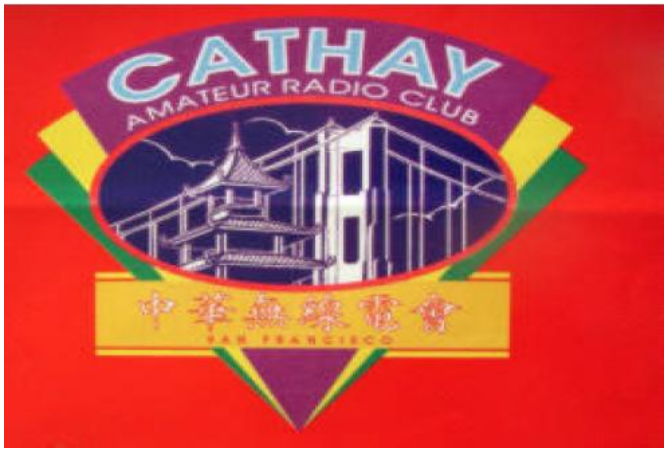


Cathay March 2012

www.cathayradio.org

President: George Chong, W6BUR **email:** *W6BUR@comcast.net*

Vice President North: Leonard Tom, *NX6E* **email:** nx6e@hotmail.com

Vice President South: Bill Fong, *W6BBA* - **email:** w6bba@arrl.org

Secretary/Membership: Bill Chin, *KC6POF* – **email:** bill.kc6pof@comcast.net

Editor: Rodney Yee, *KJ6DZI* - **email:** rodyee2000@yahoo.com

Treasurer: Vince Chinn aka Mingie, *W6EE* - **email:** vince@vincechinncpa.com

Web Master: Edison Fong – *WB6IQN* - **email:** edison_fong@hotmail.com

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 PST, Frequencies: 146.67MHz -600KHz PL85.4 and 442.70 +5MHz PL 173.8. The repeaters are linked. 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*

The CARC initiative of hosting an April 2012 Chinatown HAM CRAM has exceeded all of our expectations. Yes, we are 100% full, there are just no more openings or study materials. But don't give up or lose interest. Future CARC HAM CRAMs will be announced in upcoming CARC newsletters. There was just not any way that we could have predicted the overwhelming responses from the Chinatown/North Beach neighborhood. Thank you all.

As promised, we have additional photos from last month's CARC Luncheon celebrating the year of the Dragon. It was a terrific event for all of us to reconnect. I was surprised to hear that those that did not received our email invitations found out about it from our web site. That was very nice to hear. I had not seen most of you since last year's luncheon, especially your ladies. When we have the next annual Chinese New Year luncheon, be sure to invite your gals. Thanks you all for attending the luncheon.

One of the things I have notice about our club members, that is you guys and dolls - please tell me what your pleasures are, speak up and be heard. I've heard this many times, this is a man's hobby and they're always talking radios. When you girls and ladies show up, my wife Hetty is so happy, she loves talking with you. You ladies with the green thumbs please come to our upcoming combination CARC Field Day / pot luck lunch at my house as Hetty has many extra potted plants to give away. She really missed you gals not coming by last year to pick up the plants and being the good company that you are. Speaking of CARC Field Day, a few years back someone left a camera case and goodies and we can't seem to find the rightful owner.

Keep those messages coming on your choice of our next CARC group excursion. I will let you know which choice is winning out: Hillers Air Museum or the San Jose Tech Museum or as of yet a surprise choice.

About The Evolution of Building of Electronic Circuits:

Are any of our members into constructions of simple circuits? For me it's been years since my last projects along that line. When I did it…I had to learn to drill holes and punch metal chassis for radio tubes. Ran wires from to sockets to components. Bolt on heavy transformers to power our circuits. **Well, we don't do that anymore!**

After a while then came along solid state devices such as the transistors that utilize the printed circuit board (PCB). Now we had to learn to drill very small holes into the PCB to mount the solid state devices. **Well, we don't do that anymore!**

For us hobbyist HAMs, having to drill all those holes to mount our electronic components was a PITA (pain in the ass). **Well, we don't do that anymore!**

Now here comes the Surface Mount Component (SMC), now you are wondering what in the heck is that thing? SMCs do not need drilling as these are like the size of a grain of rice, only smaller. Now try to solder those tiny SMC onto a printed circuit board! The soldering iron tips are much smaller to work with SMCs. At though it can be done, it takes a whole lot more time and patience to work with SMCs. Do you love the smell of melting solder on your hot soldering iron? **Well pretty soon we won't be doing that anymore!**

I recently read a blog of a very clever idea of how we can soldering all those little grains of rice size SMCs without touching them with a soldering iron. Wow, what a great idea! I just absolutely love it! There is more to come about that in an upcoming newsletter now that I wetted your appetite.

I would ask that our CARC members to please submit articles of interest for our revived newsletter. Please send your written articles or suggestions to me at *W6BUR@comcast.net* .

My apologies to Harry – KJ6DYY in the February 2012 newsletter that incorrectly miss typed his call sign; I will have the February newsletter corrected.

This month's newsletter contains an interesting article about the new Public Safety /700MHz LTE system.

Additional Pictures from the February 4, 2012 CARC Annual Chinese New Year Luncheon

Helen Louie (KF6MZF) and Jackie Louie (KF6YSR)

Front row: Baby Chung and Mommy Christine.
Back row: Allen Chung - KI6YRL
Rodney Yee -KJ6DZI.

Mingie - W6EE, Rodney - KJ6DZI & Hetty - WB6SHU

Against the back wall, a partial shot of David - NC6D, Harry and Wife – KJ6DYY, Gordon –KG6FAN.
Front row: Tony - KR6EG. back to camera: Connie-KF6WEA and Mrs. Halog (Tony's Mom)

Public Service Announcements

Tony – KR6EG

ACS Info

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

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, check in on a net, or call 415-558-2717.
Upcoming meetings: Tuesday 7pm, March 20, 2012 - Messaging Class
Tuesday 7pm, April 17, 2012
Tuesday 7pm, May 15, 2012
Tuesday 7pm, June 19, 2012

Affiliate ACS Membership:
The ACS recognizes that there are HAMs that have other commitments such at NERT, ORCA, ARES, etc.

ACS provides the option of affiliate membership. HAMs can qualify for ACS Affiliation by going through the ACS membership process, but would only deploy with ACS after they are released from their primary organization.

For further details please call 415-558-2717.

ACS presentation:
Let us know if your HAM Club / organization would like a presentation of the role ACS fills for the San Francisco Department of Emergency Management.

George – W6BUR

EMCOMMWEST 10th Anniversary is Coming

Reno, NV -- Registration is now in full swing for EMCOMMWEST 2012!
This year marks the 10th Anniversary for the ARRL Specialty convention, and we trust it will be our biggest and best year ever!

The convention will once again be held at the Grand Sierra Resort in Reno, May 4 - 6.

Grand Sierra Resort
2500 East 2nd Street, Reno, NV 89502
(775) 789-2000

We are excited that this year our special guest speaker will be Chip Margelli, K7JA who is presently an executive with CQ Magazine,and has a resume like no other. Chip was one of the hams featured on the Jay Leno show, who beat the “texters” with Morse Code. He spent many years with Bob Heil of Heil sound, and is truly a ham radio legend.

Chip will be our Saturday night banquet speaker, and will also present a special forum during the day on Saturday May 5. Remember banquet seating is limited, and this one will sell out for sure, so make your reservation early!

Our Keynote speaker from the ARRL will be the League's COO, Harold Kramer, WJ1B who will bring us a wide range of discussion topics and information from a national level.

This year NARRI will enjoin with EMCOMMWEST bringing it's annual "VOIP CONFERENCE" to Reno for the first time, hosted by Kent Johnson, W7AOR. This topical conference will run all day on Friday May 4, and seating must be reserved in advance. For information on NARRI and it's programs, please check www.narri.org

For registration and hotel room information, please go to www.emcommwest.org Check back often as we will be updating the site constantly with new information on speakers and forums and other great activities. We still have room for more vendors in our vendor hall,and you may register for space on the website.

Of course we will have a couple of great door prizes, and some very nice radios as grand prizes again this year!

If you have a forum or topic YOU would like to present, please send an email to speakers@emcommwest.org.

For all other questions, and to volunteer as part of our team, please direct them to:

info@emcommwest.org

We look forward to seeing you soon in Reno May 4 - 6 for the 10th Anniversary edition of EMCOMMWEST!!! 73!

ARRL Pacific Division
Director: Robert B Vallio, W6RGG
w6rgg@arrl.org

Featured Tech Article:

The 700 MHZ Solution

2/29/2012
By Rodney Yee

With the advent of the digital television broadcasting in the United States on June 9, 2009, the 700 MHz frequency band became freed up for reallocation. Prior to June 9, 2009, the 700 MHz frequency band was in use for analog television broadcasting of UHF channels: 52 – 69.

The Federal Communications Commission (FCC) subdivided the 700 MHz band into 5 blocks:

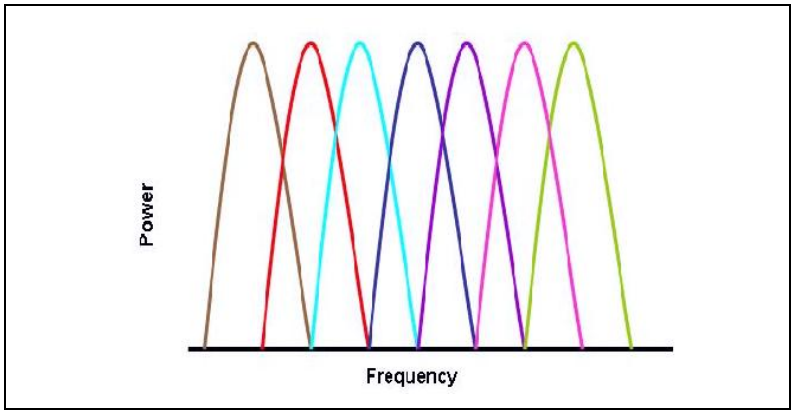
- Block A: 12 MHz bandwidth (698–704 and 728–734 MHz)
- Block B: 12 MHz bandwidth (704–710 and 734–740 MHz)
- Block C: 22 MHz bandwidth (746–757 and 776–787 MHz)
- Block D: 10 MHz bandwidth (758–763 and 788–793 MHz)
- Block E: 6 MHz bandwidth (722–728 MHz)

Blocks A, B, C, and E were purchased at auction by cellular phone and satellite commercial companies.

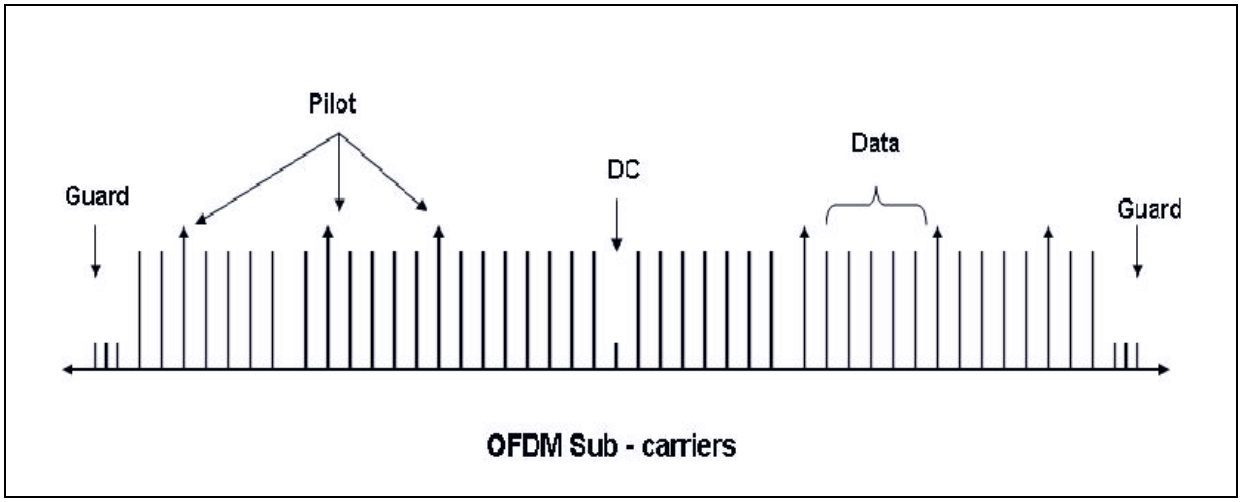
Block D remained un-allocated until February 17, 2012 when the United States Congress passed a resolution to reallocate the Block D spectrum for public safety.
The resolution also included $7 billion in federal grant money for the deployment of a nationwide network on the 700 MHz Block D spectrum.

The public safety nationwide network will be implemented using the latest digital technology: the Long Term Evolution (LTE). The LTE will be implemented using the 4G (4th generation) advance cellular phone technology that uses “Orthogonal Frequency Division Multiplexing (OFDM)” and multi-point transmission to provide a high-speed broadband for public safety first responders.

Orthogonal Frequency Division Multiplexing (OFDM) is a method of digital modulation in which a carrier signal is split into several narrow band sub-carrier frequencies that are composed of different frequencies and are orthogonal (overlap) to each other as shown below:



OFDM (as shown below) divides the frequency bandwidth in narrow orthogonal sub-parts called sub-carriers. A sub-channel is an aggregation of a number of these sub-carriers. The sub-carriers include data carriers, pilot carriers and a DC. The data carriers are used to carry data, the pilot carriers are used for channel sensing purposes, and the DC mark the center of the channel.



Each subcarrier is modulated with conventional modulation scheme such as Quadrature Amplitude Modulation or Phase Shift Keying at a low symbol rate. Each user is provided with an integer number of sub-channels which is composed of a number of sub-carriers. User data is carried in parallel on each sub-carrier at a low rate. The combination of the parallel sub-carriers at the destination provide for the high data rates.

As with any new emerging technology there are standards that are still in development along with the necessary supporting back bone network equipment to implement the system.

To help pay for public-safety LTE deployment throughout the nation, Congress required that the during the next 9 to 11 years, the public safety sector will give up and return to the FCC the use of the UHF T-Band spectrum (470-512 MHz). The UHF T-Band is currently used only in 14 of the largest metropolitan areas in the U.S.

The Public Safety Spectrum Trust (PSST) has been selected by Congress to provide the necessary organizational structure oversight. The PSST will provide national public safety leadership to guide the construction and operation of an interoperable nationwide public safety-grade wireless broadband network operating within the 700 MHz D Band.

In the San Francisco Bay Area for quite some time there has been on overwhelming need for a high-speed broadband public safety communications network that the Public Safety / 700 MHz LTE system would provide.

The current 800 MHz system in use by San Francisco Bay Area public safety organizations has coverage gaps and would be overwhelmed due to its limited number of channels as radio traffic would be expected to rise exponentially in the event of a catastrophic disaster in the San Francisco Bay Area. The current 800 MHz system is not going away and will supplement the Public Safety / 700 MHz LTE system.

Below is what I was able to pull off the internet from many different sources about the planned San Francisco Bay Area implementation of the digital Public Safety / 700 MHz LTE system is as follows:

The Public Safety LTE system will be installed this year (2009) and is expected to be operational in early 2011. This first phase includes an LTE core, 10 sites and 330 Motorola Public Safety LTE user modems to provide Bay Area responder's access to a host of media rich applications delivered over the new broadband network for increased public safety information sharing. The expected LTE Data transmission speeds are expected to be in the range of 5 -12 Mbps.

The BART fiber optic network is a key component that will be incorporated into the Public Safety LTE system, thereby leveraging an existing San Francisco Bay Area communications infrastructure.

Motorola is the vendor that is building out the San Francisco Bay Area Public Safety / 700 MHz LTE communications system. Motorola will operate and develop the system for the next 10 years and afterwards will turn it over to a public agency. The system will initially be available to first responders (police, fire, EMS) supporting data mode only (no voice). User fee charges will be modeled on a subscription fee basis similar to that of a typical cellular phone service.

At some point in the future the Public Safety / 700 MHz LTE system will be made available for the public to access and will most likely support voice mode. As to which sector of the public will have access to the 700 MHz LTE, that has not been formalized.

PSAC Security & Authentication Work Group recommends use of VPNs that have utilized FIPS 140-2 validated AES encryption modules when accessing sensitive data.

To keep track of the current progress of the San Francisco Bay Area 700 MHz communication system please visit the following website: http://www.bayweb.org

The Public Safety / 700MHz LTE system is still in the first phase of development. It will take several years and millions of dollars to fully implement. The extensive time and cost is not unexpected given the past history of the effort to develop and implement new state of the art technologies such as broadcast digital TV.

The details as to how the channels will be allocated among the various agencies are one of the many outstanding issues that are currently in discussions.

The information provided this article is subject to change as the new digital San Francisco Bay Area Public Safety / 700 MHz LTE system evolves.

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