



Next Meeting:

Tuesday, September 3, Bullock's BBQ 6:00pm

Program: Special Project

By: Michael, KK4EIB

Michael has been dropping hints about some of his projects including his semi-autonomous quad-copter and his pest detecting video system that aims a water cannon.

There seems to have been a communications gap (typical for hams) or lack of a "Link", but I'm not sure which of these projects he will be reporting on. Or maybe something else came up.

Anyway, come, and be surprised and, to quote Dan, KR4UB, "HAM" (which is just our community's secret code for **Have Another Meal**).

President's Corner

First, I want to let everyone know that I feel it is a great honor being recently elected president of a club whose members comprise a group of such wonderful people. Since joining the club, I have thoroughly enjoyed the splendid fellowship practiced by our members.

I would like to use the President's Corner to begin a practice of recognizing an outstanding club member each month. It will be difficult to limit it to just one each month since we have so many distinguished members. This month I would like to recognize Dee (KU4GC) for the tremendous job he does supporting the DFMA. Dee wears so many hats I'm surprised he can keep his head up. For example, Dee takes care of a multitude of club paperwork. That includes preparing comprehensive monthly meeting minutes and formulating various spreadsheets detailing such things as DurHamFest income and expenses, inventory and sale information for various contributions to the club, and historical club income & expense statement comparisons. Dee also publishes the Link newsletter each month. Dee has served as the DFMA webmaster and keeps our website updated with interesting information and fun items such as club news and event pictures. Over the past few months the club has received several generous gifts of equipment. Dee spent a great deal of his time coordinating the sale of the gifts that resulted in a nice addition to the club's treasury. Because of Dee's efforts, we were able to use some of

those funds to purchase a dual band radio for a local elementary school. Dee also does a great job as DFMA club net control on the 4th Thursday of each month. These are just a few of the things Dee has done to support the DFMA. Dee's efforts ensure we have a first class club.

I hope everyone enjoys the final days of summer and I look forward to seeing you at an upcoming dinner meeting at Bullock's BBQ (1st Tuesday of the month).

73, Skip, N4SKP

Field Day Logs Submitted

- Dave Snyder, W4SAR

The field Day logs have been submitted on-line to the ARRL. Here's the final breakdown:

QSOs

CW:

80 M 87, 40 M 269, 20 M 598, 15 M 137, 10 M 24

Total 1115

Digital:

80 M 38, 40 M 55, 20 M 78, 15 M 38, 10 M 9

Total 218

Phone:

80 M 77, 40 M 171, 20 M 86, 15 M 119, 10 M 46

Total 499

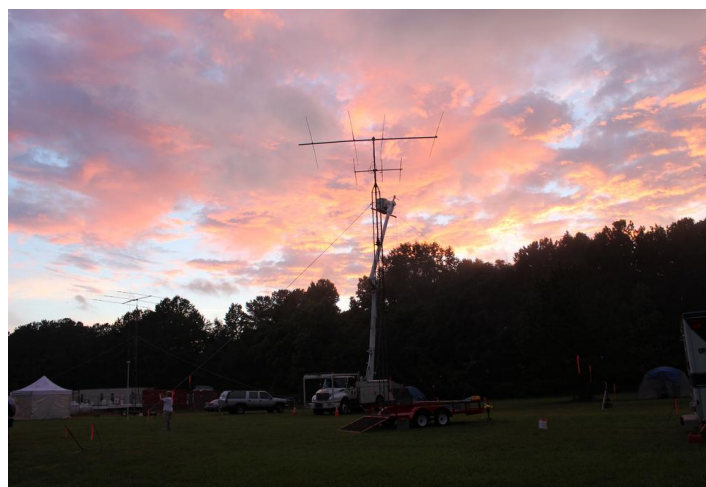
CW QSO Points (QSOs X 2): 2230

Digital QSO Points (QSOs X 2): 436

Phone QSO Points: 499

Total QSO Points: 3165

QSO Points X Power Multiplier = 3165 X 5 = 15825



And Now the Wait ...

Bonus Points:

100% Emergency Power: 900
 Media Publicity: 100
 Set-up in Public Place: 100
 Information Booth: 100
 NTS Message to SM/SEC: 100
 W1AW FD Bulletin copied: 100
 Natural power QSO's: 100
 Site Visit by Served Agency Official: 100
 Educational Activity: 100
 Youth Operators: (5 @ 20 pts each) 100
 On-line submission of logs: 50

Total Bonus Points Claimed: 1850

Grand Total: 15825 + 1850 = 17675

- 73, W4SAR

CX Reminder

The Classic Exchange for AM, SSB, FM is Sept. 15, 9am Eastern Time on Sunday to 3am Eastern Time Monday.

CW CX is Sept. 22, 9am Eastern Time on Sunday to 3am Eastern Time Monday. So, if you enjoy operating or contacting old rigs, please join. Much of this was covered in the August Link. Full info is at classicexchange.org

73, Wilson, W4BOH

Evaluation and Upgrade of a Medium Power Amplifier

- Lowell Tieszen, KK4PH

I have been a ham for about 34 years but, it's just never been a priority to have an amplifier. My brother-in-law Jonathan-NB3I has complained of my weak signal on 80 meters. I could hear him fine - so that was his problem, right? However, a few years ago I decided it was time to try amateur radio with some additional power.

I considered the options. Tube amplifiers are large, and require tuning. Solid state amplifiers are smaller and don't require tuning, but are really expensive. A used tube amplifier seemed to be the best value. Medium power amps can be found used for \$500 or less and full-power amps for a bit more than \$500. My feedline would not handle more than 1,000 watts, so I would look for a medium power amplifier. And the search began.

Wilson – W4BOH heard an OCRA club member had a Heathkit SB-201 available for sale. Something wasn't right with the high-voltage because voltage was low. A suitable price was negotiated and I picked the amp up at an OCRA meeting this summer.



Heath SB-201

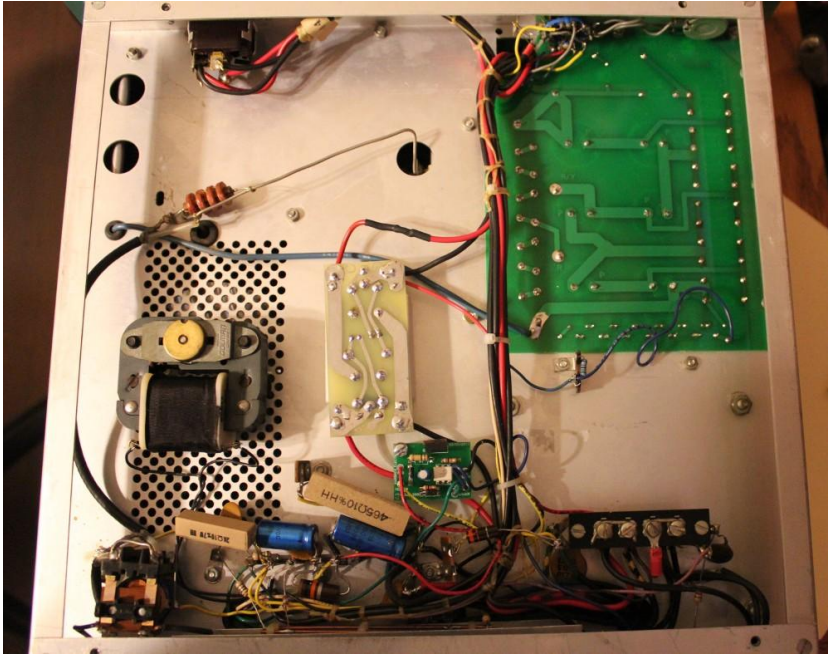
Pictures for this article courtesy of KK4PH

A few weeks after getting the amp, I took it to Wilson and down to the "Land of Magic" for evaluation. To measure 2500 volts, you don't just hook up a Simpson multi-meter – at least not MY Simpson multi-meter (I tried that a few years ago!). Wilson had a set of resistors that acted as a voltage divider that provided a safe place where we could measure voltage and calculate the total voltage based on the resistances in the divider. The voltages seemed to be close to the expected 2400. We replaced the three 4.7 Meg Ohm resistors that are in series for the voltage divider in the amp for the plate voltage meter, which resolved the problem and the meter indicated correct voltage. It was not a problem in the Power Supply but a problem with metering of the High Voltage.

Harbach is a company that makes upgrades for Heathkit and other vintage equipment. I ordered three mods for this amp which included the

- 1.) Power Supply board with Diodes, Caps, and bleeder resistors,
- 2.) "Soft-start" to start the warm-up of the tubes with lower voltage.
- 3.) "Soft-key" to allow use of a solid-state transceiver that would normally be fried by switching the 100 volt keying line from the amp.

It's as much fun to put together these mods as I remember it was to putting together Heathkits.



Harbach Mods: This is a picture of the underside of the SB-201 with the Soft-Key module lower-center. The Soft-start is the lighter board above it, and the bottom of the new Power Supply Board is the green board in the upper-right.

When all mods were installed the amp no longer worked. With really high grid current and no plate current, I was looking for a problem with the soft-key circuit because it draws its current from the grid circuit. But it's good to have Old-Timers around. I was talking with Wilson on two-meters about my problem and he seemed focused on the High-Voltage connection to the plate - but I was skeptical because I hadn't changed anything in that area. He suggested I check DC continuity from the Plate-caps on the tubes to the power supply board. That would be easy so I did, and found no continuity! A close inspection found that the High-Voltage line was not soldered to the plate-choke - and had NEVER been soldered. When I soldered the other end of the wire to the power-supply board I had pulled it off the terminal of the plate-choke. I was able to get the tip of the solder

gun in and flow some solder which resolved the problem.

The SB-201 amplifier runs well and puts out about 600 watts. I'm currently driving it with a Heathkit HW-100 which matches it nicely. I won't keep this setup for long, but I enjoy the glow of the tubes, and the unique smell of a warm tube chassis.

Club Meeting Minutes

Durham FM Association (DFMA)

DFMA Meeting - 8/6/13 - KU4GC Secretary

Location: Bullock's BBQ, Durham

Attending: Wilson, W4BOH; Mike, KK4BPH; Dick, KK4CCX; Charlie, NC4CD; Justin, KD4CPM; Dan, KK4DMS; Heath, KD4DNX; Dee, KU4GC; MK, W4MKR; Wayne, KJ4GDW; Rhett, KE4HIH; Joanna, KE4QOZ; Roy, WA2JLW; Jim, W4KSZ; Vlad, KK4MRE; Duke, K2MZ; Nancy; Tony, K1OC; Jim, WA4OPI; Lad, W4ORD; Vic, K0OUX; Pete, K4PHS; Howie, WA4PSC; Dick, WA2ROC; Bob, W4RWC; Skip, N4SKP; Dan, KR4UB; Don, KE4UVJ; Dave, NA4VY;

A total of 29 attending, 28 of them hams.

President - Bob, W4RWC, called the meeting to order at 7:00 pm.

REPORTS

Vice President - Michael, KK4EIB

Was not able to attend.

Secretary - Dee, KU4GC

Dee had several announcements:

- VE Session, 10am, Saturday, 8/10, Orange County EOC

- OCRA Meeting, 7pm, Monday, 8/12, Orange County EOC

- Dee is managing an email based auction of the Foard gift tower and Yagis. Please email bids to ku4gc@amsat.org. It is anticipated that the bidding will continue for another week (until after the OCRA meeting) and be wrapped up on 8/15. The then current level of the bids was reported.

- Kristin Bedell, KI4LLO, a teacher at Efland Cheeks Elementary School, has taken over the equipment and station that used to be at the Central Park School for children under Meg, KI4LLL. The station needs a VHF, UHF rig and she was looking for donations of such equipment if anyone had a spare.

Lad, W4ORD, suggested that OCRA and DFMA split the cost of a radio, each "passing the hat" to raise the



A Heath Station

funds. Someone else suggested that with the income expected from the sale of the gift tower and Yagis, the DFMA should just buy one. There seemed to be general approval of this idea. It was recommended that the DFMA Board deal with this at its next meeting.

Treasurer - MK, W4MKR

Members: 86 in good standing (who had paid 2013 dues by the end of the meeting)

Repeater Manager - Charlie, NC4CD

Charlie reported that he had made some temporary changes in the way that the 147.225 repeater works. The 225 receive function (147.825) was moved to TV Hill (testing out our new 2 meter antenna). This signal is then sent to The Hill (Hillsborough) using link radios at 449.450 which is the input frequency of the 440 repeater there. This signal is then routed by the controller (after minor reprogramming) to the transmit side of the 225 (147.225). This made the 225 repeater system a split system with input at TV Hill and output in Hillsborough. This also avoids the noise problems we have had on The Hill.

This effectively disabled (temporarily) the 444.450 repeater on The Hill. However, one can use the 440.450 input frequency to talk on the 225 repeater. This is particularly useful for people near the tower in Hillsborough who have trouble getting a good signal to TV Hill. (147.825 input on The Hill has been routed to the output of the 444.450 system. This can be useful in special cases.)

The plan continues to be to have multiple remote receivers (not just at TV Hill) with a voter in Hillsborough to select the best signal. The voter will allow eight remote inputs, one of which could be the MCU.

Election of Officers

The slate of officers from the Nominating Committee (DFMA Board) was presented. Nominations from the floor were solicited; none were made. Then by unanimous consent, the following were elected (or re-elected):

President: Skip Proctor, N4SKP
Vice President: Michael North, KK4EIB
Treasurer: MK Ramm, W4MKR
Secretary: Dee Ramm, KU4GC
Repeater Manager: Charlie Durst, NC4CD
Board Member (2 year term) Dan Eddleman, KR4UB

Board Member (2 year term) Pete Slugg, K4PHS
Board Member Karen Snyder, KD4YJZ, continues with the second year of her two year term.

Since Skip was also slated for the 2nd years of his 2 year terms, he left a one year Board vacancy when he was elected president. To fill that slot, Sam Tannous, KJ4VWG, was nominated from the floor and elected to a one year term as Board Member.

Door Prizes

Vlad, KK4MRE, won a 2012 ARRL Handbook (donated by Pete, K4PHS - thanks!), Dan, KK4DMS, won an appliance timer and ???, won a set of picks.

Program: Show and Tell

Wilson, W4BOH, brought and talked about his **Meissener Signal Shifter**. This transmitter puts out about 10 watts and covers about 0-12 MHz.

Vlad, KK4MRE, brought a prototype of his software defined radio that he is working to produce for sale. This unit (**SDR QRP2000**) produces 25 Watts and supports all modes from 160 meters to 2 meters. The planned msrp is under \$900.

Meeting adjourned.

Board Meeting Minutes

Durham FM Association (DFMA)

Board Meeting - 8/20/13 - KU4GC, Secretary

Location: Pointe Grill, Durham

Attending: Dee, KU4GC; MK, W4MKR; Bob, W4RWC; Skip, N4SKP; Michael, KK4EIB; Dan, KR4UB; Vic, K0OUX; Paul, KE4OXN; Rhett, KE4HIH; Joanna, KE4QOZ; Pete, K4PHS

[Charlie was unexpectedly called out of town. The Board Meeting was rescheduled for the Bennett Pointe Grill with optional dinner at 6:00 and the meeting at 6:45.]

President - Skip, N4SKP, called the meeting to order at 6:45pm.

REPORTS

Vice President - Michael, KK4EIB
He is working on two programs, and hopes to nail one down soon.

Treasurer - MK, W4MKR

Current members: 86 are paid up so far for this year.

Secretary - Dee, KU4GC

The 7/16/13 Board minutes and the 8/6/13 Meeting minutes were approved as distributed.

Dee also reported on the auction results for the Foard gift. The tower sold for \$500, the 10/15/20 Yagi sold for \$105 and the 12/17 Yagi sold for \$40. This netted the Club \$645. Thanks go to Wilson, W4BOH, who did a lot of the physical pick-up, storage, and delivery and, of course, to Bill Foard, KI4JWA, for the donation.

Repeater Manager - Charlie, NC4CD

was not able to attend. However, there was some discussion of the current (but temporary) split operation of the 147.225 repeater.

225 input (147.825) is received at TV Hill, relayed by a link radio to Hillsborough at 449.450 which is the normal input for the Hillsborough 440 repeater. However, in Hillsborough, this is routed to the 225 output (147.225). This results in the "split" operation of the 225 repeater. But it also allows input using the link frequency (the 440 input frequency) at the receiver in Hillsborough.

This also leaves "half" of each Hillsborough repeater. Utilizing these, the 225 input (147.285) is routed to the 444.450 output (444.250).

This all has the following consequences for the Possum Trot net (probably the largest user community for the 225). For many the 225 input on TV Hill produces excellent results. Some of those nearer to Hillsborough who are comfortable with setting up their equipment get good results by coming in at 449.450 (the link frequency) and listening on 147.225, also with very good results. The problem is for those who do not get into TV Hill well and cannot utilize the 440 link frequency. A few of those are heard in Hillsborough and their output appears on 444.450. The PT net control operators can listen on that frequency as well as the 225 using dual band rigs. However, in that mode, it is easy to mess up while transmitting (depending on rig configuration and options) because it is easy to accidentally retransmit the 440 audio output on the 2 meter side.

Since this is a temporary configuration, there were no suggestions as to how to improve things for the PT Net operators.

Michael, KK4EIB, said he was still ready to install the IRLP system at TV Hill but was waiting for another

person on the team. He also mentioned he was being bombarded by email asking when it will be done.

Field Day Coordinator - Dave, W4SAR

was not able to attend. However, he sent an email report on the final Field Day results. Due to an oversight by the secretary, this was not distributed at the meeting, but by email the next day.

NEW BUSINESS

Dee reported that at the Club meeting on 8/6 that there had been a proposal (originating from Adriano, KV7D) for the donation of a dual band rig to the Efland Cheeks Elementary School. There, Kristin Bedell, KI4LLO, has taken over the school station that Meg, KI4LLL, used to operate at the Central Park School for Children. After some discussion it was suggested that the DFMA buy the rig outright for the use of the school. It was also noted that we had just gotten some income from the auction of the gift tower and Yagis. Opinion seemed very positive, but no formal vote was taken with the idea that this be handled by the Board.

Dee proposed that we buy a Kenwood TM-V71A rig for less than \$370 and that this be "lent" to the school on an indefinite basis. The idea was that if the school ever decided to remove their ham radio station, the rig be returned to the DFMA for other possible educational or public service use. Dee also said he would consult with Steve, W3AHL, to make sure this was still the best rig to get for such use. The proposal to go through with this was unanimously approved.

Bob, W4RWC, reported that at the last OCRA meeting, there had been a proposal to set up a ham station at very public sites like the Walmart parking lot. The idea was to use Dewey's (WA4AHR) trailer mounted crank up tower to provide a very noticeable and attractive antenna system. At that meeting Wilson, W4BOH, had proposed that the MCU also be used in conjunction with such PR efforts.

After some discussion, the Board approved, in principle, MCU use for such PR programs. Regular procedures would still apply including finding a driver. It was also suggested that such demos should be targeting schools as well.

It was also reported that Efland Cheeks was also looking for a new weather station. Vic, K0OUX noted that these were now available at very low cost. He has one set up at his cabin and can read it remotely.

Meeting adjourned.

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

Upcoming Events (dfma.org for details)

8/31&9/1 7am Shelby Hamfest, Shelby

9/3 6pm DFMA Meeting, Bullock's BBQ

9/9 7pm VE Session, Orange County EOC

9/9 7pm OCRA Meeting, Orange County EOC

9/17 7pm DFMA Board Meeting, NC4CD Offices

10/1 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 courtesy of KU4GC or as credited)

Web Site: **dfma.org**