Spurious Emissions

The Newsletter of the South Bay Amateur Radio Society

Volume 6 Number 1 Winter 2017

New Members and Upgrades

We would like to welcome the following new members to SOBARS:

Roderick Hamby, N6JND
Francisco Amarillas, KK6GCD

There were no license upgrades reported.

Meeting Dates, 2017

January,	Wednesday 11th
February,	Wednesday 1st
March,	Wednesday 1st
April,	Wednesday 5th
May,	Wednesday 10th
June,	Wednesday 7th
July,	Wednesday 5th
August,	Wednesday 2nd
September,	TBD
October,	Wednesday 4th
November,	Wednesday 1st
December,	Wednesday 6th

SOBARS members John Wright, K6CPO, and Curtis Price, K6IBP, assisted Southwestern REACT with communications at the Silver Strand Distance Classic, Nov 13, 2016. **Story on Page 3.** *John Wright, K6CPO*

From The President's Shack

By John Wright, K6CPO

Happy New Year! 2017 is upon us and there is a lot to do. We have a number of goals ahead of us this year.

Of prime importance is getting the two meter repeater operating normally again. The decision has been made to reinstall the 2 meter antenna on the top of the tower and connect the repeater directly to it. Then, a 440 antenna will be installed on the outriggers halfway down the tower and the 440 repeater connected to that antenna with a separate run of hard line. All the necessary materials are on hand, so all we need to accomplish the work is time and someone to climb the tower.

Once the repeaters are fully operational we will be looking at replacing the repeater batteries and returning the repeaters to 100% solar power. The new Lithium Iron Phosphate (LIPO) batteries marketed by Bioenno Power (https://www.bioennopower.com/)show great promise for powering the repeaters.

1957 2017

SOUTH BAY AMATEUR RADIO SOCIETY
(SOBARS)
K6QM

PO Box 121132
Chula Vista, CA 91910

E-Mail: k6qm@sobars.org
Website: www.sobars.org

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 Repeater: 146.085 (+)
PL: 100.0
Yaesu System Fusion®

CLUB NETS

Club nets are held every Tuesday evening on the following bands:
1830: (PT) 449.980 (-) PL 88.5
223.840 (-) PL 107.2
1900: (PT) 146.085 (+) PL 100.0
1930: (PT) 28.480 USB
7.240 LSB

As I have mentioned in previous columns, club participation has dropped to an all-time low. In the interest of stimulating participation, a number of different activities are planned for 2017. At the March meeting, we will have a "Go-Box Show and Tell." Members are encouraged to bring in their Go-Kits to the meeting and describe how and why they built it the way they did.

Our last "Swap Meet" meeting was a big success and we will be doing that again, probably sometime in the late summer.

Our normal meeting room will not be available during September and we are looking at having a pot luck picnic meeting instead, possibly at Bayside Park (right behind the RV Resort.)

Now, on to a topic of importance to all of us who have radios in our vehicles. On January 1, 2017, a major change in California's Distracted Driving Laws went into effect. Section 23123.5 of the California Vehicle Code has been amended to place additional restriction on the operation of wireless devices while driving and the changes have a direct effect on amateur radio operation. The complete text of the law and the implications for amateur radio is elsewhere in this issue.

Congratulations to Danny Lamb, AI6JN for his election to the office of Vice-President of SOBARS.

After many years of service as one of the club's delegates to SANDARC, Mark Williams, KF6ZBF, has stepped down. Thank you, Mark, for so capably representing SOBARS.. Taking Mark's place is Bob Garvin, KK6YLW. We are also losing our other alternate delegate to SANDARC. Beatrice Matthews, KK6IVG has been accepted to the University of Nevada, Las Vegas and is moving out of town. Congratulations, Beatrice! If anyone is interested in becoming an alternate delegate to SANDARC, please contact one of the board members.

2017 K6SJA Ham Of The Year Award

By Fred Curtis, KI6GRO

I was honored last year to receive the K6SJA Ham of the Year Award, and as last year's recipient, I became the Chairman of the Selection Committee for this year's award. For those of you who are unfamiliar with this award, each year the South Bay Amateur Society honors the memory and inspiration of Dick Cupp, K6SJA (SK) by awarding one member with the K6SJA Ham Of The Year Award. Many club members are good ambassadors of amateur radio. This is the club's opportunity to recognize one of these unsung heroes. The award is based on the following:

1. Someone in the club we think is worthy of the title "Ham of the Year" and best reflects the sprit exemplified by K6SJA.

2. Someone who promotes amateur radio and uses good operating practices.

3. Someone who does more than asked.

4. Someone who works quietly in the background and is always there when needed.

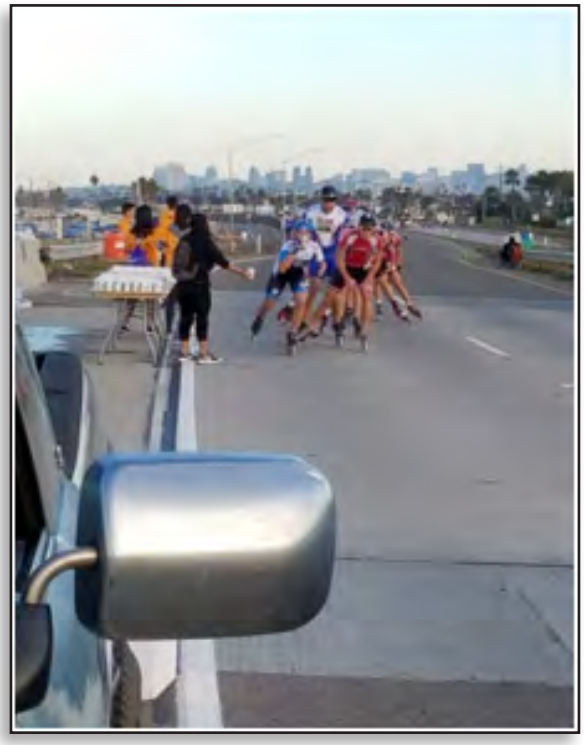
I was proud to announce at the December meeting and potluck that Sarah Honaker, KK6DKP, was the 2017 recipient! Sarah is one of four net control operators that operates our 2 Meter 7:00 pm net, on Tuesday nights. Sarah is also the club's net control operator for our Tuesday night HF net. Sarah stepped up and volunteered to be our HF net control operator and has done an outstanding job. Sarah gladly takes over the 2 meter net when NCO's are unavailable. For those of you that have never acted as Net Control, it takes a little bit of practice and is not as easy as it sounds, especial on HF. Sarah is always interested in increasing her knowledge of ham radio and has earned her Extra class ticket. You will find Sarah at Field Day working HF with her Dad, Bill, N9LZ and having fun. Thank you Sarah for your efforts supporting the club and amateur radio! Well done!

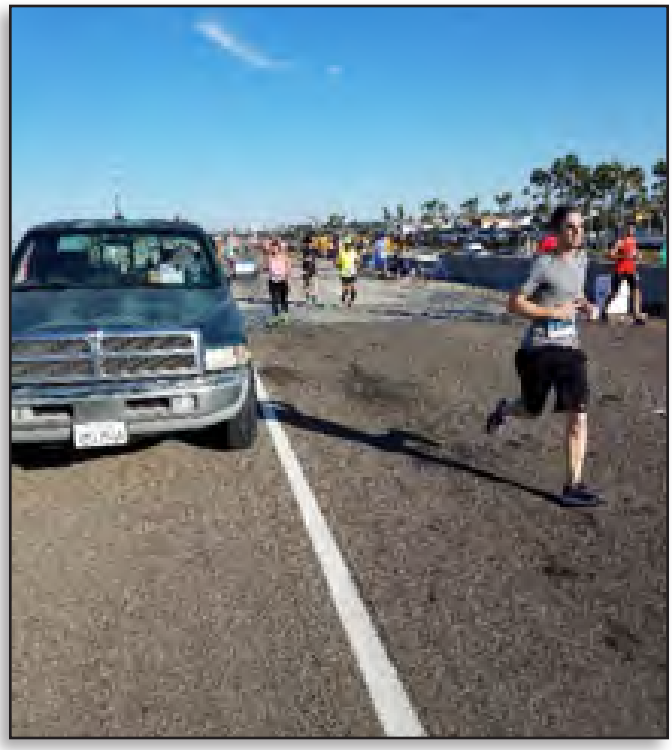
Silver Strand Distance Classic Half Marathon & 10-Miler

Text and Photos By Curtis Price, K6IBP

The 17th Annual Silver Strand Half Marathon, 10 Miler, & 5K took place on Sunday November 13, 2016. The race route was from Sunset Park on Ocean Blvd. Coronado to Imperial Beach Pier Plaza on Seacoast Dr. Imperial Beach. The race was open to Runners, Walkers, Roller Blades, Roller Skates, Ellipticals/ElliptiGO, Hand Cycles, and Wheelchairs.

Southwestern REACT had put out a call for volunteers through the SDGARES email and I decided to answer the call. I was partnered with Jim, KC6KTJ SWR#151 at water station 3 on top of the Coronado Cays Boulevard overpass on the south bound side of Silver Strand Boulevard (SR 75).





There were a couple of challenges that popped up, however they were mitigated and we carried on with our communication roles. The first problem that came up was the primary repeater, C.E.R.O. 147.180, went down and was unavailable for this event We switched over to the alternate repeater, WD6APP (Mission Hills), which worked very well for us. The other issues were that some of the operator's experienced radio malfunctions, but those too were mitigated so they could continue with the event.

The event lasted from 0700 to roughly 1200. I did not go to the finish line so I do not know the actual time all of the festivities ended.

Changes To California Vehicle Code §23123.5

By John Wright, K6CPO

On January 1, 2017, the following section was enacted into the California Vehicle Code. This section deals with the use of cell phones and other "wireless communications devices" while driving a motor vehicle in the state of California.

(a) A person shall not drive a motor vehicle while holding and operating a handheld wireless telephone or an electronic wireless communications device unless the wireless telephone or electronic wireless communications device is specifically designed and configured to allow voice-operated and hands-free operation, and it is used in that manner while driving.

(b) This section shall not apply to manufacturer-installed systems that are embedded in the vehicle.

(c) A handheld wireless telephone or electronic wireless communications device may be operated in a manner requiring the use of the driver's hand while the driver is operating the vehicle ***only if both of the following conditions are satisfied****:*

(1) The handheld wireless telephone or electronic wireless communications device is mounted on a vehicle's windshield in the same manner a portable Global Positioning System (GPS) is mounted pursuant to paragraph (12) of subdivision (b) of Section 26708 or is mounted on or affixed to a vehicle's dashboard or center console in a manner that does not hinder the driver's view of the road.

(2) The driver's hand is used to activate or deactivate a feature or function of the handheld wireless telephone or wireless communications device with the motion of a single swipe or tap of the driver's finger.

(d) A violation of this section is an infraction punishable by a base fine of twenty dollars ($20) for a first offense and fifty dollars ($50) for each subsequent offense.

(e) This section does not apply to an emergency services professional using an electronic wireless communications device while operating an authorized emergency vehicle, as defined in Section 165, in the course and scope of his or her duties.

(f) For the purposes of this section, "electronic wireless communications device" includes, but is not limited to, a broadband personal communication device, ***a specialized mobile radio device****, a handheld device or laptop computer with mobile data access, a pager, or a two-way messaging device.*

(Repealed and added by Stats. 2016, Ch. 660, Sec. 2. Effective January 1, 2017.)

The key phrases in this statute are indicated in bold type . The device has to be mounted to the vehicle's dash **AND** is operated by a single tap or swipe of the finger. This is the first time a "mobile radio device" has been specifically included in California's distracted driving laws.

In a talk at the January meeting of the Palomar Amateur Radio Club, Peter Singer, W2PWS, who is also a San Diego Traffic Court Judge, stated that he believes this statute, as written and enacted, effectively bans the use of a handheld microphone on a mobile radio. He also stated that law enforcement has advised him that they will be writing citations for anyone seen holding a mobile device. The video of his talk is available on the ARRL San Diego Section Facebook page. Just enter @arrlsangiego in the search block.

The ARRL is concerned about the impact this new legislation will have on ham radio operators in California, but has yet to establish a firm position. More information can be found at http://www.arrl.org/news/arrl-gauging-impact-of-revised-california-distracted-driving-law.

What can we do? There are some—but not many—radios that are capable of operation with a Bluetooth headset and this would satisfy the conditions of the law, just as it does for cell phones. There are headsets available for mobile operation and there are microphones that mount in the vehicle and are activated by a separate PTT switch. (I have one...)

The most important thing is to contact our elected representatives in Sacramento and let them know how we feel. Politely, of course. Hopefully, we can get the law amended.

Please keep in mind the information given in this article is advisory and cautionary only. Some SOBARS members have indicated they will continue to conduct mobile operations as they always have. Ultimately, the choice of how one operates is up to the individual.

The video has been uploaded to the SOBARS website, www.sobars.org. Click on the link in the upper left corner of the menu.

Noise Floor Report Does Not Inspire Confidence

By Dan Romanchik, KB6NU

Last June, the FCC's Technical Advisory Committee asked licensed and unlicensed users of the electromagnetic spectrum to answer some questions about the noise they were experiencing and whether or not it was affecting their services. Specifically, they asked:

- Is there a noise floor problem?
- Where does the problem exist? Spectrally? Spatially? Temporally?
- Is there quantitative evidence of the overall increase in the total integrated noise floor across various segments of the radio frequency spectrum?
- How should a noise study be performed?

Well, the results are in, and Radio World recently published a summary of the responses that the FCC received (http://www.radioworld.com/business-and-law/0009/noise-floor-where-do-we-go-from-here/338242). The FCC received 93 replies from 73 (great number, eh?) different people or organizations, including:

- 23 companies/industry organizations
- 39 RF professionals (broadcast and wireless)
- 31 licensed radio amateurs
- 9 responders did not reply to the questions asked

Respondents included the ARRL, the Society of Broadcast Engineers, the National Association of Broadcasters, the National Public Safety Telecommunications Council, ATT, and the National Electrical Manufacturers Association. I found especially interesting comments from the Society of Broadcast Engineers. They include:

- Increased cooperation is needed between manufacturers of Part 15 devices and users of radio spectrum to identify noise sources and take appropriate remedial action.
- Radiated emission limits below 30 MHz in the FCC Part 15 rules for unintentional emitters should be enacted. There are presently no radiated emission limits below 30 MHz for most unintentional emitters.
- Reduced Part 15 limits for LED lights should be enacted to be harmonized with the Part 18 lower limits for fluorescent bulbs.
- Better labeling on packaging for Part 18 fluorescent bulbs and ballasts to better inform consumers of potential interference to radio, TV and cellphone reception in the residential environment.
- Specific radiated and/or conducted emission limits for incidental emitters, such as motors or power lines, should be enacted.
- Conducted emission limits on pulse-width motor controllers used in appliances should be enacted.
- Substantially increase the visibility of enforcement in power line interference cases.

Other organizations made similar comments.

While the report is encouraging, it won't mean a thing if no action is taken on these issues. Given that the FCC is cutting back on its field offices, and our president-elect has said that he plans to reduce the number of governmental regulations, I'm not optimistic that we'll see the noise situation get better before it gets worse. What do you all think?

When he's not battling the noise floor at his QTH, Dan blogs about amateur radio at KB6NU.Com, writes the "No Nonsense" amateur radio study guides and teaches ham classes. You can contact him by e-mailing cwgeek@kb6nu.com.

Go-Box Build, Part 2

Article and Photos By John Wright, K6CPO

Introduction

I recently completed the building of a Go-Box, based on a three-tier Ridgid tool box from Home Depot. In Part 1 (*Spurious Emissions, Fall 2016*) I outlined the assembly of the power section in the bottom wheeled box. In this article I will describe the construction of the radio section in the center box of the tool kit.

What To Put In It

As mentioned in Part 1, The FT-7900R planned for installation was already on hand. Other Go-Kits built on the same tool box system used metal supports for the radio. In order to keep things as simple as possible a wood base was chosen to mount the radio on (as was done in the construction of the battery section.)

During the planning phase it was decided to add a 30 W Henry 2 meter amplifier to the radio box. This would allow an HT to be utilized as a secondary means of communication. The amplifier is 12V powered and has a switch allowing it to be cut out of the circuit.

Assembling the Radio Box

The radio control head, microphone holder and external speaker were mounted to a piece of whiteboard attached to the inside of the box lid using some simple right-angle brackets and Velcro dots. The white board provides a convenient location for recording things such as call signs, frequencies and other information. (The Velcro attachment may be changed later on as it has a tendency to pull loose when the box is closed.) (FIGURE 1.)

FIGURE 2: The mounting board supports the Henry 2-meter amplifier, RIGrunner 4005 and FT-7900R transceiver.

Alternate sources of charging things like cell phones, tablets and HTs were needed along with some method of monitoring the state of the battery. To this end, a 3A dual USB charging port, a cigarette lighter socket and a combination volt/ammeter were installed on the front of the box. The volt/ammeter will handle 6-30V and 1-15A.

FIGURE 1: The whiteboard with the control head and speaker mounted and installed in the top of the box.

Another dual Powerpole socket identical to the one installed on the power box was installed on the back of the radio box. When wired up, this will connect to the corresponding one on the bottom box to provide power to the radio, amplifier and charging sockets.

A piece of wood board was fitted to the contours of the bottom of the box, painted and the radio body and amplifier mounted to it.

The original plan was to use a six-position automotive style fuse panel to provide power to the various components in the box, but this presented an issue with the return (negative) side of the circuit. A simple negative buss strip was made up using a terminal strip and some screw on tabs, but it was determined that this method would create a mess with the wiring. That idea was rapidly discarded in favor of a West Mountain Radio RIGRUNNER 4005. The RIGRUNNER fit neatly between the radio and amplifier on the base board. (FIGURE 2)

On the back of the box, two SO-239 UHF barrel connectors, with weather-proof caps, were installed for antenna connections.

Final Wiring

Now to wire it all up. To accurately measure the current draw of all the components, the ammeter had to be "upstream" of everything else. Using the schematic provided on the Powerwerx web site (https://powerwerx.com/) the meter was wired with the "source" being the Powerpole socket on the rear of the box and the "load" being the terminal of the RIGrunner. (FIGURE 3)

Connections were made between each of the components requiring DC power (radio, amplifier, USB charging socket, and lighter socket) and the RIGrunner using Anderson Powerpoles®. Each terminal was fused with the appropriate value.

Short lengths of coaxial cable were connected between the radio and the amplifier and the corresponding barrel connectors on the back of the box. The control cable for the radio faceplate was connected and a 1/8 " phone plug added to the speaker cable and plugged into the back of the radio. (FIGURE 4)

Being originally intended for tools, the center box has a lift-out tray in it. This makes a perfect container for things like pens, a small clip-on light, and the dry-erase markers for writing on the white board.

The top box in the three tier box system was intended as a storage box and it serves the same purpose in the Go-Box system. There are six removable cups and a central compartment. Items stowed in this box include such things as assorted cables and adapters for connecting other sources of power or radios, a lighter socket charger for Yaesu HTs, a small first aid kit, fuses, a small multi-meter, clipboard and note pad, Yaesu HT hand microphone, and a dual-band roll up J-Pole antenna with 50 feet of RG-8X coaxial cable.

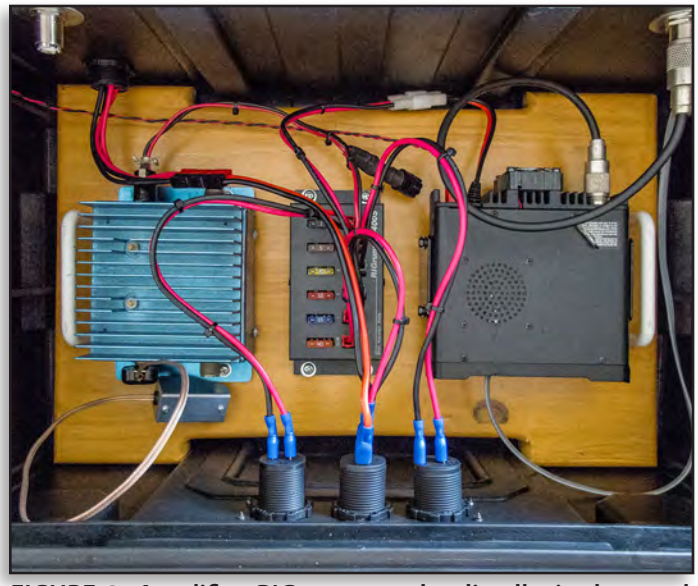


FIGURE 4: Amplifier, RIGrunner and radio all wired up and ready to operate.

The completed Go-Kit made its public debut at the November 6, 2016 Operating Day at Fry's Electronics. The FT-7900R was connected to a Comet GP-1 antenna on the top of a 20 foot telescoping flagpole and a Yaesu FT-60R HT was connected to the dual band roll-up J Pole antenna through the Henry amplifier. The roll-up J Pole was hung about 10 feet off the ground in a tree. Everything functioned as intended with the exception of the Henry amplifier. A stuck relay is suspected because during subsequent bench testing it functioned normally. As it was, check-in to the weekly North County ARES net was accomplished with the FT-60 and J Pole antenna. Not bad for 5 watts!

This kit is not intended to be man portable, especially over rough terrain, but more for staffing a location where there is reasonable vehicle access. The modular construction and liberal use of Anderson Powerpoles® gives a large amount of flexibility in operation. The battery box can be placed at some distance from the radio box and can also provide power to other users if needed. Also, there is nothing to prevent the use of solar power to charge the battery.

The system is flexible enough to be used to power a home station if the need were to arise. I have used the battery section to participate in the periodic ARES SET drills (see Spurious Emissions, Vol. 5, No. 4 Fall 2016).

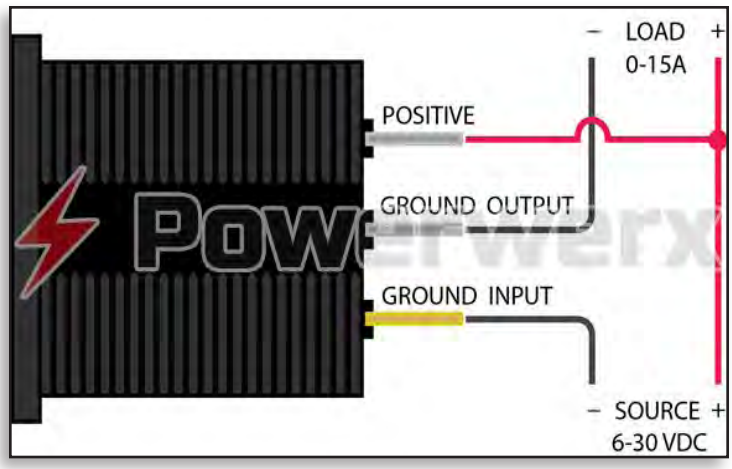


FIGURE 3: Wiring diagram for the Powerwerx volt/ammeter.

Fry's Operating Day, November 2016

Article and Photos By John Wright, K6CPO

The Fall 2016 Operating Day was held November 6, 2016 in the parking lot of Fry's Electronics in Murphy Canyon. As usual SOBARS, set up a table with a couple of different displays. Fred Curtis, KI6GRO, brought out his Yaesu FT-897 and Buddipole antenna and I set up my recently completed Go-Kit.

Is There A Market For A $400 "Prepper" Radio?

By Dan Romanchik, KB6NU

A couple of days ago, a reader wrote:

"I would like to know if it would be feasible to build a radio with the following features:

- SSB operation (only SSB is required, CW would be an additional benefit)
- 20 – 50W of power
- Portable-friendly (lightweight, capable of operating at lower voltages from small portable batteries)
- Low receiver current drain
- Coverage of 40m and 80m bands. Very limited coverage is acceptable. Even channelized coverage of a few select frequencies would be acceptable.
- S-meter

"It strikes me that there is a large market for ham radio products for "preppers," and there has been a lot of interest in the Baofeng line of radios from that market. I think there would be a LOT of interest in a radio that could go far beyond line-of-sight and contact friends or family hundreds of miles away. Preppers would have little interest in contacts more than a state or two away, and no interest at all in novel operating modes. I wonder if a radio that trims away excess features (all-mode operation, wide frequency coverage, high power output, sophisticated audio filtering) could be produced for a lot less cost than currently available HF rigs. If so, and it was paired with a decent NVIS dipole and some General-class study materials and sold as a package deal, it could be a huge hit—Something you could tuck in a bug-out-bag, set up in the field, and use to make contacts in a reasonably local area, or set up in your backyard at home and use minimal power to operate.

"Is there a reason why I don't see radios like this on the market, some kind of technological limitation that would make this sort of thing impractical? If something like this was built, what kind of cost and performance would you expect? I'm certainly not expecting any kind of detailed analysis, but even just a speculation about if such a project could be feasible would be appreciated."

I replied:

"I think one of the reasons you don't see radios with the feature set you describe is that more full-featured radios are already pretty inexpensive. The Yaesu FT-450D, for example, costs less than $800 and offers 100W output. The FT-817ND, which is designed for portable operation, costs less than $700. Is that too much for preppers?

"While it might seem like you could sell a radio with fewer features for less, I think that you hit the law of diminishing returns. At some point, removing features, doesn't reduce the cost all that much. For example, removing the CW capabilities from a transceiver capable of SSB operation really doesn't save that much because in a way CW operation is really just a subset of SSB operation. You'll save the cost of a key jack, but how much is that? Maybe a buck or two. Having said that, it could be that the big amateur radio manufacturers are overlooking an opportunity here."

We swapped a couple more e-mails about this. He noted, "Most preppers would probably rather buy a high-end AR-15 or several months worth of storage food for $800 than a radio." I suggested, "If there was a catastrophic event, and you really needed to communicate, wouldn't it seem silly to have not spent the extra $400 on a really decent radio?"

What do you think? Is my analysis a little too simplistic perhaps? Are amateur radio manufacturers ignoring a potential market?