Field Day 2015

June 27 - 28 , 2015

Prologue:

Members of the Reelfoot Amateur Radio Club again took to the field for the annual ARRL Field Day event held on the last full weekend of June. As with last year, this year's event landed on the weekend before Independence Day. Participants all over the United States, Caribbean, Canada, and even South America set up portable stations on emergency power to test their ability to communicate accurately in adverse conditions. As such, the event is billed as an emergency preparedness test. There is also a component of friendly competition and a contest-like atmosphere where those who are set up similarly, see how they can perform against each other putting as many contacts in the log as possible over a 24 hour period. It's also a lot of fun and an excuse to get out and enjoy the summer and each other with our great hobby.

Mosely MINI-32 Antenna for CW Station

deploy a very nice fan dipole for use at the GOTA station. Did it work out ? Keep reading !

Setup:

For the last few years, the ARRL has allowed set up of stations for the Field Day event beginning at 00Z on the Friday of that weekend. This works out to 7PM Thursday evening here, and so it was that members of the Reelfoot Amateur Radio Club met at "The Shop" at the QTH of Glenn N4MJ for station setup. Radios would be set up in their assigned area and interfaced with their computer and tested with dummy loads. This year, Glenn moved things around so that the CW and digital stations would share one corner, and in the opposite corner, the phone and GOTA stations would be set up. This actually worked quite well and provided a bit more space in the middle for visitors to congregate. Glenn had acquired a billiards table and he covered it with plywood to make it a buffet area for food. There was no formal business for this club meeting but we thank Rose W9DHD for providing refreshments for the setup operation.

The CW station once again consisted of Rose W9DHD's very nice Kenwood TS-590S

After the good results with digital operations (primarily PSK31) at the GOTA station last year and the excitement garnered from the young operators, it was decided by chairman Jamie WB4YDL to place Steve KK4NNH in command and control of the GOTA station. It was primarily his young family that accounted for the good GOTA scores last year. Steve and his son Samuel KK4SJE took to the challenge and developed a plan to make the GOTA station a large contributor to the final club score. As with last year, Todd W4TZX took control of the phone station, Bob K9IL contributed Rose W9DHD's radio to the CW station, and Jamie WB4YDL set up the digital station. Also the VHF station was again set up by Jamie WB4YDL.

There were no rules changes this year from the ARRL on Field Day, so we again entered in the very competitive class 3A - three full time HF stations - CW, phone, and digital, a free VHF station, and the "Get On The Air" or GOTA station running Glenn's call sign N4MJ. Bonus points are a characteristic of this event, and everyone had some hand in contributing to these available points. In addition, as is traditional with Reelfoot Amateur Radio Club, a VE test session was offered on the Saturday morning prior to the formal start of radio operations. Also traditional to RARC during Field Day, the GOTA station was again designated the antenna experimental station. Steve and Sam decided to build and

Bob K9IL at CW Station

Matt KF7AZK Operating Digital Station

challenges as we will see.

Jamie WB4YDL had a long day at the hospital and came in a bit late for setup with cables hanging off the radio and accessories ! However, it all went together nicely and was quickly operational. He again used his Elecraft K3 transceiver with P3 panadapter, TXBPF bandpass filters and a 200 watt LDG autotuner. Power pole connectors were used throughout with a Samlex switching power supply. This year Jamie added a 20-inch large screen monitor for easy viewing. The autotuner is capable of switching two separate antennas on a per band basis. Jamie's laptop runs the new N1MM Plus Logger, a new updated version of this favorite contest software. It utilizes MMTTY and 2Tone engines for RTTY, and the flDIGI engine for PSK31. All macros were run and tested at Jamie's QTH prior to arrival.

This left the GOTA station which Steve KK4NNH was in charge of and he had a few startup glitches. Steve uses the excellent Kenwood TS-590S transceiver. It was anticipated that this station would primarily be a digital-only station, thus simplifying the setup. Steve uses Windows 7 as everyone else did, except via "Boot camp" on a Mac computer. This turned out to work just fine once a few bugs were ironed out. The controlling and logging software was the flDIGI software. This software is in wide use and very familiar to digital operators

transceiver and Jamie WB4YDL provided a Winkeyer for flawless CW generation. The computer uses the N3FJP Field Day software that is easy to configure and use. In fact the phone station also used this logging software. The CW station is also used to acquire the alternative energy bonus when we use a solar panel and QRP for the first 5 QSO's. This year, Jamie WB4YDL replaced a failed charge controller with one acquired from Buddipole, which works great. Bob K9IL is not as familiar with this radio as his own Elecraft K3 and we had to search the menus to figure out how to turn the CW sidetone up ! Luckily, Steve KK4NNH uses the same radio and it was easily remedied. Once the CW macros were configured in both the logger software and the Winkeyer, this station was ready to go ... at least until we add antennas !

Todd W4TZX had the phone station ready to go in short order. He again brought his excellent Icom IC-746 along with the intercom box to allow cross talk between the operator and a logger. The cabling issue that was present last year was taken care of and it was nice to have this feature available. The N3FJP software was also used at this position. The phone station this year was positioned next to the GOTA station and this presented some

Public Information Display

and easy to use. In fact, it would have worked just as well on the native Mac OS. The antenna used was the fan dipole that Steve and Samuel built. No bandpass filters or external tuners were used that would complicate the station.

The following morning came all too quickly and we were there when the dew was still thick, readying the antennas for deployment. The CW station uses the nice two element Mosely MINI-32 tri band beam mounted on a 30 foot push-up mast and turned by a simple TV rotator mounted on a PVC mast. Along with this antenna, a 135 foot dipole doublet was mounted with the mast as its center support. Ladder-line fed, its LDG tuner is mounted in an ammo box and sits on a plastic saw horse near the mast. It is controlled in the shack using a bias-T to power it.

Last year, the raising and lowering of the Spiderbeam on its tilt-up mast caused some significant heartburn and anxious moments. As it turns out, this was easily remedied by

Dipole at Dawn

mount where a Yaesu G-450 rotator was mounted. The hardest part of the operation is positioning the Spiderbeam in the raised angled mast while standing on a 10 foot ladder. Once done, the guy ropes are attached to the anchors and the front loader and the tractor backs up and gently raises the antenna into position. Nice !

As with last year, the phone station also sported a two element Mosely MINI-32 triband beam mounted near the shop. This year, an effort was made to separate the wire antennas significantly enough to reduce interstation interference. With the GOTA fan dipole taking up the West side position and the CW dipole in its usual position on the East side, this left the phone station and digital station dipoles to be deployed. First we needed a common support. After the Spiderbeam was raised to its proper position, the tractor was used to raise and support a lightweight 25 foot tower with the 6M 'junkyard dog' 3-element beam and a Cushcraft AR-270 2M/440 vertical. Another TV rotator was put into use to turn the 6M beam. An attached rope at the top was used for supporting an end of another 135 foot dipole doublet. The other end was positioned in the North field on a 40 foot tilt-up mast provided by Todd W4TZX. Fed by ladder-line and a 4:1 LDG balun, the coax run to the station was nearly 150 feet. This dipole served the phone station and now we needed one more for the digital station. It was decided to use the VHF tower as an end support and run the dipole out into the bean field to the West. First off, Todd climbed the tower to place a rope support and then we used a 40 foot extension ladder as a support out in the bean field. We finally got the antenna in the air and the support locked down just in time for the rain and wind to hit ! Looking over to the CW mast, the US flag was whipping wildly ... as was the mast !! Uh-oh ! We ran over to the mast and soon realized that a guy anchor was way out of position. Noel KJ4UNX and Todd W4TZX grabbed guy ropes to stabilize the whipping mast and Jamie WB4YDL was beating on a stubborn anchor that just would not come out of the ground. Noel finally got the anchor loosened and we repositioned it, all the while getting soaked by the torrential rain. The flag was summarily lowered and the guy ropes were locked down and everything was good with the world again !

using a front loader on a tractor to both raise and lower it. This year, Glenn's tractor needed some servicing and was unavailable. However, Todd brought his tractor down from Kentucky to take care of this. The Spiderbeam is a bit complex in its design but made simple to put together by adding color-coding and support clips. The whole thing is ready to be mounted in under 30 minutes. The aluminum mast is mounted in a Penninger

Sam KK4SJE & Steve KK4NNH with Barber Pole Antenna

With all the cables run into the shack, the radios were all tested on actual antennas. Glenn noticed that there was an extra coax on the floor next to the CW station and decided to label the two used cables for that station. One goes to the dipole doublet, and the other to the MINI-32 beam ... or so we thought. After testing things out, it was noted that the SWR

Sam KK4SJE & Todd W4TZX Operate Phone Station

on the CW station "beam antenna" was way off on both 20M and 10M, but strangely, it was fine on 15M. How could this be ? It was thought at the time that some construction error occurred when putting together the beam, but the true nature of the problem wouldn't reveal itself until after the event. In the meantime, this left the 419 bandpass filters in a lurch as they would not be able to safely handle the higher SWR without burning out capacitors (lesson learned from a previous Field Day !). Glenn N4MJ had a nice little LDG tuner that we pressed into service and this worked very well to get the antenna to play nice.

The Operation:

Saturday morning of Field Day saw absolutely gorgeous weather with low humidity and temperatures in the 70's ! Just awesome ! There was no rain storms in the forecast as with the previous year and therefore no anticipated shutdowns. Bonus points were beginning to be tallied with Noel KJ4UNX again bringing in the 100 point bonus for media publicity and Todd W4TZX copying the W1AW Field Day message - also good for 100 points. Samuel KK4SJE set up a nice public information booth with new display and a table full of flyers - another 100 points. After the VE test session, both Steve KK4NNH and Samuel demonstrated and presented their "Barber Pole Antenna". As built, it is tuned for 20M and consists of a helically wound copper flashing around 4 inch PVC and a top hat consisting of copper refrigeration tubing. Also added were counterpoise wires of 1/4 wavelength. The whole antenna is mounted up off the ground a bit and functions quite well. This definitely qualified for the educational activity bonus !!

Speaking of the VE session - Samuel KK4SJE successfully passed his General Class license exam ! Well done, Sam ! Also, it took two tries, but Juan Guzman of Fulton, KY, passed his Technician Class license. Congratulations, Juan !

The generator was started about an hour before formal operations began at 18Z (1 PM local) and radios and computers were checked again. Then Ol' Murphy paid us a visit. This time it wasn't a hard hit as it was last year with the digital station; however, it was the digital station that saw the issue ... at least initially. The digital station computer decided to go BSOD (blue screen of death !). Most computer operators know what this is and it was quickly determined that a USB port was not working correctly ... at least at that moment. Once the USB port was changed to a different one, everything worked as it should. It appears that "RF in the shack" is responsible for the computer ills that were seen especially since so many peripherals are now controlled by the ubiquitous USB port. Steve KK4NNH saw similar things at the GOTA station and was able to stay ahead of it. These issues will definitely be addressed for the next event.

Harold KJ4FTM & Jamie WB4YDL on 6M

At the appointed time, formal Field Day operations began. Out of the gate, Bob K9IL quickly racked up the QRP solar powered QSO's with the help of Jamie WB4YDL's solar panel and hemostat connected gel cell battery. After that, the battery was taken off line and the transceiver connected to the power supply. Bob then took off on 20M CW with no issues. Except, there sure didn't seem much change in signals when turning the beam antenna ...

Sam KK4SJE Operating GOTA Station

Jamie WB4YDL settled into the digital station and began running RTTY on 20M ... and Steve KK4NNH and company began operating PSK31 on 20M. That's right - we had three separate stations operating simultaneously on a small area of 20M ... and nobody was really bothered ! Finally Jamie ran the RTTY dry and switched to PSK31 where he immediately found N4MJ (the GOTA callsign) blasting the entire segment ! Um ... Jamie changed bands ! There were no issues as last year with the panadapter not seeing signals and the Microham MicroKeyer performed very well. Newcomer Matt Ashby KF7AZK enjoyed taking part in learning about this station as with the GOTA station. His 7 call originates from Arizona and he will be a new RARC club member.

The phone station was a tough slog and Todd W4TZX was trying his best to put QSO's in the log. He too was seeing some RF problems particularly with the intercom unit and being so close to the GOTA station. Finally he realized there was a problem with the dipole antenna and it was tracked down to a faulty 4:1 balun. Once this was replaced, things improved dramatically and QSO's were logged easier. Neither the phone station nor the GOTA station made use of bandpass filters and this will probably be changed for next year's event.

The GOTA station saw lots of activity and the young Claytons brought a few friends to make sure the Youth Element bonus was maximized and achieved. The station worked almost entirely in the PSK31 mode using a basic sound card interface. A new ham who passed his Technician Class license during this past Ides of March Hamfest, Preston Trent KM4JOW, contributed to the GOTA totals and was counted as a youth element participant. Way to go, Preston !

Earlier in the week, ol' Sol decided to belch part of its exterior into space and directed its halitosis towards Earth. This caused aurora activity as far South as Georgia ! This lingering hyper-ionization caused the HF bands to be rather flat in propagation. Meanwhile, on 6 meters, things began to get very interesting. Jamie WB4YDL set up his Yaesu FT-847 in the camper brought by Ray N4SLY and Dolly KN4SLY. The 6M set up worked as expected. However, the Kantronics KPC-3+ TNC used for several hundred points for packet radio communications, was not initializing correctly ! Yikes ! This caused Jamie to have to make a road trip back home to retrieve another TNC for this event. After retrieving the other TNC, everything worked smoothly. The conditions on 6M were the best in a long time.

Todd Operates Phone While Sam Logs

Harold KJ4FTM, Phil N4PWG, and Ray N4SLY all took part in the action. Jamie noticed some CW activity on the band and he quickly ran back to retrieve his set of paddles and hooked them up to the transceiver to good effect. Many QSO's were being made on this Magic Band this Field Day !

Two meter operations were routinely made by Jamie WB4YDL with many more than the needed number of messages for the formal NTS message bonus. This was performed via Winlink with many Field Day stations across the country. Also a formal Winlink message was sent to Keith Miller N9DGK, the Tennessee Section Manager. Attempts were made to digipeat off the International Space Station using packet communications, but this was unsuccessful. It is thought that the solar effects of its ejection were causing disruption during our attempts. So, all in all, two meters accounted for 200 bonus points this year. Not bad !

Bean Field Ladder Dipole Support

Once again, Mr Ralph Puckett, Obion County Commissioner, and his wife Shirley visited the event - good for 100 bonus points. Our own Phil N4PWG is Troy, TN EMA/NIMS director and together, their visits gave us 200 bonus points.

The Results:

This year we had 15 licensed operators and 2 unlicensed operators participating in Field Day operations. This is exactly the same as last year's participation. Both unlicensed operators made PSK31 QSO's at the GOTA station. The following are the bottom line results :

Score Summary:

	CW	Digital	Phone	Total
Total QSO's	677	517	254	1448

Band / Mode QSO Breakdown:

	CW	Digital	Phone	Total
80M	37	13	0	50
40M	214	48	55	317
20M	212	97	49	358
15M	115	67	91	273
10M	80	0	6	86
6M	19	0	53	72
SAT	0	0	0	0
2M	0	0	0	0
GOTA	0	292	0	292
TOTAL	667	517	254	1448

The bonus point total this year was greatly increased from last year at **1790 points**. This was again largely due to increased GOTA station participation and excellent results with bonus points earned by Samantha KK4NNM, Steve KK4NNH, and Samuel KK4SJE, Matt KF7AZK, and unlicensed operator, James Nail. A total of six operators earned double bonus status with

Samantha once again earning a triple double bonus. The total number of bonus points generated by the GOTA station this year was a phenomenal 440 points !

The total QSO score after the power multiplier (x2) came out to **5284 points** - a huge increase from previous years ! And this despite the rather flat band conditions. This made the total submitted score **7074 points** for Reelfoot Amateur Radio Club in the class 3A category. With the number of operators the exact same as last year, but with a more full-time CW effort and a tremendous GOTA score, the Reelfoot Amateur Radio Club set a **new personal club Field Day record** !! *Congratulations to all !!!*

Todd Climbing VHF Tower

Epilogue:

Interestingly, once the smoke cleared and the event finally ended, mostl were not optimistic about our chances for a good score. This year thanks to the superb effort by Steve KK4NNH, the GOTA station more than doubled last year's QSO production and registered no less than 6 double bonus operators. This had a significant impact on the clubs final score. The result also indicates that when conditions are rough, modes like CW and PSK31 can cut through without much difficulty. The phone station had a rough go of it this year, but with Todd W4TZX's fine operating, the QSO total for this station was still better than last year's.

Oh yea ... remember that labeled coax cable at the CW station ? During breakdown of the stations, it was noticed that the coax labeled "CW Beam" went the wrong way. This is the antenna where we thought we had a construction problem with the Mosely MINI-32 beam on the 20M and 10M bands. As it turned out, this coax was misidentified and the coax used actually went to the still-standing 40/80M fan dipole used during the RTTY Roundup in January !! Naturally, 15M works well on a 40M antenna. 20M and 10M ? Not so much. Lesson learned. Amazing that we made over 600 CW QSO's on it !

Many thanks to everyone who made this event a success, most especially our XYL's who kept us fed and watered ! Glenn N4MJ and XYL Linda were the perfect hosts and the Shop was once again the perfect Field Day QTH. There will always be challenges during a Field Day operation and this year, the Reelfoot Amateur Radio Club handled things very well and turned in a record score ! We'll see how we stacked up against everyone else when the full Field Day results are published in the December issue of QST.

Soapbox Comments :

Glenn N4MJ :

Field Day 2015 Recap:

Trying new antenna locations was part of this year's ritual. A dipole is a dipole is a dipole but where multiple antennas and stations are co-located there is significance to the location of antennas.

In previous year's we've used Band Pass filters to reduce inter-station interference. This year not only did we use the filters but we experimented with antenna locations, particularly dipole antennas.

Digital and phone station dipoles were located end to end - ends separated by about 100 feet and away from CW dipole and beam, and digital Spider Beam by 200 plus feet.

The results - we still had some interference but the reduction was dramatic enough that it was a worthwhile effort. Next year may find additional separation of antennas.

Antenna installation went smoothly as club members were familiar with systems being used and knew how, when, what to do as a team effort. Still, it took time. Antenna construction began at 0900 on Friday and ended around 1700 Friday. It was a HOT day, lots of sun and some wind made for easy sunburn.

Saturday morning's VE session kicked off on time. We're proud to announce one upgrade

Coffee Pot Retrieve Dew-ty

to General, Sam Clayton (KK4SJE), and one new Technician, Juan Guzeman, as a result of this session.

Our presentation for this Field Day was done by Steve Clayton, KK4NNH. Steve did a show and tell about his 20 meter barber pole vertical. This antenna is four feet tall, uses four radials mounted above ground, is adjustable for working different parts of the band and is an efficient radiator, as proven with use before and during FD. Steve also briefed several visitors on this antenna and his and Sam's Fan Dipole both of which were used for the GOTA station.

Operation of the CW station was shared by Bob, K9IL, Jamie, WB4YDL, and Glenn, N4MJ.
The phone station was manned by Todd, W4TZX, Mike, KJ4KHX, Noel, KJ4UNX, Matt, KF7AZK, Steve, KK4NNH, Mike, AK4VU, Glenn, N4MJ.
The digital station was manned by Jamie, WB4YDL, Phil, N4PWG, Noel, KJ4UNX, Matt, KF7AZK.....

Six meters opened in wild fashion on Sunday morning.

ISS contact was deterred by CME activity.....

Other than having a sun burnt scalp and chest, from Friday's antenna installation, I had a great time with FD and VE activities. Getting together with everyone and watching the club members apply what they have learned from previous FD's was a real pay-off. Antenna construction, de-construction is fairly well mastered. Operation of stations is mastered. Using computer based logs - still need some work here, especially when there is an Op and a Logger at the same station. The digital station helped a lot and several Ops learned about digital ops; it was exciting to see the interests and training. The GOTA station racked up much needed points thanks to the Claytons and friends.

As always, we owe a tremendous amount of "THANK YOUs" to the XYLs & YLs for their SUPER support with the operation and especially for wonderfully good food. They kept us fed the whole weekend. Some of the guys brought food as well and I want to thank them, too, for that.

Our score exceeded any past RARC effort thanks to digital and the GOTA station.

I'd say we've learned our lessons very well and it was expressed in our score.

Here's looking forward to Field Day 2016.

73 de n4mj
President RARC

Todd W4TZX :

Many thanks to everyone who came out and helped with setups and ops. Also thanks to Mike Stayton who can stay up all night operating and helped Glenn in finding the bad balun on the phone station.

See you on Field Day 2016 !

When all else fails ... Amateur Radio.