Reelfoot Amateur Radio Club

Western Tennessee • Western Kentucky • Southeastern Missouri

EmComm • Amateur Training • Public Service • License Testing • Special Events

501c4 Non-Profit Organization

ARRL Special Services Club K4RFT

Field Day 2013

June 22 - 23 , 2013

Prologue:

The annual ARRL Field Day event is the most popular ham radio operating event in North America. This event is held on the fourth full weekend of June and this year happens to land a bit earlier than usual. It actually covers IARU Region 2 which also encompasses Central and South America; however, participation in these areas is usually sparse. The members of the Reelfoot Amateur Radio Club again took to the trimmed pastures at "The Shop" at the QTH of Glenn N4MJ in South Fulton, Tennessee for this annual event. This year, a rules change allowed for setup to begin a day earlier, and this advantage was fully taken. Thursday evening prior to the Field Day weekend, those with radio equipment to set up, met at the shop and hooked everything up and made sure computers were properly interfaced and the radios were transmitting into dummy loads. This allowed bugs Ol'Murphy laid around to be thoroughly stomped and proper attention to antenna construction was possible the following day.

Old Glory flys with CW antenna

This year, with the addition of several new members and with the promise of Charles KØBRT once again visiting from Missouri, and with a higher level of interest in digital modes, it was decided to add a third HF station and once again enter in the 3A classification for the Field Day event. This proved worthwhile because, as with last year, a dedicated CW operator was not to be had. Glenn N4MJ and Jamie WB4YDL, the Reelfoot Amateur Radio Club's only other CW operators, would have to tag team to cover that station. Digital contacts count 2 points each - the same as CW contacts - so the added station would pick up some of the points slack.

Based on past performance of the digital station, it was decided that this station would also double as the low band phone station for 40M and 80M. In fact, the regular phone station would not have an antenna for these bands. This judgment was based on the digital station operating purely on the RTTY mode as in the past. However, Jamie WB4YDL added the capability to run PSK31 mode, and this would prove interesting !

Setup:

As mentioned above, the new Field Day rule allowed us to begin setup at 0000 UTC Friday, which is 7 PM Thursday evening local time. Since daylight would be rapidly diminishing at this time, we decided the best use of this extra time would be to get the radio stations set up in

Hamfest 2017
Christmas 2016
Field Day 2016
Hamfest 2016
Christmas 2015
Field Day 2015
Hamfest 2015
Christmas 2014
Field Day 2014

their entirety. With the addition this year of an extra HF digital station, this turned out to be a good plan. It took about 3 hours to set up 4 HF stations and be sure the software was working correctly. One laptop computer was not cooperating and this was quickly replaced thanks to the assist by Todd W4TZX. Software was installed and it was no time that everything was working properly.

The CW station consisted of Rose W9DHD's Kenwood TS-590S transceiver that was successfully used the previous year. Realizing that the Microham interface used last year would be moved to the digital station, Jamie WB4YDL decided to purchase and build a Winkeyer kit. The very nice N3FJP Field Day software provides for Winkeyer interface and the Winkeyer is USB powered and is assigned its own Com port. This makes the computer much happier and the CW much smoother ! Another cool feature of the Kenwood TS-590S is that it has a USB port built in that can directly interface with the computer without the need for a separate interface.

Glenn N4MJ knocking out CW Q's

Another addition that addressed a failing from last year was the addition of bias-T's to power the LDG antenna tuner at the antenna via coax feed instead of a 9 volt battery. Problems occurred last year with the antenna tuner failing to lock the correct L/C combination for the low bands of 40M and 80M. This would cause wild variations in antenna SWR and power output. The idea this time around would be to power down the tuner after the correct L/C combination was found and it would be stored in memory. This turned out to be not entirely correct ! The antennas for this station would again be the Mosely MINI-32 two element tri-band yagi atop a 40 foot push-up mast. In addition, a 135 foot wire doublet antenna fed with 450-ohm ladder line and a 4:1 balun was the antenna for the 40M and 80M bands. This is the antenna that had the LDG Z-11 Pro II antenna tuner with its bias-T mounted in an ammo box. A 4:1 balun was chosen because of the impedance mismatch between the 450-ohm ladder line and the 50-ohm coax. However, Ol'Murphy threw a few tricks at us on this one !

The GOTA, or "Get On The Air", station was again the Yaesu FT-920 which Glenn N4MJ acquired in an estate sale and was so successfully used as the GOTA station last year. The antenna this year was again Phil N4PWG's balanced terminated folded dipole (BTFD). This is an interesting antenna that keeps current balanced on the antenna (and therefore minimum SWR) with addition of a large "swamp" resistor in the middle. All that can be said is that it works ! It was again configured as an inverted-V. In an unusual twist, initially no output power was noticed when checking it out. A desk microphone was used and this was substituted for a Yaesu hand microphone that Jamie WB4YDL had for the VHF station. It worked ! So what was wrong with the desk mike ? The lock switch was engaged on the underside of the base ! Ol'Murphy again ! But good problem solving.

Marv KK4MAC has done a lot of work with his home station recently and one addition was a new Kenwood TS-590S transceiver. Marv graciously allowed the club to use this fine radio at the phone station position. This is exactly the same radio as was used at the CW position and USB connectivity to the computer was again an easy addition. Marv also brought his Heil headphones and Todd W4TZX brought extra headsets and cable splitters. The antenna for this station was again the club's Mosely MINI-32 two element tri-band yagi mounted on a push-up mast. Again, this station was limited to the upper bands of 10M, 15M, and 20M and had no low band antenna.

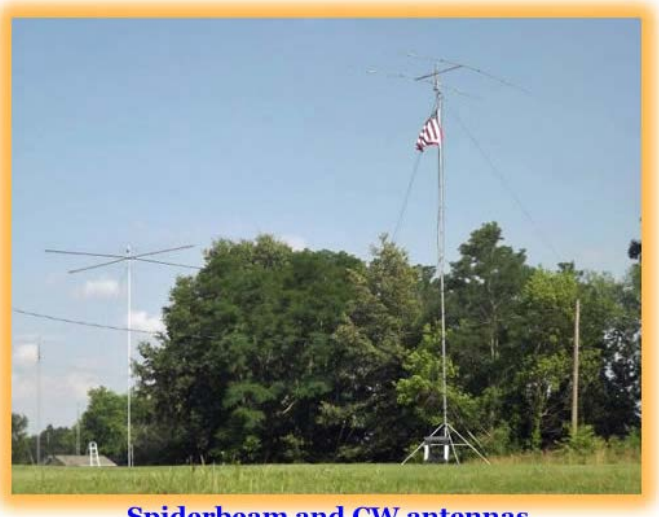
The digital station was the most hardware-intense station by its very nature and this was provided by Jamie WB4YDL in its entirety. The station consisted of the Elecraft K3 with the Microham microkeyer interface. This is the station that was previously used for digital operations but in RTTY mode only. This year for the first time, a panadapter, the Elecraft P3, was used in concert. This allows the observation of signals on the air allowing the operator to pounce on CQ's and also to find a 'hole' on the bandmap on which to call CQ. It would prove to be quite effective. Jamie also provided 3-stage TXBPF bandpass filters for all bands which he built from plans and which were set up to auto-select when the bands were changed. All stations in fact had bandpass filter and external tuners. The remaining stations used ICE 419 bandpass filters which were re-built after Jamie had an epiphany that internal tuners should NOT be used with

Hamfest 2014
Event Archive
Hamfest 2013
Event Archive

Spiderbeam array

bandpass filters !

Over the previous 6 weeks prior to Field Day weekend, Jamie WB4YDL set out to re-build the Spiderbeam in such a way that would not only make it stronger and more robust, but also easy to assemble and easy to disassemble and pack away in its duffle bag. Each of the 15 foot spreader arms were color-coded to make assembly trivial. Also the monofilament line used to support the wire elements was replaced by Dyneema cord. This cord is lightweight, very strong and does not absorb water. If the cord absorbed water, this would de-tune the elements. Extra support guys were provided and they were all attached using stainless steel snap clips. The antenna was built on a simple roof tripod pressed into service and, once built, the antenna was transferred to the waiting mast. The mast was 32 feet of 2 inch diameter tubing in 8 foot sections clamped at the junctions. A Penninger tilt mount was used and once the antenna was transferred to the mast, it was ready for raising. If you have ever watched a pole vault athlete in action, you will get a feel of how it looked when the Spiderbeam went up ! The mast bent, but did not break ! It was aloft at the 38 foot level with a Yaesu G-450 rotator mounted at the base and two sets of rotating guy points at 18 and 36 feet. It all worked extremely well ! In addition, another 135 foot wire doublet antenna was raised for low band activity that was planned for both digital and phone activity.



Spiderbeam and CW antennas

The VHF station was the final station to assemble and consisted of Jamie WB4YDL's Yaesu FT-847 which just made it back from the repair shop to be back in service for Field Day. A bad capacitor was replaced that was preventing transmission on the 432 MHz band. This station was set up in Ray N4SLY and Dolly KN4SLY's camper which also provided a nice "get away" from the bustle back in the shop. The home-brew 3 element 6M yagi built by Howard W4HLR was placed on 30 feet of lightweight Rohn tower along with an AR-270 dual-band vertical used for 2M duties. This included Winlink packet messages using a Kantronics KPC3+ TNC.

The radio stations were set up on Thursday evening and the antennas were constructed and elevated the following day. All software was tested using the N3FJP Field Day logging

Harold KJ4FTM with Clayton clan at VE test

program on all stations except the digital station. The digital station used the very fine N1MM contest software with MMTTY and flDIGI engines for the digital modes that would be used. All was accomplished by mid-afternoon Friday. The plan was for a VE testing session Saturday morning at 10 AM, followed by Marv KK4MAC's teaching session on Tower Safety over lunch prior to the opening bell. Ah, the best laid plans of mice and men... !!

The Operation:

Once everybody broke for home Friday, it was up to Todd W4TZX to copy the W1AW Special Field Day message. That evening, Jamie WB4YDL received an email with the attached message. Mission accomplished ! Samantha KK4NNM was in charge of the Public Information display and on Saturday morning she strolled in with a beautiful 3 panel display that we were all very proud of. It was displayed in a prominent area of the operations area along with the Visitor Log and ARRL handouts. Noel KJ4UNX had already accomplished the announcement in the local newspaper, but in a first for Reelfoot Amateur Radio Club, a full length Public Service Announcement was broadcast by WOBT-TV in Union City ! While the video is still available, it is posted on YouTube at http://www.youtube.com/watch?v=-5PxAvl6ujk . It starts at about the 1:30 mark and continues until about 5:00.

Saturday morning of Field Day came quickly and final preparations were underway when the VE test session was begun. Six testers attended the VE test session and 5 were able to pass their test on either the first or second attempt. The successful candidates were :

- **Hannah Clayton** - Technician Class
- **Melodie Clayton** - Technician Class
- **Sam Clayton** - Technician Class
- **Samantha Clayton KK4NNM** - Extra Class
- **Dean Rupp KK4PXJ** - Extra Class

Now how does this microphone work again ?

Congratulations to all the successful candidates !! This took way more time than anticipated and we had to push Marv's teaching talk until around dinner time. Marv also had a nice display and gave a great talk over dinner on Tower Safety - good for 100 bonus points !

As the clock tolled 1800 UTC, it was off to the races and all stations were transmitting normally. The CW station began by using solar power for the first 5 contacts to qualify for the Alternative Power bonus points. Jamie WB4YDL took the first shift on CW and tagged with Glenn N4MJ as opportunities presented themselves. Our VIP's with Obion County Commissioner/Vice Mayor Ralph Puckett and County Mayor Benny McGuire and his grandson Hayden arrived and pictures were made. Hayden was given the 'nickel tour' by Glenn N4MJ however he did not make a contact.

The phone station was racking up QSO's with Charles KØBRT at the helm and Todd was settling into make RTTY contacts on the digital station. At the VHF station, 6M was quite slow as band conditions had not developed to include E skip QSO's - just ground wave was possible. Contacts with Howard W4HLR who was with the Crockett County Field Day station W4C were made not only on 6M, but also multiple HF bands. Messages via Winlink were performed by Jamie WB4YDL and were sent and received by many stations. Jamie used the nearby Winlink node KJ4AJP-10 in Martin, TN. Using a new 'app' on Jamie's iPhone called *GoSatWatch*, it was noted that the International Space Station (ISS) was going to make a pass at about 8:30 PM.

Hannah with Michael KJ4KHX at GOTA

Last year, an effort to make a packet digipeater contact was not successful as the ISS radio was turned off. This year, as the ISS approached Acquisition of Signal (AOS), it was apparent that the situation was much different. The frequency on 2M suddenly exploded with packet signals and many of them were being successfully decoded on the computer. Jamie WB4YDL sent multiple packet attempts to the ISS and finally a successful digipeat was observed. Afterwards, not one but 2 stations, responded with their Field Day exchange. Quickly, before the ISS reached Loss of Signal (LOS), a confirm packet was sent and successfully digipeated. Excellent !! Good for the Satellite QSO bonus of 100 points ! Both stations, one in Virginia and the other in Connecticut, were in the log for 2M digital contacts via the ISS.

Things didn't heat up for 6M until Sunday when conditions greatly improved and 58 QSO's were put into the log. However, 10 meters was marginally available on both days with QSO's made on all modes.

The "Get on the Air" (GOTA) station was quite active and the Clayton clan put many contacts into the log. Samantha KK4NNM/AE, who had just passed her Extra Class exam, celebrated by qualifying for the double-bonus on this station - not once, but THREE TIMES ! A triple double bonus - a new accomplishment for Reelfoot Amateur Radio Club ! Also Todd W4TZX qualified for double bonus points. In the end, 5 operators made QSO's on the GOTA station with 3 being 18 years old or younger - all Claytons !

Samantha KK4NNM/AE and her Public Information display

The bandpass filters performed admirably and none of the interference problems had last year were evident. The phone and digital stations were right next to each other and there was occasional noise noted between the two, but nothing like previous years. All the auto-tuners performed as advertised except ... yep, the one at the CW antenna was still loosing lock even with the power off ! After a lot of head scratching, Jamie WB4YDL decided to force the tuner to a different L/C combination by using a 1:1 balun. It worked. No further problems were experienced at the CW station.

The phone station was operating on only the high bands of 10M, 15M, and 20M and did quite well. However, no low band QSO's were made by this station. Only the GOTA station made 40M phone QSO's ! The digital station cleaned up all available RTTY activity and then went to PSK31 where it was very fruitful. As a result the low band dipole was never used for phone ! Ooops !

The Results:

This year we had 8 licensed operators and 3 unlicensed operators participating in Field Day operations. All three unlicensed operators will soon have their status changed to licensed ! The following are the bottom line results :

Score Summary:

	CW	Digital	Phone	Total

Total QSO's	319	179	335	833

Band / Mode QSO Breakdown:

	CW	Digital	Phone	Total
80M	53	0	0	53
40M	70	16	0	86
20M	95	94	84	273
15M	89	58	63	210
10M	12	9	13	34
6M	0	0	58	58
2M	0	2	7	9
GOTA	0	0	110	110
TOTAL	319	179	335	833

The bonus point total this year was up significantly this year at **1570 points**. This was in large part due to increased GOTA station participation and the excellent result turned in by Samantha KK4NNM/AE with 160 bonus points achieved. Excellent contributions to the bonus points by club members Todd W4TZX, Noel KJ4UNX, Marv KK4MAC, and Samantha KK4NNM/AE all added up to a much improved effort this year.

The total QSO points came out to **2662 points** and was quite respectable for a class 3A effort. This made the total submitted score **4232 points** for Reelfoot Amateur Radio Club. It was good to see 10 meters show some life this year, now at the peak of the sunspot cycle and 6 meters also came to life late. The digital station was a huge bright spot with Todd W4TZX and Jamie WB4YDL making most of the QSO's. Todd used the "skimmer" facility of flDIGI to great effect to pounce on many calling CQ. The many PSK31 contacts put into the log this year was a first and added to the versatility of this station. The CW totals were down this year as we did not have a dedicated CW operator. Hopefully this will be corrected for next year.

Todd W4TZX & Charles KØBRT

This was a huge learning experience for our younger and/or newer ham members and all came away more knowledgeable about the operation of the radio in a contest setting.

Epilogue:

After the Field Day event was finally complete, break down of the stations and antennas went quite smoothly - even the lowering of the Spiderbeam. Lessons learned include the need to share the low band antenna between the phone and digital stations or have another separate wire antenna for the phone station. Not having 40M phone QSO's was a big error. The small low cost LDG baluns may need to be replaced by more robust baluns for proper operation of the remote antenna tuner. Delegation is good ! Many thanks to the many members who made this Field Day operation a big success !! We appear to have hardware issues more or less figured out. The main thrust from here will be improving operation and adding new operators.

Also many, many thanks go to our XYL's and other ancillary personnel that kept us all fed and watered ! Linda and Glenn N4MJ were as usual perfect hosts. Look forward to the results of our efforts normally posted in the December issue of QST.

See you on Field Day 2014 !

When all else fails ... Amateur Radio.