The OCRA Newsletter—For May 2013

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From the Secretary's desk

This months news-letter will be somewhat short and sweet.   Much of your secretary's time has been taken in preparation for Field Day 2013 following a WONDERFUL first trip to the Dayton, OH hamfest ☺

Our club members involvement is increasing as well as our monthly meeting attendance; Last month we had 40 members attend the May meeting at the Orange county EOC.

73. Adriano (KV7D).

May 2013 Membership Meeting Highlights

1. OCRA General membership meeting called to order at 7:05pm.

2. Count of OCRA members present at the April 2013 meeting: **40**.

3. April meeting minutes were read , but due to printing issues, will be signed and filed for record keeping at the June meeting.

4. Members introductions

5. Treasurer report: Dan (KR4UB) reported that we currently have $9,441.35 in the clubs checking account.

6. Repeater report: Dan (KR4UB) reported "ALL is WELL" with the club's repeaters. Had a impromptu site visit at the 442.150MHz repeater and happily reported it was still there. A maintenance trip to properly check the equipment will be scheduled for later in the year.

7. Dee Ramm (KU4GC) presented that he had for sale DFMA hamfest tickets and 7.2 AHr batteries.

8. ARES report: Steve Ahlbom (W3AHL, OCRA AEC) "Tar-Heeel run" ran through Chapel Hill for a length of 10 mi, he received a T-Shirt for his participation. Had 8 amateur operators and no incidents.

9. Steve (W3AHL, OCRA AEC) also announced that the FAN dipole antenna build party 17 people had signed up. He also has a source and a great price ($9) for Alpha Delta surge suppressors for anyone interested (they have N-Type connectors and not a PL259).

10. Steve (W3AHL) will be our guest speaker tonight with a presentation on the emergency training he has had by attending "Operation Recovery and a couple of other training events.

11. Lad (W4ORD) has acquired a new laptop which came fully equipped including malware. He requested assistance in removing a Trojan.

16. Meeting adjourned at 9:15pm

De—Adriano (KV7D)

OCRA Secretary

Notes/Announcements

The OCRA Membership Meeting for June 2013 will be held on Monday, June 11, starting at 1900L (7:00 pm) at the Sunrise Church, Located immediately off the New Hope Church Rd. exit on I40 in Orange County. I cannot exactly remember the exit number, but, it is the next exit WEST on I 40 from exit 266 (New HWY 86)

The Officers and Board Members will meet starting at 1815L (6:15 pm) at the same location.

The Presidents' QRM

On May 2nd, I had the privilege of being at the recently opened Ronald McNair Elementary School in Greensboro to witness their radio contact with an astronaut aboard the International Space Station. The school is named for US Astronaut Ronald E. McNair, who perished in 1986 along with the rest of the crew on mission STS-51L of the Space Shuttle Challenger. McNair was a resident of North Carolina when he earned his Bachelor's Degree in physics at NC A&T.

This contact was made possible because of ten months of persistent effort by the school and both the Greensboro Amateur Radio Association and RF Micro Devices, which manufactures radio-frequency devices used in cell phones. Two hams from RFMD ran the main and backup radios for the school.   Handling the radio at the distant end was Statesville, North Carolina native Astronaut Tom Marshburn, KE5HOC. The tension in the room was incredible as the International Space Station approached the point of acquisition. Then, finally, contact was made. During the ten minute window, he fielded most of the twenty questions selected from hundreds submitted by children throughout the Guilford County School System.
As happens, Mr Murphy made a brief appearance at the beginning of the contact, but the astute ground crew of ham operators quickly got the QSO back on track.

It would have been more than sufficient for RFMD, which has an impressive ham station at its Greensboro headquarters, to have merely loaned the radio gear to McNair, but they went one better than that: The equipment is being donated to the school for them to use to develop their own Amateur Radio club.

Three television stations and the National Public Radio affiliate from Wake Forest University were on hand to record the event for later reporting. In addition the Guilford County School System broadcast it live over closed-circuit TV to all its schools.

It was awe inspiring to witness nine hundred elementary schoolchildren seated on the floor of the school's gym, hanging onto every word from Marshburn as he sailed overhead at 18,000 miles an hour. He was in the middle of answering one of the final questions when his signal dissolved into the noise, and then the whole auditorium burst into applause and cheering.

At that moment, I felt great pride in being a ham radio operator. I was quite impressed with the school personnel, the many hams from RFMD, and GARA for this triumph of technological cooperation. It was a success in every sense of the word.

Is there anything we cannot accomplish when all we work together is pursuit of something worthwhile?

-Raymond "Woody" Woodward K3VSA

ARRL Public Information Coordinator for North Carolina
(an ARRL-trained Public Information Officer)

In March I started a project with the help of W4RFQ to remotely control a VHF or UHF rig via a ham radio point to point link. The idea is to let a ham in an apartment use a neighbor ham's tower. This is done regularly with telephone and Internet control systems but the emergency preparedness minded ham in me didn't think that was such a good idea. Alternative uses of this system include hooking up a radio inside a hospital or EOC that uses a base station antenna mounted across the street, or running a radio in the car from a control box inside an office building or shelter.

My design has some elements in common with the Kenwood Sky-Command system except I was looking for a cheaper system, one that controls a VHF/UHF FM rig, and I think I can make the system work a little better than the Kenwood system. Kenwood's system costs around $3000 to buy although it is assembled from Kenwood rigs that by themselves have lots of value, so people who have Sky Command aren't shelling out that much just for a remote control radio. Unfortunately, if what you want is Sky Command and what you have is a bunch of Icom, Yeasu and etc… you are out of luck.

My design will build the system from scratch for around $500. And, like I said, I'm trying to make it work a little better.

Who are we?
There will be at least three hams involved in this project by the time it reaches its first conclusion. Our plan is to make three of these systems before we're done and to make it look pretty good. I'm Tadd, KA2DEW, and my specialty is embedded software. I write programs for small computers. This project is tailor-made for my favorite kind of programming. I wrote the block diagram, selected many of the small components we started with, am acquiring much of the equipment and parts needed for the prototypes and will write all of the software.

My partners in this project are:

W4RFQ, Steve, who is doing the hardware design, schematic, prototyping, board layout, hardware debugging, circuit analysis. He's also starting the effort to do a control panel layout.

N6LUZ, Skip, is cutting, drilling, polishing, painting, and figuring out mechanical details. He will probably end up fixing all of the problems with our physical design, but we're not there yet.

What will it look like?
When we're done, what I hope to have is a box that looks an awful lot like a VHF FM base station radio. It will have an 8 digit LED display, a volume knob and a tuning knob, and a set of toggle switches and push-button switches. You'll operate it just like a typical 2-meter mobile rig, with memories, a setup mode, scanning, and the like. There is a mike jack in the front, a speaker jack and power pole connector for DC in the back, and it should just work.

The weird thing will be in the antenna connectors and the extra box that is up at the neighbor's house. The Control Panel box will have two antenna connectors. The extra box down the street, called the Target Radio, will have three.

How does it work?

The system has two boxes, as mentioned above. One box called Target Radio, houses a 25 watt VHF or UHF radio and sits near the good antenna. The other is the Control Panel. Connecting the two is a radio link made up of four radios. Our demo system uses old Icom thumbwheel switch radios: two Icom IC2ATs, and two Icom IC3ATs. Each will be set to 100mW of output. The link radios are connected to using speaker mike jacks and power. The computer board inside each box will use the radios to transmit packet radio and microphone/speaker audio alternately. The packet radio system uses home-made TNCs and runs at about 1000 baud. It's actually slower electrically than the old packet TNCs used for APRS and BBS operation. The cool factor is that the two radio links, 2meter and 220mhz can be turned on at the same time, making the packet link full duplex. The other thing that is unusual is the system will send the mike and speaker audio across the same links as the packet radio data. A packet radio message will be sent to start the mike audio or speaker audio, and to stop it. The machines at each end will switch the audio appropriately.

Because I get to use my own home-made packet system, and because I can run both directions at the same time, I can make the packet messages be short and quick. The responsiveness of the controls will be very nice, much better than the Kenwood Sky Command. I'm hoping that the users abandoning Internet control systems for this radio linked system wouldn't be too displeased with this system's behavior.

The VHF or UHF radio we're going to control, i.e. the Target radio, will probably be an Icom UX module from an old Icom multi-band stackable radio system made in the late 80s called an IC-900. I have a collection of these modules on 10m, 6m, 2m and 220Mhz. What I don't have is a 440Mhz module. I'm watching on eBay, eHam, QRZ, and QTH for one to show up.

The range of the control signals will be the same as a simplex mode radio path. If we used yagi antennas and 5 watt radios, the two boxes could be rather far apart.

What are we doing now?
As of June 1 both the Control and Target ends are mounted on a six foot long piece of shelf board with HTs, low powered link radios from a previous project, salvaged computer circuit boards, and prototyping solder boards. The hand-wired home-brew packet radio TNCs are complete working. The audio switching is our current task. Steve, W4RFQ, is driving to get a pair of PC boards made by the July OCRA meeting.

I have accumulated enough Icom HT radios to make one and a half units. I have some Chinese HTs, some old crystal equipment and some early synthesized mobile rigs to build out to three units but I'd really rather use the Icom HTs. They are small enough (compared with a mobile radio), run low power for days, and are really easy to work with. I would trade a current model Boefang dual bander for a pair of old Icom HTs if one of them is on 220 or 440. I don't need PL, charger, or working batteries. Catch me on 442.15 or send me an email at ka2dew@amsat.org.

When will we be ready to show a working unit?
I'd like to have a complete prototype, not-in-boxes but portable and working, by August.   I expect that by November we may have the three working complete systems. That's aggressive. Finalizing the mechanicals and ordering the parts to make three will be a big deal. We're trying to make the design something we can make more of, or even make a kit out of it (bring your own radios). Deep thought will have to wait until we get it to work.

73,
Tad Toroborg (KA2DEW)