



# Carolina DX Association

Charlotte Hamfest edition

March 1997

# The Pileup

Newsletter of the CDXA  
AA4R Bill Parris President  
W4WN Cliff Wagoner Vice-President  
K4MQG Gary Dixon Sec.-Treasurer  
K4ZA Don Daso Editor

## THE PRESIDENT'S PAGE

Welcome, to both the Charlotte Hamfest, & this special issue of our newsletter. The Hamfest represents a great opportunity, in many areas of our hobby. You can find great deals, meet new friends, see old friends, go to interesting forums, as well as attending our reception at Valentino's restaurant (on Saturday night from 7-9 PM). Plan now to come to the restaurant, meet some new folks & see what the Carolina DX Association is all about.

A gentle reminder to our "regular" members--your 1997 dues are DUE! Please remit to K4MQG. If your address label doesn't carry a "1997" date on it, this will be the last newsletter you receive. If your address label has a mistake of any kind, also notify K4MQG for correction.

We are working hard to promote activities to support & sustain growth in the premier DX Association in the Carolinas. CDXA is a growing organization, which includes supporting the PacketCluster system (you can experience it first-hand at our booth), providing you with excellent DX information. CDXA members represent the pinnacle of ham radio operating ability, with several Honor Roll holders & some hard-charging national contest winners among our group. If you're looking to improve your operating abilities, someone in our group can probably help you.

Visit our booth on your walk around the flea market, purchase a raffle ticket, & see what other plans we have in mind for the year. See what CDXA can do for you!

—AA4R

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*The Internet is a major topic of conversation these days. Ham radio interests, covering every aspect of our hobby, are well represented. Here are some WWW addresses which may provide some useful information, as well as links to other pages. Good surfing!*

ARRL  
<http://www.arrl.org>

QSL info system by IK4LZH  
<http://promet12.cineca.it/htzlh/qs1.html>

DX WWV  
<http://www.clinet.f1/~jukka/>

solar forecasts  
<http://www.sel.noaa.gov/>

KA9FOX  
<http://www.infoanalytic.com/ka9fox>

Texas DX Society  
<http://www.wb5fnd.tech.uh.edu:80/~tdxs/>

Tuscon Amateur Packet Radio  
<http://www.tapr.org/tapr>

Shortwave radio catalog  
<http://www.itrc.uncecs.edu/radio/>

RSGB  
<http://www.rsgb.org/rsgb>

National Contest Journal  
<http://www.waterw.com/~ncj>

other radio-related WWW home pages  
<http://www.acs.oakland.edu/barc/radio.html>

Compuserve Ham Web  
[http://www.hamweb.com/~sjl/HamNet\\_Companion/](http://www.hamweb.com/~sjl/HamNet_Companion/)

## EDITORIAL

You're maybe reading this while standing or sitting around the Charlotte Hamfest. If you're a regular CDXA member, you're probably reading it in the comfort of your shack--a few days before the blessed event. In any case, the Hamfest itself will soon occupy your attention. For a variety of reasons, hams love this sort of activity. Everyone wants a bargain, & by definition, hamfests provide them. Everyone wants to see or meet new friends, & hamfests provide such opportunities by nature. Everyone wants to learn something, whether it's technical, historical, or even gossip, & hamfests usually favor this process. Myself, I enjoy all these activities. This month's editorial covers each of them: 1) How to buy stuff at a Hamfest; 2) How to meet people at a Hamfest, even if you're terribly shy, or if instead you're far too important to be bothered by the *hoi polloi*; & 3) How to learn, even if you don't think you can, should, or want to learn something.

1) This deceptively easy task is fraught with danger. I say this with no hesitation, having been on the selling side a few times. Hams are, without a doubt, some of the cheapest people on the planet. Bar none. A guy in a suit & tie once offered me (I assume he wasn't kidding) \$10 for a Bird dummy load worth several hundred dollars, with the price clearly marked. So, if you don't want to insult the seller, make sure you have some reasonable idea of what the piece you want to buy should cost before making an offer. How do you do this? It's called research, & it's as simple as looking (for a few weeks) at something like *Ham Trader Yellow Sheets*. Ask long-time ham associates what they think. Ask a friend who's walking around with you. Ask sellers what they want for the item. At the LIMARC Hamfest, I once bought a Ham-III control box simply because the price was so low I had to buy it! This box sat on a shelf & got moved around the country until I came to NC, & it ended up replacing a broken one at ZC's QTH. Buying stuff you "don't need" is, of course, always a danger. I've got a shed full of stuff like this--mostly parts for building 4-1000 monoband amplifiers, & stuff to build a big DX/contest station. How many of you have nearly 400-feet of Rohn 55G & broadcast tower in your backyards? It's called "planning for the future" by modern day management folks. My wife called it an "eyesore" & asked for a divorce. See how danger fits in? You can insult people, look & sound like an idiot, or you can get what you want & still end up on the wrong end of your fantasy. Be careful.

2) Meeting people is easy, because everyone is wearing callsign badges. These badges are best worn at eye-level, but that's impractical. The next-best location is right there above the breast pocket. Make sure the badge is visible--no flaps, caps or pens covering it up. Large print is good. (The ham population is getting older, you know?) So is your name on the badge. Then, when someone walks up, recognizing your call as one they've spoken with many times, but forgetting your name, it's there, right out in front. "Ahhhh, hi, Chip...how ya doin?...I'm Ted...K4...." flows pretty quickly off the tongue when the badge is there to help. Flashing lights, helmets (with or without rubber ducks), & 2M handie-talkies (440 MHz units are okay, as long as you ONLY USE it to confirm that the fleamarket Alpha does indeed have two holes & is guaranteed to work) are options that usually fade into oblivion once one reaches the Extra Class license level. Which leads naturally to learning, our next hamfest activity.

3) Learning is what life's all about, & ham radio (Wayne Green & incentive licensing notwithstanding) is a great vehicle for learning a whole bunch of really neat stuff. The kind of things that can help out in playing *Trivial Pursuit* (uh-oh, does this mean our hobby itself could be trivial?). Or cause conversation to come to a complete halt when you blurt out some arcane bit of ham lore. (For instance, once when a lunchroom TV set was tuned to CNN & a story came on regarding activities in Somali, I casually looked up & said, "Oh, 601-land..." & all conversation came to, shall we say, a rather pregnant pause. Luckily, I never brought ham radio up again.) Having knowledge (vast amounts or miniscule amounts seems not to matter) about anything these days can put you in jeopardy & I don't mean the gameshow. But if you like to learn things, ham radio is a pretty good vehicle. You can get a leg up in science study, geography, cultural information, mechanics, or computers, & so forth. If you want to. The longer you do something, the better you get at it, so look around for a long-time role model. Go to his or her forum & pay attention to what is said. Introduce yourself (make sure your callsign badge is visible) & ask a question or two.

There you have it. Some simple rules & processes to follow for the rest of the Charlotte Hamfest if you're already here or about to head over soon.

—K4ZA

## PacketCluster News

The topic is MAIL. Your SYSOP sometimes tries to pass information to Cluster users of system changes, or messages to CDXA members. Other users send mail to other users, or to ALL or LOCAL messages of general interest to Cluster users. Sadly, quite often users never even try to see if they have mail--either to themselves or of general interest.

Our system sends a line ("you have new mail") to you when you have MAIL, but if you're not in the shack when this line appears, you won't see it. Simple, really, but the consequences seem to overwhelm or confuse some users. I've seen mail go un-read until the system "auto-deletes" it.

Some users hit a <CR> from time-to-time to see if they're still connected. Start using an <R> to check, instead. You'll know if you're connected, and, you'll see if you have any new mail. And it's not necessary to know the message numbers of your unread mail. Upon seeing the "you have new mail" line, merely type <R> (with "enter") & the system will send your mail. It helps us if you do this once a day. One idea would be to check for mail before you disconnect for the day. Again, just type <R> to check. The system will advise "no NEW mail addressed to you" if there's nothing waiting. If you do get mail, keep typing <R> until you see the "no NEW mail" line coming back.

This method will clear out MAIL addressed directly to you. But there might also be ALL or LOCAL messages containing information to help you use our system better. The <R> command won't help with these. So, please also get in the habit of looking at the mail directory at least once a day. Perhaps when you first log onto the system? And then again when you log off? Simply type <DI> to show all new mail since you last looked at the directory. Be especially observant of messages to ALL or LOCAL from your SYSOP. Do yourself & your SYSOP a favor--READ & HEED any message he sends. Each message will have a subject line. If the subject line from other users doesn't interest you, there is no need to read it, but please make sure you read anything one of the SYSOPs sends.

I see folks trying to answer messages the hard way. They type <send call> & then they type the subject line. Then, having sent their message, they delete the original message. Save yourself & the system all that trouble. With the original message to you still on your screen, simply type <REP/DE>. This will send your message to the correct station, with the correct RE: subject line as sent by the original message. The computer will tell you when to enter the text. At the end of the message, it will delete the original message. If you want to reply without deleting the original message, simply type <REP>. That will address your message, & put in the RE: subject line. Please remember to delete your mail after you read it if there's no reason to keep it on the system director. If your original ALL message requires an answer, PLEASE note the correct way to delete your original message. If you just delete the message at your node, it will still be on all the other nodes--perhaps wasting circuit time with replies you no longer need. I see people sending ALL messages trying to tell everyone the items they had for sale have been sold. In a word, DON'T! Just delete your message system wide with the correct command. Simply type <DE/F #>. For example: your original message on your node had the number 322. <DE/F 322> will delete your message system-wide. NEVER refer to a message number on another node, simply because no two nodes will have the same message number for the same message.

If you follow these simple guidelines, the Cluster & all users will benefit. Its that simple! And, finally, by now, some of you will have noted the error in the last issue's PacketCluster notes. K4ZA (who retypes this on his Mac) left off a "2" when referring to the correct frequency tones for proper deviation. The correct numbers are 1200 & 2200 Hz. We apologize for the error.

—N4ZC

## SOME NOT-SO-TECHNICAL THOUGHTS ON ANTENNAS

Antennas remain one area where hams can both “design” or “create & build” something they can consider state-of-the-art. Certainly, not too many of us can make something like a modern transceiver in a home workshop. Yet some simple pieces of wire or aluminum can contribute significantly to the success of that modern transceiver in your station. All you need is some knowledge, enthusiasm, & perseverance. Here’s where & how you can do it.

### KNOWLEDGE

Books remain the single easiest & most accessible source of antenna information. The most popular source of ham radio lore is *The Radio Amateur’s Handbook*. It’s updated yearly, & while the laws of physics haven’t changed, I believe it’s a good idea to purchase a copy at least every three years. *The ARRL Antenna Book* remains the premier book on antennas, & has been so since it first appeared in the 1930s. Today’s edition has over 700 pages; it even comes with software. A great source for design ideas is *The ARRL Antenna Compendium* series. There are five volumes available; each contains a wealth of previously unpublished designs. Antennas, transmission lines & propagation are also covered. Bill Orr’s *Radio Handbook* is another must-have title. I also recommend Orr’s other antenna books—specifically his works on verticals, quads, beams, & wire antennas. Paul Lee’s *Vertical Antenna Handbook* is a wealth of information. Jim Lawson’s *Yagi Antenna Design*, Dave Leeson’s *Physical Design of Yagi Antennas*, L. A. Moxon’s *HF Antennas for all locations* & Erwin David’s *HF Antenna Collection*, Jacobs & Cohen’s *Shortwave Propagation Handbook* & the *Commercial Products* catalog from Rohn are also must-have items in the modern DXer & contester’s library.

The Internet can be considered a “virtual book” or library. A surprising number of ham radio links can provide you with fascinating reading & a wealth of information—not available elsewhere. For instance, you might find the following URLs of interest:

<http://www.neca.com/~cummings/rhombic.html>

<http://www.berkshire.net/~robbins/technote/techref.html>

If you’re not interested in “surfing” the World Wide Web, but merely seeing what others are doing, you might enjoy subscribing to Steve Morris, K7LXC’s tower/antenna reflector, using this e-mail address: (Send a one-word message with “subscribe” as your request.)

[towertalk-request@akorn.net](mailto:towertalk-request@akorn.net)

### ENTHUSIASM

This ought not be a problem for hams, but I sometimes encounter conversations on 2M FM (I often switch to the “scan” mode while mobiling around the Carolinas) which surprise me. And while this is a complex issue (why wouldn’t anyone be excited about our hobby?), I think the answer is a simple one. Our society & culture insulates us from the “old way” of sharing, which was typically via an Elmer or from the necessary “pooling of resources” which club activity entailed. I think the only way to combat this lethargy is to have dedicated Elmers for each newcomer to our hobby. And for clubs to become more prominent. (The CDXA is trying to move in this direction.)

Once you have the enthusiasm, the best way to guarantee its continuing existence is to promote operating. And by that I mean HF operating. I do not believe 2M FM through repeaters represents the future (or the pinnacle) of our hobby. Ham radio must be international in scope—if we’re to keep our frequencies. And that means high frequency operating. And what gets one’s energy & enthusiasm up more than DXing on the hf bands? Contesting, for me, but that’s another story. I believe I’m enthusiastic enough for two hams!

## PERSEVERANCE

Dictionaries tell us this means one continues, steadfast, even when something is difficult or tedious. Ham radio, without a mentor or Elmer, can seem difficult. Certainly, some of the conversations one encounters can seem tedious. But I would urge anyone reading these lines to consider Stanhope's idea: "Whatever is worth doing at all, is worth doing well." This line from 1746 holds true 250 years later. So, try to be a good ham radio operator—which means learning as much as you can about operating, something we all too often take for granted in our hobby. Have the best signal you can, on whatever band, using whatever mode, whenever you're on the air. And make sure you do that—get on the air. You'll find that these three areas inter-relate & drive each other. As your knowledge grows, so will your enthusiasm. If you persevere, you'll find your knowledge increasing, which will create more enthusiasm, & you'll go on advancing in the ranks. See how it works? I hope so! And so does the CDXA. Join us, & learn about DXing from some of the best in the South!

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*In response to a slightly un-scientific survey (meaning I simply asked a bunch of folks questions), we will be running a series of antenna articles in the next few issues of The Pileup. The focus will be on software-oriented solutions to antenna design & use.*

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—K4ZA

## YAGI SOFTWARE ANALYSIS

Back in the early 1960s (remember when?), my DXCC quest was stalled. As sunspots dropped off, I decided to build a beam. Three elements on 20 to be put up on a 54-foot crankup. At that time, I had a number of questions regarding Yagi design which the handbooks failed to answer. For instance, formulas were different—some designs had the driven element close to the director, some had it closer to the reflector. Very little mention was made of the taper effect of telescoping aluminum elements. Talking to some of the SCDXC "big guns" provided some helpful ideas, but their opinions were also greatly different. I finally built a 3-element Yagi on a 26-foot boom, using irrigation tubing. That Yagi worked well, and my DXCC total got an immediate boost, so all seemed well. Flash forward to 1988, whereupon seeing a review in the *NCJ*, I purchased a copy of K4VX's *Yagi-Max*, and then K6STI's *Yagi Optimizer*. After constructing about 10 different Yagis for the W6BA contest station, most of those long, lingering questions from the 60s were answered.

Flash forward to some conclusions. Yagi software is quite accurate. But I consider it a luxury for most DXers using tribanders, which such software does not analyze. DXers and contesters with monobanders will benefit the most. I say this because designing a "simple Yagi," say a 3-element beam, probably doesn't require the software. To check this claim, I analyzed the dimensions of my original 1964 beam using *YO*. I found 6.5 dbD gain, with a good front-to-back ratio and an acceptable SWR. The boom could have been shortened to 22-feet with little change. Since I used only two sizes of aluminum tubing per element, taper factor didn't make much difference. And, the gain is slightly higher with the driven element closer to the reflector.

Such conclusions have been drawn from the work at W6BA, and further study. Several designs (like a 4-element 10 on a 20-foot boom, which was a failure) pointed out the simple fact that the software is a necessity for Yagis with four elements or more. We found that 5-element Yagis on a .75 wavelength boom are easier to match (the impedance is higher) and have almost 1 db more gain than a 4-element Yagi. Several of these W6BA designs are still up, and performing well!

**Yagi Software, continued**

Another advantage with the software is analyzing older antennas. Sometimes, these older beams can be had at bargain prices. The excellent mechanical performance of Hy-Gain Yagis makes them particularly attractive. Newer designs (from Hy-Gain, Cushcraft, etc.) benefit from the software, but as Figure 1 shows, improvements to older beams are possible. The most remarkable improvement was the Wilson 15-meter Yagi, where gain was improved by 1.3 dbD while discarding an element. And finally, the software allows you to look at what happens with antenna inter-action--how performance will be degraded by putting Yagis close together on a tower. For instance, performance of a 10-meter Yagi mounted close to a 20-meter Yagi will suffer. A 15-meter Yagi close to a 40-meter beam will suffer. The software will help you prevent such trouble--before you climb the tower.

Yagi software is worthwhile, interesting, and will improve antenna performance. As an old pal once said, "It may only be one db, but on the long path, with several hops off the atmosphere, there's a multiplying effect which makes that small improvement into an "S" unit...."

—W4IX

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## COMPARISON OF YO CALCULATED GAIN

YAGI	boomlength	dbD		
	In feet	20 meters	15 meters	10 meters
HOMEBREW	26	6.5		
204BA	26	6.1		
205BA	34	6.5		
KLM 5-20	42	7.4		
KLM w/YO	42	7.7		
155CA	26		7.5	
155 w/YO	26		7.7	
KLM 6-15	36		7.7	
KLM w/YO	36		8.3	
WILSON	32		7	
WILSON w/YO	32		8.3	
105BA	24			7.7
105 w/YO	24			8.2
HOMEBREW	26			8.5
KLM 6-10	27			7.8
KLM w/YO	27			8.4

# The Back Page

W3LPL has used (& generously circulated) this chart for years. It's a PVRC staple in any antenna & station design planning.

## CABLE ATTENUATION (Ft per dB)

	1.8	3.5	7.0	14.0	21.0	28.0	50.0	144	440	1296
LDF7-50A	3333	2500	1666	1250	1000	833	625	370	200	110
FHJ-7	2775	2080	1390	1040	833	667	520	310	165	92
LDF5-50A	2500	1666	1111	714	588	526	385	222	125	67
FXA78-50J	1666	1250	769	588	435	370	256	130	71	36
3/4" CATV	1666	1250	769	588	435	385	275	161	59	33
LDF4-50A	1111	769	588	400	323	266	208	119	71	40
RG-17	1000	769	556	370	294	250	200	77	40	20
SLA12-50J	909	667	500	355	285	235	175	100	53	34
FXA12-50J	834	625	455	300	250	210	150	83	48	25
FXA38-50J	625	435	320	220	190	155	115	67	37	20
9913	625	435	320	220	190	155	110	62	37	20
RG-213	400	270	180	130	100	83	62	36	20	10
RG-8X	204	147	100	71	59	53	40	22	12	

## UPCOMING

Interview with W3LPL

(thoughts on antenna modeling software, station design, & contesting)

CDXA member profile

Fasteners

*See something wrong on your address label? Notify K4KMG at once!*

## FIRST CLASS MAIL

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Charlotte NC 28212  
e-mail: k4za@juno.com  
704-531-1199

CQ magazine's Contest Hall of Fame currently has 23 members. Each has made significant contributions not only to contesting, but to ham radio in general. How many of these pioneers are in your log?

Hazzard Reeves K2GL  
Katashi Nose KH6IJ  
Al Slater G3FXB  
Matti Laine OH2BH  
Bernie Welch W8IMZ  
Lenny Chertok W3GRF  
Gerry Mathis W3GM  
Frank Anzalone W1WY  
Jim Lawson W2PV  
Ed Bissell W3AU  
Fred Laun K3ZO

Rush Drake W7RM  
John Thompson W1BIH  
Atilano de Oms PY5EG  
Herb Becker W6QD  
Jim Neiger N6TJ  
Tine Brajnik S5ØA  
Dick Norton N6AA  
Ken Wolff K1EA  
Vik Hilesmaa OH2MM  
Low Gordon K4VX  
Bob Cox K3EST  
Vic Clark W4KFC