



Next Meeting:

Tuesday, February 1, 7:00pm On the repeaters 145.450

Program: formal program has not been scheduled as of this time.

As you've noticed, we're still being careful and will not be at Bullock's but are meeting on the repeaters again. The hope is that the March meeting will be back at Bullock's.

The plan for Tuesday's meeting is to have regular officer reports and announcements followed by a rag chew session.

I hope you will be able to join us!

President's Corner

I am thrilled beyond words (almost) that we finally have a full slate of officers in place. Bob Shelton, KO4SZE, has been serving as our secretary since the November Board meeting and Kadar Anwar, KS4DOW, was voted in as Vice-President at the January Board Meeting. I think it's important to reflect that it was two new DFMA members and recently licensed hams that agreed to fill the roles. They aren't helping because they've been enjoying the riches of being a club member for years and are wanting to give back, but they are just jumping right in, because they want to help out wherever they can. It's people like Bob and Kadar that will keep this club going now and in the future.

The previously elected board members have already been so generous with their time. Charlie, NC4CD, has been Repeater Manager for over 40 years. There's never a question about his willingness to keep serving the club even though his having done his "fair share" is indisputable. Paul, N2XZF has spent countless hours repairing our repeater hardware. Not only is Bob, K4VO, an engaged participant as an At Large member of the Board, but he is also net control for the 6m net, every single Wednesday (over 300 nets!). That's just to call out a few of our amazing board members. There are many board alumni who continue to contribute to the club in numerous ways, as well.

I hope you all will join me in thanking these Board Members for all the work they do. I hope that you will all remember that all the work being done is on

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a volunteer basis. No one is getting paid for the hours they spend on the DFMA, keeping the repeaters running, the meetings scheduled, finding speakers, keeping Bullock's notified, writing minutes, reviewing minutes, depositing checks, reimbursing expenses, checking the PO Box...the list just goes on and on. Thank you!

73, Lenore, KF4PAB
DFMA President



DFMA Dues

It's time to pay you 2022 dues. (I know it feels like you just did that, but that was last year :-). If you're already paid up, Thanks!

Molasses Comes to Mind

We are living in strange times. And a lot of things are taking a lot longer than we've come to expect. So please be patient with us if things don't happen as fast as you like. You've heard of supply chain problems. That's just part of it. A first class letter mailed to me from Massachusetts recently took seven days to get here.

Our president just thanked some of the DFMA Board members for the service they have provided. Sometimes things don't get fixed as fast as you like. Yet Charlie and others doing the fixing are all suffering from the same slow environment as the rest of us.

I remember when I was the DFMA treasurer, I would sometimes get queries about whether a check had been received or deposited. Yet think of all that is involved. Your check might have taken a while to get to the DFMA mailbox. I don't live in Durham, so I would check the mail once a week or so. During Covid times there's been situations when you don't want to go out at all. Then the information had to be recorded and the check deposited. For some semblance of efficiency, you don't normally process those checks one at a time, rather you wait for at least two or three to accumulate for action.

Fortunately, you can now deposit checks by phone. I didn't have that option.

Now as Hamfest Chair, I'm having trouble getting any information from Durham regarding our hamfest site. I've left phone messages. I've sent email. I talked to people who said they'd have someone call me. I assume many of these people are working at home. No results. So, molasses can be good. In the right environment you just have to take a deep breath and enjoy the sweetness. 73, Dee, KU4GC

If you don't have a radio for this band, some of the newer Baofeng models will provide access at a very reasonable cost. Older radios by Alinco, Yaesu, and others can be found from time to time, and are still usable through our repeater even if they do not have

DFMA-Hillsborough 224.260 MHz. AllstarLink Schedule (EST)

DAY	START	END	NODE	NET NAME AND CONNECTION
Mon-Fri	0200	0400	41223	"M0HOY" Manchester UK
Mon-Sat	0700	0900	27339	"Morning Brew" Wilmington NC
Mon-Fri	0910	1255	47046	"KG4HOT 220MHz" Charlottesville VA
Mon-Sat	1259	1515	48496	"Boredom Breakers" Rogers County OK
Mon-Fri	1515	1959	47046	"KG4HOT 220MHz" Charlottesville VA
Tue only	2000	2300	27339	"East Coast Tech" Wilmington NC
Wed and Sun	2300	2400	48496	"Borealis Late Night Birds" Doylestown OH
Fri only	1900	2100	531091	"Upstate NY 220MHz" Syracuse NY
Sat only	2100	2300	458800	"WM9W 220MHz Good Guys" Chicago IL

PL tone boards installed. 73, Charlies, NC4CD

Talk to the World On 224.26

DFMA has a repeater on the 220 MHz. ham band. It is on our Hillsborough tower, and it's on 224.260MHz, negative offset, and no PL tone. Over the last few months, Adriano, KV7D, and I have been working to link this repeater through the AllStarLink system, which is "a network of Amateur Radio repeaters, remote base stations and hot spots accessible to each other via Voice over Internet Protocol. AllStarLink runs on a dedicated computer including the Raspberry Pi. It is based on the open source Asterisk PBX software. Asterisk is a powerful system capable of controlling one or more radios. It provides linking of these radio 'nodes' to other systems of similar construction anywhere in the world via VoIP," according to the AllStarLink website. The audio quality of AllStar is excellent, and it provides the capability to cross-connect with many other modes.

At the present time, we have configured our local machine to automatically connect through the AllStarLink network to the remote locations on the chart below. If you have 220MHz capability, feel free to make friends with other hams across the nation and beyond.

What if it Isn't Working?

Almost all of us have HTs and have used the DFMA repeaters as well as repeaters supported by other clubs. And when we want to make use of the repeaters, we expect them to work. We have similar expectation of our car(s) and other devices and services.

What if we try to use the DFMA's 147.225 and it doesn't respond? You make a quick check of your equipment and you are fairly sure that you're not the problem. Well, depending on what you intended to do you make just give up. Or you may decide to switch to one of the other repeaters in the area. Since this is just a hobby, it's not the end of the world, right? If it's your car that's not working, and you're not home, you might have to call a tow truck. Still not the end of thw world, but now it's getting serious.

Welcome to our New Members

George M. Stevens, KO4VXA Durham

Make sure to say Hi if you encounter them one the air (or anywhere)!

DFMA **Bob** Count
= 5 =

Well, one of the reasons we get to use the radio frequencies allocated to us it the idea that we can provide emergency communications. If we are in a

public service backup support situation, the failure of a repeater can be a serious thing. Not only does it dent our pride, but our failure to pass traffic can cause delays, sometimes with serious consequences.

You may even know another repeater that can do the job, but does the other station we're talking to when things failed know about it?

OK, to get to the heart of this matter after this wordy lead-in, ARES and Auxcomm club members in OCRA and the DFMA have anticipated there might be problems. They designated primary and backup repeaters so in case of problems, both sides would know what repeaters to switch to. These ARES Frequency Plans are shown on the last page (back cover) of your DFMA Directory.

There has been some discussion about updating this information and you'll probably be hearing more about it. Repeater locations and capabilities have changed. Greatly increased activity in Chatham county in cooperation with OCRA is also changing the picture. Our plans need to be updated. A copy of the current ARES Frequencies is shown at the end of this Link. Copies of this last page of the DFMA Directory which includes these tables are also being sent to the OCRA-DFMA@groups.io mailing list. Please let me (ku4gc@amsat.org) know if you find any errors.

Thanks & 73, Dee, KU4GC

Antennas for Everyone

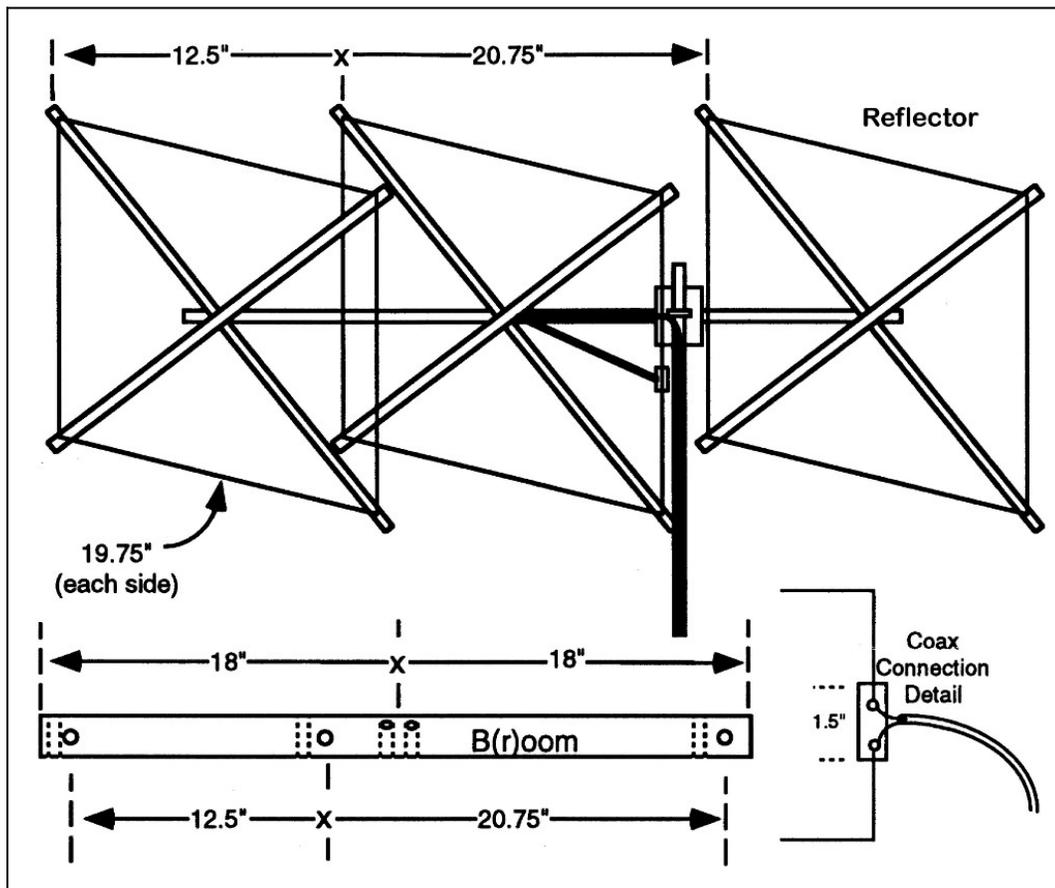
(Below is a copy of Max's article on making a "Ruthless" 2 meter quad beam. I plan to have more reprints of Max's articles in future editions of the Link. - Dee, KU4GC, editor)

The "Ruthless Quad" 2 m Beam

- Max, KO4TV (From the May 1997 DFMA Link)

This one was first constructed by my XYL, KE4DRI, using nothing but readily available household materials, plus, of course, a coax feed line and connector. It can be suspended from a ceiling with a heavy rubber band and rotated, using the old old

"Armstrong" method, or mounted outside and rotated with a light-duty television rotator. It requires no tuning or adjustment, and will provide about 10 dB gain over a dipole, or approximately 10



times the radiated power in the forward direction.

If it is intended for outdoor mounting with a TV rotator, it will be desirable to add some U-bolts for mast mounting. These are readily available at any hardware store for under \$1.00 each. Other materials are several plastic coat hangers, about 21 feet of wire (preferably copper, but in the spirit of household material, galvanized picture hanging wire will suffice), a discarded broom or mop handle for the boom, and a few small brads for holding everything in place. If you intend to use it indoors suspended from the ceiling, a couple of small cup hooks will provide the necessary loops to connect the rubber band to the ceiling.

Tools required will be a drill and bits, soldering iron and solder, hacksaw or coping saw (not required, but nice) and either wire cutters or old scissors (Don't use Mama's good scissors, or you will be in DEEP trouble). As with the previous construction articles, the drawings are mostly self-explanatory, and dimensions are not especially critical, If you plan to use it outdoors, be sure to seal the end of the coax with RTV Silicone sealant or some other good quality

weatherproof sealer, to keep water out of the feed line.

This is not really a "RUTHLESS" antenna to build, but was simply named for its original constructor, Ruth Bloodworth, KE4DRI. She didn't even use my electric drill for her original. She made the holes in the coat hangers with an ice pick, heated red-hot over a stove burner. The improved model for outdoor use pretty much required a drill for making the holes in the broom handle for the coat hanger spreaders and U-bolt mounting, but, as with most antenna construction, let your imagination run wild on methods of assembly.

HAPPY ANTENNA CONSTRUCTION UNTIL THE NEXT INSTALLMENT!
73, KO4TV Max

Instructions:

- Procure 6 plastic coat hangers, about 5/16 inch diameter. Cut the hook section off, leaving as much of the straight portions as possible. Heat the bends with a heat gun or stove burner VERY CAREFULLY. This material will burn, so use only enough heat to allow you to straighten it out. When straight, carefully measure and cut 6 pieces 32 inches long. These will be your diagonal spreaders.
- For the two reflectors, drill small holes in each end, exactly 15 3/8 inches from the center of the spreader.
- For the two driven elements, drill small holes exactly 14 5/8 inches from center.
- For the two directors, drill small holes exactly 14 inches from center of spreader.
- Cut a piece from the leftover scraps 1 1/2 inches long. Drill small holes about 1/4 inch from each end, as shown in the drawing.

BOOM PREPARATION: Drill a 3 foot piece of mop or broom handle as shown above. Each pair of holes will be at right angles to each other, 5/16 inch diameter to match coat hangers. If you intend to use antenna outdoors, drill holes for the U-bolt for mounting to the mast, exactly 45 degrees from the spreader holes, so that the antenna will be properly aligned when mounted.

WIRING: String wires through the holes in the director and reflector elements and solder the ends together. Solder one end of the driven element wire to the 1 1/2 inch insulator. String it through the spreaders, solder to other insulator hole. Attach coax.

73, Max KO4TV

Club Meeting Minutes

Durham FM Association (DFMA)

DFMA 12/7/21 (Not yet complete – will appear in future Link)

Durham FM Association (DFMA)

DFMA Board Meeting Minutes – 16 Nov 2021

The Meeting was called to order by Lenore Hill.

Those present:

Lenore Hill, KF4PAB
Bob Milback, K4VO
Dee Ramm, KU4GC
Jack Hill, KM4MBG
Karen Snyder, KD4YJZ
Dave Snyder, W4SAR
Paul Robertson, N2XCF
Patrick Connelly, KO4QLU
Wilson Lamb, W4BOH
Bob Shelton, KO4SZE
Charlie Durst, NC4CD

Treasurer's Report-Jack Hill

DFMA currently has cash in the checking account and funds in a CD.

We currently have 99 members.

A motion to add Jack Hill and Charlie Durst as authorized signatories to the accounts in order to maintain continuity and convenience when people are on vacation or traveling was made, seconded and passed unanimously on a voice vote.

Upon the Treasurer's recommendation we continued our sponsorship (\$50) of an award for the North Carolina QSO Party. A motion was presented, seconded and duly passed by voice vote to sponsor the Single Operator Out of State Mixed Mode High Power Award.

In order to continue streaming of DFMA meetings from Bullock's, a Continuing Resolution was proposed, seconded, and passed to allow reimbursement of associated fees (\$20-\$30) for each meeting.

Hamfest Chair-Dee Ramm, KU4GC

There has been no activity regarding 2021. There may be plans for Spring 2022.

Secretary's Report, Bob Shelton, KO4SZE

Due to a very short tenure in office no official report was made. The minutes from the last Board meeting were approved by unanimous voice vote. Minutes from the last Membership meeting were deferred to our next Board meeting.

Repeater Manager's Report-Charlie Durst, NC4CD

Repeater operation remains nominal with the exception of some recent unknown origin linkage to a repeater from Columbia, South America. This followed an IRLP software update and may or may not have been related to that. The linkage disappeared after several days. Since that occurrence the repeater systems will be updated to allow more remote control thus decreasing the reaction time for actionable response to such incidents.

224.260 is the most active repeater frequency.

See Attachment #1 & #2 below.

General Topics for Discussion

We are still soliciting nominations for the Office of Vice-President. If you are interested, please contact Lenore, KF4PAB to learn more.

A motion to distribute \$500 each plus the "Pass the Hat" collected funds to Urban Ministries of Durham and the Foodbank of Central and Eastern North Carolina was moved, seconded and passed by voice vote.

In addition, a motion to include Toys of Tots as part of our Holiday Dinner was moved, seconded, and duly passed. Information concerning this effort will be distributed at a later date.

Charlie Durst volunteered to research speakers for our January Membership Meeting with emphasis on FT-8 and APRS.

Respectfully submitted,
Bob Shelton, KO4SZE, Secretary

Attachment #1 as referenced:**Interesting Connection on 145.45**

November 14, 2021

Last Thursday we had something new on the 145.45 repeater. A lengthy conversation was on the repeater and everyone was speaking Spanish. I listened for a while and eventually logged into our Echo-Link connection. There was HK4LRM-R in San Jacinto, Columbia, South America. I tried to disconnect the connection remotely but was unable to do so. The connection was still there on Friday so I disabled the 45 repeater until I could get to TV Hill. I had to make a quick out-of-town trip on Friday so I had to wait until Saturday. By then, the connection had been disconnected and I enabled the repeater. We are working on a method to remotely access the Echo-Link computer to avoid future occurrences of this

situation. I could have worked some DX on the 45 repeater if I had known any Spanish !!

73 de NC4CD**Attachment #2 as Referenced:****Which DFMA Repeater Is The Busiest ?**

Which DFMA repeater is the busiest? Is it 147.225 at Hillsborough or 145.45 or 444.1 or 53.61 at TV Hill or 444.45 at the Durham VA Hospital?

It is not 225 or 45 with the daily Possum Trot Net. It is not even the Hillsborough 443.1375 DMR Digital repeater with full-time connections to over 60 repeaters in the Carolinas and Virginia.

The busiest DFMA repeater is Hillsborough 224.26 ! For a while it was linked to a system of 220 MHz repeaters in Virginia via IRLP and the internet. The IRLP linking has been replaced by AllStar linking which offers much more flexibility in what we can access.

Here is the current schedule for 224.26 linking:

7 am to 9 am	Morning Brew Net (East Coast Net)
9 am to 1 pm	Virginia 220 Repeater System
1 pm to 3 pm	Boredom Breakers Net
3 pm until.....	Virginia 220 Repeater System
11 pm to 1 am	Borealis Net in Oklahoma (Wednesday & Sunday only)
2 am to 4 am	England Morning Net (some interesting accents)

So, if you have a 220 MHz radio and want to hear a lot of activity and talk to hams all over the world without a big tower and antenna in the backyard, turn on to our 224.26 repeater at Hillsborough. Currently no PL tone is required. If you don't have a 220 radio and have not bought a new radio recently, this might be a good time to buy a new HT or mobile.

As the late Paul Harvey always said on his radio broadcasts, here is the "rest of the story". DFMA has 7 great repeaters at three locations. We have autopatch, remote base linking, IRLP, EchoLink, and AllStar linking to the world, emergency weather broadcasts, great wide area coverage, and back-up emergency power. What we don't have is people talking on some of our repeaters. We have the Possum Trot Net weekdays on 147.225 and 145.45. We have a Wednesday night net on 53.61. We have a DFMA club net on Thursday nights on 147.225 and 145.45. During COVID the monthly meeting of DFMA has been on 147.225 and 145.45 instead of meeting at Bullock's BBQ. The sad part of this is that only a small percentage of our members are talking on our repeaters. Remember the morning and afternoon drive-time conversations? Maybe no one is driving to

work these days? We should have more time to talk on the repeaters. Fortunately we started in-person meetings of DFMA in November and the Christmas party/meeting is on December 7. I look forward to seeing more members at our "Have Another Meal" meetings. Hope to hear you talking on the radio.

And "That's the rest of the story" !!
Charlie NC4CD

Durham FM Association (DFMA) **Minutes of DFMA General Membership Meeting** **04 Jan 2022**

The Meeting was called to order by President Lenore Hill, KF4PAB.

Participants:

KF4PAB, Lenore (President)
NC4CD, Charlie (Repeater Manager)
KU4GC, Dee (Hamfest Chair)
KO4DHJ, Ken
K04SZE, Bob (Secretary)
N2SZF, Paul (At-Large)
N4JQR, JR
KM4MBG, Jack (Treasurer)
KX4P, John
K4VO, Bob (At-Large)
KI4RAN, Bill
KW4KZ, Chuck (At-Large)
W4FK, Bob
N8VNR, Kevin

Treasurer's Report-Jack Hill, KM4MBG

As of 31 Dec 2021 DFMA currently has cash in the checking account and funds in a CD. The CD matures on 09 Jan 2022. Several members were administratively placed on inactive status awaiting payment of dues.

Secretary's Report, Bob Shelton, K04SZE

Minutes of the Board Meeting for November have been finalized and distributed.

Repeater Manager's Report-Charlie Durst, NC4CD

Repeater operation remains nominal. There were several power interruptions during our recent storm cycle. The generator came online as expected. The interruptions were of short nature. No interruption of repeater function occurred. Because the brief power interruptions caused the internet to go down, a visit to the repeater installations was necessary to restart the internet connection and enable remote administration.

Charlie, NC4CD, presented an informative program about grounding techniques and requirements. The presentation notes are attached for your review.

There followed a Rag-Chewing session until the meeting was adjourned by President Lenore Hill, KF4PAB.

Respectfully submitted,
Bob Shelton, Secretary, K04SZE

Buy – Sell – Trade

Rohn 25 tower sections

I'm posting this for a friend.

"For sale are sixteen 10 foot tower sections that are used and recently removed professionally, without damage, by crane . The Rohn 25 tower was installed around 1988 but is in good shape with only some surface rust on a few sections; most are clean with no rust. One section is an antenna mount.

I can send pictures or arrange for an appointment for inspection. Local delivery is possible for no extra charge. Price is currently: make an offer. If needed, I am willing to sell sections individually."

Please contact me by email: ku4gc@amsat.org
73, Dee, KU4GC

The DFMA has been given some **equipment from an estate**. We don't yet have all the details and prices have not been set. Included are: An **Astron RS 35A** power supply, a ~~Kenwood G707A~~**[SOLD]**, a **Kenwood TS 570S**, and more. If you are interested in any of these, make an offer. All proceeds go to the DFMA. Please contact **Wilson, W4BOH** by email: infomet@embarqmail.com to make an offer or to get more information.
73, Dee, KU4GC

Do you have something to sell? Do you have something that you need or something you want to get rid of? There's this spot in The Link set aside just for you. Just email the appropriate info to ku4gc@amsat.org and it will be included with the next issue. Make sure to include contact info.

Web Site: dfma.org

Upcoming Events (dfma.org for details)

2/01 DFMA Meeting, on the air 145.450 7pm
2/14 OCRA Meeting on the air? 442.150 7pm
2/15 DFMA Board Meeting, video 7pm
3/01 DFMA Meeting, Bullock's BBQ, 6pm

*73 - Dee, KU4GC, Editor
Lenore, KF4PAB, Proofreader*

Send copy to ku4gc@amsat.org

Deadline: one week before the Club Meeting

(Images and copy: KU4GC or as credited)

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**See next page for a copy of the
last page of the DFMA Directory
including the current ARES
Frequency Plans**

DFMA Repeaters

Hillsborough WR4AGC: I-40 near I-85 at Hillsborough

Open autopatch, IRLP Node 8658. Ground elevation: 789', Tower 180'
 147.225 + PL: 82.5 Hz.
 224.260 - Carrier squelch.
 443.1375 + DMR, PRN Network

Durham TV Hill WR4AGC: Terry Road north of Durham

Open autopatch, IRLP Node 4441. Remote Base 2 meters and 220 MHz.
 Ground elevation: 689', Tower 160'. Highest ground in Durham County.
 53.61- PL: 88.5 Hz.
 145.45 - PL: 82.5 Hz.
 444.10 + PL: 82.5 Hz.

Durham VA Hospital WR4AGC: Fulton St, across from Duke Hospital
 444.45 + PL: 100.0 Hz.

Other Area Repeaters of Interest

Red Mountain NC4CD: Rougemont, NC 443.275 + PL: 100.0 Hz.
 Chapel Hill W4UNC: UNC-TV Tower 442.150 + PL: 131.8 Hz.
 Chapel Hill W4UNC: UNC-TV Tower 53.450 - PL: 107.2 Hz.
 Chatham Co. W4UNC: Siler City 443.475 + PL: 131.8 Hz.
 Chatham Co. W4UNC: Moncure 145.230 - PL: 107.2 Hz.
 Chapel Hill K4ITL UNC-TV Tower 147.135 + PL: 82.5 Hz.
 Raleigh K4ITL WRAL-TV Tower 146.880 - (Skywarn)

Orange County and Durham County ARES Frequency Plan

Freq	PL	Primary Function	Freq	PL	Primary Function
A 442.150+	131.8	OC Primary	G 145.450-	82.5	DC Primary
B 147.225+	82.5	OC Secondary	H 444.100+	82.5	DC Secondary
C 147.480		OC Simplex 1	I 145.535		DC Simplex 1
D 446.150		OC Simplex 2	J 446.100		DC Simplex 2
E 145.450-	82.5	BU Repeater	K 442.150+	131.8	BU Repeater
F 444.100+	82.5	BU Repeater	L 444.450+	100.0	BU Repeater

Granville County and Wake County ARES Frequency Plan

Freq	PL	Primary Function	Freq	PL	Primary Function
M 145.170 -	100.0	GC Primary	S 145.390-	82.5	WC Primary
N 146.940-	100.0	GC Secondary	T 147.195+	88.5	WC Secondary
O 147.570		GC Simplex 1	U 147.450		WC Simplex 1
P 446.075		GC Simplex 2	V 147.570		WC Simplex 2
Q 145.370-	100.0	BU Repeater	W 146.640-	88.5	BU Repeater
R 444.600+		BU Repeater	X 146.880-		Skywarn/EOC

HF Tar Heel Emergency Net (THEN)

Daily 11:30L 7.232 MHz LSB
 Monday 19:30L 3.923 MHz LSB
 Nightly 19:30L 1.945MHz LSB