

The PROPAGATOR

February, 2004

The Monthly Newsletter of South Orange Amateur Radio Association

Murphy Lives in West Africa – The C5Z Story

At the general meeting on Monday, Feb. 23, we welcome Art Goddard, who will take us on another DXpedition. Don't miss this meeting.

C5Z
Gambia



The odds were stacked against this suitcase radio expedition from the start:

- Travel booked on a nearly bankrupt African airline
- Blind faith in untried vertical antennas
- Operating site surrounded by a major construction project
- Powerline surges that made casualties of all switching power supplies
- Heat and humidity that put Finnish saunas to shame

After trying his best, Murphy lost as the C5Z Team turned in the world high claimed score in the 2003 CQ Worldwide Phone DX Contest. Join tour leader Art Goddard, W6XD, as we re-live this challenging adventure in West Africa. □

New Members

A hearty welcome to SOARA's newest members:

Don Hill	KE6BXT
Ron Phillips	KG6SAB
Dave Wallick	KD6GLN
Fred Ruckser	WB6HQ

SOARA kicks off Hidden Transmitter Hunts

As described in last month's Propagator, SOARA is conducting a Hidden Transmitter Hunt on the first Sunday of each month. This hunt is intended to permit members to sample this aspect of our hobby, as well as to develop and evaluate direction finding equipment.

The first hunt was conducted on Sunday afternoon, 4 January, commencing at 1:00 PM. Two teams participated; one comprised of Richard (K6RBS) and Dave (KG6QCI), and the other of Steve (KG6OYK) and Brian (NJ6N). Richard & Dave used a full size yagi with mast, switch attenuator and body shielding of a HT, while Steve & Brian used a tape measure yagi and a borrowed "Super DF'er". The transmitter was hidden in Ladera Canyon behind a sign at the west entrance to the Tijeras Golf Course. I parked at Robert A Curtis Park on Olympiad Road about a quarter mile from the hidden transmitter. The hunters found me before they found the transmitter and believed that it was in the immediate vicinity. After an hour or so of climbing through brush and up and down hills, Richard won the hunt when he found the "T" at 3:00. The NJ6N/KG6OYK team found it 17 minutes later.

The second hunt was on 1 February at 9:00 AM to allow the hunters to get home in time for the Super-Bowl. Richard and Dave teamed up again. Joe (W6BGR) got a late start at 10:20. This time the transmitter was hidden along the west side of the Norman P Murray Community Center. The antenna was installed in a simulated sprinkler, which was, in turn, installed along one of the park's sprinkler systems as shown below. The transmitter was



Gordon West Visit Draws Large Turnout

In January SOARA welcomed Gordon West as the speaker for its first meeting of the year. Gordo was both entertaining and informative as he discussed Mobil HF Antennas. In addition to theoretical considerations, the practical matters of antenna size (big is good for communications, not good for service station and garage light fixtures) were addressed. Gordon has participated in many mobile antenna "shoot-outs" and his years of experience and observation make his insights very valuable for hams contemplating "going mobile" on HF. He brought several examples of antennas, both small and large, to illustrate his presentation.

In addition to his main topic, he gave a brief overview of the restructuring proposal of the ARRL. He urged all hams to take a serious look at the proposal and the implications for the future of Amateur Radio. Details of the proposal are available on the ARRL web site.

Many thanks to Gordon for a fine presentation, and we look forward to his next visit to SOARA. □

about 30 feet away connected with very small diameter RG-174 coax.



Richard/Dave won once more when they found the transmitter after 1 hour, 40 minutes while Joe, hunting alone, found it after 1 hour 53 minutes. Neither team actually found the antenna but spotted the transmitter box.

The next hunt is planned for the afternoon of 7 March. The teams appear to be diligently fabricating attenuators, antennas, etc. Details on the hunt can be found in the January issue of the Propagator and on the web site at www.soara.org. □



The Way I See It: Understanding Radio Theory Without Math.

The latest proposal by the ARRL to the FCC requesting a restructuring of amateur radio requires us to give some thought to what Amateur Radio will look like in the future. About the only reliable answer is that it won't look like it does today and certainly not like it looked years ago.

It was 50 years ago this year that I first earned an amateur radio license. My call sign had an "N" in it then, but except for dropping the "N" I have held the same call sign all these years. My call sign is about the only thing that has stayed the same.

Today the equipment is vastly more complicated and vastly less expensive. On the other hand, as I look around the shack, I don't have any "home brew" equipment. Fifty years ago my shack was filled with "custom" and W.W.II surplus gear. The only commercial equipment was my (second hand) receiver.

Today I have no desire to tear into any of my present gear to make changes. Although the block diagram of the receiver portion of the rig is just like my original radio, the implementation is vastly different. In the 1950s circuits tended to be quite simple. Today, for a variety of reasons, circuits may well be very complex. Integrated circuits can be made at very low cost even though they may contain thousands of transistors. Such devices are very carefully optimized and characterized before going into production. Thus, even though they may be quite complex, they are well behaved.

Another aspect of modern electronics is miniaturization. Today's electronics of all kinds is apt to make use of surface mount components. Soldering irons will have to be reduced in size again, and even that won't make things easy if you want to deal with a miniature IC having several tens of pins. Thanks, but If necessary I will take it to someone with the proper equipment for repairs — if it ever needs it. Oh, yes,

electronic equipment is super reliable today (that is what makes satellites and Mars explorers viable).

Operating modes in the 50s were mostly CW and AM phone. There was little equipment available for VHF and UHF work except for 6 meters. Repeaters were several years away. Only the most dedicated had mobile rigs, and the antennas were easy to spot. You were apt to be mistaken for a police car.

Transistors had been invented but were quite a novelty. Now tubes are a novelty and transistors have largely given way to integrated circuits. Researchers are working on "Quantum Transistors" and on circuits made from carbon nanotubes. These circuits may be put together by moving individual atoms around on the surface of the device. True they can't see individual atoms, but they can feel them (and move them) with the Atomic Force Microscope. These circuits won't be fully developed for some time, but this technology may relegate semiconductors to the same fate that tubes suffered.

Radios are set to undergo a more imminent change. Software defined radios are already available and promise to eventually take over all designs. Software defined radios, which take advantage of all of the current expertise in Digital Signal Processing, will allow continually for upgrading radios with new features. It will be much like a computer which can do many different jobs depending on the software loaded. Will the major suppliers of amateur radio some day be essentially software companies?

Software defined radios will also give experimenters a means of modifying their equipment. Although the technology is different from what we are accustomed to, many hams will master the details of these new radios and enjoy being able to easily try modifications to their radios. A renewed capability for experimenting will appeal to many new hams in the future.

New digital modes come along occasionally, and we can expect them to continue to appear. The trend in communications is to take advantage of the benefits of digital — not unlike the trend in hardware toward digital processing. So there will always be new modes to try and to develop.

Antennas will continue to beckon hams to try their hand at experimenting. Operating skills

can always be improved, either for the fun of just chatting with distant friends, or for going after that rare DX contact through a pile up. There will always be activities in amateur radio to appeal to hams of all interests.

Certainly the average person today has a great array of high tech toys available. Will this mean less interest in amateur radio — you can play with all those toys without the trouble of getting a license. Or, perhaps, it will lead to greater interest in our hobby. There will always be some merit in having mastered the material to pass the license exam.

Considering all of the changes and likely changes, it is not clear whether the future of ham radio is rosy or gloomy. We may have to wait and see.

There are factors which clearly pose problems ahead. They seem to boil down to one thing: our frequency spectrum is valuable. Commercial interests would like to have that spectrum. It was not too many years ago that a serious proposal was made to establish a series of LEOs (low earth orbit satellites) operating in the present 2 meter, 220, and 440 bands.

Currently there is a proposal to use the power lines for broad band internet connections (BPL). The signal energy would be spread throughout all of the HF bands and beyond. Somehow the idea of "sharing" our bands with the ubiquitous power companies and internet sounds like "losing" our bands. Imagine explaining to an irate neighbor that we really have first call on the use of these frequencies, so he will have to accept our interference with his internet connection — and would he please not use the internet when we want to chat with our buddies?

Are we being selfish in trying to retain our allotted frequencies — would it serve the world better if we gave them up so others could use them? This has always been a relevant question. Read the FCC regulations §97.1. (You answered questions on these 5 principles on your license exams.) Those principles are still relevant, and will be for the foreseeable future.

Maybe the best we can do for amateur radio is to enjoy it and to encourage and welcome others who enter the hobby. That is a long heritage of amateur radio. □

Year 2004	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sept.	Oct.	Nov.	Dec.
General Meeting 7:00 PM	26	23	15	19	17	21	19	16	20	18	15	No meeting
Program	WB6NOA	W6XD			Auction						Auction	
VEC Testing 5:30 PM	26	23	15	19	17	21	19	16	20	18	15	—
Propagator Deadline	18	15	7	11	9	13, 26	11	8	12	10	7	
Board Meeting	2/2	3/1	22	26	24	28	26	23	27	25	22	
ARRL Field Day						26/27						
SOARA picnic								2				
SOARA Holiday Party												7

The Puzzler Returns: A Resistance Problem

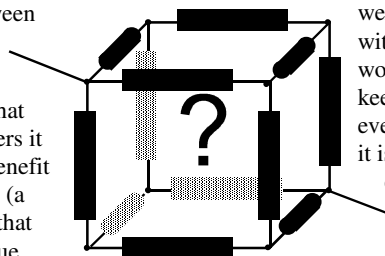
Thanks to Tom, W5LON for suggesting this problem

Consider a cube whose edges are formed by equal value resistors. At opposite extremes of a diagonal are connections. If we take the value of the resistors as **one ohm** each, what is the resistance as measured between these two connections.

Some of you will immediately see that this is a simple problem that you can do in your head. For others it will look hopeless. So for their benefit I will give you a hint: The figure (a cube) has symmetry, and the fact that the resistors all have the same value means that the symmetry is not broken. The trick is to see the relevant symmetry.

But, what if the resistors all had different

values? Then there is nothing special in the cube form — it is just a circuit with a lot of branches. It could be solved by writing a lot of equations and solving them. Even if you



were comfortable with the algebra, it would be a task to keep track of everything. Really it is a job for a computer.

I will give the solution at the meeting on Monday, February 23.

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Education

For information on licensing classes contact Chad, KQ6TL at classes@soara.org

If you have friends who would like to take a class, or if you would like to help with teaching, please let Chad know. ☐

For Sale

1KW Henry Amplifier
\$650 or best offer

Mirage
100 Watt 2meter FM/SSB amplifier

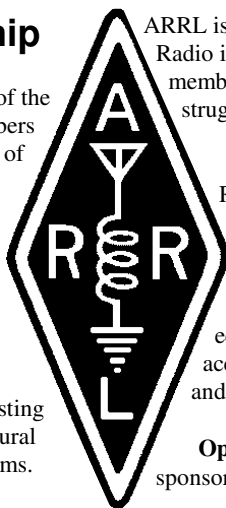
Contact
KO6SY, Malcolm (949) 466 2737

ARRL Membership

Are you an ARRL member? Most of the SOARA membership are also members of the ARRL. Some of the benefits of membership include:

QST — News, product reviews, technical and operating articles each month.

Representation in Washington — ARRL supports legislation that preserves and protects access to existing Amateur Radio frequencies as a natural resource for the enjoyment of all hams.



ARRL is the strong voice of Amateur Radio in government matters. As a member, you have contributed to the struggle to preserve our privileges.

Insurance — The ARRL "All-Risk" Ham Radio Equipment Insurance Plan is available to protect you from loss or damage to your amateur station, antennas and mobile equipment by lightning, theft, accident, fire, flood, tornados, and other natural disasters.

Operating Awards — ARRL sponsors the most popular operating

awards. If you live in the US or its possessions, you must be an ARRL Member to participate.

Members-only Web services — As an ARRL member, you not only receive QST, you enjoy exclusive access to the ARRL Members-Only services on the ARRL Web site at www.arrl.org/membersm.

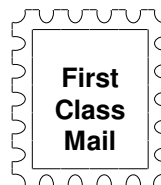
The ARRL has been very active in the current struggle to prevent the pollution of the airwaves with BPL. It is important to the future of amateur radio to support their work. If you are not now a member, do consider joining now. ☐

The PROPAGATOR

South Orange Amateur Radio Association

P.O. Box 2545

Mission Viejo, CA 92690



Meeting: February 23, 2004 at 7:00 PM Art Goddard, W6XD

☛ **SOARA** meets at the Mission Viejo Community Center, 26932 Veterans Way, Mission Viejo, the third Monday of every month at 7:00 PM. Changes to the meeting time or place are announced in this newsletter and on the 147.645 two-meter repeater.

☛ **License Exams:** Amateur License Exams are given prior to SOARA meetings. Exams are from 5:00 to 7:00 PM. Walk-in applicants are welcome. For information call Paul Levey, NZ1M, at 949-249-0121.

☛ **Contacting SOARA:** Questions about SOARA? Send e-mail to: info@soara.org, or leave a message at 949-249-1373.

☛ **Web Site:** SOARA maintains a web site with current club information. The URL is: <http://www.soara.org>.

☛ **Repeaters:** The SOARA 2-meter, 70 cm and 224.100 MHz repeaters are open to all licensed hams.

SOARA 2m — 147.645 – (110.9) Laguna Beach

SOARA 2m — 146.025 + (110.9) San Clemente

SOARA 2m — 145.240 – (110.9) Trabuco

SOARA 220 — 224.100 – (110.9) Laguna Beach

SOARA 440 — 445.660 – (110.9) Laguna Beach

The SOARA 220 and HROC 440 repeaters are shared by members of both clubs. Each machine is subject to the operating rules of its respective club. Call KG6GI for details.

SOARA 220 — 224.640 – (123.0) Santiago Pk. (C)

HROC 440 — 447.180 – (131.8) Santiago Pk. (C)

☛ **Nets:** SOARA 2 m repeater open net is held Tuesday 8:00 PM
40 meter HF net (7.268 MHz +/- for QRM), Sunday 7:30 AM.

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The Way I See It: Understanding Radio Theory Without Math.

Surfin': Repeaters, Echolink and DX

By Stan Horzepa, WAILOU
Contributing Editor
January 16, 2004

This week, Pete Kemp, KZ1Z, pays a visit to give us some tips for using Echolink when contacting DX stations.

Jonathan Taylor, K1RFD, is the creator of *Echolink*, which is software that allows Amateur Radio stations to communicate with each other over the Internet using voice-over-IP (VoIP) technology. For example, a ham in Podunk may use an Echolinked 450-Mhz repeater to converse with a ham in Framistan who is using an Echolinked 2-meter repeater. The Internet fills the gap between the two repeaters.

My old friend Pete Kemp, KZ1Z, is a big *Echolink* fan and has written the following set of tips for getting the most out of *Echolink* when "working DX."

What it is, and isn't...

Echolink is fast becoming an enjoyable mode for many via linked repeaters. Having a conversation with someone in a foreign country always brings with it a certain fascination. To understand the process a bit better one should understand that these conversations are a blend of the Internet and Amateur Radio. Contacts (QSOs) don't count for anything except fun. You don't QSL a DX contact on a repeater for what is, in essence, an enhanced telephone call with a computer. Imagine the day when certificates are given for Working All Area Codes via telephone modems? Some amateurs may send you an e-mail or QSL to confirm a particularly friendly exchange, but they are off the books for awards.

With the growth of our hobby, there is a large

number of licensed amateurs who have never operated on HF frequencies; the procedures on shortwave are a bit different than a local ragchew on the repeater. This can be confusing to some. To assist with this process, here are some helpful hints that may make your conversations go a little more smoothly.

Know Your DX Prefixes: Have a DXCC or ITU call sign assignment list readily available if you are unfamiliar with prefixes. This will help you zero in a bit to start off your conversation. Remember that on *Echolink*, you're likely to hear prefixes that you would never hear on HF. This is because some countries have a license class equivalent to our Technician (VHF privileges only.) The licensing authority often assigns special prefixes to these operators. For example, many Brazilian stations have a ZZ prefix.

Know the international or standard phonetic alphabet. Cute words are most confusing to others. Saying your name is "Pete, Pizza Every Thursday Evening" will destroy the flow on a conversation, as you have confused, instead of clarified, a response to the other operator. There are other lesser-known alphabets used mostly for domestic contacts. Pete could be Portugal Espana Tango Espana, if conversing with a Spanish speaking station, but in general, it is best to "stick to the standard."

Have a metric conversation chart handy.

This helps when describing your QTH as being 60 kilometers northeast of New York City or giving the temperature in Celsius instead of Fahrenheit. This always seems so much colder to us.

Time Zones apply to the Internet.

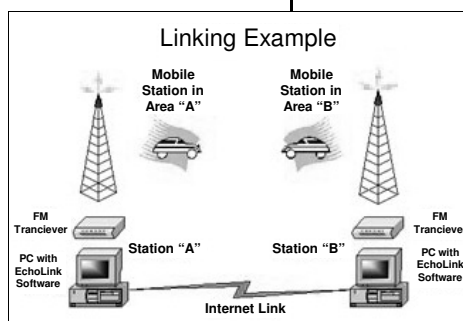
Remember that UTC/GMT is the international standard. If you want to meet again, you have to have base to start from. If one operator were to say "I'll work you again at 5" you are in big trouble. Five in the morning or five in the afternoon? His local time or yours? Don't forget the International Dateline, as it is possible to talk to tomorrow.

Speak slowly. While English is taught in the schools of most nations, and is one of the

most common languages on HF, it is a second language for most DX stations. This does *not* mean you speak s-o s-l-o-w-l-y as if you are talking to a 3-year-old. The proper procedure would be to take your time, speaking in an unrushed fashion, clearly pronouncing each word. As an example, The Voice of America (VOA) was well known for their use of "special" English for newscasts. This was done specifically to assist foreign listeners in learning English. To test this theory, have a native English speaker turn on Telemundo or Univision on TV to watch the news. You can pick out a word here and there, but everything seems so fast.

Identify in English. As long as you identify your station's call sign in English, in accordance with the rules, you may try to converse in the other operator's languages. In the true ham spirit of enhancing international good will, try using some phrases in a foreign language. DXers have long known that a friendly "Hello" works wonders. DX operators are always glad to help you out with pronunciation and phrasing. Learning is a life-long process.

Follow the Amateur's Code. As with all Amateur Radio conversations, they should be friendly, informative and enlightening. Stay away from politics and other hot button issues, as they do little to build bridges.



Amateur Radio is a fun hobby/public service because there are so many avenues to pursue. *Echolink* has proven to be a fun road to travel, offering a fine adjunct to our hobby. Go to the [Echolink](http://www.echolink.org) web site to learn more about the software and download a copy for you.

Until next time, keep on surfin'

Editor's note: Stan Horzepa, WAILOU, is glad that Mac users can use the *Echolink* system, too, by means of the Mac OS X application called *EchoMac*. Visit the [Echolink](http://www.echolink.org) web site for more information regarding *EchoMac*.

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