not an organization. With this understanding, it is clear that the one-hour per week and 72-hours twice per year RACES exercise rules *(97.407(d)(4))* do not apply to amateur activities which are otherwise permitted under non- RACES *Part 97* rules. If the emergency management official directs that an exercise be conducted in the Radio Amateur Civil Emergency Service, than the RACES rules including the exercise restrictions apply; but if amateurs (ARES® or others) are merely participating in an exercise that involves the emergency management agency, then they are operating in the Amateur Service and the RACES exercise restrictions do not apply.

Consider that several amateurs are enrolled in an emergency management program so they can communicate in RACES when requested by an emergency management organization. If these amateurs, who might call themselves RACES members, operate in the ARRL's annual Simulated Emergency Test (SET), does *97.407(d)(4)* apply? No, because their participation in the SET is not done under the authority of a RACES rule, as evidenced by the fact that many ARES® members who are not enrolled in a civil defense program can engage in the exact same communications under their license authority in the Amateur Service. Amateurs do not lose operating privileges as a result of enrolling in a civil defense program and registering their station.

It also becomes clear that the restrictions on with whom RACES stations may communicate *(FCC rule 97.407(c))* apply only to RACES operation when the Amateur Service is ordered off the air, since these restrictions do not apply to the Amateur Service or the Amateur-Satellite Service. If the Amateur Service is not off the air, an amateur operator may communicate with non-RACES amateurs in the Amateur Service during the same operating period in which they communicate in RACES.**"**

A key point here is that RACES is not an organization or autonomous body but a service – a capability available to emergency managers. It is a capability to use licensed amateur volunteers to engage in official government emergency communications. RACES is a tool for emergency managers.

ARES® is a service as well but is also a field organization under the American Radio League. ARES® does not require any specific affiliation, it only requires that you have an amateur radio license.

To participate in the RACES service, you must be a volunteer with an

emergency management agency. This is why ECA strongly recommends that volunteers fill out the Emergency Management Application form and get the background check as part of that process to become affiliated with Emergency Management in St. Charles County. We do not require that a volunteer becomes an Emergency Management volunteer or even an ECA member since any licensed amateur can participate in ARES® activations. However, if for some reason, the amateur service was shut down (as in wartime or other national emergencies), ARES® cannot activate but RACES may still be effective. ARES®, under most circumstances, has more capability and flexibility during most emergencies. Wearing the RACES hat allows operation under the emergency management affiliation for the purposes of that agency when the amateur service in general may be shut down. As volunteers for Emergency Management, we should try to have as much flexibility under as many circumstances as possible and RACES is another tool in the tool box.

DE N0PNP

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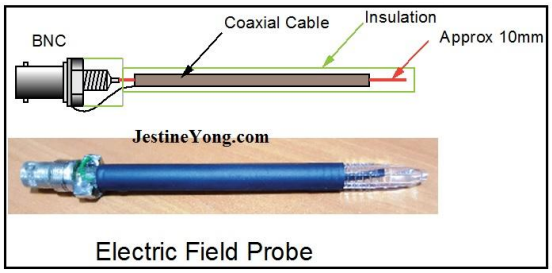
Technical Articles

Near Field Probes

As many of you already know, your editor has become a QRP aficionado as of late (or perhaps "nut" might be more appropriate). The reasons may seem strange with the higher power rigs available and the very high power solid state amplifiers in use today but one of the main reasons is the high performance and low price of some of the new QRP rigs. Take for example the UBITX V6 which the editor wrote a review of a couple of newsletter ago. For the money, it is a very powerful (not in the high power sense but in the capabilities sense) rig for right around $200.00. I also have a UBITX V4.3 which I have done much rebuilding on since it was damaged by a misconnection early on. I needed a project to keep my idle hands busy and so I started troubleshooting the rig. I replaced an SMD voltage regulator and an SMD transistor (wow - that was more trouble than anticipated), six 2N3904s and two IFR-510s and now the unit seems to be functioning properly. In addition, I added an audio amplifier since I didn't think it had enough volume for my fading hearing. This is another all-band rig but without the nice full color display. This unit has only a 2 x 16 character display but has most of the features of the V6. Troubleshooting the unit caused me to make a near-field magnetic field probe and a near-field electric field probe for my handheld spectrum analyzer (another product review a few months ago). Using my E-field probe, I was able to locate the problem with the transmitter (downstream of the mixer) and repair it. The E-field and H-field (electric field and magnetic field respectively) probes are incredibly simple to build and have endless utility in the ham shack. This article will address the construction of the probes and their use for troubleshooting. I built the E-field probe using a four foot length of RG-174 coax (small gauge, 50 ohm) and cut the shield back 10 mm from the end of the coax. This side I ran through the body of an old plastic pen which I had used all of the ink from. Take the pen apart, discard the spring, pushbutton and ink cartridge and run the 10 mm stripped end (just strip the shield, leave the

dielectric in place) to the tip of the probe and glue in place with some hot-melt or equivalent glue. Install a connector to interface with your spectrum analyzer (in my case an SMA connector) and hook it up to your spectrum analyzer.

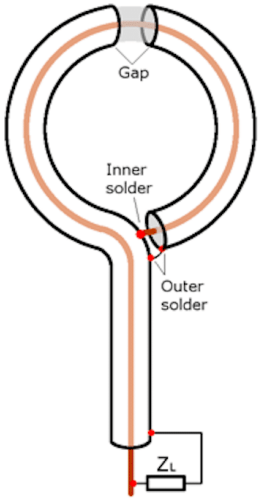


https://jestineyong.com/make-your-own-emi-measurement-probes/

As you get close to even low-level RF, you should see it on your analyzer – works like a champ.

The bare part of the coax center conductor essentially works as a small antenna.

The Magnetic or H-field probe is a little different. The H-probe is a loop of the RG-174 with a break in the shield half-way around the loop and both the shield and center conductor tied to the shield at the end of the loop forming a sort of magnetic pick-up.



https://interferencetechnology.com/diy-near-field-probes-preamplifiers/

I know it sounds strange and seems like it shouldn't work but it does. The loop works like an induction coil and the shield gap limits the unshielded exposure of the induction coil. I used a 1 inch diameter loop and housed it in a pen body just like the E-field probe.

Since radio waves have both a magnetic and electric field component. Either probe should work. The E-field probe is easier to get into tight areas. I put the E-field probe in the blue pen body and the H-field probe in the red pen body. Both work great and I used both to troubleshoot the UBITX V4.3. If you have a spectrum analyzer, I hope you find this article useful. There are a few other things I want to do with the

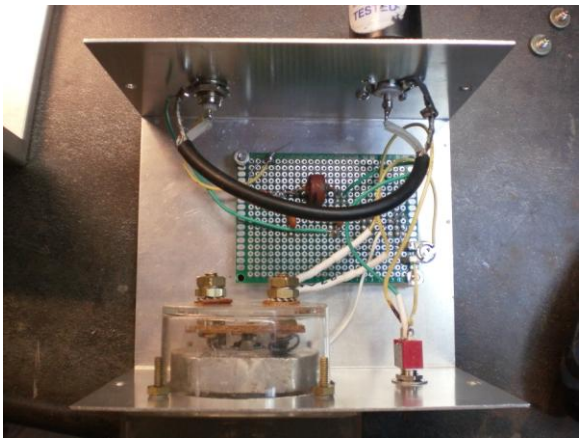
UBITX V4.3 but those are for a future article…maybe.

-73 de N0PNP **Return to TOC**

QRP Wattmeter

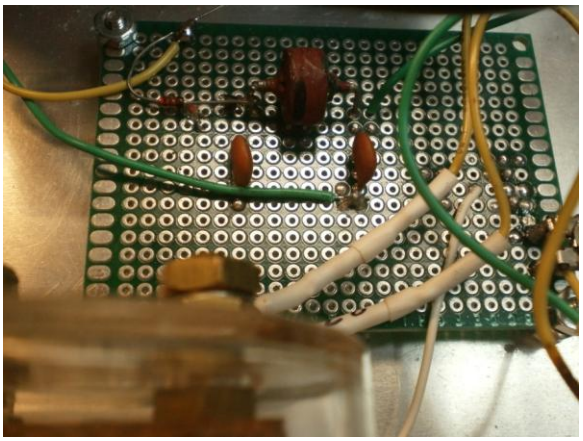
If like me, you have a huge junk box and sometimes have a need for unusual equipment for some project or another, you may have use for this particular watt meter. I find myself working with QRP as of late.

Maybe I'm just bored and making contacts with 100 watts is too easy. I can't explain it I just tend to go with the flow until I get bored again. Anyway, I needed a low power watt meter for HF transmitters below 25 watts. I have some old Citizen's Band SWR meters but I don't find them to be particularly accurate or sometimes even useable. I decided to use one of the 200 □A meter movements I had laying around, a germanium diode as a detector, and a couple of capacitors and an inductor as a filter. I used two resistors and one potentiometer for scaling and an old aluminum Bud box as an enclosure. The dummy load on the back is the termination resistor.

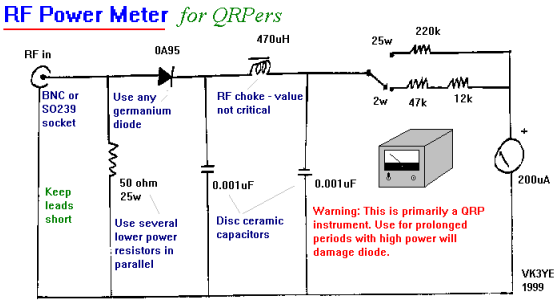


This meter is very simple in design and works fairly well. There are two ranges – 2 watt full scale and 25 watt full scale. Most QRP transmitters fall within one of those two ranges. I removed the meter cover and re-labeled the meter movement by doing some math to get the scale right and a few tests on known transmitters to verify it is correct (or at least close enough to show signs of life in the transmitter). I used an external load because I wanted to be able to use the meter in line with an antenna and I didn't want to try to come up with a 25 watt load made up of discrete resistors.

The schematic is quite simple and most of the parts are not all that critical. The most important is getting the resistors right to give you the correct scaling for whatever analog movement you choose to use.



The beauty of this project is in its simplicity. We all remember the old crystal radio receivers we built as a Science Fair project or just for fun. This is very similar. The germanium crystal diode works as an envelope detector, the two capacitors and indictor as a filter and the resistors are for scaling for the meter.



https://vk3ye.com/projects/projpwr.htm

I placed a 100K ohm potentiometer in series with the 220K ohm resistor for high-range scaling purposes and to give me some amount of calibration since the meter seemed to spike at 10 watts rather than 25 watts.

I found, and the schematic indicates, that you should not transmit continuously with this meter since the germanium diode is a low power, small signal detector. I replaced it with a silicon diode which has a slightly higher voltage drop but it works fine for my uses. I used the perforated board layout but dead-bug or point to point wiring should work just as well. I like the perforated boards because I can leave room to spare for other circuits like a peak detector or a light that comes on if you are reaching the meter limits, etc. Keep the leads short – especially from the input to the detector and you should be just fine.

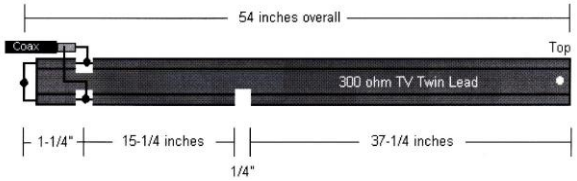
I pulled the plastic cover off the meter movement, removed the two screws holding the scale plate and used my label printer to print out the numbers for the new scales (0 – 2 Watts and 0 – 25 Watts). When you reassemble the meter, make sure the pin-screw adjustment for zeroing lines up properly or you could damage it.

As you can see from the first photo, the meter looks pretty good. Cheap and easy – just like me (uh, hmmm… I guess that didn't sound too good but I think you all know what I mean).

I stole this project from the VK3YE website. Check out his site – Nice!

Go-Kit Dual-Band Quickie Antenna

Just a quickie if you want to build a very simple dual band roll-up J-Pole check out the following:



This comes straight from WB3GCK's website. I built two of them and they turned out identically and both have good VSWR over the 2 m and 70 cm amateur bands. Roll it up and throw it in your go-kit. This antenna uses 300 ohm flat twin-lead. Keep the dimensions as close as possible and the notches for the coax connections around 1/8 inch. I used 6 ft of RG-58/U coax to feed the antenna. Longer lines are OK too, six foot was just handy for me to roll up and go. By the way, the hole on the right side in the picture is to put a string through to hang the J-pole. I used some liquid electrical tape to seal the bare ends and some heatshrink to help seal the coax attach points and the ¼ inch gap. Works great – good luck.

- Bill (N0PNP)

Return to TOC

Digital Corner August 2021

Well, Fall is here, Halloween, Thanksgiving, and Christmas are approaching fast. I wish everyone the best of the Fall/Holiday season.

This article strays a little from directly being tied to radio but is still related for those of us who are interested in emergency communications. One of the things we may be asked to do is provide a drive or walk through an area that has storm damage to get a “rapid assessment” or “windshield damage assessment” in order to provide information to officials involved in relief efforts.

As has been said many times, a picture is worth a thousand words. We can describe a scene by voice over the radio and is a few cases we may send a picture over the radio. With the current state of technology, picture sent by radio are necessarily small and low in resolution. Larger and higher resolution pictures can take a LOT of time to send by radio.

So what other ways can we gather data in support of these tasks? Most all of us have cell phones these days. Learn how to use the built-in camera to take pictures or even video of a scene, to be later given to the supported agency. Most have the ability to encode the GPS data for pictures/video along with the images. This can be very valuable because it gives a precise location/time stamp with no other actions needed to identify the location. Learn to use you phone’s capabilities. It doesn’t matter if the cell network is up at the time or not. The data can be retrieved from the phone by connecting to a computer.

That’s a big step forward from verbal descriptions. It doesn’t replace a quick verbal description, but it does provide a lot of detail that can be very useful during the activity. This still requires manual activity to point & shoot at the minimum. I’ve had a dash mounted GPS in one of our vehicles for many years. It also has a dash cam that records everything seen out the front windshield onto a SD card. Over a period of time, the data is overwritten; many hours of continuous use in this case. What makes that of interest is that it’s always recording with no intervention. Si as I drive to and around doing an assessment, there is a continuous video record, with GPS date encoded, that is available when I get back to the point of dispatch/command post. I can simply remove the SD card and take the data with me to be reviewed and possibly save portions of it for use by the agency.

So, with Christmas on the horizon, I suggest that you consider asking Santa to help you out with a phone upgrade or a new dash cam. I recently installed a higher end dash cam “system” in our newer vehicle. This one can record in 4K UHD front and 2K rear, to a 128GB SD card. It needs a big card since the videos being recorded are at the rate of 300MB/minute. Another great feature for EMCOM purposes is that the front cam can also record “cabin” audio along with the video, so I could annotate my observations for later review. It’s very easy to swap SD cards to save one for the damage assessment for instance.

One thing to bear in mind about viewing a 4K dash cam video. Unless you have a relatively high end computer to view the data, you’ll get choppy playback as the system can’t keep up. However, the data is still there and you can “frame grab” images from the video that are still high resolution and that too can be very useful.

So what should I consider suggesting to Santa you ask? I’d skip the low price cams that attach to the rearview mirror, and any that don’t have a GPS built in. From there on, higher resolution is better, but any of them that include GPS data can provide enough detail to be useful.

Ad you also have a full-time dash cam to provide video evidence if you are involved in or witness and accident. Suggestion, keep a spare SD card in the vehicle, so that you can take the accident data with you, especially if your vehicle needs to be towed for repairs.

There are many available that can sit on the dash using a bean-bag type mount. I permanently mounted the recently installed one I have. It could, if I wanted to, record any activity around, or bumps or break-in

attempt to the vehicle. That would of course require it to be continuously powered. That can get expensive real fast , and then if I did that, it also has the ability to upload that data to the cloud, so that no matter what happens to the vehicle or if the dash cam is stolen, there is recorded evidence available from the cloud. That of course would require a full-time hotspot of 4G/5G LTE phone or modem for it to be connected to. I don't need that level of protection at this point in time. If I was an Uber driver, probably, but not me.

As mentioned before any dash cam that also provides GTPS data is a useful piece of kit for those of us involved in emergency communications.

Happy Holiday Season!
Ken – W0KAH

Return to TOC

Member's Mark

ECA OFFICERS (2021-2022):

- President – Wayne Ault (WD6EZQ)
- Vice President – Bill Moss (KE0RXS)
- Secretary/Treasurer – Jeff Young (KB3HF)
- Director – John Regan (AD0MO)
- Director - Ken Humbertson (W0KAH)
- Director – Wayne Garrison (WD0BZR)

Items For Sale

We have a few of items for sale including the following:

- Three element beam antenna kits for DF'ing - $10. Four available
- TDoA DF'ing kits (Time Direction of Arrival) - $12. Two available
- Various meters and test equipment including frequency counters, capacitance and inductance meter, see below:
  - 50 MHz B&K Model 1801 Freq Meter for $25
  - Heathkit 2240 LC Bridge for $30
  - Heathkit IT-121 FET/Transistor Tester for $15 with the manual
  - RF Applications Model D-144 VHF Deviation Monitor with manual for $20
  - Antennas, power supplies, etc. for various prices depending on the unit
  - Small stereo amplifiers (10 to 15 Watts) for around $20
  - MFJ Deluxe Versa-Tuner II for $100 with the cross-needle SWR/Power meter and variable inductor
  - MFJ-815B Cross-Needle Power/VSWR meter (Peak/Ave) for $50
  - VHF Amplifiers, etc.

If you have interest in any of these things, send an e-mail to william.a.grimsbo@charter.net and I will get back to you.

Return to TOC

County Police Open House

On September 18th the St. Charles County Police Department had an Open House at the headquarters and in the secured parking lot. The event was open to the public and included the Emergency Operations Center. Several of our ECA volunteers were there to demonstrate the communications trailer and the EOC radio room.

The event was well attended although possibly not as many attendees as 2019 when we last did the Open House. Following is a photo from the event.

We would like to thank those that came out to support this important event. The Grab and Go kits were demonstrated and there were brochures and information for the attendees of the event.

- *De N0PNP*

Return to TOC

"The Night Before Christmas", Ham Radio-style

'Twas the night before Christmas, when all through the town,

The snowstorm was raging, the phone lines were down;

The wind it did howl, the tree limbs did crack, I hope that St. Nick isn't forced to turn back.

The wife making cookies, the kids making noise, While away in the shack, by my rig I was poised.

The finals were glowing, the mike gain was set, I was chasing DX to see what I could get.

The bands were all empty, the frequencies clear, Except one lone station that sounded quite near.

He was calling CQ and my interest did pique, When he ended transmission with the words, "Old St. Nick".

I answered back quickly, I used great dispatch, If this were St. Nicholas, good God, what a catch!

We exchanged information, it was really quite graphic, Then he came back and said, "I've emergency traffic!"

His reindeer were tired, his elves in a grump, If he didn't land soon, then his sleigh he would dump.

I thought very carefully, I thought very hard, Then I gave him directions to my snow covered yard.

As he flew past my window, his hair like a mane, He reined in his chargers and called them by name: "Whoa, Anode! Whoa, Cathode! Whoa, Zener! Whoa, Diode! Stop, Heater! Stop, Grid leak! Stop, Bias! Stop, Triode! You're flying too low! you're flying too fast! Look out, you dumb reindeer, his antenna mast!"

So into the backyard the reindeer did drop, St. Nick, the elves, and the sleigh went kerplop!

Then at the back door, I heard this loud knocking, "Open up in there, or I won't fill your stocking!"

As I turned off the light and was leaving the shack, Into the house Saint Nicholas came from the back

His two-meter rig held to his hip with a strap, "Hams do it in the shack" on the front of his cap.

The sack that he carried made his aged brow furrow, And he handed me a card that read, "QSL Via Bureau".

His clothes were all sooty, from his shoes to his vest; I felt like a novice taking his test.

His fingers were calloused and from what I could tell, This came from a straight key that I'll bet he used well.

I offered him coffee, I offered him smokes, I tried easing the tension by telling ham jokes.

Then he nodded his head and raised up his thumb, He smiled like an Elmer, did I ever feel dumb.

He grabbed up his sack and went straight for the tree, And placed in it a large present for me.

When he finished his work, he stood up, took a bow, Then out the back door to his team he did plow.

But I heard him exclaim as he flew o'er the land, "Beware the FCC, friend, we were both out of band!"

Merry Christmas from my house to yours!

http://myplace.frontier.com/~longrj2/humor/nb_hams.html

This one is a bit different but fun to read. I hope you all enjoyed it…Ur, remember to always operate in band.

Return to TOC

Net Control Roster

Week	NCO	Callsign
1	Bill Grimsbo/Jeff Shilt	N0PNP/KC0ATF
2	Ken Humbertson	W0KAH
3	Jeff Young	KB3HF
4	John Regan	AD0MO
5 (Floater)	Wayne Ault	WD6EZQ

The scheduled Net Control Operator is responsible for finding a replacement if he/she is unavailable for their scheduled net or paging. Any EMA volunteer interested in becoming a Net Control Operator on either the EMA Training Net or the ARES® Net should contact Bill Grimsbo (N0PNP) at william.a.grimsbo@charter.net.

Some things to remember:

NCOs - If someone does not open the net by 5 min after the designated time, one of the other NCOs are requested to open the net, take check-ins and handle any traffic as appropriate.

NCOs - If you are unavailable to run the net, please make arrangements – in advance – to have one of the other NCOs run the net in your place.

Membership - The net is a very important method of keeping involved with what is happening with the Association and ARES® - Please consider it part of your weekly calendar (i.e., check in and let us know you are still out there).

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Calendars

October 2021

Sun	Mon	Tue	Wed	Thu	Fri	Sat
26/31 	27	28	29	30	1	2
3	4 EM Net at 1900 ARES Net at 2000	5	6	7	8	9
10	11 EM Net at 1900 ARES Net at 2000	12	13	14 ECA Meeting 1900 hrs	15	16
17	18 EM Net at 1900 ARES Net at 2000	19	20	21	22	23
24	25 EM Net at 1900 ARES Net at 2000	26	27	28	29	30

Notes:

1 All meeting locations are subject to change depending on availability. Tune into nets for latest information.

2 DEM Net is on DEM-VHF-1

3 ARES Net is on 145.490(-) MHz. CTCSS: 141.3Hz

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November 2021

Sun	Mon	Tue	Wed	Thu	Fri	Sat
31 HALLOWEEN	1 EM Net at 1900 ARES Net at 2000	2	3	4	5	6
7 Daylight Savings Time	8 EM Net at 1900 ARES Net at 2000	9	10	11 ECA Meeting 1900 hrs	12	13
14	15 EM Net at 1900 ARES Net at 2000	16	17	18	19	20
21	22 EM Net at 1900 ARES Net at 2000	23	24	 25 Thanksgiving	26	27
28	29 EM Net at 1900 ARES Net at 2000	30	1	2	3	4

Notes:

4 All meeting locations are subject to change depending on availability. Tune into nets for latest information.

5 DEM Net is on DEM-VHF-1

6 ARES Net is on 145.490(-) MHz. CTCSS: 141.3Hz

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December 2021

Sun	Mon	Tue	Wed	Thu	Fri	Sat
27	1 EM Net at 1900 ARES Net at 2000	2	1	2	3	4
5	6 EM Net at 1900 ARES Net at 2000	7	8	9 ECA Meeting 1900 hrs	10	11
12	13 EM Net at 1900 ARES Net at 2000	14	15	16	17	18
19	20 EM Net at 1900 ARES Net at 2000	21	22	23	24	25 Christmas
26	27 EM Net at 1900 ARES Net at 2000	28	29	30	31	1 New Year's Day 

Notes:

7 All meeting locations are subject to change depending on availability. Tune into nets for latest information.

8 DEM Net is on DEM-VHF-1

9 ARES Net is on 145.490(-) MHz. CTCSS: 141.3Hz

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