

Spurious Emissions



The Newsletter of the South Bay Amateur Radio Society



Volume 7 Number 2

Spring 2018





**SOUTH BAY
AMATEUR RADIO
SOCIETY
(SOBARS)
K6QM**

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SOBARS is an ARRL-affiliated ham radio club with members from San Diego, National City, La Mesa, Chula Vista, Bonita, Imperial Beach, and San Ysidro, California.

OFFICERS

President: John Wright, K6CPO
president@sobars.org

Vice-President: Danny Lamb
AI6JN

vp@sobars.org

Secretary/Treasurer:

Fred Curtis, KI6GRO

secretary_treasurer@sobars.org

Call-Sign Trustee:

Jim Beckman, N6RSL

Emergency Coordinator:

Ramon Dueñas, KJ6QQK

Property Trustee:

Louie Vignapiano, KI6SRR

SOBARS meetings are held at the Chula Vista RV Resort, 460 Sandpiper Way, Chula Vista, CA 91910
See the website for dates & times.

Club Repeaters:

146.085 (+) PL: 100.0

448.340 (-) PL: 100.0

Yaesu System Fusion®

CLUB NETS

Club nets are held every Tuesday evening on the following bands:

1830: (PT) 448.340 (-) PL 100.0

223.840 (-) PL 107.2

1900: (PT) 146.085 (+) PL 100.0

1930: (PT) 28.480 USB

7.240 LSB



From The President's Shack

By John Wright, K6CPO

Here we are entering the second quarter of 2018 and we're already back on DST. How time flies...

Member Upgrades

We had only one upgrade this past quarter. During a break from her classes at UNLV, Beatrice Matthews, KK6IVG, found time to upgrade her license class to General. Congratulations, Beatrice!

Just a reminder about SOBARS' free membership upgrade incentive. A member of one year or longer is entitled to a one-year free membership when upgrading their license class. This free membership can only be used once, however.

Net Control Operators

We are still looking to expand the number of net control operators for our group of Tuesday evening nets. Not all of us have the time to do a net every Tuesday and having more operators in the rotation would be very helpful. We will provide the scripts and rosters necessary and any training that might be needed. If you are interested, contact Fred Curtis, KI6GRO.

California Hands Free Law

Last year, in the Winter 2017 edition I wrote of changes to California's distracted driving laws and how those changes might affect those of us with mobile radios.

Late in the year, the legislature passed and the Governor signed into law AB 1222. AB 1222 further modified the law relating to the use of cell phones in vehicles by removing prohibitions on "specialized mobile radio devices," specifically CB and ham radios and walkie talkies (as interpreted by the

California Highway Patrol.)

However, this does not mean other enforcement agencies, such as city police departments and the Sheriff's Department have the same interpretation. Always use discretion in the use of your mobile radios and if you feel it isn't safe to use them, hang them up.

New Emergency Coordinators for South Bay

Congratulations to Bob Garvin, KK6YLW and Curtis Price, K6IBP who were recently appointed ARES Emergency Coordinators for Chula Vista and Imperial Beach respectively.

ARRL Board Actions

As mentioned in this column in the Winter 2018 issue, there have been some recent actions by the ARRL Board of Directors that were met with displeasure by the amateur radio community. At their recent meeting the board took steps to rescind some of their actions and took other steps to improve transparency for the league's members. An explanation of these steps can be found at <https://www.myarrlvoice.org/>.

ARRL Petition For Rulemaking

In other actions, the ARRL has submitted a Petition For Rulemaking to the FCC in an attempt to gain additional HF band privileges for Technician Class license holders. The league feels this change would attract more people to the hobby and would provide more incentive for Technicians to upgrade to General.

The proposed rule changes would include limited phone privileges on 75, 40, and 15 meters, plus RTTY and digital mode privileges on 80, 40, and 15 meters.

The full text of the ARRL proposal can be found at: <https://ecfsapi.fcc.gov/file/1022823795806/2018EntryLevelLicensePRMFINAL.pdf>.

The ARRL's justification for the filing of the petition is addressed in their most recent e-mail letter: <http://www.arrl.org/arrlletter?issue=2018-03-15#toc01>

I recommend that everyone read both documents and then make comments to the FCC regarding whether you favor the proposal or are opposed to it.

Field Day

June will be here before we know it and that means we have to address what we are going to do as a club for Field Day. Field Day is the last full weekend in June. In the past,

we have conducted Field Day as an independent club, but interest has waned in the last couple of years, to the point where we did not observe Field Day as a separate club in 2017, but participated with the Six Shooters at their invitation.

We will be voting at the May meeting on whether to hold Field Day as a club or be involved elsewhere this year. Please think on how you might like to hold Field Day this year and be prepared to discuss it in May.

Elmering

Dan Romanchik, KB6NU, in an article in this issue mentions "Elmering." It's apparent to me not enough of this is being done. The ARES organization has taken a step in the right direction with their Gateway Communicator Class that takes place

every month in La Jolla, but it isn't enough. A proposal was mentioned a couple of meetings back about expanding that program into South Bay by holding similar classes before our monthly meetings. At the time I asked for those that would be interested in helping to let me know. So far, only one person has come forward. I'd like to get this program going, so please, if you're interested in becoming an Elmer, let me know.

Final Comments

I have another trip coming up in April and will out of town and unreachable from April 4 -22. If there is any business that needs to be handled while I'm gone, please contact VP Danny Lamb, AI6JN or Sec/Treas Fred Curtis, KI6GRO . ✈

Linksys™ AC1750 Wi-Fi Range Extender

By Fred Curtis, KI6GRO

Product Review

Caveat -- This article is not exactly ham radio related, but it does deal with WI-FI radio waves, so here goes. If you are like me and live in a two-story house, you know that WI-FI coverage can be a bit of a challenge. There might be dead zones or areas where the WI-FI signal strength is degraded. In my QTH, the ATT Uverse residential gateway/router is located on the second floor in my office. It was necessary to place it there because the gateway also feeds my two VOIP land lines, as well as provide internet connectivity via Ethernet cable and WI-FI. A single point of failure, I know.

On my laptop computer, I use a free program called *WifiInfoView* by NifSoft© to measure signal strength and quality (thanks John Markham, KD6VKW for sharing this program). The program provides a whole host of information about WI-FI signals in

your immediate area. On a scale of 1 to 100, the WI-FI signal strength is anywhere from 63 to 99 on my second floor. Downstairs, the signal strength drops to 43 to 58 depending on location. The downstairs signal was satisfactory and I have not had problems with any WI-FI connected devices.

I had been looking around for a way to get a better WI-FI signal downstairs. I didn't want to spend a lot of money and time and I didn't want to run cables. I considered WI-FI boosters, access points and ranger extenders. All have their pluses and minuses and there is no one solution that fits all. While shopping at my local Costco, I came across the Linksys™ AC1750 Wi-Fi Range Extender. At \$69.99 plus tax, it wasn't the cheapest solution and by no means the most expensive. The extender boasts easy setup and a boost

WI-FI range of up to 9,000 square feet. My house is 1,900 square feet, so how could I lose, right? If it didn't work, I could always return it.

The unit plugs into any electrical outlet and measures 5" l x 3" w x 2" d, kind of like a big wall wart (see photo). For setup you want to plug the extender in near your router. My residential gateway/router has a WPS (WI-FI Protected Setup) button as does the extender. This feature allows you to join a secure WIFI network without selecting the network name and entering the password. My wireless printer has this feature as well. Once the idiot lights stopped blinking on the extender, I simply pushed the WPS button on my gateway/router, followed by the same button on the Linksys Extender. Bingo, the extender was now connected to the router! If you don't have the WPS button on your

router, don't worry, you can connect by using a cellular phone, tablet or WI-FI connected computer to the extender via WI-FI.

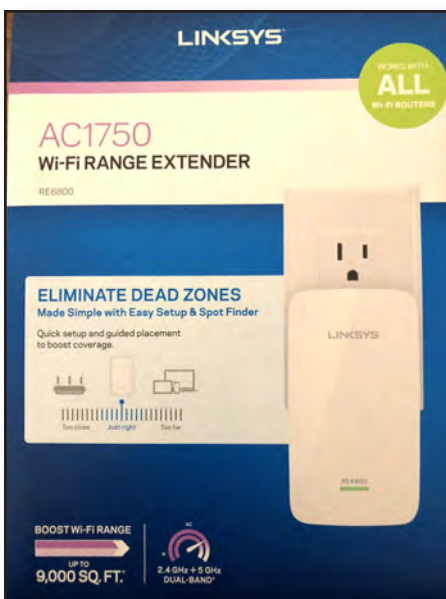
After the initial setup, you connect to the extender using any web browser. Once in the setup menu of the extender, you can make changes to it, including using the Spot Finder. The Spot Finder tells you if the extender is too close or too far from the router. I took the extender and plugged it in to 5 different locations, until I found the one with the best reception to the router. The extender name is the same as your router with the addition of "_ext" at the end of the name. You can keep that or name it whatever you like. Another

nice feature is a check box that lets you keep the same password for the extender as the router. It has many other features that I won't go into here.

After the completion of the set up process, it is only a matter of connecting your devices using the extender's network name (SSID) and password. At my QTH, I connected 2 TV's, a Ring™ Doorbell, cell phone, laptop and my son's Play Station 4 to the extender. The signal strength from the extender throughout the downstairs of my QTH is 99! As you probably guessed, the devices I mention above are located downstairs or are primarily used downstairs. I am also planning on purchasing a

wireless personal weather station (pws) and this extender will be perfect for that application.

It should be noted the Linksys is a dual band extender at 2.4 GHZ and 5 GHZ. If your router is dual band, you can set up the extender to use both bands and cross band for better reception. The extender can also be used as an access point, utilizing an Ethernet cable connected to the router (see photo). All in all, I have been happy with this product. It was easy to set up, configure and use. If you are looking for a product to help improve you WI-FI signal or have dead spot with no signal, this product might be for you. ⚡



Front of Linksys Extender Box
Fred Curtis, KI6GRO



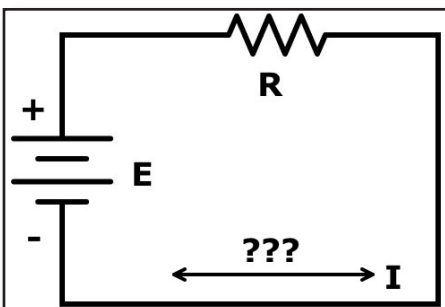
Linksys Extender plugged in and operational.
Fred Curtis, KI6GRO



Ethernet connection on the bottom of the Extender.
Fred Curtis, KI6GRO

Which Way Does Current Really Flow?

By Dan Romanchik, KB6NU



I was recently taken to task by one of my blog readers regarding my description of current flow in my No Nonsense Technician Class License Study Guide. He wrote:

You casually say that current flows from Positive to Negative (with cool accompanying directional arrows), without any accompanying

qualifying statement. Over the years I have looked at ALL the views on the subject. Positive to Negative is NOT what I was taught 48 years ago, and I have never seen a good reason to change my view.

In a subsequent email, he pointed me to a Nuts 'n Volts article, "Which Way Does Current Really Flow?" and

asked my opinion. In the article, the author, who is a ham by the way, does a good job of explaining the various types of current flow.

I agree that in electronic circuits electrons flow from negative to positive, but it really doesn't matter. I agree with one of the article's commenters who says,

This is a silly argument. It's like comparing apples and oranges and challenging people to take sides.

Electron flow is not current flow. Electron flow is easy to understand, an actual physical property, and a real help in understanding vacuum tube operation. But it falls apart when one needs to understand complex electronic systems.

[Conventional] current flow is a mathematical abstraction. It is defined as a net flow of positive charge, irrespective of the polarity of the physical charge carriers — whether electrons, holes, positive or negative ions, or whatever.

When looking at any circuit containing a resistance with a voltage across it, conventional current through that resistor says that the voltage drop occurs as the current through it meets resistance. On the other hand, in negative (electron) flow, a voltage INCREASE will correspond to the 'current' flow through it, clearly violating physical laws. Conventional current flow is consistent with the laws of physics and those of other

engineering disciplines.

You are correct that engineers, professors and scientists use conventional current flow. That is not because they are too obtuse to understand electron flow; I assure you they fully understand it. It is because in their world they have to solve more general problems involving complex math and science, and, again, conventional current flow is consistent with physical laws.

It is unfortunate that electron flow and current flow are so often confused. They both have their place.

After reading that article, I thought I'd see what the ARRL Handbook has to say about current. In the 1963 edition, they don't mention electron flow at all. They have one diagram showing the direction of current flow in both series and parallel circuits, but the voltage source has no polarity. It's simply labelled "Source of E.M.F." Diagrams giving practical examples of series and parallel circuits do include a battery, and if the reader were to mash up the two diagrams, they would conclude that current flows from the positive terminal to the negative terminal.

The most recent edition of the Handbook that I have is the 2005 edition (it might be time to get another copy!). It says:

Electrons move from the negative to the positive side of the voltage, or EMF, source. Conventional current

has the opposite direction, from positive to negative. This comes from an arbitrary decision made by Benjamin Franklin in the 18th century. The conventional current direction is important in establishing the proper polarity sign for many electronics calculations. Conventional current is used in much of the technical literature. The arrows in schematic symbols point in the direction of conventional current, for example.

Having said all that, I really don't see that there's much of a controversy here. I did learn to think of current as conventional current in college, although it was mentioned that electrons actually flow in the opposite direction. Using the concept of conventional current has never seemed to hold me back. I've been able to design circuits and repair electronic equipment thinking that current flows from positive to negative.

Although it's a departure from my "no nonsense" style, I am thinking of including a sidebar, similar to the paragraph above from the 2005 Handbook explaining the two ways of looking at current flow. What do you think? ✈

When he's not trying to figure out which way current flows, Dan blogs about amateur radio at KB6NU.Com, teaches ham radio classes, and operates CW on the 30m, 40m, and 80m bands. Look for him on 30m, 40m, and 80m. You can email him at cwgeek@kb6nu.com.

Hand PTT Switch project

Article and Photos By John Wright, K6CPO

In the last issue of Spurious Emissions I published an article about building a switch box for my VHF/UHF radio that would allow me to switch back and forth between a hand microphone and a headset with a foot switch for PTT.

Well, the occasion may arise where the foot switch is either not needed or inconvenient, but the headset is the preferred method of communicating. In that case, a hand switch might better fit the situation. I feel this would be a good option,

especially for Go-Kit operation.

Background:

Recently, my wife decided to cut back on drinking soda and instead found a product called "ZipFizz." This is a powdered drink mix that comes in a

plastic tube about four inches long and 5/8 of an inch in diameter. Each tube has a nice, well-fitting snap cap that keeps the product fresh.

When I saw these tubes, I thought they were too nice to just chuck in the trash or recycling. They just lent themselves to re-purposing. The only use I could come up with was storage of either small electronic parts or small screws, washers and nuts. (Figure 1.)

In an attempt to come up with more ideas, I put the question to an amateur radio group on Facebook. My effort yielded some interesting answers, from a solder dispenser to a place to store marijuana buds. The solder dispenser was a good idea, but the one that caught my eye was the individual who used the tube to make a hand switch. (The bud comment was deleted by Facebook...)

Construction:

I immediately started rummaging

around in my collection of spare parts and came up with a momentary contact switch. After a quick continuity check to make sure it was a “normally open” switch and made contact only when pressed, I proceeded with the build. (Figure 2)

The first step was to cut a hole in the cap of the tube to accommodate the switch. This took a little bit of carving with an Xacto blade, but I managed to do it without slicing my finger. (Figure 3) I then drilled a hole in the bottom of the tube for the interconnecting cable. Not realizing I had some suitable cable buried away, I ordered a short length of two-conductor cable from Amazon.

Once the cable was delivered, I proceeded with the project. I stripped the outer jacket off the cable and tied an Underwriter’s knot in the two exposed leads. I then stripped the opposite end of the cable and trimmed the leads for a ¼ inch phone plug (to match the connection

to the radio.) (Figures 4 & 5)

Once this was done, the switch was soldered to the leads and the other end connected to the phone jack. I made another continuity check with the multi-meter leads across the tip and ring of the phone plug to ensure there was continuity when the switch was pressed. (Figures 6 & 7)

Everything was closed up and I plugged the phone plug into the connection on the radio and tried it out. It worked perfectly.

Another successful project completed! (Figure 8)

Note: My wife goes through a couple of these per day, so I have plenty. If anyone is interested in some of these tube for projects, just let me know. My e-mail address is in the roster. ✈



Figure 1: The empty ZipFizz container with a ruler for size comparison.



Figure 2: Momentary contact normally open push button switch.



Figure 3: The cleaned tube with the hole cut in the cap.

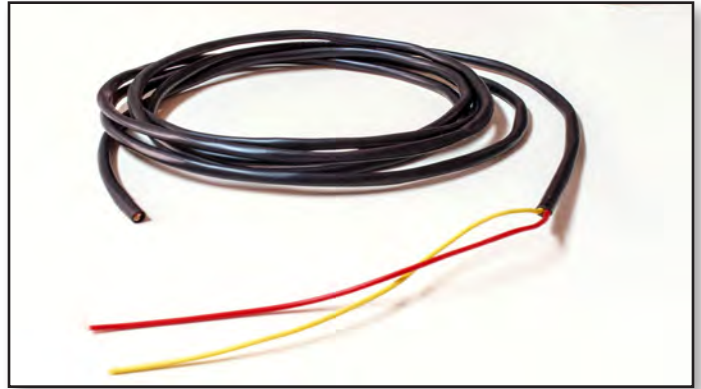


Figure 4: Stripped cable ready for insertion in tube



Figure 5: Cable threaded into the tube and knot tied



Figure 6: Wires soldered to the switch.



Figure 7: Phone plug all wired up.



Figure 8: Completed handswitch ready for inclusion in a Go-Kit.

ARRL: How can we help?

By Dan Romanchik, KB6NU

Recently, I received this email from a reader:

“Hi Dan,

“Hope you’re doing well. I have a couple of questions about the ARRL. I’ve been reading your blog and other sources, and it’s clear that the ARRL is in a little trouble. I have to say, though, that as soon as the current administration in D.C. notices that some of their friends can make money off of amateur radio bandwidth, the whole amateur radio service is in very serious jeopardy. The only way I can think of to counter that would be an organization like the ARRL, and I think there’s really only one organization like the ARRL. Is that not true? If it is, how can we help?”

I replied that it is true that there’s only one organization like the ARRL. In the past, there have been groups that have tried to compete with the ARRL, but they’ve never really taken off. It’s an incredible amount of work to set up an organization like the ARRL and none of the alternates have been able to get to critical mass.

The second question—How can we help?—is the big question. Here are a few thoughts:

Join the ARRL. If you’re not currently a member, join. You’ll have little or no influence, if you are not a member.

If you are a member, but your friends are not, encourage them to join. The more members the ARRL has, the

more influence it will have. This is common sense, but the ARRL doesn’t really seem to care about this. In the past, I’ve encouraged the ARRL to set a membership goal of 25% of licensed radio amateurs ([link 1](#), [link 2](#)). I honestly don’t think this is asking too much, and I’ve never heard a good argument for them not to do this. They continue to ignore me, and the percentage of licensed radio amateurs that are ARRL members continues to decline.

Take an interest in ARRL matters and let your director and vice director know your views. Get your friends to do likewise. Get on the mailing lists for the board meeting agendas and minutes. To do this, log into the ARRL website, click on “Edit your profile,” then “Edit email subscriptions.”

Invite your ARRL elected officials—your division director, vice director, and section manager—to talk at your club meetings. Be prepared to grill them on issues that you think are important.

Run for office yourself. I ran for Great Lakes Division vice director twice. Unfortunately, I lost both times, but even running is a way to have an impact. I’d like to see the “loyal opposition” get organized and challenge the status quo, especially in divisions where I think the current director is making bad decisions.

Having said all that, there are ways to make an impact besides playing ARRL politics:

Get on the air. It’s easier to lose bands if we’re not using them. Encourage others to be active.

Be an Elmer to those that need it.

Teach classes to help those who want a license get a license and to help those who are already licensed to upgrade their licenses.

Be an ambassador for amateur radio, especially to related groups, such as the “maker” groups that have sprung up around the country. Make sure that they know about your amateur radio club and the classes and exam sessions that you offer.

I’d love to hear any other thoughts that you all may have on this. I really do think that at this point, we need to inundate the ARRL Board and staff with input from the membership. While they may have a long history of ignoring the membership and just going about their own merry way, now is really a time of change, and this might be the right time to set the ARRL on a better path.

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When he’s not getting all worked up over ARRL politics, Dan blogs about amateur radio at KB6NU.Com, teaches amateur radio classes, and works CW on the HF bands. He’s the author of the No Nonsense amateur radio license study guides and The CW Geek’s Guide to Having Fun with Morse Code.

