

Squelch Tales

A Publication of The San Diego Repeater Association, Inc.

September/October 2012

Ahead In Squelch Tales

The September membership meeting featured Gene Swiech, WB9COY, in the latest installment of his series on antenna design. Gene took the group through the design of a high performance Yagi for Earth-Moon-Earth communications.

The November membership meeting was an election meeting. The nominated slate of officers ran unopposed and was elected by the membership.

ARES held a major emergency drill on November 15. SANDRA is in receipt of two communications from Bruce Krypton, KG6IYN, Section Emergency Coordinator that describes the drill and an after action report.

The Sharp Repeater, 147.885 MHz is currently down for repair.

The usual features of Board of Directors Meeting Minutes, Announcements and Errata follow.

Advanced Antenna Design - Part II Gene Swiech – WB9COY

The September 6, 2012 membership meeting featured Gene Swiech (WB9COY) in the second installment of what is turning out to be a series on antenna design. His presentation built on his previous presentation using the example of a high gain Yagi design for Earth-Moon-Earth communications to illustrate Yagi design principles.

Gene began the evening with a short review of his previous presentation to reinforce basic Yagi design principles. He then set out the objectives for the current example, an antenna for EME communications utilizing a 160 watt transceiver and JT65B modulation. Because this is very weak signal work, it requires high gain, low loss in all the components, low noise and low distortion in the received signal.

Low loss requires that the polarity of the antenna match the polarity of the incoming signal. A 90 degree mismatch (horizontal vertical or vertical horizontal) theoretically has infinite signal loss but because nothing is perfect, not even signal loss, the true practical loss is about 20 db.

However, the mismatch between a circularly polarized signal and a linearly polarized antenna is only about 7 db. Most EME stations are using

horizontal polarization to cut down on terrestrial noise (most terrestrial noise being vertically polarized as generated). However, we must be cognizant that the returning signal may have a change in polarization from horizontal to vertical or more likely to circular. To cut down on signal loss in the transmission line, high quality RG-213 is used or a further improvement can be made by using RG-218 which has a published loss of 0.8 db per 100 feet at 100 MHz. Needless to say, cable runs are kept to a minimum and N-connectors are used to cut down on losses. Low distortion means that the gamma match should not be used to match the feed line to the antenna because the gamma match imparts distortion to the signal. Instead a "T" match is used in conjunction with a 4:1 transmission line transformer. A quarter wavelength of RG 11 (75Ω) is placed between the antenna and the remaining feed line, providing the 4:1 impedance matching transformer.

To prevent boom coupling and the resulting pattern skew, the elements of the Yagi should be insulated from the boom. Elements in contact with the boom will also add noise to the system as the elements move and rub against the boom, however, this can be ameliorated by welding

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SANDRA Annual Meeting Minutes

November 1, 2012

President John Austin, K6RLV called the Annual Meeting & election of officers to order at 7pm. **SANDRA** received a thank you letter from Sharp Hospital for our annual donation. We were thanked for our service to the community.

The results of our election are:

President	Barbie Flinn WA6URS
Vice President	Stogie Panger AJ6AX
Secretary	Alex Groza WB6DTR
Treasurer	Ken Decker WA6OSB
Membership Chair	Bob Boehme W2IRI
Meeting Chair	Ben Concepcion N6VVY
3yr Member at Large	Chuck Wood WD6APP

The installation of officers will be Dec. 6, 2012 at our annual Christmas Party.

John, K6RLV, Tech Committee Chairman stated we have 2 commercial batteries donated by Sandy Samuels for our Otay site.

The meeting was adjourned at 7:15pm.

Respectfully submitted,

Barbie Flinn WA6URS

SANDRA Secretary

Antenna Design – continued.

the elements in place. When the elements are in contact with the boom, a boom compensation factor must be included in the design. Unfortunately, none of the computer models properly model the coupling factor and you can't be sure of the model output. Insulated elements mounted one element diameter above the boom require no compensation factor, resulting in much more accurate modeling.



Gene Swiech - WB9COY and the example antenna.

Gain is a function of boom length. A boom length of one wavelength (λ) has a gain of approximately 12 db and the gain increases by about 2.6 db for each doubling of boom length. For long Yagi antennas, the reflector becomes relatively non-critical, yielding designs with a single reflector spaced between 0.15-0.2 λ back from the driven element. For space communication, earth surface noise can be reduced by converting the reflector to a plane surface using either a mesh or series of stacked elements. Directors are relatively closely spaced

adjacent to the driven element, increasing to a constant spacing of about 0.4 λ .



Twelve element, 14.5 db gain Yagi antenna.

The length of directors should be tuned for resonance and gain. The example antenna is a 2.5 λ , 12 element antenna with a design gain of 14.5 db very similar to the design shown in Figure 49 in Chapter 18 of the ARRL Antenna Book, 20th edition.

An additional 3 db of gain can be achieved by stacking two antenna spaced one boom length apart. It is not unusual to find stacks of four Yagis which would have a theoretical 6 db gain over a single antenna. -{SQ}-

Sharp Repeater Down for Repair

The SANDRA Sharp Hospital autopatch repeater began to develop spurious signals and had to be taken off the air. On Saturday November 10th, Chuck Wood WD6APP accessed the site and shut down the repeater. While there, Chuck did a site review and discovered additional maintenance items that need to be addressed before the equipment is put back into service. Among them, are a thorough cleaning, replacement of a frozen castor and re-labeling of equipment components. The technical team will attempt to put the repeater back into service as soon as possible. SANDRA apologizes to the users for the outage. -{SQ}-

Annual Holiday Party and Potluck

Join SANDRA and Filamars

Thursday December 6, 2012

AT

San Diego County Office of Education

6401 Linda Vista Road, San Diego CA 92111

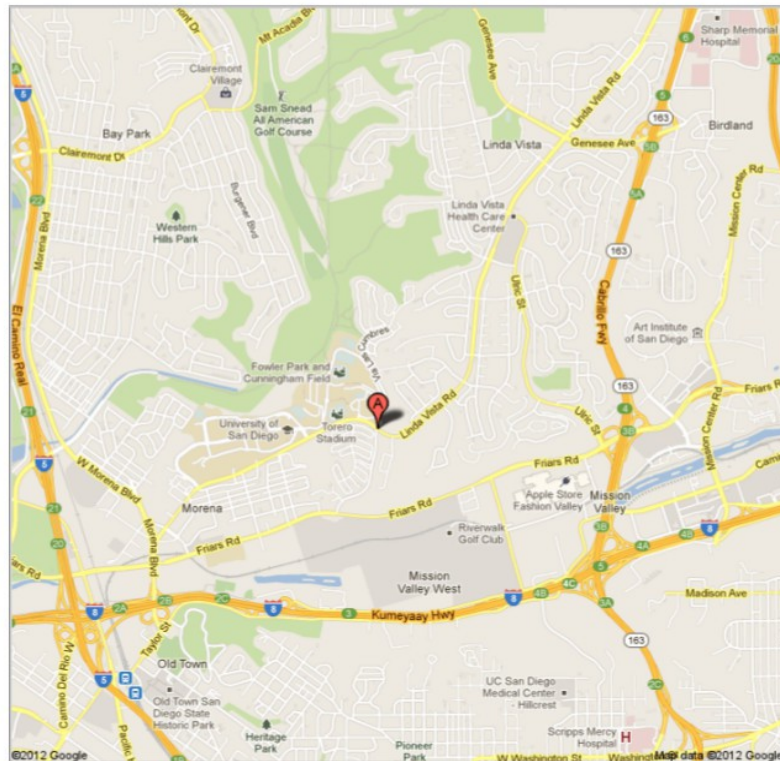
Rooms 401 & 402

Fabulous Prizes

Great Food

Great Company

Bring a favorite Holiday dish to share with others



ARES holds Golden Guardian statewide hospital drill

On November 15, 2012 Amateur Radio Emergency Services (ARES) participated in a statewide hospital drill that included three SANDRA repeaters, Laguna 147.150, Lyons 146.265 and San Diego 447.320. The drill is well described in two communications from ARRL Section Manager Steve Early (AD6VI) and San Diego/Imperial County ARRL Section Emergency Coordinator Bruce Krypton (KG6IYN). The first communication from Steve Early describes the drill in detail and the second from Bruce Krypton a preliminary after action report.

Steve Early – AD6VI -

This event is different from past "Golden Guardian" events in that it will take place in evening, between 1900 and 2300 hours local time. As such, many volunteers that have wanted to participate and have been challenged by daytime and work conflicts will be able to have an opportunity to assist.

This drill is also unique because it has a component that specifically calls out a "communications outage" and a requirement to have ARES provide back up communications via Amateur Radio. This is an important and significant chance to work interactively with hospital staff and demonstrate the value of Amateur Radio in times of need and or emergency situations.

ARES is estimating a need for approximately 50 to 70 volunteers to properly= staff the needs by the County of San Diego for this drill.

Operators are needed for hospitals, clinics, other care facilities, the EOC and MOC. Additionally, we will want Net Control Operators available, in and outside of San Diego County, and we will likely have the ARES Communications Trailer utilized as part of the event.

The hospitals have to credential and perform standard background checks for any volunteers that are not already carrying county ID, or related disaster services worker credentials, so getting all volunteers willingness or intent to participate information early is crucial. Due to the nature of the drill, we will be making the assignments for

deployment (site, facility, etc.) as early as we can based upon the number of available participants. We will preserve whenever possible existing requests by facilities for specific ARES team members but there are not guarantees due to the dynamics of the exercise.

PLEASE NOTE: As with any other drill or call out for an event like this, drill or real life, there are NO "self-deployments" allowed. All volunteers will be directed as needed to facilities requesting drill support, and advance information regarding points of contact and any special access needs will be addressed in advance. This is a requirement of ARES and the County of San Diego for YOUR safety and our ability to track resources.

While preferred, you do not need to be a member of ARES to assist, we are also accepting RACES, CERT, Red Cross and Ham volunteers from other community support teams for this effort.

All volunteers should be ready to provide basic identity information as needed for credential or background check needs.

All volunteers should be providing their own "call out" or "go-kits" to facilitate the communications needs of the event. Please do not expect to have radios or existing equipment available at a facility, and please be prepared in the event that a facility enhances their drill plans by performing "evacuation" tests (prepare to be portable and able to move with their staff).

Communications plans will be provided within two weeks.

Primary mode of expected operation is VHF, 2 meters, repeater assisted.

We will also be using this drill to perform "simplex mapping" operations.

Additional plans are to include VHF and or HF, including digital (WINLINK and FLDIGI) for our stations in San Diego County, and as well as liaisoning to the EOC in Imperial County.

Questions in general can be answered here or on the reflector.

Volunteers should directly contact our Section Emergency Coordinator, Bruce Krypton, kg6iyn@arrl.net to volunteer and with any questions.

*ARRL San Diego Section Emergency Coordinator
Section Manager: Steve M Early, AD6VI
ad6vi@arrl.org*

Steve's message was sent approximately three weeks before the exercise and described the exercise. The following communication from Section Emergency Coordinator Bruce Krypton was sent following the exercise:

ALLCON,

I wanted to express my sincere gratitude to all of the volunteers, supporting teams and agencies that participated in this past Thursdays Statewide Hospital Drill.

As I understand it, this was the largest deployment for ARES in support of our local hospitals we have ever had. As the event took place, we had upwards of seventy five volunteers involved, as well as extensions to this effort as provided by the KPARN Team, RACES, Red Cross and our local CERT Teams.

This was also the largest deployment for Amateur Radio and our volunteers the County Medical Operations Center has had the opportunity to interact with during any exercise of this type.

None of this was possible without your interest, involvement and participation!

We have started to receive after-action reports, comments and feedback and I would like to ask those who have not yet provided this to please do so. Your observations, and post drill thoughts and comments are critical to improving our operational planning and capabilities in and for future events, both for drills and for the real events when they occur.

One critical lesson we all should have learned was how much we still have to learn - about operating, interacting with the hospital command staff, and with other teams that participated. To that end, we will be providing as part of the monthly ARES meetings, educational sessions for message handling, operating practices, field and portable operations, and digital communications. This will be a continuance of the work we have started over the past year that I have been the regional SEC.

There have already been comments about some of the interactions we experienced as operators in the hospitals, and how we (and the hospital Incident Command Staff) could improve our operations in the future. To this I would like to say that the hospitals perform and run these drills with the intention of not only reinforcing the needed skills, functions and process improvements needed in supporting disaster and emergency operations, but also to "train" new staff and bring them up to speed

by having them participate in and learn from these drills.

Likewise, ARES also had similar goals for the drill - having skilled, seasoned members available to proctor and train newcomers that had not ever participated in events like this and also to have inter-agency support and activity by inviting local CERT Teams, as well as welcoming (very gratefully) RACES, the Red Cross and other volunteer agencies to participate with us as well as monitor activities. I must also note that there was an overwhelming number of volunteers that were by their own admission "newbies" for events and drills like this , but were enthusiastically interested in being a part of it, in some cases even without having a "seasoned" operator to work with. Also of note were volunteers that participated from home, mobile locations, and other regions outside of the San Diego County area. One of the great successes I believe we had was this diverse support matrix of volunteers, which would be far more typical of a call-out for a real event than having "seasoned operators" staffed at all sites and locations.

It is my great hope that we will be able to continue to have your interest and participation in the coming months as we continue to grow our collective skills by enhancing existing ones and learning new ones.

A very special THANK YOU to the respective SANDRA and PARC Board members for graciously allowing the usage of their repeater systems for this and past ARES events. We could not have been successful without these critical assets for this drill.

Very Sincerely, Bruce Krypton, SEC

SANDRA proudly supports ARES' efforts and thanks all of the participants that volunteer their time to help when needed. Amateur radio is an all volunteer activity, it is never to late for any amateur to get involved. ARRL offers on online Public Service and Emergency Communications Management for Radio Amateurs course as course number EC-016. This is one of a series of courses on Emergency Communications. Interested amateurs should sign up on the ARRL web site.

SANDRA Board Meeting

July 5, 2012

The meeting was called to order at 6:56pm.

Membership Chairman Bob, W2IRI reported 226 members.

Tom, N6JOJ made motion **752012-01** to give the membership chairman \$50.00 for postage stamps.

John, K6RLV seconded the motion. Motion **752012-01** carried unanimously.

John, K6RLV gave the Technical Committee Report. He requested the purchase of 4 backup batteries for Mt. Otay.

Tom, N6JOJ made motion **752012-02** to spend up to \$1000.00 for 4 batteries.

Bob, W2IRI seconded the motion. Motion **752012-02** carried unanimously.

Old Business: SANDRA will make a \$100.00 donation to Sharp Hospital's General Fund. We have been in partnership with Sharp Hospital for many years & it is our Autopatch location.

New Business: Our next meeting is a Membership Meeting on Sept.6, 2012.

Our speaker will be Gene Swiech. WB9COY on Ham Radio Antennas.

The Election Committee will include Tom, N6JOJ, Bayard, K6GAO, & Alex, WB6DTR.

Nominations open Sept. 6, 2012. Elections will occur in Nov. 2012. The new officers will be introduced at the Dec. Membership meeting. They take office in Jan. 2013.

Tom, N6JOJ made motion **752012-03** to adjourn the meeting at 7:25pm.

Stogie, AJ6X seconded the motion. The motion **752012-03** carried unanimously.

SANDRA Membership Meeting Minutes (Amended)

September 6, 2012

Gene Swiech WB9COY gave a presentation on Antenna Basics.

At 2020 a Board Meeting was called to order:

Barbie WA6URS made motion **09062012-01** to approve the SANDRAC Bylaws as presented by Chuck WD6APP. Tom N6JOJ seconded the motion. After discussion the board voted 5 – Yes and 1 No. Motion **09062012-01** passed. WD6APP was directed to return the SANDARC Council with the Board's decision.

The nominations for SANDRA's Board of Directors open Sept. 6, 2012. They close October 4, 2012. The membership will vote on November 11, 2012.

SANDRA's Christmas Party will be Dec. 6, 2012 at 6pm in Rooms 401 & 402 at the San Diego County Education Center.

Bayard K6GAO made motion **09062012-02** to donate \$100.00 to Sharp Hospital in appreciation for housing the SANDRA repeater. Tom N6JOJ seconded the motion. Motion **09062012-02** carried.

N6JOJ made motion **09062012-03** to adjourn the meeting. Bob W2IRI seconded the **09062012-03**. Motion carried.

The meeting was adjourned at 8:35pm.

Respectfully submitted,

Barbie Flinn, WA6URS

Secretary - SANDRA



SANDRA, Inc.
 San Diego Repeater Association
 P.O. Box 81103
 San Diego, CA 92138

SANDRA NETS

Sunday 8:00 P.M. Mt. Otay Repeater
 Wednesday 7:30 P.M. Mt. Laguna Repeater

GUIDELINES SUMMARY

SANDRA, Inc. operates their repeaters for service in the San Diego area. The policy of the organization is that the repeaters are available for all licensed amateur radio operators to use so long as applicable rules and regulation are observed, whether members of SANDRA or not.

SQUELCH TALES

SQUELCH TALES is published bi-monthly by the San Diego Repeater Association (SANDRA, Inc.), a corporation dedicated to the promotion of amateur radio. Distribution is free to members.

Newsletter exchanges are desired with regard to format, suitability and style is reserved. Ads are \$50 per full page, \$27 per half page and \$15 per quarter page. Business cards are \$8. Artwork is due by the first week of the month to the P.O. Box. Liability for errors in copy is limited to the printing of a correction in the subsequent issue. Permission is hereby granted to reprint items from *SQUELCH TALES*. Opinions or editorials are not necessarily the position of the Board or the organization of SANDRA, Inc.

The SANDRA membership meets the first Thursday in the Months of March, June, September and December. Meetings start at 7:00 P.M. and are located at the San Diego County Education Center, 6401 Linda Vista Road, San Diego. Board meetings take place on the first Thursday of January, February, April, May, July, October and November. All SANDRA members are encouraged to attend.

Callsign	Location	Input	Output	Callsign	Location	Input	Output
WB6WLW	Mt. Otay	146.040	146.640	WB6WLW	Mt. Laguna	444.500	449.500
WB6WLW	Mt. Otay	222.460	224.060	K6GAO	Ho-Pass	144.680	145.280
WB6WLW	Mt. Otay	444.200	449.200	W6SS	Lyon's Peak	146.865	146.265
WB6WLW	Mt. Otay	1270.300	1282.300	K6AIL	Sharp Hospital	147.285	147.885
WB6WLW	Mt. Laguna	147.750	147.150	WB6WLW	San Diego	442.320	447.320
WB6WLW	Mt. Laguna	222.600	224.200				

All SANDRA repeaters use PL 107.2