

The Pileup

Newsletter of the CDXA

BPL Comments to FCC Due

By John Scott, K8YC

Most of you know that the FCC has given the go ahead to BPL implementation with assurances that it will protect licensed users (hams among them) from interference from this Part 15 service. What bothers this author the most is that rather than insisting that the originators of BPL services prove they have a non-interfering service, the FCC has stated that the BPL provider is *supposed* to be non-interfering and seemingly has put the onus on the party being interfered with to “blow the whistle”. This position seems to set the stage for thousands of interference complaints (with what chance of resolution?) rather than setting standards for interference at the onset. Many of us know that it may take a long time for an electric utility to repair a noisy insulator, even after it is found!

The ARRL urges hams to make “thoughtful, considered comments” in response to the Notice of Proposed Rulemaking (NPRM) ET Dockets 03-104 and 04-037 due by Monday, May 3. To do so requires a little work on your

| | | |
|--------|----------------|------------------------|
| W4VHF | Ted Goldthorpe | President |
| N4HN | Tom Wright | Vice-Pres. |
| K4SQR | Jim Miller | Sec.-Treas. |
| K4MD | Joe Simpkins | Cluster Mgr. |
| W3GQ | Paul Sturpe | Assoc. Cluster Mgr. |
| WB4BXW | Wayne Setzer | Webmaster |
| K8YC | John Scott | Editor |

behalf so that you understand the issues. This is not the time to harangue. **Rather, we must seek to inform the FCC commissioners about those things that may have escaped their considerations to date. I suggest you seek out all information you can by whatever means and provide your comments to the FCC**, but be sure to visit the ARRL website for a collection of informative news items. A good place to start is:

<http://www.arrl.org/tis/info/HTML/plc/>

Of late breaking interest is a follow-up on a not-so-glowing statement about radio amateurs in the Wall Street Journal which described ham’s concerns about BPL in the 5,000+ person community of Penn Yan, NY. In the article, hams are portrayed as an aging group of people seeking to impede all matters of technological advance in the interest of their “hobby”—and neglecting many of the advances by hams either via their hobby or in their jobs as technologists. It seems as though early implementation of Penn Yan’s BPL system has produced rather severe interference—so much so that the ARRL is preparing complaints to the FCC and seeking meetings with town officials. Adjudication of this complaint is not likely to occur before the NPRM comments are due, so we must not rely on this action as anything more than a beginning. **I urge each of you to make your personal message known to the FCC.**

| CDXA PacketCluster & Other Communication Systems | | |
|--|---|--------------------------------|
| W4DXA (11 mi. NE of Mooresville) | 144.93 MHz (1200 bits/second) | 441.00 MHz (9600 bits/second) |
| K4MD Charlotte, NC | 144.91 MHz (1200 bits/second) | 441.075 MHz (9600 bits/second) |
| CDXA Repeater 147.18 MHz (+600) | W4DXA, Near Fort Mill, SC | |
| World Wide Web Homepage | www.cdxa.org | |
| Wednesday Luncheon (11:30 AM) | Shoney’s, 355 Woodlawn Road, Charlotte, NC (704-525-4395) | |

K4ZA Earns 5BWAZ

By John Scott, K8YC

Over the past month or so at various times, those of us who frequent the CDXA repeater system and/or attend the CDXA luncheons have talked with Don Daso, K4ZA about the nuances of applying for the 5BWAZ award. From earlier comments I've had with others applying for 5BWAZ, I can state without fear of contradiction that the WAZ record-keeping system is not quite as sophisticated as is that of the DXCC, making award submission more labor intensive for the WAZ.

Yet, Don stayed the course in seeking this prestigious and difficult-to-achieve award. Those who have already earned or are working toward this award realize that working all 40 zones of the earth on all bands—especially 40 meters and 80 meters—is indeed a challenge. Gary Dixon did the card checking for Don and informed me that Don will soon receive his well-earned certificate for 5BWAZ. So, from all the members of CDXA, Don, our hats are off to you!

Thailand Opens WARC Bands For Special Occasion

In case you haven't been reading any of the DX bulletins in the past week, the PTD (Postal, Telecommunications, Department?) of Thailand has agreed to the use of a special callsign, HS72B, to celebrate the 72nd birthday of the Queen of Thailand. As part of the approval process, the PDT has agreed to allow operation on the WARC bands. This is good news for those wishing to fill out their "Challenge Award" band/mode lists.

A special operation is to begin from Koh Chang Island

(AS-125) about April 14. The callsign will be controlled by the Radio Amateur Society of Thailand (RAST). Other special events will occur throughout the year, so keep your eyes and ears open if you want HS on 30m, 17m, or 12m.

(Late breaking news. As this is being written on the afternoon of April 12, 2004, I noticed HS72B spotted on 30 meters with the notation, "Big EU Pileup". — The Editor)

CDXA "Stuff" Still Available

Ted, W4VHF, passed this along to me for the membership:

We have CDXA Decals available, and if, for whatever reason, you didn't get yours...please let us know. We'll mail you a pair of them, or if you have three vehicles and wish to put 'em on all three, we'll mail you three. These decals look much better on your cars than sitting in a box at my QTH!

On a related topic, we reproduced the beam heading chart as a handout for the Charlotte Hamfest again this year. On one side of this 8-1/2" x 11" heavy paper sheet is a listing of all 335 DXCC entities listed alphabetically according to prefix. On the other side is an alphabetical listing of the same entities sorted by entity name. Each entity has its corresponding beam heading in degrees from Charlotte. Except perhaps for some Caribbean islands, these headings are probably good for all locations in the Carolinas unless your 3db beamwidth is two degrees or less! If you want a permanent tool for the shack, take the chart down to your local Kinko's (or other printshop) and have it laminated for about \$1.00.

If you'd like either the decal or beam heading chart or both, let us know.

Oops, But Not Forgotten

In last month's Pileup, your editor inadvertently left one contestant's name off those who participated in the ARRL International DX contest on behalf of CDXA. That person was Steve Sullivan, KZ2I. Steve earned his CDXA hat for producing 889 QSOs and 824,103 points during the SSB contest.

If we've missed anyone else who picked up their hat at the Hamfest, let the Editor know.

The Pileup

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Published monthly 10 times per year, excluding the months of June and December.

The purpose of the association is to secure for the members the pleasures and benefits of the association of persons having a common interest in Amateur Radio.

Members of the CDXA shall adhere to "The Amateur's Code" as published from time to time in *The ARRL Handbook for Radio Amateurs*, and shall consist of those valid licensed amateur operators having an interest in promoting amateur radio. Long distance communications (DX) is of special interest to members of the association, but said interest is not a requirement of membership.

Dues are \$30 per year for those using the PacketCluster maintained by the Association, \$15 otherwise, payable each January. Dues are payable by check to the Secretary/Treasurer:

Jim Miller, K4SQR
11600 Hilda Court

Another Casualty of “Big Blow of ‘04”

If you look carefully at the bottom of the front page of this month’s Pileup, you’ll find the table of “communication systems” of the CDXA is now missing an element. That element is the Wingate digipeater, DXWIN.

Those who frequent the CDXA webpage will recall seeing Joe Blackwell’s (AA4NN) self standing tower folded over after the “Big Blow of ‘04”. For those who don’t live near Charlotte, you might not know that on the named Sunday evening at about 8:00 PM, the wind suddenly started to howl, limbs of trees started flying, and deck furniture started to tumble. The wind noise was so loud, your editor and his XYL went outside to see who was driving an “18 wheeler” through our residential subdivision. After about 30 to 45 minutes, the blow stopped as quickly as it had started. In the morning, I noticed that even my R-7000 vertical had a slight “set” to leeward, and it has a wind profile of well under one square foot!

This past week, Joe Simpkins reported that he had been informed that the entire tower on which our Wingate digipeater resided had succumbed to the very same wind. The tower owner did not know CDXA had some equipment on the tower, but did notify known users of the tower to salvage what they could. The remains—in our case a nice length of 7/8” hardline, the digipeater, and an antenna—were bulldozed into a pile and hauled off the a landfill. In less than one hour, the era of the Wingate digipeater thereby ended.

Welcome New Members

This month we are pleased to be able to welcome a number of new members to our ranks. Some signed on to join us at the Charlotte Hamfest. At least two, however, chose to join us from afar—from Italy as a matter of fact. Welcome to the following new members of the Carolina DX Association:

| | | |
|--------|-------------------|-----------------|
| AF4QZ | Adam Hoffman | Bamberg, SC |
| IN3QBR | Mauro Tomazzoni | Rovereto, Italy |
| IN3ZNR | Fabrizio Vendelli | Trento, Italy |
| K2XN | Haney Howell | Rock Hill, SC |
| K4ATM | Phil Martin | Mooresville, NC |
| N4ZTZ | Alan Bumgarner | Conover, NC |

Mauro and Fabrizio have chosen to use Joe Blackwell’s address as a local contact point. Their home addresses are available on QRZ.COM, however.

Lend a hand to K4LVV

Itice Goldthorpe, K4LVV, is on a quest in 2004. Itice’s OM, Ted “El Presidente” Goldthorpe, announced at the Charlotte Hamfest dinner that he was supporting Itice’s quest to earn DXCC on 6 meters. Their plan: take a summer rental in the mountains of North Carolina which provides “visibility” towards the most likely entities that Itice still needs to work the two additional countries needed to earn DXCC/6m. Below is a view from the property they have under contract. Ted advises that “there is a clear shot to the horizon from the northeast all the way to the southwest.”



Entities still needed by Itice which have a higher probability of being reached this summer are:

| | |
|---------------------|----------------------------|
| CP - Bolivia | OH - Finland |
| EA6 - Balearic Is. | PJ8 - St. Maarten |
| HA - Hungary | TG - Guatemala |
| HB - Switzerland | YN - Nicaragua |
| HB0 - Liechtenstein | YS - El Salvador |
| HR - Honduras | YU - Serbia/ Montenegro |
| J6 - St. Lucia | V2 - Antigua |
| J8 - St. Vincent | Z3 - Macedonia |

How can you help? If you have any ham “buddies” in any of these countries who can work 6 meters, help Itice get a “sked” with your buddy. By earning her 6 meter DXCC, Itice will be one of the first women—perhaps THE FIRST—to earn this award. With an OM with a callsign of W4VHF, it doesn’t take a rocket scientist to know that her vanity callsign was chosen to show that she “loves VHF” (K4LVV)!

Great DXing of Late

By John Scott, K8YC

It's funny how great DXing activity seems to go in spurts. Maybe it is because I haven't been DXing enough years to see a pattern. Maybe it's because at certain times of the year all hams get a "wander lust" to go on DXpeditions. Or, maybe it is because I still need so many entities that all that come along are "new ones" for me! One spurt of DXpedition activity had Trindade, San Felix, and Cocos Island all on the air within a few weeks of each other in 2002. More recently there was a period about the time about the time of the 2003 CDXA Annual meeting where Europa, St. Peter and Paul Rocks, and Mauritania all were worked as new ones within a few days. Then, shortly thereafter in quick succession came The Falklands, South Orkney, and Tristan de Cunha as a grouping. The latest spurt, in the past month or so has Tokelau, Revilla Gigedo, Togo, Franz Josef Land, Cameroon, Rodriquez Island and Banaba Island all there for the taking. I was happy to snag them all! You can snicker if you want, but for a guy with an R-7000 vertical sitting close to my back door and a homebrew Moxon rectangle sitting (temporarily installed) atop three telescoping sections of PVC pipe when needed, I consider it a feat to have worked them. I guess that is the charm and mystique of being a DXer.

If it is fun for the stay-at-home radio operator, it must be a blast for the ham on the DXpedition. For example, take a look at the map of Franz Josef Land, below, situated well above the Arctic Circle.



A bunch of guys from the Moscow Radio Club pack up a bunch of equipment and go above the Arctic Circle in "spring" to give the world a chance to work Franz Josef Land, R1FJ. And look how nice it is in spring in Franz Josef Land!



After a hard winter, it is so nice to see a sunlit day of warming sunshine (HI, HI). If you're lucky, you can even put on your spring clothing and ask your buddies to come out for some recreational activity.



Well, we all know the Muscovites are a hardy lot since they can survive the Russian winter.

Some choose a warmer venue. So as this is written, we have a group still transmitting from Rodriquez Island and Banaba Island. In fact, our own Joe Blackwell, AA4NN, is pounding brass daily to give everyone a chance at Banaba, T33C. Many CDXA members have found Joe at 1000Z to 1200Z on 30m making many happy. If you want to see similar pictures from the Banaba group, go to:

<http://www.dx-pedition.de/banaba2004/>

and click on "Pictures" for a wonderful photo gallery.

Why Be Concerned With “Q”?

By John A. Scott, K8YC

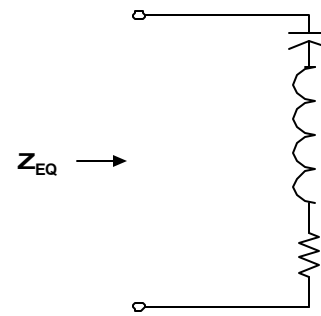
(I was thinking about some things we could introduce to a group of Boy Scouts in a recent merit badge session run by Roger Webb, and the topic of resonance popped into mind. Resonance is an important concept throughout radio theory. This material may be “old hat” to many of you. If you’re one of them, skip reading it. If you’re still a little fuzzy about the concepts of circuit quality (Q), then read on.)

Pick up any article on mobile radio and you’ll find a statement on how it is important to have a “high Q” antenna circuit for efficiency. In fact, there is a “screwdriver” antenna maker which chooses its name as “Hi-Q Antennas”. Why be concerned with “Q”, or more descriptively “Quality”, of a circuit? This article will give you an inkling of what “Q” is from a circuit theoretic perspective and then show the interrelationship of Q and sharpness of resonance.

We all know that antennas must resonate to be effective. The advantage of the modern screwdriver antenna is that it permits shorting out turns of the resonator coil such that the resonance of the antenna can be tailored for the frequency of operation from within your vehicle, negating the need as in the “old days” of stopping the car to change resonators when changing bands. Also, we know a fixed resonator for a specific band is optimal for only a single frequency on that band. We know this is particularly true on bands such as the 80 meter band where one really can only have an antenna “cut” for the CW portion or the SSB portion of the band. So the optimum situation, especially for mobiles, is to have an antenna which is deeply resonant at the desired frequency and which can be “tuned” to have that resonance occur where desired.

Let’s start by looking at the impedance of a simple series RLC circuit which is the way an antenna is often depicted. In the lumped circuit model, a “real” inductor can be viewed as an ideal inductor in series with a resistor. Since resistive effects in real capacitors are quite small in comparison to the resistance found in a real inductor, they are usually neglected. The lumped circuit model appears as at the top of the next column.

The equivalent impedance, Z_{EQ} , can be written as:



$$Z_{EQ} = R + j\omega L - j(1/\omega C) \quad (1)$$

$$\text{Where, } \omega = 2\pi f \quad (2)$$

We can rewrite this relationship as:

$$Z_{EQ} = R + j(\omega L - 1/\omega C) \quad (3)$$

From relationship (3), for fixed values of R, L, and C we can see by inspection that as the frequency increases the inductive reactance term gets very large and the capacitive reactance term gets very small, resulting in a net inductive impedance. Conversely, as the frequency gets smaller and smaller, the inductive reactance term gets quite small and the capacitive reactance term gets quite large leading to a resultant capacitive circuit. Indeed, if the frequency goes to zero (DC), the capacitor blocks all current flow and the impedance is infinite. While Z_{EQ} is large at both extremes of frequency, we know that there is minimum impedance at resonance and that at resonance the impedance is purely resistive. This occurs when the reactive terms dependent on frequency disappear. This happens when the following relationship holds:

$$\omega_{RES}L - 1/\omega_{RES}C = 0 \quad (4)$$

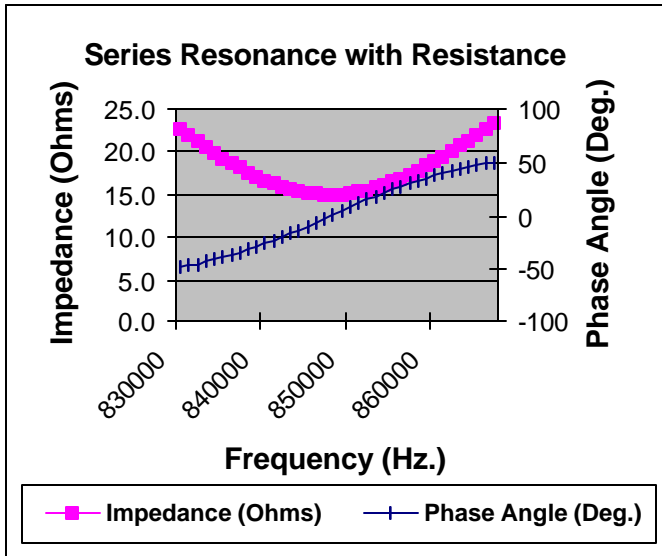
Rearranging and solving for ω_{RES} , we arrive at the following familiar relationship,

$$\omega_{RES} = \sqrt{1/LC} \quad (5)$$

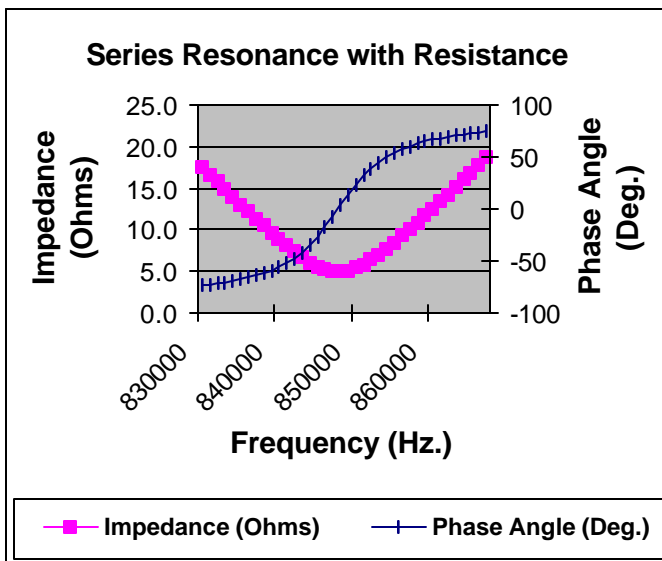
If relationships (2) and (5) are combined, we achieve the familiar equation for a series resonant circuit:

$$f_{RES} = 1/2\pi \sqrt{1/LC}$$

To show the effects of changing the series resistance, I chose values for L and C to provide a resonant frequency in the middle of the AM broadcast band and then tabulated a series of values for Z_{EQ} using an Excel spreadsheet. As an impedance, we know that Z_{EQ} has a magnitude and a phase angle. On the next page is a graphical representation of the equivalent impedance near resonance using a resistance of fifteen (15) ohms for the inductor.



In the graph the impedance is a minimum at resonance (it is the same 15 ohms we would expect since capacitive and inductive reactance disappear) and the phase angle, indicative of whether the circuit is capacitive or inductive, goes through zero at resonance indicating a purely resistive circuit. Note that the phase angle is positive at higher frequencies indicating an inductive circuit as predicted. Note also the slope of the impedance curve on either side of resonance. Now let's say we are able to rewind our coil to produce the same inductive reactance, but in so doing we use a heavier conductor to ensure only a five (5) ohm resistance is obtained. Now let's look at the same graph with a 5 ohm coil resistance.



Note that the "sharpness" of the impedance is increased and that phase angle transition is much quicker. (That is,

the slope of the impedance curve and phase angle curve on either side of resonance is more pronounced.) This sharpness is what "Q" is all about. The "Q" for a series resonant circuit as we have here is defined as X_L/R —the inductive reactance at resonance divided by the resistance of the coil. The computed Q for the 15 ohm coil is about 26 while the Q for the 5 ohm coil is nearly 80. When choosing your screwdriver antenna, now you'll know why everyone talks about "Q" and why more massive coils (for lower resistance) is usually the way it is achieved!!

Giving Forward

In last month's **PILEUP**, you'll recall Rich Moseson, editor of CQ Magazine discussed the concept of "giving forward" in his Hamfest forum. The notion here is that it is better to "give forward" to someone else in need of a favor rather than "giving back" a favor.

If you've been at the CDXA website in the past few weeks, you saw the photos of Roger Webb "giving forward" for a radio and electronics merit badge session for the Boy Scouts. The occasion was a special day of activity sponsored by the Piedmont Council of the Boy Scouts of America called "Merit Badge University - 2004". On this day over 500 boys from Gaston County, Cleveland County, Lincoln County and other counties northwest of these counties could choose to meet the requirements for the merit badge of their choice. Roger did a marvelous job of demonstrating radio and RF concepts to the boys seeking the radio merit badge. Over 35 merit badges were awarded by Roger in his session.



Bill Fisher, Josh Fisher, Ron Bailey, I were fortunate to also participate in the sessions so we could see Roger's well-prepared educational materials and enjoy our own sense of "giving forward". What better way to promote amateur radio? Give it a try sometime soon.

Off the Beaten Path

Ted, W4VHF, and Itice, K4LVV, recently took a little trip to New Orleans and Mobile. While on a lonely road (US90) between Mobile, AL and Biloxi, MS, they ran across an impressive antenna farm.

Ted reports, "... A very lonely place, too, but certainly in operation. I met a good-ol-boy technician who allowed me to take pictures, but that's about all. He didn't seem interested in answering questions."

"Who is it? SHIP-TO-SHORE radio. The pictures speak for themselves..."



Hey, an equipment hut, too. Get the bedroll and camp stove, we're staying!



**First thoughts of any red-blooded ham.
"How can I get 16 sections of 55G into the
back of my van and not get noticed????"**



**Antennas everywhere. Look at all those
beams. Where's my rig, Itice. Let's tap in!**

Ted did a little follow up after he sent me the pictures shown above. Apparently a search on ship-to-shore brought results.

The station Ted ran across is apparently WLO Marine Radio operated out of Mobile, Alabama. WLO Radio is the USA's only full service provider of voice, data, and e-mail services to ships at sea. Founded in 1947, WLO has been in continuous operation for over 55 years, serving the commercial, military, and recreational marine industry. WLO's signal can be received over most of the globe.

The website for WLO Marine Radio is:

<http://www.wloradio.com/>

A visit to the site is worthwhile, especially if you'd like to listen in on some of the frequencies. At their site you'll find they provide scheduled news and weather reports for the Gulf of Mexico, SW N. Atlantic, Caribbean Sea, East Pacific Ocean, and Alaska Offshore. They can deliver messages to and from vessels via e-mail, Satellite, Telex, Fax, SSB and VHF. Need a live operator?..... They're on duty 24/7 to handle your needs. They even handle flower deliveries for seagoing Romeos!!! A west coast affiliated operation is station KLB in Seattle, WA.

A full disclosure of operating frequencies and channels can be found on the website. WLO operates split channels on ITU channels number 405, 414, 607, 824, 830, 1212, 1226, 1607, 1641, 1807, 2237, and 2503.

The Back Page

The FCC now has open dockets for comment on **Broadband over Power Line** in its Notice of Public Rulemaking (NPRM). Comments are due by May 3, 2004. See story on Front Page. Thoughtful comments are needed by all hams.

A **2004 Field Day** effort is still in the works. Ken Boyd, K4DXA, has offered his QTH for an operation in the 2E category. Category 2E is, home station, emergency power. This year's return to FD activity by CDXA will focus on maintaining a continuously active CW station over the contest period.

On the air activities:

| Date(s) | Event | Comments |
|-------------|------------------------------------|---|
| April 10-18 | Lighthouse Spring Lights QSO Party | Visit http://arlhs.com for information |
| April 17-18 | Michigan QSO Party | Visit http://www.miqp.org for information |
| April 17-18 | Ontario QSO Party | Visit http://www.odxa.on.ca/oqphome.html |
| April 24-25 | Florida QSO Party | Visit http://floridaqsoparty.org |
| April 24-25 | Nebraska QSO Party | Visit http://www.qsl.net/hdxa |
| April 24-25 | Kentucky QSO Party | Visit http://www.qsl.net/ky4ky/kyqsopartyrules.html |

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First Class Mail

See something wrong with your address label? Notify K4SQR at once, please.