

Cathay August 2013

www.cathayradio.org

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Mission: The Cathay Amateur Radio Club is basically an active social club of Ham Radio Operators and their spouses. We support local community requests for HAM emergency communications. Several of us are trained in CPR/ First Aid and are involved with community disaster preparedness.

Monday Night Net Time: 9 PM Local Time/PST, Frequencies: 146.67MHz -600KHz PL85.4 and 442.70 +5MHz PL 173.8. The repeaters are linked only during the CARC Monday night net. The CARC Monday night net is the best way to find out the latest club news. All check-ins are welcome.

Message from the President: George Chong, W6BUR

Hello CARC Members and Friends,

Public Service Announcements

There are several upcoming events that may be of special interest to our CARC members.

- Auxiliary Communications Service (ACS) has several interesting informational events planned. Please read more about the events in this newsletter.
- The California Historical Radio Society may be looking for a new home since the new owners have decided to not to sell the KRE building to the CHRS.

Featured Tech Article:

I cannot thank CARC member, Bart Lee (K6VK) enough for his support of the CARC club by providing several well-written HAM articles that were published in previous editions of the CARC newsletter.

For this month's newsletter, Bart Lee has written for us another superb article on something most of us carry around in our pockets and don't give it a second thought. I am sure you will enjoy reading Bart's latest contribution: **"What is Inside a MUNI / Clipper Card?"**

Technical Session:

A carry over and reminder from last month's newsletter, the Technical Session is happening in this month of August. The Technical Session is a combination HAM party event and technical presentation. Ed Fong (WB6IQM) will be hosting the Technical HAM Session at his home in Sunnyvale on Saturday August 10, 2013.

The Technical presenter will be radio expert, Ron Quan-KI6AZB. Free lunch will be provided and a raffle will be held for very impressive prizes. Further details are within the **Technical HAM Session** portion of this newsletter.

2013 CARC Annual Picnic

Ed Fong (WB6IQM) will also be hosting the 2013 CARC Annual Picnic that will be held 12pm-3pm, Saturday September 14, 2012. Edison is doing the heavy lifting for this event along with providing fabulous raffle prizes. Addition information is in the last section of this newsletter.

CARC Final Wrap Up Message:

Thank you both Bart Lee and Ed Fong for their dedication and contributions on behalf of the CARC membership, we are so bless to have you both in our club.

Chat sub s'em to all you CARC members! - George W6BUR.

Public Service Announcements

HAM CRAM / HAM Licensing

For upcoming HAM Licensing locations please refer to:

<http://www.arrl.org/find-an-amateur-radio-license-exam-session>

Bart Lee – K6VK

The KRE PURCHASE – The following prepared statement by the California Historical Radio Society (CHRS) Board of Directors was presented during the CHRS General meeting, June 1st at KRE:

“We have been informed that KVTO has been sold. Early indications are that the successful bidder is not inclined to sell the building to CHRS at this time. The investor toured the building with a commercial real estate agent May 28th and has implied that they intend to assess the best use of the property and the building in the coming months. This is an unexpected turn of events. CHRS is setting up a meeting with the new owner to discuss our future at 601 Ashby. We will keep you informed.”

To our valued Members, friends and supporters of The California Historical Radio Society, The Bay Area Radio Museum, The Bay Area Radio Hall of Fame and The Society Of Wireless Pioneers:

A wise man named Paul Bourbin, who saved CHRS from extinction many years ago, has told us for a long time, “you have to own it.” He is referring to the building and land that houses a museum. How correct Paul is and what a lesson we are now learning. Well we tried, and at this moment in time the chances of us owning this property are slim. This may change. For the last year we have been operating and making decisions based on the best information we have been given. The circumstances that would have allowed us to buy KRE at this time were completely out of CHRS’ control.

Are we disappointed, of course. Are we giving up on securing a permanent home for CHRS, of course NOT. It has been a privilege and a rare opportunity that not many groups have had to be headquartered in a historic building, rent free for almost 10 years. Until we have a meeting with the new owner, we do not know how much longer we will be at 601 Ashby. While we may be there for a long time, we just don’t know for sure right now. What we do know, is how important it is to protect and preserve our museum collection. These artifacts are the heart of what CHRS is about. We do know how important it is to have a secure and safe place for the Maxwell Library, the CHRS and SOWP Archives. A place where discarded radios are made to come alive again. A place to gather and exchange ideas and information. A place for W6CF to

operate. A place to teach and learn about radio's history and its' importance in the Bay Area. And a place to celebrate the luminaries who make up the Bay Area Radio Hall Of Fame.

The new owner may yet offer to allow us to stay beyond our current license which ends this September. However, we must look to the long run, be prepared, and begin an earnest search for our own permanent home. To this end we have a new Board of Director's Sub-committee comprised of Directors Philip Monego and Tom Bonomo with assistance from Dennis Monticelli. This committee's task is to scout out possible future locations for the CHRS Headquarters and Museum. It is vitally important for CHRS to secure a permanent location to continue our activities relating to radio preservation and history. Many of you may have ideas or connections for a new location. If you do please email them to Tom Bonomo or Philip Monego.

Our dream location is in the Central Bay Area. Our dream building is historic, single story, 6,000 to 12,000 or more square feet and is secure. Our dream parking lot will fit 100 or more cars. Our budget now is almost \$690,000+, unless someone wants to donate a property to CHRS for a nice tax write off. We cannot lose momentum in our fundraising efforts and our constant pursuit of historical preservation. We have been assured by our 3 members who have made \$100K pledges and others, that they have confidence in CHRS' ability to find a permanent home, so their pledges will remain. We hope this holds true for all reading this.

This past year has been quite an experience for CHRS. You all have shown overwhelming support and confidence in our efforts to raise funds for a permanent location devoted to radio. CHRS would not be the fine organization it is today without your support. The door is not closing right now. But, if and when does close, another one will open giving CHRS limitless possibilities for a bright future.

I'm always available and do appreciate your comments.

Best Regards, Steve Kushman

(415) 203-2747

kushseal@flash.net

For additional information see: <http://www.californiahistoricalradio.com/>

Auxiliary Communications Service (ACS)

The Auxiliary Communications Service (ACS) was organized by the San Francisco Office of Emergency Services (OES) following the 1989 Loma Prieta Earthquake to support the communications needs of the City and County of San Francisco when responding to emergencies and special events.

The Auxiliary Communications Service holds General Meetings on the third Tuesday of each month at the San Francisco Emergency Operations Center, 1011 Turk Street (between Gough Street and Laguna Street), from 1900 hours to 2100 hours local time. All interested persons are welcome to attend.

The ACS Net begins at 1930 hours (7:30 p.m.) local time each Thursday evening, on the WA6GG repeater at 442.050 MHz, positive offset, tone 127.3 Hz. The purpose of this net is to practice Net Control skills, practice checking in with deployment status in a formal net, and to share information regarding upcoming ACS events. Guests are welcome to check in. ACS Members should perform Net Control duty on a regular basis. On the second Thursday of each month, the net will be conducted on the output frequency of the WA6GG repeater, 442.050 MHz no offset, tone 127.3 Hz, simplex.

For more information, please attend an ACS meeting or check in on a net, or call 415-558-2717.

Upcoming meetings: Tuesday 7pm, Aug 20, 2013 KCBS Presentation
Tuesday 7pm, Sept 17, 2013 Msg Practice

Other Events: Saturday 8am-12pm August 31, 2013 ACS Introduction
Saturday 8am-12pm October 26, Net Control Training

Gilbert Gin (KJ6HKD)

Free Disaster Preparedness Classes In Oakland:
<http://www.oaklandnet.com/fire/core/index2.html>

CORE is a free training program for individuals, neighborhood groups and community based organizations in Oakland. The underlying premise is that a major disaster will overwhelm first responders, leaving many citizens on their own for the first 72 hours or longer after the emergency.

If you have questions about the recertification process, you may contact the CORE Coordinator at 510-238-6351 or core@oaklandnet.com.

Free Disaster Preparedness Classes In San Francisco – NERT Taught by San Francisco Fire Department

RSVP to sffdnerf@sfgov.org or call 415-970-2024 to register.

Visit www.sfgov.org/sffdnerf to learn more about the training, other locations, and register on line.

Upcoming Special NERT Events.

August

3rd: Intro to Ham Communications Team (HCT) 101, 8:30 a.m. - 3:30 p.m., SFFD DOT*
New or interested HAM operators beginner course (no license required)
HAM operators that want disaster communication instruction are welcome after lunch. register: <http://www.eventbrite.com/event/7404359639>

6th: Hands on Ham Radio Basics: HCT 300 & 301, 6:30pm-9:00pm, SFFD DOT*
Get to know your radio. Basic how to instruction: turning on, tuning in, changing batteries etc. (Amateur Radio license required)
register: <http://www.eventbrite.com/event/7404395747>

7th: Ham Emergency Messaging for the non-hobbyists (hobbyists allowed), HCT 303, 6:30pm-9:00pm, SFFD DOT* Learn and practice creating emergency messages (an important skill for ALL NERTS) and practice talking on the radio. Overcome your hesitation and just do it.
register: <http://www.eventbrite.com/event/7404475987>

8th: Advanced Ham Radio for "dummies" Ham Communications Team (HCT) 400
Hands on training, 6:30pm-9:00pm, SFFD DOT* Bring your radio and practice, practice, practice: buttons, antennas and tones etc. (Amateur Radio license required)
registration: <http://www.eventbrite.com/event/7404510089>

10th: DART Training I - Animal Rescue Training With the Animal Care & Control Dept., 9am-1pm, SFFD DOT* This is session 1 of 4. You must begin with this session and complete all sessions. Additional dates 8/24, 9/7 & 9/21
NERT Certification or equivalent required
to register, email Dr. Bing Dilts: Dr.Bing.Dilts@sfgov.org

September

14th: Disaster Operations 1
Learn how to put ICS into practice. 8:30am-3:30pm, SFFD DOT*
Register: <http://www.eventbrite.com/event/7404602365>

21st: Disaster Operations 2

Prerequisite: NERT and Disaster Operations 1. 8:30am-3:30pm, SFFD DOT*

Register: <http://www.eventbrite.com/event/7404676587>

October

1st: ICS Forms workshop. All NERT grads welcome. 7:00p-8:30pm, SFFD DOT*

Review each NERT ICS Form. The forms are crucial for safety and accountability.

Prepare for the Oct 5 & 19 drills!

Register: <http://www.eventbrite.com/event/7404722725>

5th: NERT Staging Area Drill. All NERT grads welcome. Location TBD

This drill focuses on setting up and managing a neighborhood team staging area.

Practice Incident Command System skills. Bring: NERT ID, helmet, vest, gloves, water, pencil and go-bag. Wear long pants, sturdy shoes and sunscreen. Dress for weather.

Register: <http://www.eventbrite.com/event/7404780899>

19th: Save the Date! NERT Neighborhood drill day.

Registration: registration not open

23rd: NERT Coordinators and Leaders Meeting. 6:30pm-8:30pm, SFFD DOT*

All NERTs welcome. Register: registration not open

*** SFFD DOT is the Division of Training @ [19th Street/Folsom](#). (enter through yard on 19th and park along back wall) Division of Training classroom is in the 1-story building directly next to the Fire Station on the corner**

San Francisco Police Department: Auxiliary Law Enforcement Response Team(ALERT)

The Auxiliary Law Enforcement Response Team (ALERT) is a citizen disaster preparedness program designed. The ALERT program is for volunteers 16 years of age or older, who live, work, or attend high school in San Francisco.

Graduates of the San Francisco Police Activities League (P.A.L) Law Enforcement Cadet Academy are also eligible to join.

ALERT volunteers will first complete the Fire Department's Neighborhood Emergency Response Team (NERT) (www.sfgov.org/sfnert) training and then graduate into an 8 hour Police Department course specifically designed for ALERT team members.

ALERT members will work closely with full-time and/or Reserve Police Officers in the event they are deployed after a disaster. The Basic ALERT volunteer will have no law enforcement powers

other than those available to all citizens.

Upcoming ALERT Training

The third ALERT training class has been scheduled for **Saturday, September 28, 2013**. The class will be held at the San Francisco Police Academy, in the parking lot bungalow, from 8am-5pm (one hour lunch break).

IMPORTANT- All participants must complete the background interview process in order to be eligible to attend the ALERT training class.

Eligible ALERT participants may register for the June 22nd training class by contacting the ALERT Program Coordinator, Mark Hernandez, at sfpdalert@sfgov.org, or by telephone at 415-401-4615. To register by email send your request to sfpdalert@sfgov.org with your NAME and PHONE NUMBER.

ALERT Information Meeting:

An informational meeting will be held at the San Francisco Police Academy, located at 350 Amber Drive, Parking lot bungalows, on **Thursday, August 22nd, 2013, at 7pm**. All members of the public are welcome. Interested individuals will have their questions about the program answered at the meeting.

For more information on the San Francisco Police Department ALERT Program, email us at sfpdalert@sfgov.org, or call Sergeant Mark Hernandez (SFPD, Ret.), SFPD ALERT Program Coordinator, at (415) 401-4615.

For additional information on the web please refer to:

<http://sf-police.org/index.aspx?page=4019>

What is Inside a MUNI / Clipper Card? (From WW II RADAR to RFID)

By Bart Lee, K6VK, for the Cathay Amateur Radio Club
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July 17, 2013

I recently got interested in a MUNI/Clipper card that I used on the San Francisco Municipal Railway transit system. So, I took my MUNI/Clipper card apart to see how it works.



I discovered that the MUNI/Clipper card is an RFID device: **R**adio **F**requency **I**dentification, as is the BART Clipper Card. I have found over many decades that taking things apart is very educational.

The reader device (usually located in a MUNI Station or on a MUNI bus) sends a radio signal to a closely placed MUNI card. The RFID device embedded in the MUNI card picks up the signal with a loop antenna and converts it into a tiny amount of voltage.

That voltage then energizes the on-board silicon chip of transistors that then in turns sends an encoded digital signal back out through the loop.

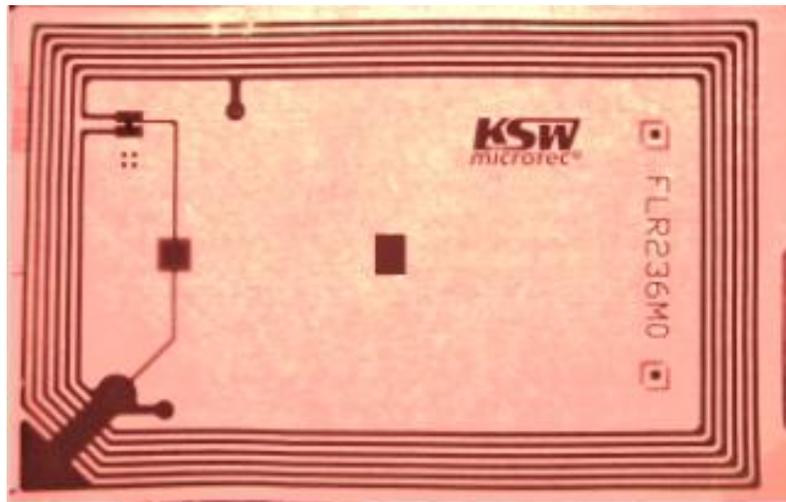


Figure 1. An enhanced graphic I have produced of the MUNI/Clipper card's physical circuit. The square with the two leads is the capacitor that tunes the loop antenna to 13.56 MHz. The bridge between to leads from the loop with the four dots next to it is the Integrated Circuit chip (RFIC).

Photo by Bart Lee

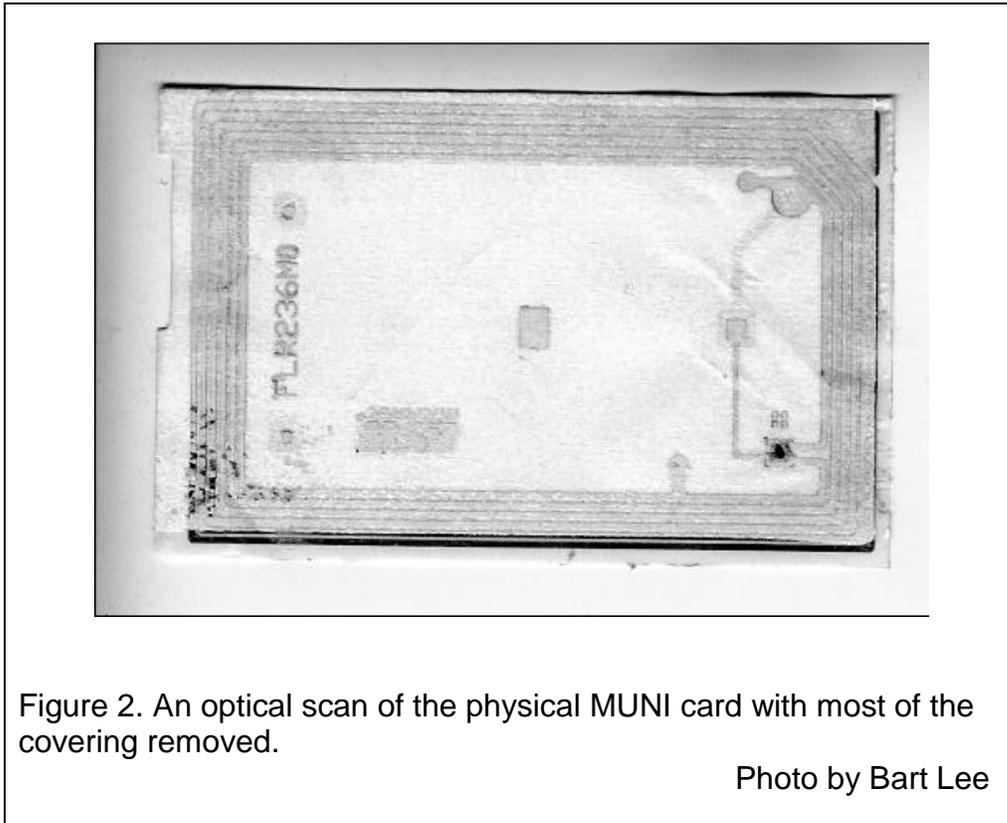
The reader device then picks up the return signal from the MUNI (or Clipper) card and analyses it for “go” or “no go,” or how much “go.” The MUNI or Clipper card depletes its available “go” information with use.

In general the MUNI / Clipper card can be “recharged” with more “go” usually by paying money into a MUNI station recharging machine. The MUNI card works in the 13.5 MHz range.

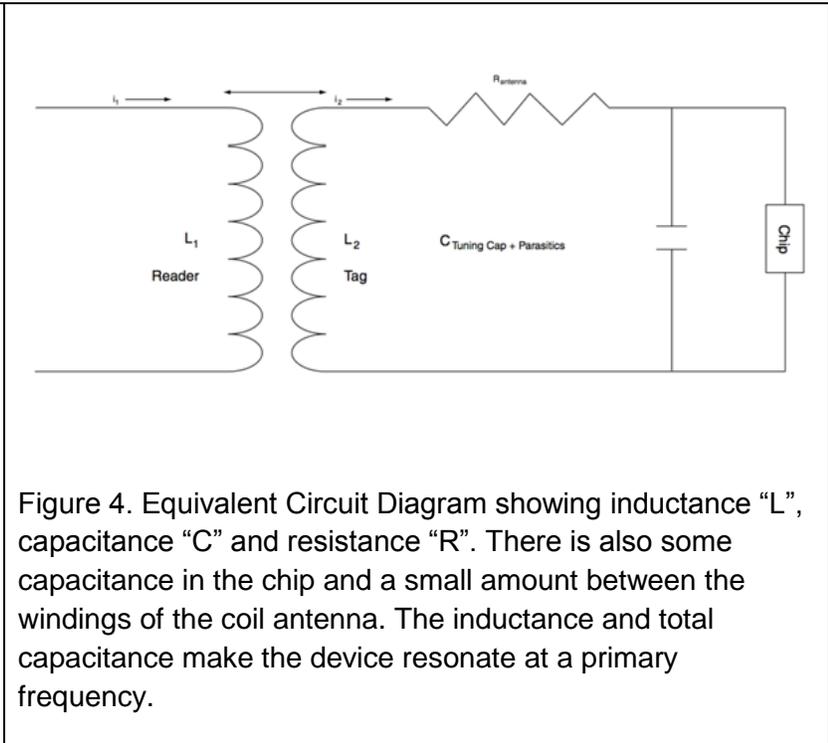
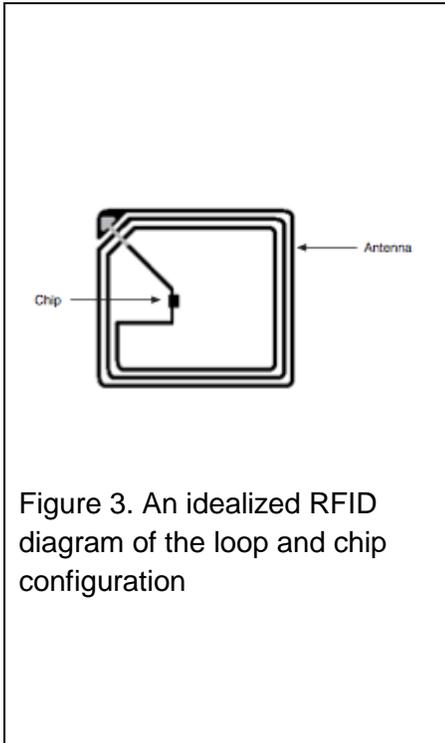
RFID chips for pets and people are much smaller and work at correspondingly higher frequencies. Some credit cards use more complex RFID chips and keep track of a bank or credit balance on the card. Most such systems are encrypted at some level. The little alarm-sounding shoplifting protection devices on merchandise are one bit RFID devices. If still a “1” bit when read at the exit door, an alarm sounds, but if the cashier has changed the “1” bit to a “0” bit, then no alarm sounds.

The key is in the information in the chip. All the rest is just getting it in and out.

The website, Wikipedia is a good source of additional information on the subject of RFID chips. Please refer to: http://en.wikipedia.org/wiki/Radio-frequency_identification



The first two graphics (figure 1 and figure 2) are of my own work on a MUNI/Clipper card.



The roots of RFID go back to RADAR in World War II. RADAR (**RA**dio **D**etection **A**nd **R**anging) bounces a radio signal off something metallic. But whether it’s a friend or foe is not thereby known. WWII German airplanes returning to their base would wag their wings to show German radar operators who they were by variations in the returned reflection.

The Allies developed UHF (then **U**ltra **H**igh **F**requency) transponders to identify their own aircraft, known as IFF for **I**dentification **F**riend or **F**oe.

Interrogation of a passive object was the next conceptual level. One RFID historical reference takes RFID back to 1948, stating:

“An early, if not the first, work exploring RFID is the landmark paper by Harry Stockman, ‘Communication by Means of Reflected Power,’ Proceedings of the IRE, pp1196-1204, October 1948. Stockman stated then that ‘Evidently, considerable research and development work has to be done before the remaining basic problems in reflected-power communication are solved, and before the field of useful applications is explored.’”

http://www.transcore.com/pdf/AIM%20shrouds_of_time.pdf

By 1984 (perhaps all too significant a date!):

“RFID tags were regularly being manufactured by several U.S. and European companies. Some tags could be programmed once at the time of manufacture or manually programmed at the time of installation. These are generally referred to as WORM or Write Once, Read Many tags. Some could be electronically programmed either by direct contact or via the RF link. These are generally referred to as Programmable tags. Usually EEPROM based, these can be re-programmed between 10,000-500,000 times.”

<http://www.emory.edu/BUSINESS/et/rfid/timelinr.html>

A more technical description of how RFID works follows:

“The underlying technology architecture of RFID is based on these components:

[1 A] tag and its associated data structure reader with antenna and [2] the reader’s associated software Communications protocol suite [, 3 a] Communications network database [and 4] data synchronization.

“A reader can be either stationary in a fixed state (e.g., mounted above a conveyor belt) or mobile as in a handheld device or attached to a forklift. The tag is a miniature chip with an affixed radio antenna.

“There are currently two types of tags: passive and active. Passive tags have no directly associated power source, while active tags do. Passive and active tags can be either class 0 (read only) or class 1 (read/write) tags. The approved radio frequency range for RFID applications is 900MHz for Class 0, and either 13.56 MHz ISM Band or 860-930 MHz for Class 1, depending on the strength of signal required.

“In the case of a passive tag the reader initiates communication via a radio signal strong enough to enable the tag to ‘answer’ the reader with a return radio signal carrying information regarding the item to which it is attached. In the case of an active tag either the tag or the reader can initiate communication.”

http://www.dataflows.com/RFID_Overview.shtml

It turns out that RFID tags that use encrypted modes are relatively easy to break especially for those with too much time on their hands. There is potential for big mischief here.

See: Reverse-Engineering a Cryptographic RFID Tag

http://static.usenix.org/event/sec08/tech/full_papers/nohl/nohl.html/

If you are wondering what steps I took to produce the pictures both Figure 1 and Figure 2, they were “destructive testing.” A MUNI/Clipper card is encased in plastic and it would take some kind of an alcohol based solvent to completely remove the surrounding material for detailed analysis of the circuit. But it’s got to be the same circuit as the MUNI card because it works on MUNI as well as BART, etc.

What I did to the MUNI/Clipper card was to soak it in a GooGone solution to get as much of the cardboard off of the plastic circuit-bearing substrate as I could easily manage. Then I took the remainders of the card (as it appears in the scan, Figure 2,) and put it on the equivalent of a light table with an intense red light to expose the circuit within the MUNI/Clipper card. I photographed it with my iPhone, and downloaded it to my Mac. Then I adjusted the color, contrast, saturation, etc., and cropping to produce the picture.

In reference to Figure 1, a microscopic examination of the RFID chip itself could disclose the physical circuit of the chip and therefore its logic. The chips often if not always provide encryption. But by looking at the actual chip under a microscope, the logic pattern can be determined from the chip structure and decryption can ensue. I verified the MUNI/Clipper Card electrical/RF circuit structure by shining the light from a laser pointer through the MUNI/Clipper card momentarily transforming it translucent to observe the physical loop circuit as shadows.

-- 73 de Bart, K6VK ##

Tech Session in Sunnyvale Saturday August 10th. (Includes Free Lunch)

Time: Saturday August 10th – 12 noon – 3PM

Subject: *Software Define Radios You Can Build – Ron Quan KI6AZB*

Place: 1163 Quince Ave. Sunnyvale, 408-245-8210 monitor 146.52 MHz

Cost: FREE to Cathay Members and Guest - Raffle Tickets: \$5 each

Optional: *Bring a dessert to share.*

Directions: *If you are coming from the DeAnza Flea Market, just head North on Stelling Rd. DeAnza College is on the corner of Stevens Creek and Stelling Rd. Go 2 miles, past Homestead Road, past Fremont Ave. (Stelling Rd. will change names to Hollenbeck Ave. after you cross Homestead Rd.) After Fremont Ave, watch for the first signal light which is Torrington, make a left. Go one block and you will run into Quince Ave. We are at 1163 Quince Ave. I will monitor 146.52 MHz if anyone gets lost.*

If you need precise directions from where you are coming from, go to www.googlemaps.com. They seem to give the best directions or give me (Ed Fong) a call on the phone.



Photo of Ed Fong, Host of the Tech Session

This Tech Session is after the DeAnza Swap meet. Rather than head directly home or to HRO from the swap meet, come on by and have a great lunch and meet new friends. Lunch will consist of lasagna, pizza, salad, drinks, and chips. Bring a dessert to share. Why pay for lunch

after the swap meet and then to HRO's? Drop by, save your money and have lunch and still have plenty of time to go to HRO.

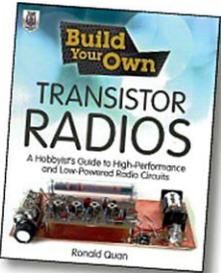
This year's speaker will be Ron Quan, KI6AZB – The author of “*Build Your Own Transistor Radios* – copyright 2013, McGraw Hill”. Here is your chance to meet the author in person and ask him all kinds of questions about radios. He is the world's leading radio expert. Below is Ron's book review that appeared in the July 2013 issue of QST.

New Books*Reviewed by Rick Lindquist, WW1ME*

Build Your Own Transistor Radios

Ronald Quan, KI6AZB

The title of this superb learn-by-doing manual recalled my first transistor portable, a little six transistor job that almost fit in your hand (I still have it!). But Ronald Quan's book, subtitled *A Hobbyist's Guide to High-Performance and Low-Powered Radio Circuits*, covers a great deal more territory. Quan, who obviously knows his stuff and has the credentials to boot, starts with four receiver designs — TRF, regenerative, superheterodyne and reflex — as the building blocks for essentially all radio receivers (he neglects the direct-conversion design popular with QRPer's), then expands into a far wider world of experimentation and do-it-yourself construction. Readers who are at sea regarding receiver basics or who need a refresher will find this a terrific tutorial! Chapters include parts lists (Quan encourages scouring the junk box or cannibalizing old radios), block diagrams and complete schematics for various receiver



projects you can build on vector board.

The most intriguing chapters delve into design aspects that may pique the curiosity of many radio amateurs, such as inductorless, single-transistor superhet, and low-power (ie, current draw measured in microamps) radios. Perhaps most useful to the modern ham are those sections dealing with software designed radios. Quan introduces SDRs at the conclusion of those chapters aimed at the hobbyist and experimenter. He details a couple of receiver front-end circuits, including one for 40 meters, that can use *Winrad* or similar software to handle the digital aspects and to demonstrate how SDRs function.

The remaining 10 chapters discuss signals and circuits and explore more advanced principles and concepts, employing a fair amount of algebra and trigonometry to explicate these. Quan allows he may be too “math-centric,” and the eyes of the non-engineer may glaze over at such discussions as “Finite Pulse-Width Signals” and

“Consequences of an Imperfect 90-Degree Phase Shifter on Reducing the Image Signal” (the latter nearly *entirely* mathematical). This is not to suggest that readers with lesser electronics or mathematics backgrounds won't find these later chapters valuable. Quan also reveals the secrets of oscillator, mixer, amplifier (including op amp) and IF circuits, and at several points discusses how these relate to SDR concepts. Each chapter is replete with extensive references for those interested in further investigating specific topics.

Overall, this extremely well written and comprehensively illustrated guide and reference deserves a place on the inquisitive radio amateur's bookshelf. As the author says, “Learning electronics... is a lifelong process. [W]e all become to some degree self-taught...”

McGraw-Hill Companies Inc (TAB), New York/Chicago/San Francisco, 2013. ISBN: 978-0071799706, softcover, 7.2 x 9.1 in, 496 pp. Available from ARRL (www.arrl.org/shop/) Build-Your-Own-Transistor-Radios-McGraw-Hill), Order No 1367, softcover, \$50; Amazon.com, softcover, \$32.77, Kindle edition, \$26.13.

QST® – Devoted entirely to Amateur Radio www.arrl.org July 2013 43

Ron will give an overview presentation of Software Defined Radios (SDR). As most of you know, this is a new architecture that uses your computer to do a good portion of the work. He will have a live demonstration of a SDR radio he built for 40 meters and the one he built for the AM broadcast band.

According to Ron, you can build the 40 Meter version yourself in an afternoon. The radio works with free downloaded software such as “Winrad” that runs off your PC.

No more filters to buy, no more paying for fancy hardware. Let your computer do most of the work.

The modes are endless. Detect SSB, CW with any bandwidth (no filters to buy), see the entire band with a software spectrum analyzer. All this for under \$25, not including the cost of the computer. Don't miss this great talk.

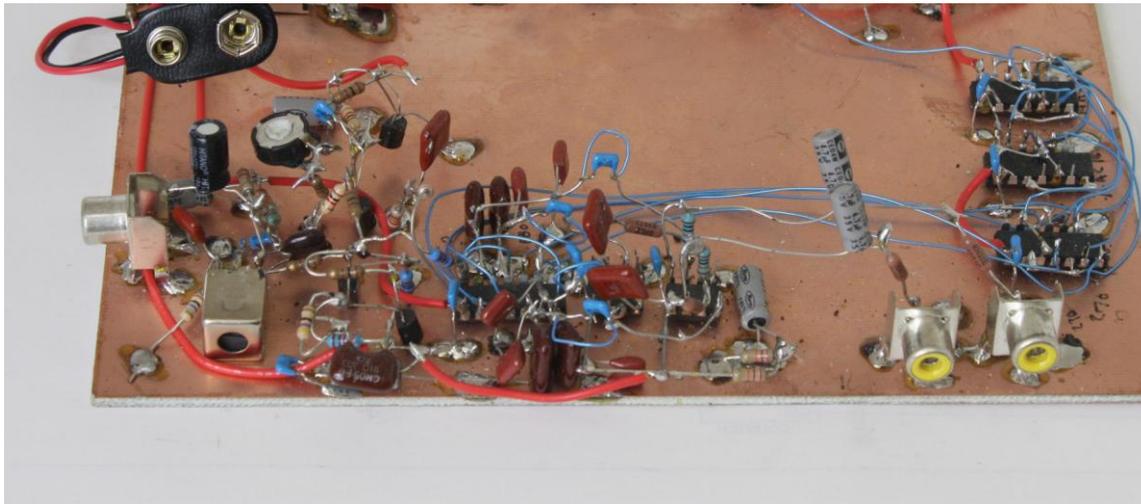


Photo of Ron's hand built 40 meter band SDR

Note: The variable frequency oscillator was replaced by a simple crystal oscillator used in conjunction with a computer handling the required 192 kHz sampling.

Raffle Prizes - We will have two raffle prizes this year. Tickets are \$5

First Prize will be the ever so popular **16GB Kindle Fire** tablet computer. This is one of the fastest tablets around with a proprietary absolutely gorgeous 7 inch 1280 x 800 display with a built in polarizing antiglare filter. These little things are amazing. Google has done a really good job with the Android operating system and Amazon has done a superb job on the hardware.

These tablets do everything the Apple IPAD can do except they cannot run some of the proprietary Apple apps such as "Facetime". However; the Kindle Fire runs Amazon apps that the Apple IPAD cannot run. Eric Schmitt at Google has done an excellent job on the Android OS that the Kindle Fire is running under the covers.

Both CARC members: Bob Lai (KM6QP) and Nelson Doon (AD6XZ) informed me that there are dozens of ham radio apps available for the Kindle Fire.

The Kindle Fire has a great camera for Skype picture phone and great audio to boot (works great with external speakers). With the Kindle Fire, you can answer your emails, watch YouTube videos or your favorite TV show, surf the web, eBay, etc. These little tablet devices are no longer mere toys. You take them anywhere with you since they weigh less than a pound.

Here are the Kindle Fire's general specifications:

- 1.2 GHz dual core processor with TM Power VR 3D video
- Free unlimited cloud storage for Amazon content

- 16GB of built in Flash and expandable with external SD card (up to 32GB)
- Supports all video formats – MEG, MP4, 3GP, etc.
- Network – 802.11b/g/n MIMO
- USB 2.0
- Over 11 hours of reading, surfing, video,etc. , MIMO
- 2400mAh LiOn battery
- Total weight - 13.9oz.

I think this surpasses any of my boyhood dreams of a handheld device.



2nd prize will be the ever so popular **Baofeng UV5**. There are more Baofeng UV5R's sold today than any other radio on the market. Why not? Its performance matches the best of them and yet the price is 1/3 of the cost of the mainstream manufacturers. Let me mention that the battery – it just seems to last forever on a single charge.

- Dual band VHF/UHF (full transmit capability 130-230 MHz, 420-520 MHz), separate receiver chip for FM broadcast
- 5 watts output – VHF and 4 watts at UHF
- Programming software
- Dedicated FM Broadcast receiver chip (even detects stereo with headphone and a slight modification).
- 128 memory channels
- Built-in LED flashlight
- Complete with 1700 MaH LiOn battery
- Antenna
- Smart drop in Charger
- Belt clip
- Earphone microphone



2nd Raffle Prize: BaoFeng UV-5R

**2013 CARC Annual Picnic – Fairbrae Swim & Racquet Club
696 Sheraton Dr
Sunnyvale, CA 94087
12 pm – 3 pm, Saturday, September 14, 2013**

Place: Corner of Hollenbeck and Sheraton in Sunnyvale, 1 block from my house (Ed Fong – WB6IQN)

Time: Saturday September 14, 2013 12:00 pm - 3:00 pm

Costs: FREE hamburger, hotdogs, drinks, Raffle Tickets: \$5 each

This is a great place to go right after the DeAnza Swap Meet. We will rent Fairbrae Swim and Tennis Club for the afternoon. It is just down the street from my house and 2 miles down from the DeAnza Swap Meet.

The club will provide for 1/3 lb. premium sirloin burgers and buns and drinks (got to try these to experience a true burger). Bring a side dish (eg. salad, dessert or buy more raffle tickets to cover our cost). Remember, the club has no dues.

There are cooking facilities, so we can heat up food. There are two large barbeques. To find out more about this facility, just Google search on “Fairbrea Swim”. Bring your kids, grandkids and don’t forget the swim suits.

For the grand raffle prize, we will have **Apple iPad**. Among the other raffle prizes are the **Baofeng UV5** - 5 watt transceiver, **Maglite flashlight**, and a host of other assorted goodies. Raffle tickets will be \$5 each. Please buy them from my daughters; Violet and Mei-lin.



Please RSVP to Ed Fong: edison_fong@hotmail.com the number of people accompanying you to the picnic so we can have enough food on hand.