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REPEATERS
145.430 (-0.6 MHz/PL 162.2)
440.575 (+5.0 MHz/PL 162.2)
223.860 (-1.6 MHz/PL 162.2)

CLUB NET
Thursdays, 7:30PM, W6EK/R
145.430

CLUB MEETINGS
Second Friday of the month,
7:30PM at the Auburn City Hall,
1215 Lincoln Way, Auburn CA

CLUB BREAKFAST
Last Sat of the month at Mel's Diner
1730 Grass Valley Hwy, Auburn CA - 8AM

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WEBMASTER & ARRL PIO:
Carl A Schultz, WF6J

Inside this issue:

Calendar:

Fri 14 June: Club Meeting

Sat/Sun 22 & 23 June: ARRL Field Day in Nyack, CA Shell Station

Sat 29 June: Club Breakfast

Sat 19 October: Cystic Fibrosis bike ride in the Newcastle area

We encourage members to receive Sierra Signals via email to save the Club the cost of reproduction and mailing

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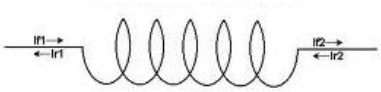
The Loading Coil

By Bob -K6UDA, President



First off, this month's column is written for a wider audience than SFARC. I'm expecting some of our newer members will share this with their non-ham prepper friends. So here goes… **Carl, WF6J** recently came across an interesting little tidbit on social media. I'd like to acknowledge that it comes from an unknown author on one of the more well known social sites.

Preppers and survivalists getting ham licenses

> *I am wondering if anyone else has noticed the new influx of hams? Locally I have seen a drastic increase in people going from no license to extra in a test session or two. They only have a basic book knowledge of ham radio but are studying and getting their license as part of prepping for any time of disaster or infrastructure collapse. Along with this influx I have noticed two schools of thought on how to treat these new hams by the ham community at large. One is to shun them and not bring them into the fold. The other is to encourage them to explore and be mentored into becoming part of the ham community. With that in mind, my club is trying to give more hands on demonstrations and offers to Elmer these individuals.*
>
> *These new hams may be the life blood we need in amateur radio to keep us alive and keep, not lose frequencies. How is your club reaching out to these new licensees and what are you doing to encourage them to become part of the community? There is an interesting discussion going on. Most folks reporting that yes, they are seeing "new Hams" coming from that sector and 4WD.*

As evidenced by our clubs growth in the past couple of years and including myself in the numbers, I've got to agree with this writer on at least one point, the numbers are growing and the new hams are coming from non-traditional demographics. In the past, I understand your average ham was somewhat of a tech/geek. It wasn't uncommon for engineers, broadcast radio guys, inventors, and rocket scientists to practice code and get their novice licenses, then start building Frankenstein transceivers in the backyard. Yes, you guys are the gods of this hobby and have probably forgotten more than guys like me will ever know.

Times change and hobbies change with the times. These days, some hams may still be inclined to tackle a kit radio but with miniature everything, building a radio from the ground up is a novelty at best. Let's face the facts…you can order a dual band transceiver for less than the cost of a nice dinner out for two. I know there are plenty of old hams out there who feel the new breed (no code hams) aren't real hams and treat us as such. I've run into a handful on HF. As far as the preppers and 4WD guys are concerned, we are the future of this hobby, like it or not.

Gaining situational awareness from the preppers mindset

I've talked to plenty of preppers & survivalists who have purchased the infamous Baofeng with the idea of saving it in an EMP proof bag until SHTF (sh*t hits the fan). Their first inclination is not to get a ham license because it puts you on a government list. Their plan is to lay low, very low and stay off the proverbial radar. I've got news for you - everyone is already on a list, probably several lists. To these types I ask an honest and practical question, "Can you manually

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program your radio to a specific frequency, add the appropriate offset, pl tone and power setting and be able to operate said radio appropriately?" Most can't do it. How far will your little four watt wonder transmit or receive? Most will have no idea. I'll explain that hams won't talk to a non ham on the radio barring some life threatening emergency. Some have said, "Well if I have the important info that you need, you still won't talk to me?" My answer was simply "No. If you don't have a call sign, how can I trust anything you tell me or my friends." In my own support group we meet on the air weekly for a radio check. When we are constantly tracking down problems under the best of conditions within my group, all of who are hams is proof positive that firing up your radios after SHTF and expecting everything to work is a foolish pipe dream. How is someone with no ability to practice this perishable skill supposed to make it work for the first time under disastrous conditions? That's my rationale for preppers who want a ham radio to get licensed.

From the traditionalists point of view

I've heard the argument that with this explosion of new hams there will be more jammers, idiots, and bad guys to ruin our hobby. But there have always been idiots, jammers, and bad guys trying to ruin our hobby. My guess is 99% of them are not hams and are simply pathetic little losers that got a hold of some radio gear and have nothing to say but a desire to make noise and have others pay attention. The folks that are taking the time to get licensed are going to be fairly responsible. Much like the preppers and survivalists who won't get licensed because they want to stay off the grid…those of us who did get licensed don't want to attract unwanted attention to ourselves. The FCC tells us to "police our own." I think we do a very good job of it. From ignoring jammers (not giving them the attention they crave) to seeking out and in some cases hunting down bootleggers and others who don't belong to the fraternity.

Finding common ground

Ham radio in its purest form is about tinkering, experimenting, and communications. While the traditionalist entered the hobby to explore technology and experiment, the prepper entered the hobby as a communication tool to aid in the preparation for whatever disaster may strike. Where we all come together is exemplified in everything that is Field Day. For you preppers who are not familiar with what Field Day is, it's a one day event where individuals, groups, and ham clubs all over the USA go out in the field (off grid) and simply operate under less than perfect circumstances. Simulated bug out locations, generator or alternative power sources, temporary antenna setups, and making actual contacts all around the country under these conditions to other stations in similar situations. Field day is about emergency preparation pure and simple. It provides an opportunity to test your radio skills, operate out of your class and in the case of non licensees, explore the ham radio side of prepping without your Amateur radio license at what is called a GOTA (get on the air) station. For you old timer hams, it's incumbent upon you to Elmer the new breed of ham radio operator, teach us the customs, traditions and technology of ham radio. To the new breed, it's our job to learn, experiment, and protect the frequency allocations on the amateur bands or it will get sold off to the highest bidders or worse. There is an abundance of operating modes that can play a big part of your prepping but you'll never even find out about them if you just pack that little handheld away for SHTF.

This year, we're going to try a little something different at camp Nyack. The SFARC Prepper net group will be bringing in some traditional prepping items including food, water, cooking appliances, and the infamous bug out bags for a little prepper net get together. So if you've never tasted survival food and your curious to see if its edible, bring a pouch up and we'll cook it up for some gourmet taste testing. Consider this an open invitation to non ham preppers to experience ham radio and for traditional hams to learn a little about general emergency preparedness. It's time to get on the air…

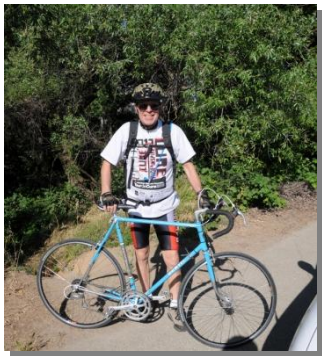
See you on Mt. Nyack on June 23rd. Don't forget your shirts… I'm going to get us on the cover of QST magazine!

Saturday May 4, 2013 … 600+ bicyclists arrived at HP Roseville campus (oh-dark-thirty) for the Roseville Tour de Cure fund raiser for diabetes. It was a perfect day for a ride and for the 19 volunteer radio operators that gave up most of the day to provide communications for 3 rest stops, 6 SAG wagons (pickups on loan), and a rotating bicycle SAG.

Net Control (WU6X and N6FWD) setup at the south end of the HP Roseville campus, next to the Command Center tent. We monitored 2 repeaters and 1 simplex frequency continuously with an Alinco DR635 listening to one repeater and the simplex channel (dual VFO), and a second DR635 cross-band UHF to the W6EK 2m repeater to give Net Control "legs" when we needed to move around. A Yaesu FT-857D worked W6EK direct. Yes, you can't have too many radios!

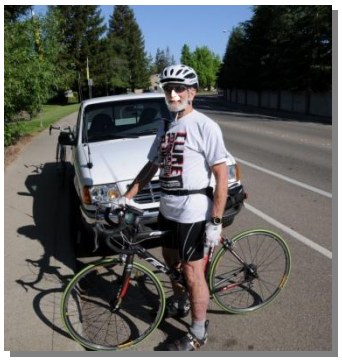
I wish we had more room to show all the pictures taken at the event, but watch for them on the W6EK website. Here are a few pix of the rotating bike SAGS:

Al- NI2U

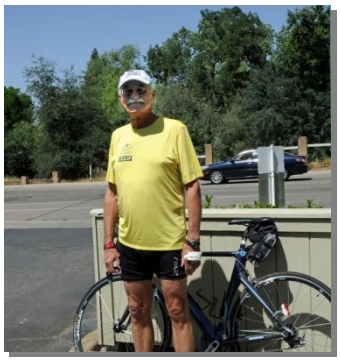


Steli – AE6OR

Marshall – KC7HKU



John – KF7SCO



There were three loops to keep track of … a 31-mile, 62-mile and whopping 100-mile route up through the foothills, with challenging roads like Baxter Grade. It got very busy for about two hours when one bicyclist went through a fence, another hit a car, and a third went into diabetic shock.

This was a time when Net Control was soooo pleased to have people on the other end of the radio that knew exactly what to do. Thanks to **Bob-K6UDA** these emergencies were handled without issues. In fact, *everyone* that participated proved that just because we are called "amateurs", doesn't mean that we don't know how to handle communications in a very professional manner.

My thanks to everyone who made this event successful. And a special thanks to **George-KG6LSB** who organized the route coverage and assignments, and also to **Al-NI2U** who put together the bike SAG assignments and a very thorough instruction sheet for volunteers.

I can tell you from having worked a few of these in my 40 years of amateur radio … you can't skimp on organization on a big event like this; everyone knew exactly where to go and what to do. This cut the non-traffic questions coming into Net Control to almost zero. This is important, folks, because if you've ever wondered what it might be like to be the center of a pileup on a DXpedition, but instead of "giving" a simple signal report, having to "answer" sometimes difficult questions for which you don't have immediate knowledge, over and over again … welcome to Net Control. ☺

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All in a day's work, as they say … and, I know we all left with a sense of having accomplished something special once again, on behalf of the Sierra Foothills Amateur Radio Club, and for ham radio in general.

I know George and Al will join me in a sincere thank you to all the non-biking volunteers:

Assistant Net Control: **Justin-N6FWD**; Rest Stop#1: **Chuck-AE6LR & George-KG6PFG**; Rest Stop #2: **Bob-K6UDA, Justin-K6UVK & Carl-WF6J**; Rest Stop #3: **Roger-K6OU**; SAG-1: **Richard-WA6RWS & Les-KG6NME**; SAG-2: **Richard-KI6UOV**; SAG-3: **Birton-N6UG**; SAG-4: **David-KJ6NNW**; SAG-5: **Robert-W6RBL**; SAG-6: **Larry-KJ6WOL & Bob-N6EMS**.

Until next year … 73, Dennis-WU6X

George, Richard, & Justin

Three Time Loser: How I Failed the Ham Radio Test 3 Times

By Mark Graybill, W8BIT

When I stumbled on the Mount Diablo Amateur Radio Club's field day in 1976, I seemed like the perfect candidate for a license. I knew Morse Code. I could tell a Hartley from a Colpitts and build either out of tubes, transistors, or ICs.

Some technical things specific to ham radio I didn't know, so I was going to have to do some studying. Class A, B, C designations for amplifiers were new to me. I only knew about differential, charge amps, mag amps, and so on. I'd have to learn a few new things for the test.

I should set the scene for taking a test in the late 70s. The actual questions on the test were Secret. They couldn't be used in sample tests, test prep books, etc. You signed a form that said you'd keep the actual questions secret when you took the test. I'm sure this was all part of the Western World protecting its precious amateur radio technology from falling into the hands of enemies, or something. The practical effect was that it made it a lot harder to prepare for the exam. Getting to know exactly what was on the test was hard, nobody would say. You'd study your theory and hope for the best.

The tests for northern California were in San Francisco, during business hours. I had to take a day off from school to take the test. I asked our principal if I could get an excused absence for it. He told me that he couldn't excuse the absence, but encouraged me to go anyway, wink wink.

I prepared by making sure my code was sharp and drilled on prosigns and numerals. Prosigns were completely new to me, and I was weak on numerals (and still am.) I had to learn about ionospheric propagation, so I picked up a copy of Kenneth Davies from the library. I used a copy of the Radio Shack study guide, From 5 Watts to 1000 Watts, and the ARRL license study manual, Tune in the World with Ham Radio. I felt pretty confident I would pass the test when I went through these.

In October 1976, I skipped school and went from Walnut Creek to SF for the test. I knew the way, I'd had a job in SF the

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prior summer at Transamerica as a disk monkey. But that's another story. On the trip to the test, I could sense a cloud of truant officers swarming around me. I'm sure my jumpiness and general paranoia threw them off my trail.

I arrived about half an hour early. I got to watch a jackhammer crew set up outside the building while I waited. I was to make their acquaintance again later that day. Finally, I went into the building and found the testing rooms. The receptionist seemed to give me an odd look in the lobby. I wondered if she was a truancy informant.

Tests were given in two different rooms on opposite sides of a corridor. One thing I noticed right off was that the test area had been provided with a supply of gray air that had a nerve deadening effect on anyone who breathed it. It was amazing. The air one level down hadn't looked like this, nor the air in the lobby. But in the testing area, the air was definitely gray.

Everyone else seemed to know what to do, but I was adrift. In the code room, there was a guy setting up next to a small placard that had times for the different code tests. I asked him something like, "Where do I start and what order do I take the tests in?" He gave me a brief answer I didn't understand, so I played 20 questions with him while he fussed with a recorder. Before he drove me off, I learned that I should take the code test first, and only after I'd passed the code test would I be seated for written tests up to the level of whatever code tests I'd passed.

Since he didn't seem very happy with me, I moved to the far end of the table and waited for the test. Another fellow came into the room and handed out forms. He explained the test. The fellow who wasn't very happy with me pulled out a telegraph key, laid it on the table, connected it to a box, and then left the room. Sending code could still be part of the test, but it was usually waived. I was sure he'd faced that key toward me before he left the room.

The proctor gave instructions for the code test, the jackhammer outside chimed in. It managed to fire up right on top of the critical part of every sentence. Fortunately, I was able to take advantage of this time as a warm-up for the code test. I started trying to mentally block out the jackhammer.

Then the code test started. We had a short warm-up recording, then the actual test. I barely squeaked by the 5wpm test. I could stay for the 13wpm test if I liked, or go to the written exam for a Technician license. I decided to stay. About a third of those tested didn't pass, and about half of those who passed decided not to stay for the 13wpm test.

Then the 13wpm test came. This felt much better. The code was at a much better pace. At 5wpm my mind had time to wander. At 13wpm I stayed engaged. After being quiet for the first half of the test, the jackhammer kicked in, but it didn't stop me. When my sheet was checked, my copy was nearly perfect.

Then it hit me. I was going to be seated for the 20wpm test! Extra Class! Could it really be possible that I'd pass the 20wpm test and then go do the "easy part", the written exams, and come out with an Extra ticket? Nervousness protected me. I choked on the 20wpm test. The proctor was very nice about it, he told me to go on to the written exams and get myself a General or Advanced ticket. Advanced! Yeah, wouldn't that be cool?

When the time came, I dove into my written test. It wasn't long before I was wondering if I had accidentally walked into the wrong testing room. There were a few electronics and radio questions on the test, but most of the test was gobbledygook. Questions like:

9. If the President has declared a National Emergency and a Foreign Diplomat asks you to send a communication to his home nation while offering you a citizenship in that nation as compensation, which of the following is the correct course of action?
A. You may complete the contact as requested, but turn down the offer of citizenship as that would constitute compensation.

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B. You may only complete the requested contact if the foreign nation is not on the State Department list of Naughty Countries included in the Congressional Record.
C. You may not complete the contact unless the National Emergency declaration has been ratified by a super majority of the U.S. Senate and a plurality of lobbyists to the U.S House of Representatives.
D. You may only complete the contact under the supervision of an Extra Class control operator.

What? How was I supposed to know? Did I look like an international affairs lawyer or something? And the test was full of this stuff. I made my best guesses, but nobody had prepared me for:

17. If you hear an A3H signal on the 40 meter band from what you identify as a left-handed Lithuanian operator seeking contact, what is the correct course of action?
A. Do not reply, as contacts with countries on the Excluded List can only be performed above 30MC.
B. Reply via A1A transmission, and make a note in your log of a contact with a hostile power.
C. Report the operator to the Department of Defense without replying, in compliance with the Executive Order requiring that potential tank loaders from Captive States be monitored by the Amateur Radio Service.
D. You may complete the contact as normal, unless you must do so through a repeater operated by a bona fide high school radio club.

The most frustrating part, though, were the semi-technical questions. I hoped that I'd still pass in spite of guessing incorrectly on the legal questions, but then I came up against questions like:

21. If a contact increases their station's frequency deviation during a QSO while you are operating near a band edge, should you:
A. Shift your station's frequency slightly away from the band edge to encourage them to retune and "zero beat" your transmission farther from the band edge without calling attention to the possible violation.
B. Terminate the contact immediately to avoid complicity in a violation of FCC regulations.
C. Turn on your television to see if the signal interferes with Channel 5 in your area.
D. Adjust your station's filter to avoid hearing transmissions that violate FCC regulations.

In other words, none of the answers looked right. The answers were based on conventions that I wouldn't have a chance to learn until I got a ticket and some experience. Well, I finished the first written test and turned it in to one of the proctors. There were a number of red marks, but not too many, I hoped. Unfortunately, I was wrong.

"You missed it by one question," he said.
"Can I try again?"
"Not for a while. Keep your code certificate, that's good for a year."

I didn't know how long I had to wait to retake the test. And I didn't find out, though I did come back and take the test again. Just over a year later. I had to take the code test again. I only passed the 5wpm test. But I was OK with a Technician class license. Then I failed the written test, again, and on the same sort of questions as before…by just one question.

Next, I retested before my code certificate went stale. WA6KGI, Jack Gott, had me take the Novice exam through the brand new VE program (only for Novice license tests). I took it, and the FCC had thought up even more questions involving military exercises, national holidays, Presidential declarations, and lists of different countries kept in various file drawers in Washington, D.C. Jack was very disappointed to tell me that I'd failed the Novice test, too - by one question.

I did take the test again, and pass. 15 years later. Wally Jukes (then KA6EOZ, now K6LDS) talked me into giving it another

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go. I took the test administered by the River City club in Sacramento, on a Saturday morning at a park near my home in North Highlands. No more trips to SF or jackhammers. I passed the 5wpm test with minimal preparation, though it was no longer required for a Technician license. I hoped to pass 13wpm, but missed it.
When I took the written test, I got the test I'd prepared for back in the 70s. It was technical stuff. There were two or three rules and regs questions in there, which I nailed, but I could just as well have missed them. I passed, and a few weeks later received my license, KD6KGV. I was finally a ham!

Note: Since the actual questions on the amateur radio tests of the 70s were Secret, and I signed government forms swearing to maintain secrecy, I took artistic license with the text of the questions. But this is pretty much how they read to me when I was 15 years old.

Neighborhood Watch Group Inquires About Amateur Radio

On May 14, 2013, Rocklin Police Dept Neighborhood Watch Block Captains requested information on Amateur Radio and how it may be used with Neighborhood Watch and during emergencies.

SFARC Members **Matthew Diridoni, KC6RUO** of Rocklin Police and **Dave Albright, NO6NO** gave an hour long presentation to the group of approximately 40 Block Captains and concluded with an official invitation to all attending to visit the SFARC Field Day in June. Numerous people inquired about the SFARC classes and future testing sessions.

Matthew Diridoni,, Officer Mike Nottoli, and Dave Albright

MISCELLANEOUS RADIO

Radioteletype

In the last 25 years, a plethora [*love that word!*] of new communications modes have joined radiotelegraph, radiotelephone, and radioteletype on the ham bands. I'd say we are "blessed" with them except their number exceeds what I can keep track of. AX.25 packet radio is one example with huge activity on both VHF and HF in the 80's. Like the Internet, information to be transmitted was broken into packets, sent, and reassembled into the message at the receive end. Each packet included a special code that allowed the receiver to validate that the packet was probably error-free and to request a retransmission if it had been corrupted in transit, a technique called ARQ [Automatic Retransmission Request].

PSK31 uses a form of phase-shift keying to send bits. The characters are arranged in a unique code such that, in English, the most frequently occurring letters have the shortest number of bits, and no character has two consecutive zero-bits. Two or more consecutive zero bits denote an inter-character space. You have to do this since the length of each character will vary. The data rate is 31.25 baud which roughly corresponds to typing at about 50 WPM. PSK31 generates a very narrow signal in the 40-50 Hz range, and since narrow bandwidths reduce the total noise, if you restrict the receiver bandwidth the signal to noise ratio improves, and PSK31 is usually a low-power mode. PSK31 has no error control … you send it, it either gets there uncorrupted, or it doesn't … just like RTTY, CW, and SSB.

JT65A is another mode that has come along fairly recently. It was developed by Joe Taylor, K1JT[1], and it's fairly strange but has a devoted following. Unlike RTTY, it employs 65 tones in 175 Hz bandwidth. That in itself qualifies as "a little strange," however using it, you are constrained to 13 character messages making Twitter seem verbose. ☺ It depends on a strictly defined back-and-forth protocol between the sender and receiver, and requires knowledge of time to within a half-second or so. In terms of weak signal use, JT65A will decode signals you can't hear and can barely see on the waterfall display in the software. It achieves this by sending slowly so the receiver can integrate the signal. Random noise tends to integrate to zero so the signal then stands out. Like RTTY and PSK31, JT65A uses no error control.

That's 3 new modes and there are many many more, all with their own sound on the air. There's a compendium of audio clips at *http://www.kb9ukd.com/digital/* that includes amateur and many more. But, the subtitle in this issue is "Coding" and this is actually going to cover several issues of Sierra Signals. This issue will introduce some of the basics, and then we'll look at some examples.

The term coding in communications refers to a number of processes aimed at various objectives. For example, by encoding your data, you can control the ultimate wave shape of the modulating signal and hence it's bandwidth. This is a part of what has made digital TV successful. Encoding letters into variable length groups as in PSK31 with shorter codes assigned to more common letters increases the transmission speed of normal text. You can append codes derived from the data message itself which can be used at the receiver to determine if any errors have occurred. And, you can derive and append codes to your message that will allow the receiver to actually correct errors.

So, let's start with that "special code" in AX.25 packet radio. It has a name, CRC-16 , Cyclic Redundancy Check, and the 16 refers to the length of the code word appended to the data packet, 16 bits. It is very easy to generate and check in serial hardware using a linear feedback shift register, and equally easy in software. Mathematically, you treat the data to be sent as if it were a polynomial, and you repeatedly divide it by a chosen 17-bit polynomial until you reach the end of the packet.[2] You discard the quotient, and the 16-bit remainder of the division becomes the code appended to the packet and transmitted. At the receiver, you do essentially the same thing with the data packet and if the remainder of the division matches the CRC code, you are reasonably assured that the packet arrived without error. If it has errors, you send an ARQ and try again. It's a teeny bit more detailed than that, but that will work for us.

Since the CRC is only 16-bits long and the packet is usually longer, there is obviously more than one arrangement of the data bits that will produce the same CRC. If transmission errors happen to rearrange the bits to one of those, the

1 Joe Taylor is a radio astronomer and won the Nobel Prize in Physics in 1998.

2 The "chosen polynomial" is simply a string of 17 1's/0's. There are several CRC-16 polynomials in use but they all work as described above.

packet will appear error-free when it definitely isn't. Fortunately, a small subsidiary of mathematics called “information theory” allows us to pick the chosen 16-bit polynomial to minimize this. Every Ethernet packet on the planet has a CRC imbedded in it. There's a similar scheme called a “checksum” imbedded in every TCP/IP packet on the Internet. A checksum is simply an arithmetic sum of the pieces of the data when broken into arbitrary lengths [like 16 or 32 bits]. It's not as fail-proof as a CRC, but the Internet has other error detection modes as well.

OK, so I can use a CRC to allow the receiver to detect any errors and he can ask me to send it again. This ARQ takes channel time of course. Is there any chance I could do something to help him fix at least some possible errors?

To answer, I need to define Bit Error Rate [BER]. BER is the average number of single-bit errors you can expect on a given channel in some amount of time, usually one second… and for hams on HF, at a given moment in time since the characteristics of our HF channels vary all over the place constantly. Given that, the answer is a resounding YES! and we'll start with one method that isn't used anywhere [☺][3] but it illustrates the direction the answer is going to take.

How about, instead of a CRC, I just send each packet twice? If they match, it would seem that he has a 50-50 chance being correct if he believes they're the packets I sent.[4] The net data rate has dropped to one-half [each packet goes twice], but if the packets don't match, he has no way to tell which one is more probably right, so he has to ask for a retransmission. Keep this in your mind, “even numbers don't work well in coding theory,” it'll come up again.

Let's send the packet three times, an odd number. Now, the net data rate is 1/3 of the raw channel rate which is not exactly cool in a communications engineering sense. The receiver compares all three. If two match, he assumes that's the correct packet and discards the third. If all match, it's even more certain and we've wasted 2/3 of the channel capacity. What are the odds he's right? It depends on the length of the packet and the bit error rate on the channel when the packets go through, but I can tell you, the odds are a bit underwhelming and if you bet those odds in Reno for a few “packets”, you'll lose. If all three packets are different, he has no choice but to send an ARQ, further slowing traffic on the channel.

What really happens is that, for a given packet length, triplication like this will actually work pretty well … until the BER reaches a critical point, dependent on the length of each packet. At that point, communications has, in a practical sense, failed. Now, I could send the packet 5 times [we're avoiding even numbers here], the channel slows to a crawl resembling I-80 through Roseville at 5PM, and the odds that my receiver can figure out the right packet go up … unfortunately, not by a lot.

I said this method isn't used in the real world but in fact it sort of is. When the US Navy wants to send a message to a submerged submarine [where they usually are], they do it on very very low frequencies with quite a bit more than a kilowatt. They send very very slowly so that the receiver has time to integrate the noise + signal bits and find the signal, and they do it multiple times [all odd]. The messages are usually extremely short … a few characters, sometimes only one. The error correction methods coming up in following issues all add bits to the message and at such transmission speeds and really short messages, you really don't want that.

As is often the case, hams are doing this too, who knows, we may have pioneered it. It's called QRSS, it is CW sent extremely slowly … a single dit can take several seconds. Again, the receiver can integrate [math word for sum up] the signal, the random noise tends to be equally plus and minus, and sort of cancels out. The signal, weak though it is and probably inaudible, is not random, and the integration slowly builds it up.

Coding theory, probably more properly called Information Theory, is fascinating for those of us who like math, but it can be equally fascinating for what it can do for us without delving into the mathematics. And, there's some history in it as well … you're surprised?

73,

Fred K6DGW

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3 Well … almost nowhere :-)

4 For obscure reasons, the odds they are right are better than 50-50, but no one does this so we'll ignore it.

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BOARD OF DIRECTORS MEETING MINUTES
May 10, 2013

The SFARC Board meeting for May commenced at 1803 hours at Round Table Pizza in Auburn.

Roll Call: President Bob Brodovsky-K6UDA and all officers and Directors were present except for Board member Mark-W8BIT and Dave-NO6NO. Also present were PIO Carl-WF6J, and guests KK6CGQ-Scott, WB6VYH-Bob and WE6C-Bob.

REPORTS and DISCUSSIONS

President's Report: Bob-K6UDA led a discussion Field Day logistics as he has assumed FD Logistics Chair. Discussed were the number of stations to be operated in the "cluster" and the bands we want to operate; 4 transmitters are planned for the "4A" participation designator again this year, in addition to a GOTA and VHF station which do not count against the 4 primary stations; T-shirts should be here by May breakfast.

VP's Report: no report.

Secretary's Report: no report

Treasurer's Report: Richard-WA6RWS reported net cash on hand at end of April as $5311.83; expenses of $53.48; income of $1,398.60 and balance of $6,656.95. Paid and lifetime members now total 102.

Repeater Report: Richard and the Board discussed the 220 repeater and re-linking, and suggested waiting another 30 days before revisiting at a Club meeting. Also discussed was the need for a repeater committee of 10 control operators. Bob asked about adding IRLP; cost would be approximately $450/month for Internet access; no decision. Richard expressed a desire to focus on the voting system first.

VE Report: no report.

Web/PIO Report: Carl-WF6J updated the Board on posters available from ARRL for FD promotion, and plans to post in various places. Streaming FD on the Internet was also suggested using Ham Nation; no decision. Bob suggested he would contact Bob of "disasterstuff.com" about possibly doing a demo of emergency stuff during FD, and also about make a banner for FD.

Field Day: Donna-W6CQX discussed alternate cooks if she is not able to make it; no decision. Bob-WB6VYH requested a flyer or poster for the Boy Scouts.

Meeting adjourned at 1846 hours. Submitted by *Dennis Gregory-WU6X, SFARC Club Secretary*

GENERAL MEETING MINUTES
May 10, 2013

The SFARC General meeting for May commenced at 1930 hours at the Auburn City Hall Rose Room, President Bob Brodovsky-K6UDA presiding. All Officers and Directors were present except for Board member Mark-W8BIT and Dave-NO6NO; also present was PIO Carl-WF6J and Field Day Committee Chairs. Bob led approximately 45 members and guests in a Pledge of Allegiance to the flag, followed by an introduction of Officers, members and guests.

REPORTS:

Past minutes: The minutes of the past meeting as posted in the Newsletter were approved as submitted on motion by Chuck-AE6LR and 2nd by George-KG6LSB.

President's Report: Bob-K6UDA gave a brief summary of a few items discussed at the Board meeting and that he had assumed FD Logistics Committee Chair; also, that FD T-shirts will be available by May breakfast meeting on the 25th.

VP's Report: No report due to Dave-NO6NO's absence.

Treasurer's Report: Richard-WA6RWS reported net cash on hand at end of April as $5311.83; expenses of $53.48; income of$1,398.60 and balance of $6,656.95. Paid and lifetime members now total 102.

Secretary's Report: Dennis-WU6X reminded guests and new members to pick up a "Welcome Letter" during the break.

VE's Report: No report.

Repeater Report: Richard-WA6RWS reported on Board discussion of 220 to 2m linking, and will monitor usage and report at next month's meeting for discussion.

Satellite Report: Greg-KO6TH reported on an ammonia leak being managed aboard the International Space Station.

Sunshine Report: Nothing to report

Refreshments and Drawing: Refreshments Chair, Jim-WA8NPA reviewed the "eats and drinks" for the break, and Drawing Chair, George-KG6LSB reported on prizes available for tonight's drawing.

Other Information: Richard updated members on the availability of the Newsletter and distribution options.

OLD BUSINESS:

Field Day Update: Dick-WB6EDR announced that FD pins will be ordered this week; $5 each; also offered were opportunities and publicity ideas to attract new members.

Upcoming Support Opportunities: George-KG6LSB reported on success of Tour de Cure support with 19 hams participating; the ARES support to the CERA Enduro; and reminded the Club of the Cystic Fibrosis support opportunity on 19 October.

NEW BUSINESS:

North Hills Swap Meet: "Doc" reminded members of the upcoming N. Hills ARC swap meet.

ARES Updates: Marty-W6TOC reminded and invited the Club to the upcoming ARES Quarterly Meeting on May 23rd at the Red Cross building on 457 Grass Valley Hwy in Auburn.

Club Picnic: Discussion on this year's Club picnic was deferred to next month after Board review.

General Announcements: The Club Net meets every Thursday's at 7:30; Board and General meetings occur on the 2nd Friday; Board is held at Round Table Pizza at 6pm, and General meetings at 7:30. Club breakfast (last Saturday), the "Prepper Net" and the Elmer Net are held on opposite Wednesday nights at 7:30pm. See W6EK.org for more information or date changes.

(Continued on page 13)

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Tech-Ten: Bob-WE6C gave a short presentation on trapped dipole construction, and suggested K7MEM.com for reference.

Presentation: Jettie-W6RFF gave a detailed presentation on what it means to look for and work "DX" stations. Jettie has accumulated an incredible 11 DXCC awards and logged over 24,000 QSO's on LOTW, with close to 11,000 confirmed QSL's, many on SSB, CW and RTTY. DX aids were suggested including DX Summit spotting network, W6EL bearing application DX Reports for weekly information on DXpeditions and suggests simply to Google "DX News" to get to other DX aids.

The meeting adjourned at 2110 – Submitted by, Dennis – WU6X, Club Secretary

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2013 MEMBERSHIP APPLICATION

Name: _____ Call: _____ Class: ___ e-mail: _____

Address: _____ City: _____ State: _____ Zip: _____

Associate Name: _____ Call: _____ Class: ____ email: _____

Phone: _____ Cellphone: _____ Application is: (Circle) New Renewal

Dues / Donations:

Membership: yearly*	$ 22.00	Name Badge:	$ 7.00	Yes	(special name)_____
Associate: yearly*	$ 7.00	Repeater Donation:	$_____		
Auto Patch Donation:	$_____	Newsletter Booster:	$_____		
Misc. Donation:	$_____	Christmas Donation:	$_____	ARRL member? (circle)	Yes No
		TOTAL:	**$**_____	**Please add $1 if paying via PayPal**	

*Prorated dues for NEW Members/Associates Only

July	$ 20 /6	October	$ 14/3 + following year
August	$ 18/5	November	$ 12/2+ following year
September	$ 16/4	December	$ 10/1 + following year

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