The Link
Newsletter of the Durham FM Association
May 2015

## Next Meeting

**Tuesday, May 5, 6:00pm, Bullock's BBQ**

***Note: Due to a scheduling glitch, we will be meeting in Bullock's "solarium", which is on the right side of the main dining room.***

**Preparations for DurHamFest**

**Program: Using Easy NEC for Antenna Design**
**By Dan Eddleman, KR4UB**
Dan will present a program on the popular antenna modeling tool, EZNEC. He writes:

"The presentation will touch briefly on the history of the EZNEC numerical computation code developed by the Lawrence Livermore National Laboratory and a brief pictorial tour of the U.S Naval Electronics Laboratory shipboard antenna modeling range at Pt. Loma, CA. The slides will include the EZNEC antenna model setup and the resulting azimuth & elevation gain profiles and 3D pattern views for the following antennas; 80M dipole, 5 band hex beam, G5RV, 5 element 10M Yagi, 40M ¼ wave vertical over poor ground, over saltwater, perfect ground and, an 80M horizontal delta loop."

## President's Corner

Greetings One and All!

Busy plans are afoot as we approach two of our major milestones for the year --
DurHAMFest and Field Day. For DurHAMFest please avail yourself of an opportunity to volunteer -- there's no shortage of work when it comes to putting this thing on and it makes the whole production easier with many capable hands!

Field Day is less than 2 months away. This is another opportunity to get involved in planning, building, executing, and operating -- all in a weekend..... though I will admit it goes a little smoother with some upfront planning.

Looking forward to seeing you all this coming Tuesday!

**73, Michael, KK4EIB**

## DurHamFest 2015 - Almost Here!

Our 2015 DurHamFest is fast approaching! It will take place on Saturday, May 23th. Everyone is invited to attend, support our vendors, volunteer to assist, and have great fellowship with local Hams from the area. The location is the same as last year, Little River Community Complex in Bahama.

The DurHamFest is sanctioned by the ARRL and is listed on the ARRL Hamfest Calendar. It is also listed in the SERA Journal Hamfest calendar. Our Flyers have been distributed at several regional Hamfests, including the recent Raleigh Hamfest. Your help with getting the word out to friends and fellow hams is needed as well.

There will be door prizes, food, and of course, many deals on Ham related gear. FCC licensing will also be available for upgrading and new Hams. Our MCU will be on site for talk-in and for all to tour.

Visit our website at dfma.org for more info. Hope to see you there!
**- Paul Van Doren, KE4OXN, Hamfest Chairman**

## DurHamFest in a Nut Shell:

**41st Annual DurHamFest**
**Saturday, May 23, 2015**
**8:00 am - 1:30 pm**
**VE Testing - Great Prizes - Great Food**
**Admission: $5.00**
**Tailgating: $5.00**
**Indoor Tables (6 ft): $10.00**
**Indoor Space (no table): $8.00**
**Talk-In: 147.225+ (backup 145.450-)**
***Little River Community Complex***
***8307 N. Roxboro Rd (Hwy US 501 N.), Bahama, NC***

## DFMA Directory 2015 Update

At the last meeting we circulated proofs of the 2015 DFMA Directory and asked for corrections. We expect to distribute Directories to members at DurHamFest. If you missed the last meeting and have had changes in your directory info since the last time you filled out a DFMA Memberhsip/Renewal form, please send me corrections. You can mail them to ku4gc@amsat.org

## Possum Trot Net
## History and Opportunity

Greetings to current, former, and future friends of the Possum Trot Net. The Net began on March 1, 1977, thirty-eight years ago, by a banker, Ermon Honeywell Godwin, Jr. of Spiveys Corner, N. C., known to one and all as "Judge." It grew out of a ham radio good morning group of married soldiers headed to Fort Bragg daily for physical training (PT), and took place using a 2 meter FM repeater. This training took place early on weekday mornings. Judge figured correctly that this group of hams was just too distinguished to be known as the PT group. Nature in the broad neighborhood included 'possums and Judge formalized the radio association as the Possum Trot Net. Judge became member number 1 of the Net.

The Net first centered around Fort Bragg and Fayetteville. With the rapid increase of membership in the Durham and Raleigh area a second center was established right here a few years later. Total membership has grown, now close to 3500. Each member receives a membership number, ascending from number 1. Numbers are not recycled. Three visitors from Fayetteville came to the April meeting of the Knightlights, a QRP group centered in Durham. One was Burt, N4ERM, Possum Trot member # 70. Others numbered in the first 100 are active as well.

Weekday operation is handled by the Net control operators, ideally an operator for each day, MTWTF. Currently in Durham there are three control operators, Jim, KI4HQO, Bob, W4RWC, and Rhett, KE4HIH. Needlessly to say, more control operators are welcome (and needed). Typically, the number of checkins daily number 25 to 40 during the three periods, Early, Regular, and Extended, running from about 5:45 to 6:05 to 7:15 to 7:30. Largest number of checkins was 170, recorded many years ago by Joyce, KD4ELL.

To become a member of this good morning net, one needs five consecutive weekday checkins or ten non-consecutive checkins finalized with an on-the-air possumization. Operation is still over a 2 meter repeater, WR4AGC.

**- Rhett, KE4HIH**

## RARS General License Class

A four session General Class License Course (Level 2) will be conducted by the Raleigh Amateur Radio Society. (You must have a Technician Class license (first level of licensure), in order to take the General Class exam.)

**When**: May 9, 16 (not 23), 30, Jun 6. The sessions will begin at 8:00 a.m. and end around 12:30 p.m.
**Where**: Cary, NC. Specific location will be provided upon pre-registration.
**Volunteer Instructor:** Mike Murphy, WA4BPJ, has an Extra Class license and has been teaching since the 1970s and has conducted as many as 60 courses. In addition to this course, he also teaches the Technician and Amateur Extra courses.
**Tuition**: $10.00
**Course Text**: The required manual is the current edition of: The ARRL Ham Radio License Manual - Level 2 General, 7th Edition (ISBN: 978-0-87259-811-9) and is available online (i.e. ARRL, Amazon, etc.).

**Examination**: An optional examination is scheduled for the student's convenience in the afternoon of the last session. The exam is conducted by the RARS Volunteer Examiners. There is a separate fee.

**Pre-Registration**: E-mail me with your **phone number** and **call sign**. A registration form and other details will be e-mailed to you.

**Murray Merner, K4MHM**
RARS Original Education Director
Education@rars.org
919-803-7973

## Antennas for Everyone

**- Max, KO4TV (From the January 1998 DFMA Link)**

(*Below is a copy of Max's article on building your own screwdriver antenna. More reprints of Max's articles are planned for a future edition of the Link. - Dee, KU4GC, editor*)

### The Famous Screwdriver HF Mobile

This one is somewhat of a misnomer. This is definitely NOT for everyone, but only for the H-F mobile enthusiast who has the ambition and facilities to build something that takes a good deal of imagination, time, and ingenuity to fabricate from scrap parts, odds and ends, and access to some hand tools and possibly either a lathe or pipe dies. There is no cut-and-dried plan available for building this one, as the antenna must be tailored to the vehicle on which it is to be installed, so proceed with caution! This is one of the most fascinating and effective mobile antennas that I have ever encountered. It is NOT the highest gain mobile antenna available, but

more than makes up for this in its ability to work any frequency from 80 thru 10 meters without leaving the driver's seat of your vehicle! It is certainly no slouch in the performance department, either. I regularly work a daily 40 meter net with S-9 to S-20 reports from New York, New Jersey, Ohio, Michigan, Indiana, Canada, Florida and others. It has produced S-9+10 reports on 80 meters from NY, NJ and surrounding states. Performance on 20, 17, 15, 12 and 10 meters is excellent when the band conditions are open, with solid contacts to Israel, Kuwait, Latvia, Estonia, Zambia, Zaire, New Zealand and many Caribbean nations.

This antenna was invented in 1990 by Don K. Johnson, W6AAQ and is manufactured commercially by High Sierra Antennas and others. It is a patented design, and may not be built for sale without permission from the designer; however, Don has graciously published plans and construction notes for NON-COMMERCIAL use by Hams. It is the subject of two books written by Don, "40 Plus 5 Years of H-F Mobileering" and Everything "You Forgot to Ask About H-F Mobileering". The first book is now out of print, but the second one is available from Rosewood Co., Elko, SC, ($8.00) or at most Hamfests. If you are determined to try constructing this one, here is a parts list that should get you started:

1 - Piece of metal tubing (Copper, brass or aluminum) 3 to 4 feet long with 2" inside diameter. (I have used brass bedposts, stainless steel hydraulic cylinders and a piece of tubing from a storm-demolished 6 meter beam. The inventor recommends 2" aluminum irrigation pipe, but I have been unable to find this locally. Your luck may be better than mine! As a last resort, thin wall electrical conduit may be used, but this is heavier and subject to rust and should be avoided if possible).
1 - Piece of P.V.C. pipe, schedule 40, nominal pipe size 1 - 1/4", actual outside diameter 1- 5/8" by 2 feet long.
1 - Cordless screw driver, Skil Model 2105 or equivalent, less batteries and switch. These can usually be found at yard sales or flea markets, usually with dead batteries, for a dollar or two.
1 - Resistor, 4 ohms, 10 watts.
1 - Double-pole, Double-throw toggle switch, center off, spring return.
85 Feet of bare wire, #16 to #18. Tinned copper is O.K., however, I use #17 aluminum electric fence wire. This is available at farm supply stores for about $12 per quarter mile, or in smaller quantities for somewhat more per foot. This is also excellent for wire antennas, as it will not rust or tarnish, and is very strong.
1 - Stainless steel whip, 5 or 6 feet long, with fitting to attach it to the loading coil.
1 - 1/4" threaded insert. Available at Lowes for 25 cents.
1 - Piece of 1/4" threaded rod, about 2 feet long.
1 - P.V.C. cap for loading coil (top).
1 - P.V.C. Plug for loading coil (Bottom).
7 inches of finger stock. This may be obtained from most old-time Hams who have a lot of surplus military gear lying around, or sometimes can be bought at Hamfests for about $1 for an 18 inch piece. If you cannot find it, you can make it from shim stock, available at most hobby shops.

The above material is needed for all versions of the antenna. Depending on your particular mounting requirements and impedance matching preference, some or all of the following additional material will be needed:

2 - 500 PF Trimmer Capacitors.
1 - 500 PF Fixed Silver Mica Capacitor.
1 - Single-pole, Double Throw, center off switch. (NOT spring-return)
2 - Small 12-volt coil Single Pole, Single throw Relays.

Instead of the above items, a tapped balun matching system may be used. Efficiency is slightly less, but operation and construction is simpler. If you elect to use balun matching, delete the above parts and substitute a toroid balun transformer. Details will be included in Part 2 next month.

You will also need some means of mounting the base tube to your vehicle. This will require some imagination on your part. I have used pipe flanges to mount the base to the bumper of a pick-up truck, or a P.V.C. pipe cap and short piece of P.V.C. pipe to mount to an aluminum plate fastened to the frame of a car and extended 6" beyond the car body. The important thing is to be sure the base tube is INSULATED from the vehicle body! You may wish to use a P.V.C. pipe cap with a 3/8" 24 thread bolt for fastening to a standard antenna base mount. Do not under any circumstances use a spring base! Springs are mechanically unstable and very prone to noise generation! If the antenna is mounted near the rear of a car, an upper support bracket can be made from Plexiglas or Lucite and fastened to the trunk channel with a small right-angle bracket. The important thing is to have the loading coil at least 2' above the body of the car for maximum efficiency. Complete drawings will be provided in next month's "ANTENNAS FOR EVERYONE" column. If you are REALLY serious

about building H-F Mobile antennas, I strongly recommend obtaining one of the above mentioned books. They are a gold mine of information presented in a chatty, informal manner by an old-time Ham who has been there, done that, and experienced more about mobile operation than most of us will ever know! Until next month, HAPPY CONSTRUCTING!
**73, Max, KO4TV**

## Board Meeting Minutes

**Durham FM Association (DFMA)**
**DFMA Board Minutes - 04/21/2015** - Dan, KR4UB, Secretary
**Location**: Bennett Pointe Grill, Durham

**Attending**: (y)Michael, KK4EIB, president; (y)Dee, KU4GC, vice president; (y)MK, W4MKR, treasurer; (y)Dan, KR4UB, secretary; (n)Charlie, NC4CD, repeater manager; (n)Dave, W4SAR, field day coordinator; (y)Paul, KE4OXN, hamfest chair; (y)Skip, WB4P, past president; (y)Pete, K4PHS, at-large member; (y)Bob, W4RWC, at-large member; (y)Dan, KK4DMS, at-large member; (n)Karen, KD4YJZ, at-large member, W1GWL, Gary, club member

**President**: Michael, KK4EIB, called the meeting to order at 6:55 pm. In Charlie's absence, Michael reported that the contracts for the Hillsborough Repeater Site have been signed.

**REPORTS**

**Treasurer** – MK, W4MKR

Members: 84 (whose dues are current).

**Secretary** – Dan, KR4UB
The minutes for the 03/17/15 Board and 04/07/15 Club Meetings (with addition of Pete, K4PHS to the attendance list) were approved unanimously.

**Vice President** – Dee KU4GC
Dee, reported that the next DFMA meeting presentation will be by Dan, KR4UB on EZNEC antenna modeling.

The presentation will touch briefly on the history of the EZNEC numerical computation code developed by the Lawrence Livermore National Laboratory and a brief pictorial tour of the U.S Naval Electronics Laboratory shipboard antenna modeling range at Pt. Loma, CA. The slides will include the EZNEC antenna model setup and the resulting azimuth & elevation gain profiles and 3D pattern views for the following antennas; 80M dipole, 5 band hex beam, G5RV, 5 element 10M Yagi, 40M ¼ wave vertical over poor ground, over saltwater, perfect ground and, an 80M horizontal delta loop.

The MCU covered parking at the fire station is expiring due to expanding firefighting equipment storage requirements at the station. Gary, W1GWL has graciously offered the use of a commercial size garage building at his QTH for storage of the MCU. The height of the MCU will need to be checked to make sure it can clear the garage door opening.

Dee led the discussion for DurHamFest responsibilities. The Little River Complex has been rented for the event, including the cafeteria space for VE Exams and, to obtain tables needed for the event. Members with callsigns in **bold font** below have committed to perform the respective activities. Other callsigns are for members who have done these things in the past but have not yet volunteered for this year.

Hamfest Chair (**KE4OXN**), Vendor Chair (**KF4LJZ**), VE Testing (**W4SAR**), Ticket Sales (**W4MKR**, **WB4P**), Club Table (**KE4HIH**, **KE4QOZ**), Friday Night 4pm-8pm Setup ("**all**"), Purchase food (**W4MKR**, **KU4GC**), Cooking (**W4BOH**), Coffee (**W4RWC**), Ice (KE4UVJ, **KU4GC**), Saturday 1pm Breakdown ("**all**"), Hoover Road item transport Friday (**KR4UB**, KE4UVJ), Saturday (**KR4UB**, KE4UVJ), Parking - , Tailgating -, Bank/Change/Cash boxes (**W4MKR**), ID badges (**KU4GC**), Signage (KE4UVJ, **KU4GC**), Talk-in (K0OUX), MCU (**KK4PH**)

**Repeater Manager** – Charlie, NC4CD (absent)
As noted in Michael's report above, contracts for the Hillsborough Repeater site have been signed.

**Hamfest Chair** - Paul, KE4OXN

Dee's hamfest report above includes Paul's input; due to scheduling conflict, Paul could not stay for the duration of the board meeting.

**Field Day Coordinator** – Dave, W4SAR
Michael, KK4EIB gave the Field Day status report. Several organizing events are underway; the CW Station list, a station location meeting and site tour to be called by Dave, W4SAR with the band captains and those providing assistance to Wilson in infrastructure deployment. An air conditioned room in the red barn at the upper end of the site will be available this year.

A motion was made and passed unanimously for DFMA to pay for the porta-john. Dan, KR4UB will arrange for delivery and pickup.

**NEW BUSINESS**

Rhett, KE4HIH is calling for additional volunteers for Possum Trot Operators. Dee reported there will be an article regarding this in the next Link.

**Meeting adjourned at 7:05 pm.**

## Club Meeting Minutes

**Durham FM Association (DFMA)**
**DFMA Meeting – 04/07/2015** – Dan, KR4UB, Secretary
**Location**: Bullock's Barbeque, Durham

**Attending**: WA4AHR, Dewey; KR3AM, Mark; W4BOH, Wilson; KK4BPH, Mike; N8BR, Bill; KK4CCX, Dick; NC4CD, Charlie; WD4CEE, Terry; KW4CK, Joe & Joe, Sr.; KV7D, Adriano; KK4EIB, Michael; KU4GC, Dee & W4MKR, M.K.; N4HA, Herb; KE4HIH, Rhett; KI4HQO, Jim; KM4IWI, Bill; KM4IWL Brian; WA4JLW, Roy; KF4LJZ, Linda; K2MZ Duke & Nancy; KG4NNT, J.R.; K1OC, Tony; W4OFZ, Banks; W4ORD, Lad; K0OUX Vic; KX4P, John; W4PEL, Pete; KK4QDZ, Bill; W4RWC, Bob; W4SAR, Dave & KD4YJZ, Karen; N4TSV, Mariode; KR4UB, Dan; KE4UVJ, Don; NA4VY, Dave; AI4WJ, Rene; KD4WNZ, Bill and KE4JYJ, Sue; WB4YYY, Jim & KA4AVM, Sue;

A total of 42 attending, 40 of them hams.

**President**: Michael, KK4EIB opened the meeting at 7:06pm with introductions.

**REPORTS**

**Vice President** – Dee, KU4GC
Dee reported that the 2015 DurHamFest will be on Saturday, May 23rd, at the Little River Community Complex.

The club table at RARSFest covered expenses, with Dave, Wilson and Dee donating proceeds with a profit of $33.25 to the club.

The DFMA Extra Class study group, skipped a Saturday for RARSFest, and is targeted to complete April 11th. Study group class member W4PEL Pete, passed the Extra Class exam at RARSFest.

The next VE Session is scheduled for 10AM, Saturday April 11th.

Volunteers are needed for communications support of the Tar Heel 10 Miler event scheduled for April 18th. Contact Dee, KU4GC or Steve, W3AHL to sign up for the event.

Dee circulated draft copies of the DFMA Directory for final updates. They will be distributed at DurHamFest.

**Treasurer** – MK, W4MKR

Members: 82 (whose dues are current).

**Secretary** - Dan, KR4UB - Nothing to report.

**Repeater Manager** – Charlie, NC4CD
Charlie reported that the Hillsborough repeater site lease documents are close to signing with the documents at the landlord's attorney for final signature.

**ARES** - No Report

**Door Prizes** - Door prize winners were Charlie, NC4CD - Bell Labs book, John, KX4P - multitool, and Bill KM4IWI - Raspberry PI. The book and Raspberry PI were donated by Pete, W4PEL.

**Program Presentation**
John Green, KX4P, gave his presentation including slides and video illustrating his work in restoring a Collins KWM-1 transceiver. The KWM-1 was an historic milestone in HF radio communications ushering in the first commercially successful transceiver. Prior to its development, ham communications used separate receiver and transmitter equipment. By the mid 1950s, most stations were true "boat anchors" using 120 pound AM transmitters and 65 pound receivers, all connected together with relays, cables, wires, etc. The Collins "Gold Dust Twins" (KWS-1 and 75A4) were top of the line examples.

In 1956 Collins produced the KWM-1. It was the first commercially successful transceiver, replaced AM with SSB and offered a complete 100 watt mobile/desk-top station in a small 16 pound cabinet. Only a few were made because, being immediately popular, it was redesigned and produced for both the amateur and military markets as the famous KWM-2. It was later redesigned as the all solid state KWM-380 (1979-1983). Collins then exited the ham radio market.

**Meeting adjourned at 8pm.**

## Buy – Sell – Trade

**Wanted: Dead Microwave Ovens**
I can use dead/dying/unwanted microwave ovens. The power transformers can be used for power supply construction. Thanks.
Wilson – W4BOH

**For Sale: High Quality Coax**
Wilson is usually putting together a bulk order for high quality, LMR-400 equivalent coax. By ordering full spools he can usually get it for about one half the typical retail price. Contact him before buying larger lengths on your own.

## Upcoming Events (dfma.org for details)

5/5 6pm DFMA Meeting, Bullock's BBQ
5/11 7pm VE Session, Orange County EOC
5/11 7pm OCRA Meeting, Orange County EOC
5/19 7pm DFMA Board Meeting
5/22 4pm-8pm DurHamFest, Setup
5/23 8am-2pm DurHamFest, Little River Com Ctr
6/2 6pm DFMA Meeting, Bullock's BBQ

***73 - Dee, KU4GC, Editor***
***- MK, W4MKR, Proofreader***
*Send copy to ku4gc@amsat.org*
*Deadline: one week before the Club Meeting*
(Images and copy: KU4GC or as credited)

**Web Site: dfma.org**