

THE 6 METER NET CHRONICLES

Larry Royster, KI4FYR

Vol. III, Issue 9

May 31, 2006



NOTE! Promote Our 6 Meter Net NOTE!
NOTE! Promote All Amateur Radio Nets NOTE!

PURPOSE

The purpose of this information source is to keep interested parties abreast of the amateur radio activities and other deemed pertinent ham related topics on the TEARA 6 meter chat/information net held each Thursday at 7:30 pm using the 53.03 six meter repeater (K4ITL, FM) located just south of Raleigh, NC at Lake Wheeler. The 53.03 repeater is owned by Danny Hampton, Jr. and we have been given permission by him to use it.

CONTRIBUTING

If you have any information that you may have that would be pertinent to the amateur radio participants of this net please send it to ki4fyr@bellsouth.net for inclusion in a future issue. Also send a note to this address if you, or a friend, wish to be included in the email distribution for issues of the 6 Meter Net Chronicles.

NET ACTIVITY SUMMARY

During the month of May, the TEARA 6 meter net handled 36 check-ins covering an area of approximately a 55 mile radius from Danny Hampton's 53.03 repeater. A table and map showing the activities to date are included as **Appendix A** of this document. To-date we have had 62 different check-ins into our 6 meter information/chat net!

TEARA (Triangle East Amateur Radio Association)

The Triangle East Amateur Radio Association meets the fourth Tuesday of each month, at 7:00 pm, in the social hall of the Wendell United Methodist church. Individuals start arriving around 6:00 to 6:30 pm and bring their dinner and socialize until the meeting starts at 7:00 pm. TEARA has very good programs of interest to hams. Please give the club a visit and consider becoming a member. TEARA does not meet during the month of December.

OTHER LOCAL CLUBS

(Note! The RARS web site has a very extensive listing of surrounding club web sites)

RARS (Raleigh Amateur Radio Society)

<http://www.rtpnet.org/~rars/>

JARS (Johnston County Amateur Radio Society)

<http://www.jars.net/>

OCRA (Orange County Radio Association)

<http://www.qsl.net/w4unc>

FCARC (Franklin County Amateur Radio Club)

<http://www.fcarc.net/>

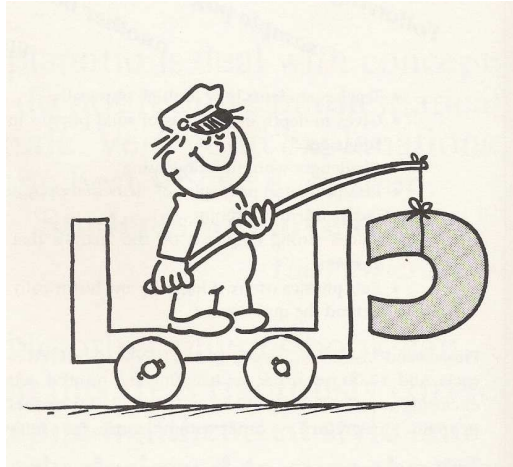
FIELD DAY - 2006 FIELD DAY -2006

Do not forget that June 23 and 24 is Amateur Radio 2006 Field Day. Please take part, if only on a very limited basis. Get out and make a couple of contacts. I am sure that all local clubs would welcome a visit by non-member hams, or non-hams, to their field day activities and most would let you get on the air and make a couple of contacts. Better yet, take your kids, or a kid, and let them get on the air.

THOUGHT QUESTIONS

Will hanging a magnet in front of the iron car, as shown below, make the car move?

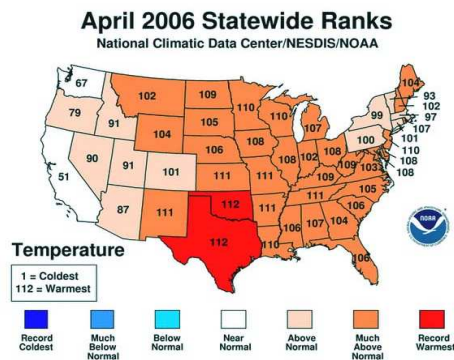
- (a) Yes, it will go
- (b) It will move if there is no friction
- (c) It will not go
- (d) It will if located in the People's Republic Of Chapel Hill



This thought question, at least most of it, came from *Relativity Visualized* by Lewis Carroll Epstein.

WEATHER RELATED STUFF

It seemed to me that April was a little warmer than usual. The following data from the NOAA site confirms my observations: www.noaa.gov



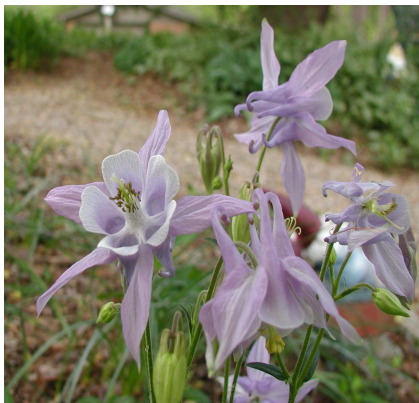
FROM THE ROYSTER'S GARDEN



Money Plants



Celandine Poppy



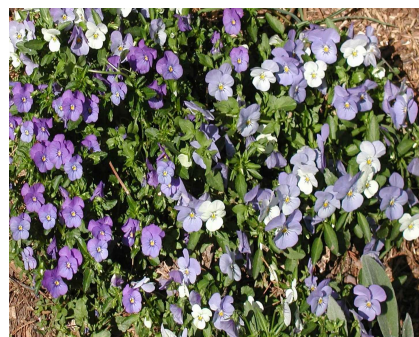
Columbine



Crocus



Fringed Bleeding Heart



Johnny Jump Ups



KI4OTM Is Holding Our First 2006 Garlic Harvest

DESIGNING ANTENNA TRAPS

Computer Program Source

The following web site has a free program that can be used to design an antenna trap. It also has several other free programs related to Amateur Radio activities. <http://members.shaw.ca/ve6yp/> The trap configuration referenced is shown in Figure 1.

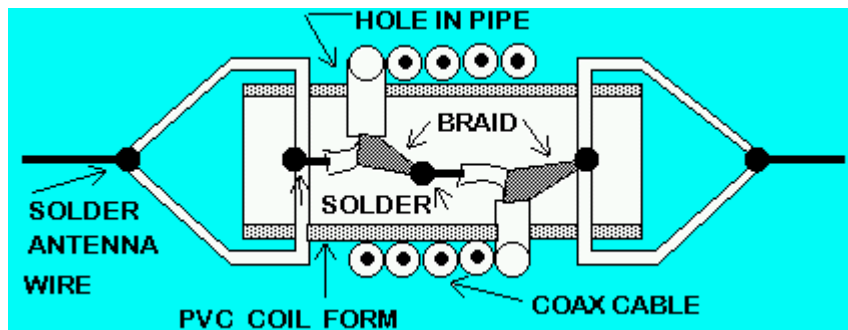


Figure 1.

The program presents the following design screen format:

The screenshot shows the 'Coaxial Trap Design' window. It contains input fields for design parameters and calculated results. The input fields are: Frequency (7.055 MHz), Form Diameter (4.128 cm), Coax Diameter (0.178 cm), Capacitance (95.144 pF/m), and a dropdown for 'Select coax cable type' (Belden 83265 RG178B/U). The 'Units' section has 'Metric' selected. The calculated results are: Turns (9.11), L (4.255 uH), Coil Length (1.62 cm), C (119.62 pF), Coax Length (125.72 cm), X (188.59 ohms), End Sensitivity (27.64 kHz/cm), Turn Sensitivity (72.39 kHz/cm), and Length/Diameter (0.38). There are 'Help' and 'Quit' buttons at the bottom right.

Design Parameters	Value	Unit
Frequency	7.055	MHz
Form Diameter	4.128	cm
Coax Diameter	0.178	cm
Capacitance	95.144	pF/m
Select coax cable type	Belden 83265 RG178B/U	

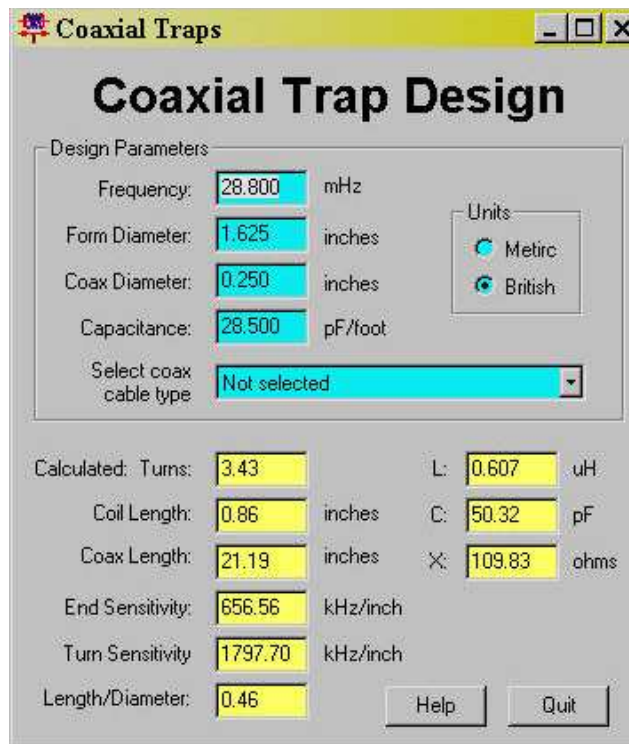
Calculated	Value	Unit
Turns	9.11	
L	4.255	uH
Coil Length	1.62	cm
C	119.62	pF
Coax Length	125.72	cm
X	188.59	ohms
End Sensitivity	27.64	kHz/cm
Turn Sensitivity	72.39	kHz/cm
Length/Diameter	0.38	

Figure 2.

Example trap design

Basics

As an example, let's assume that one wishes to design a trap that would block 28.8 MHz signals along an antenna element. Then inputting the coil size, wire characteristics, the computer program then provides the following information with respect to the needed trap design.



The screenshot shows a software window titled "Coaxial Traps" with a sub-header "Coaxial Trap Design". It contains two main sections: "Design Parameters" and "Calculated" results.

Design Parameters:

- Frequency: 28.800 mHz
- Form Diameter: 1.625 inches
- Coax Diameter: 0.250 inches
- Capacitance: 28.500 pF/foot
- Select coax cable type: Not selected
- Units: ☒ Metric ☐ British

Calculated:

- Turns: 3.43
- Coil Length: 0.86 inches
- Coax Length: 21.19 inches
- End Sensitivity: 656.56 kHz/inch
- Turn Sensitivity: 1797.70 kHz/inch
- Length/Diameter: 0.46
- L: 0.607 uH
- C: 50.32 pF
- X: 109.83 ohms

Buttons for "Help" and "Quit" are located at the bottom right.

Figure 3.

Next, I elected to follow the design recommendations given above and design the trap configuration defined by the program. The resulting trap is as shown in Figures 4 & 5. For my design I used an old piece of RG-8X coax cable. It was somewhat stiff and hard to work with. It would have been very difficult to wind it on a smaller cross-section of PVC pipe. The supporting core was an odd piece of PVC pipe that I had in my antenna grab box.

One of the challenges is to determine the input characteristics of the coax cable that you have selected to build your trap out of. One can obviously measure

the size and length of the coax but finding the capacitance is a little harder. It turns out that the coax capacitance is related to the ratio of the outer to inner



Figure 4



Figure 5

diameters of the dielectric used to construct your cable. However, the equation to predict this value is fairly sensitive to this ratio and I have found out that trying to measure it on a typical coax cable results in significantly different values depending upon where along the coax I attempted to measure its properties.

If you originally purchased your coax from a reputable dealer, such as The Wireman, Inc., www.thewireman.com, a detailed sheet with the necessary pertinent coax characteristics will be provided. As it turns out coax cable capacitance, pf/ft, is similar for many of the different coax designs, at least the published values, and are typically in the 25-31 pf/ft range.

Measured Performance (resonant frequency)

After constructing the trap I used my MFJ-269 unit with the appropriate dip meter adapter attached to estimate the trap resonant frequency as shown in Figure 6. The measured trap resonant frequency was approximately 28.5 MHz. This is actually a lot closer to the design frequency than I thought I would achieve. It was somewhat difficult to maintain the stiff coax cable close to the surface of the PVC pipe and also it was a trip making a good solder joint inside of the pipe between the ground shield coming from one end of the trap and the coax cable center wire coming from the other end. Anyway, to say the least I am satisfied with the results.



Figure 6.

All comments and suggestions on building antenna trap elements will be appreciated and republished in a future issue.

Coming, Part O, Part II

In Part P, Part II, I will present my design of a 2 meter basic logarithmic antenna configuration

Coming, Part P

In Part P, I will present my designs of a 2 and 6 meter two element Yagis that are being built for use during field day as well as the EZNEC predictions for each configuration and the measured performance for each design.

Experiences Are Very, Very Welcome

If you have built a Amateur Radio antenna and would like to show off your results, send as much information as you can to ki4fyr@bellsouth.net and I will include it in a future issue of the 6 meter net Chronicles.

APPENDIX A

TABLE FOR MONTHLY CHECK INS/OUT TO THE TEARA 6meter THURSDAY NIGHT INFORMATION/CHAT NET - YEAR 2006 MONTH: MAY

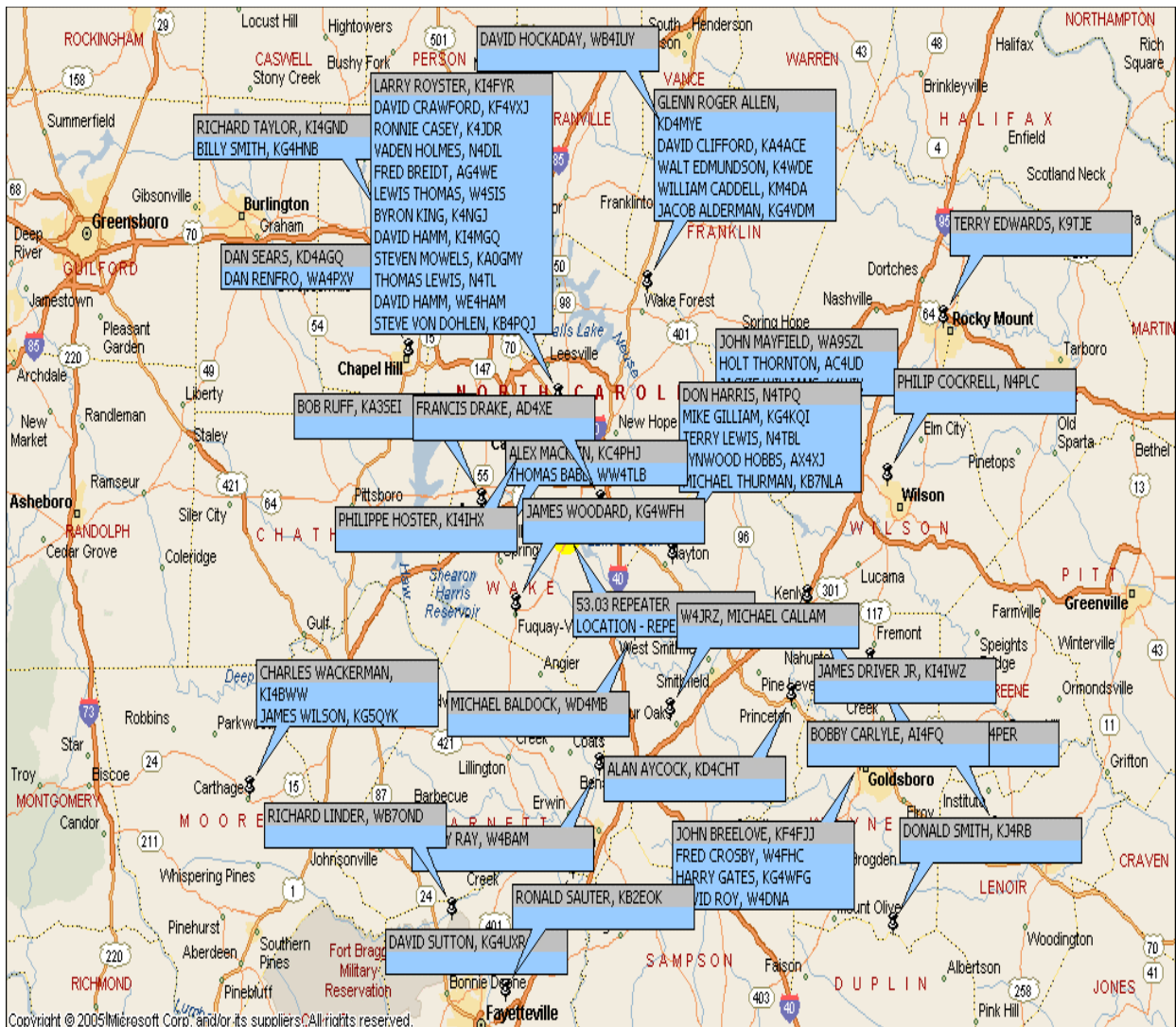
(*) Indicates Net Controller For The Session and (**) In and Out

SEQ	WK 1	WK 2	WK 3	WK 4	WK 5	CALL SIGN	NAME	LOCATION	COMMENTS
1	X			X		AC4UD	HOLT THORNTON	WENDELL	
2						AD4XE	FRANCIS DRAKE JR	GARNER	FRANK
3	X	X				AF4XJ	LYNWOOD HOBBS	CLAYTON	
4						AG4WE	FREDERICK BREIDT	RALEIGH	FRED
5						AI4FQ	BOBBY CARLYLE JR	DOVER	BOB
6						K4JDR	RONNIE CASEY	RALEIGH	RON
7						K4NGJ	BYRON KING	RALEIGH	
8						K4WDE	WALT EDMUNDSON	WAKE FOREST	
9						K4WIX	JACKIE WILLIAMS	WENDELL	
10						K9TJE	TERRY EDWARDS	ROCKY MOUNT	TED
11						KA0GMY	STEVEN MOWELS, SR	RALEIGH	
12						KA3SEI	ROB RUFF	APEX	
13						KA4ACE	CLIFFORD DAVIS	WAKE FOREST	CLIFF
14						KA9QJT	BRIAN YOUNG	RALEIGH	
15						KB2EOK	RONALD SAUTER	FAYETTEVILLE	RON
16						KB4PQJ	STEVE VON DOHLEN	RALEIGH	
17						KB7NLA	MICHAEL THURMAN	GARNER	MIKE
18						KC4PHJ	ALEX MACKLIN	HOLLY SPRINGS	
19		X	X*			KD4AGQ	DAN SEARS	CHAPEL HILL	
20		X**				KD4MYE	GLENN R ALLEN	WAKE FOREST	ROGER
21						KD4CHT	ALAN AYCOCK	PRINCETON	
22		X				KD4JWF	JOSE GUZMAN	GARNER	
23						KE4HXV	SAMUEL HAWKINS	TRENTON	SAM
24						KF4FJJ	JOHN BREEDLOVE	GOLDSBORO	
25						KF4VXJ	DAVID CRAWFORD	RALEIGH	
26						KG4HNB	BILLY SMITH	HILLSBOROUGH	
27	X	X	X			KG4KQI	MIKE GILLIAM	CLAYTON	
28						KG4QYK	JAMES P WILSON	CARTAGE	
29						KG4VDM	JACOB ALDERMAN III	WAKE FOREST	JAKE
30						KG4VXJ	RANDALL BARTLETT	FLINT HILL, VA	GERONE
31						KG4WVU	STUART SMITH	PINK HILL	
32		X**		X		KG4WFH	JAMES WOODARD	FUQUA VARINA	KERBIE
33						KG4WFG	HARRY GATES	GOLDSBORO	
34						KG4UXR	DAVE SUTTON	DUNN	
35						KG4ZHK	JEROME EDGELEY	KENLY	
36	X	X		X		KI4BWW	CHARLES WACKER.MAN	CARTHAGE	
37	X	X	X	X		KI4FYR	LARRY ROYSTER	RALEIGH	
38	X	X	X	X		KI4OTM	JULIE ROYSTER	RALEIGH	
39	X*			X*		KI4GND	RICHARD TAYLOR	HILLSBOROUGH	RICK
40						KI4IHX	PHILIPPE HOSTER	CARY	PHIL
41						KI4WZ	JAMES DRIVER JR	KENLY	
42						KJ4RB	DONALD SMITH	PINK HILL	DON
43						KM4DA	CADDELL 3, WILLIAM	WAKE FOREST	WILLIE

[illegible]

SPECIAL NOTE

Starting around the first of June only hams that have checked in during the previous three months will be listed in the map listed below. This is necessary due to the large number of hams identifications we have had since the beginning of the net. Also, the map will serve as an indicator of the hams that are active in the TEARA 6 meter net activities.



c::\amateur radio\6 m net\chronicles\6 m net chronicles 053106 V3 issue 9