## Steve's Take:

**NFL Section Manager**
**Steve Szabo, WB4OMM**

Greetings North Florida Hams!
***Welcome to the GREATEST HOBBY IN THE WORLD!***

I hope your holiday was safe and wonderful! It's Wednesday, December 27th as I write this; and as usual at this time of the year, I reflect back on the previous year and look forward to the new year.

I was able to make the Silver Springs Hamfest in Ocala – Wow! What a great event! I saw many familiar (and friendly!) faces there. Lotsa' ham stuff to buy, and commercial vendors – and the tailgate area was packed with cars/stuff! It continues to grow and expand, and if you didn't make the 2017 event, I strongly encourage you to make the next one later this year. I also was able to attend three holiday banquets – the Orlando ARC function in Orlando (the same night as the Silver Springs Hamfest – yeah, it was one long day!!); the North Florida ARS, Jax Range, and Crown District ARES banquet in Jacksonville, and my own local Daytona Beach CERT ART in Daytona Beach. Contrary to all the naysayers, ham radio is healthy and growing – and many great folks are involved and active.

Throughout the year I was blessed with travelling to various parts of the Section – some an hour or so out, some 8 hours away, and everything in-between) – and no matter where I went, I was warmly welcomed with eager and energetic people. No matter what the function, be it a Hamfest, tailgate, club meeting, ARES meeting, or "out in the field" event, there were folks enjoying our most diversified hobby. Also, again this year, we "stepped up to the plate" and were able and ready to provide our unique services to the local communities, as well as others in the state and surrounding region due to weather induced emergencies and other events. Those that went to serve in Puerto Rico…..a huge THANK YOU! You made us look good! To all that were prepared and were able to volunteer…..another huge THANK YOU! It is my hope after two consecutive very "busy" years, that Mother Nature will be kind to us and give us a break.

While I have you, I would like you to welcome the new NFL Section Emergency Coordinator Steve Palmer W4LOM. Steve hails from Flagler County and has a First Responder background that will help in filling some big shoes! You'll hear more from Steve in the immediate future. I also have a few folks considering the Assistant SEC position – and they too have significant backgrounds that would contribute to our future successes. More on this in to come in the new year…….

No travel plans set for January yet……but I am DEFINITELY at the Orlando Hamcation all day Friday, Saturday, and Sunday! Enjoy the warm Florida Winter weather (it's COLD out there in the Midwest and Northeast!). Happy New Year! Welcome 2018!

Check out our fabulous NFL Section Web Page and read our spectacular Newsletter (January Issue) of *QST NFL*. http://arrl-nfl.org/.

Get involved, get active, get happy! Stay safe, get on the air, and have fun!!

### EVERYONE COUNTS!

**73, Steve WB4OMM**
*Steve Szabo WB4OMM*
*NFL Section Manager*
**ARRL, The National Association for Amateur Radio™**
386-566-2085
wb4omm@arrl.org

## What's Inside….

*Email your QST NFL input to*
**WB2VYK@gmail.com**

# Lake Amateur Radio Association (LARA) Reports…

Frank Anders, KK4MBX

Activities for Lake Amateur Radio Association in December included election of Officers and Board and the Club Christmas Party.  The party was held at the Lakes of Mount Dora Clubhouse and was attended by 40 members and their wives. Several club members were recognized for their service to the club by our president, Jay Boehme N4KXO, including Carl DePoy K8BBT, Frank Anders, KK4MBX, and Lenny Shaner KD4MBN.

Our plans for 2018 include a one day training for Technician Class new hams followed by a testing session.  Plans for this session are still in progress but it will be held in the first quarter.

I hope you had a merry Christmas and wish you the happiest of new years.



Carl DePoy K8BBT receives service award from LARA Presi-



Frank Anders KK4MBX receives service award from LARA President, Jay Boeh-

LARA members enjoy the Christmas Party!

# Alachua County Groups Plan Feb. 24 Emergency Communications Symposium

by Gordon Gibby KX4Z

Two Alachua County ham clubs, the Santa Fe College ham radio club and the Alachua ARES group are co-sponsoring a day-long free symposium on emergency communications on Saturday February 24th 2018.
The event will feature multiple speakers, hands-on activities, break-out sessions, and an honest-to-goodness deployment in a miniature Full Scale Exercise.
The goal of the Symposium is to give participants experiences and knowledge that they can take back to their home counties and "raise the bar" of emergency communications with new skills, assets, and strategies – particularly that of holding their own Full Scale Exercises with an ICS flavor, based on the IS-120a course.  https://training.fema.gov/is/courseoverview.aspx?code=is-120.a   The day will start at 0800 and isn't scheduled to end before 1830. Speakers include several from Alachua County ARES, as well as Joe Bassett from Clay County ARES with his recent deployment experience in Puerto Rico, and Dave Welker from Marion County Hospital Emergency Communications.  Alachua County Emergency

Management has expressed interest in participating. Topics will start with "leadership" and move through communication modes, practical ad-hoc antennas, traffic handling, digital skills, portable go-box stations, filling out ICS-205's and other documents and holding Tabletops and Exercises.   Putting together successful Technician, General and Extra license classes, as well as EMP preparation will also be in the mix.
Using a fantastic setting on the Santa Fe College campus in Gainesville, Florida that lends itself to hands-on education, the course is going to be capped at 50 participants.  An RSVP is required to register for the course, and further information about the Program and the Registration can be found here:   http://www.qsl.net/nf4rc/Program.pdf
Other than a collection for lunch, there is no charge.

At this time, already 23 hams from two states are involved in this course including several Emergency Coordinators.   We would love to have anyone join us who would like to get right into emergency amateur radio communications training!

# Gainesville Amateur Radio Society (GARS) held its annual Holiday Party and Awards Banquet

Pete Winters W4GHP, GARS President

The Gainesville Amateur Radio Society (GARS) held its annual Holiday Party and Awards Banquet on the evening of December 19th, 2017. The banquet was prepared by the culinary staff of the Trinity United Methodist Church where GARS holds its monthly general membership meeting.

The award recipients for 2017 were: Most Outstanding Award (Ham of the Year), Lawrence Rovak WB2SVB; Bill Wells (K4RDP/SK) Memorial Award, Dr. Gordon Gibby KX4Z.

Lawrence was the driving force behind the GARS Hamfest this past April. Through his excellent organization and leadership this year's Hamfest was the most successful in recent history. Additionally, Lawrence designed an updated emergency communications system using 2 meter/70 CM and HF equipment for the Alachua County Emergency Operations Center. The bill of materials he presented to the county EOC was approved and all equipment purchased. The installation of the first phase of the updated system (2M/70CM) is in the process of installation as this article is being written.

Dr. Gibby has brought the digital age of amateur radio to the forefront in the club. Dr. Gibby has held numerous training sessions on the building of digital circuits, the troubleshooting of circuitry, and the building and administration of a county wide digital network for the amateur radio community in the Gainesville/Alachua County area. Additionally he taught Technician and General Licensure classes.

A new award was established this year called the "Elmer Award". The first recipient of the award was appropriately Dr. Gibby.

The evening's events concluded with the awarding of door prizes for the attendees, and the introduction of the GARS club officers for 2018. Those officers are: President Peter Winters W4GHP; Vice President Shannon Boal K4GLM; Secretary Gregory Sporer KM4OCZ; Treasurer Susan Tipton K9PDL

# West Panhandle District ARES Groups Participate in Deer Dodge 50

Daisy Crepeau, KT4KW – Assistant Emergency Coordinator, Santa Rosa County

## Summary

On Saturday December 9, 2017 West Panhandle District ARES groups participated in 2 races, a 50K (16 started – 15 finished) and 50-mile (25 started – 22 finished) endurance run by providing radio support at each of 4 aid stations and the start/finish line. This race took place in Santa Rosa County in a forest that encompasses almost 200,000 acres.

19 Amateur Radio Operators and stations.

> 5 from Escambia County 2 ARES members and 3 non-ARES members
> 8 Okaloosa County all ARES members
> 6 Santa Rosa County all ARES members

## Radio Modes Used

Net Control established the net using one frequency: 146.700 (K4SRC), the Santa Rosa County EOC repeater. Since the area of the race was not conducive to simplex, the repeater was used until it was decided that the noise (static) was affecting all stations. It was believed that the weather (very cold and snow on the ground) was basically making the 146.700 repeater in Milton unusable. At 11:20 the decision was made to transfer all operations to the Crestview repeater 147.360. The operations then proceeded without incident. The aid stations were located at Bear Lake Connector, Juniper Creek North Trailhead, Deaton Bridge Picnic area and Hutton Trailhead. Net Control was in the pavilion at Bear Lake Campground using a dual band j-pole antenna at the top of 30-foot military surplus fiberglass poles. The runners utilized several "Florida Trail" hiking trails.

The race began at 6:30 AM on December 9th. Our support began as soon as the runners started and operated continuously until the last runner came into the last aid station (Bear Lake Connector) about 7:16 pm. All hands then took down the antenna, feed lines and radios.

Tactical call signs consisting of the name of each aid station were used, e.g. Bear Lake, Juniper Creek, Deaton Bridge, Hutton Trailhead, etc.

The plan called for reporting all runners arriving at each aid station. Radio Operators were utilized as the only means of reporting the progress, times and difficulties of the runners. The race began and ended in darkness. The 50K runners came through 2 aid stations then turned and came back to the same 2 aid stations while the 50-mile runners went through all 4 twice.

## What was learned –

Since we had done the 50-mile and run last year and a 100-mile race this year, we were able to incorporate the needed improvements into this run. The response from the amateur community in the 3 counties involved was very encouraging. Some repeat operators were utilized but several new amateurs stepped up this year and have already committed for the runs next year.

## Additional Comments –

Overall the event was a resounding success! All the operators learned the importance of back up equipment. We also learned that an elevated gain antenna and a minimum of 25-watt radios were needed. Hand held radios were not used since they could not get into the repeater from any location.

A couple of runners missed some turns and lost time. This year we also utilized poster boards with the runners' bib #'s and the aid station names at Net Control. As the runners passed through an aid station we placed a marker on the boards so that family members and friends could come to net control and immediately tell where their runner was and track their progress throughout the day.

Also learned is that it is important to keep your radios programmed with the back-up repeaters as well as the primary frequency since this time we did need to switch to the Crestview repeater.

This maneuver went off without a hitch.



Radio setup using one of the "GO Kits" from the EOC

West Panhandle (Continued)



Antenna setup at Deaton Bridge.



Net Control—Bear Lake Campground Pavilion
WB6IQN Dual Band  J-POLE @ 35 FEET



Deaton Bridge Radio Tent (equipped with a table, radios and HEATER! Not shown in picture Tony Heaton, KF5WKW, Richard Bailey KE4BFX and Michael Wright KJ4FNA (who supplied the tent and heater). Both Tony and Michael had radio setups.



Net Control: (Foreground) Logan Ball KM4YCJ, Shannon Ball KN4GXR, Roger Jones KK4QMI, Ray Crepeau K1HG.  Positions were radio, logging by hand, logging by computer and putting times on poster for family members. Not pictured: Neil Light, KK4VHX, Daisy Crepeau KT4KW and Rosemary Jones, XYL of Roger.

# Alachua County Developing BITX40 for ARES Training, Part Two

by Gordon Gibby KX4Z

In the previous article of this innovative "short-kit" inexpensive single sideband HF (40 meter) transceiver, I went over its features and advantages, and how to install a free Integrated Development Environment, find improved free software generated by other hams, and install it into the Arduino-based digital VFO of this fascinating little rig. (See: http://arrl-nfl.org/wp-content/uploads/2014/06/00-QST-NFL-November-2017-update.pdf, pp. 3-5). Faster than I could even get the final portion of this article written, the production group in India has released a 2nd transceiver (the uBitX http://www.hfsignals.com/index.php/ubitx/ ) that is now an all-HF-band transceiver with a general communications receiver capable from 3-30 MHz, and a dual-MOSFET transmitter output stage that should outperform the original BitX40.

However, some of the upgrades that are wise to install on the original design will probably transfer over to the newer, multi-band design, so I'm finishing up the list here for the less expensive BitX40.

Once these improvements are added, Alachua ARES members and others can have an inexpensive transceiver for WINLINK or other training, that can do all the following:

- operates on both 80 and 40 meters, for SSB, digital, or CW (using FLDIGI or small hardware modification not de scribed here)
- has A & B VFO's
- operates both upper and lower sideband
- has built-in receiver protection against strong nearby transmitters
- has digitally accurate frequency display on all bands without further calibration
- can potentially be used to receive any HF frequency

can have digital frequency control by WINLINK software, and possibly others
You do not have to perform all of these upgrades; you can pick and choose which ones fit your needs the best, but some give you several upgrades at once --- upgrading your Raduino software will make huge improvements in multiple areas.

1. **MOST IMPORTANT: Improved protection from nearby very strong signals.** The original Bitx40 has transistor Q13's base exposed directly to the receiving antenna – very strong nearby transmitters (think: Field Day) can potentially exceed the reverse base-emitter junction rating and dump considerable and damaging energy into the transistor, destroying it. (One anecdotal report had a 60 mA dial lamp being lit by a receiving antenna near to a fellow running 2 kW.) The solution to this is one that is used in many receiver front ends, and also has application to EMP protection: back-to-back silicon diodes that will clamp the input to 0.7 volts peak. Identify terminal 12 on relay K1 and place two 1N914 (or similar) back to back diodes from there to ground as shown in the accompanying photo:
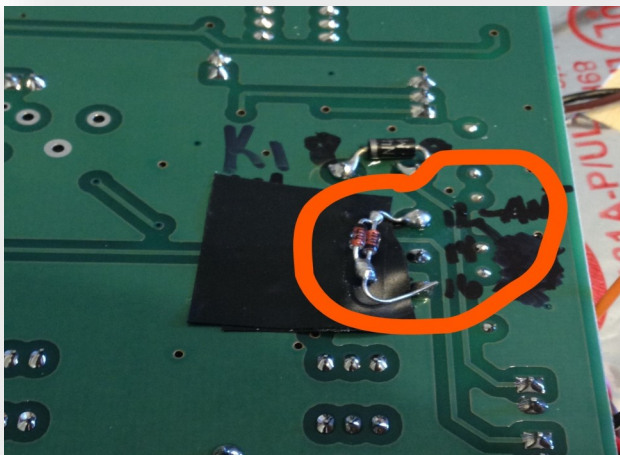


*Figure 1: Two back to back diodes added from Relay K1 terminal 12 to ground, encircled in orange.*

BITX40 (Continued)

2.  **Relay Back-EMF protection.**   Diode D7 in the production run was misplaced and doesn't protect the relay switching device (be it a transistor, switch, opto-isolator) from the inductive back-emf of relay K1.   Add a proper reverse diode across the coil of relay K1, pin 8 (cathode) to pin 9 (anode), as shown in Figure 2.
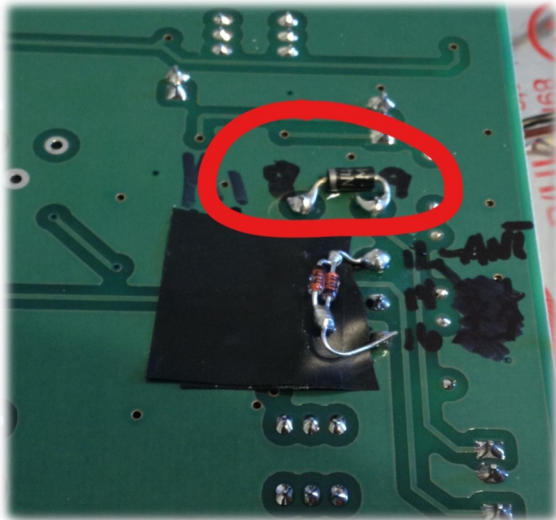


*Figure 2:  Reverse diode across relay K1. Use any silicon power diode, such as 1N4002 or 1N4007.*

3.   **Increasing microphone gain:**   stock BitX40's might require a good set of lungs but the included electret micro-phone DOES work well and can even be added to some "furniture" to make a nice handheld or desk mic.   You can also wire in an amplified CB microphone.   Adding about an additional 4-6 dB of gain can help.   Try carefully solder-ing a 33 ohm ¼ or 1/8 watt resistor across (in parallel) with the chip resistor R123 (100 ohms) in the emitter of Q12, or use an external preamp if you wish.

4.   **Adding 80 meter reception to the receiver**.   The original design's 7 MHz bandpass filter won't allow 80 meter reception, but the Raduino is otherwise happy to dial to that band.  A 470pf silver-mica capacitor can be connected across the bandpass filter to allow reception on 80 meters.   Connect one end to the junction of C1 and L1, and the other end to the junction of L3 and C6.   Use the SETTINGS menu options to expand the allowed frequency range to include 80 meters.   An improved sketch (see #6) will make moving from band to band even easier.

5.   **Adding 80 meter transmission to the transmitter:**  The 40 meter low pass filter built into the BitX40 after the power amplifier stage is not sufficient for 80 meter operations.   However, QRPkits has an inexpensive 80M LPF that can be added to the output using BNC cabling. http://www.qrpkits.com/ezseries.html#ezlpf     Another version available from qrp-labs: https://www.qrp-labs.com/lpfkit.html

6.   **Improved sketch that improves  80 & 40 meter operation** and allows quick transition between the bands. With this sketch, when you leave one band, the "frequency jumps" will move much faster until you near the next ham band, making it convenient to change bands.   (If you add a jumper completely across the 40 meter bandpass filter (and are willing to deal with some images) you can make it receive many more frequencies.)  Go to  https://github.com/ggibby1/BitX40-1.24-FT857d  and click on, download, compile and install *raduino_v1.24GLGchangesWorkingCopyBreadPanwithCAT2.ino*  from that repository, after saving your original sketch.

7.   **Perfect Frequency Calibration:**   If you have access to a digitally accurate communications receiver, you can measure two crystal frequencies in the BitX40, apply corrections to the control sketch of the Raduino and make it

BITX40 (Continued)

have virtually perfect calibration (to the limit of the accuracy of your frequency measurement). This is because the BFO (beat frequency oscillator) is crystal controlled, and with an insulated "antenna" wire near the single 12.0000 MHz crystal you can easily pick up enough signal to measure the actual BFO crystal frequency. The VFO is digitally derived from a 25 MHz crystal on the Raduino board, and using a sketch that forces 25.0000 MHz output you can determine the actual frequency of that crystal also --- they tend to be 4 kHz high. Apply the corrections to the two defined frequencies in the control sketch and you now have a perfectly calibrated transceiver, without needing any offsets outside 0 in the calibration routines. Download and temporarily install *raduino_v1.24GLG25MHZONLY.ino.ino.ino* from the GitHub repository at: https://github.com/ggibby1/BitX40-1.24-FT857d to force your Raduino to generate what it thinks is a 25.000 MHz signal so you can measure what it really is – the apply correction to the line that begins with

**#define SI5351BX_XTAL**

For further accuracy do the same with the BFO oscillator.

8. **Computer control:** Although it might not work with all CAT controlling software, a simple routine added to the control sketch of the Raduino can make it emulate a Yaesu FT-857d for purposes of frequency control, giving you 9600 baud, 8N1 control of the transceiver for WINLINK purposes. The *raduino_v1.24GLGchangesWorkingCopyBreadPanwithCAT2.ino* sketch mentioned above includes Yaesu emulation and works with WINLINK and with PC-ALE, but so far not with FLDIGI.

9. **Reducing audio squeal and transmit/receive pop:** Add a 1K resistor in series with the wire to the middle terminal of audio gain control potentiometer to reduce or eliminate squeal at lower volume settings. Audio amplifiers Q16 and U1 remain "on" for the first second or so into transmission and this causes an objectionable "pop" and transmitted signal amplification --- there are several solutions for this from an audio turn-off switch using a 2N7000 MOSFET (https://groups.io/g/BITX20/topic/simple_audio_muting_circuit/4995877?p=Created,,,20,1,0,0) to a simple 2N3904 switch to more quickly discharge C114, for which the author has a small number of printed circuit boards.

The Bitx20 online forum is a beehive of information and activity related to this fascinating little SSB transceiver. https://groups.io/g/BITX20 Check it out!

*Author's Note: As you probably know, they have already released the MULTIBAND version of this rig. I have the bare kit on my kitchen counter, hope to soon begin to build it. I've now mastered the technique of cutting the opening in the desk organizers or in baking pans --- but the new one has the Raduino mounted differently so may take a little more work.*

*Being MULTIBAND, the new one offers a ton of new options for ARES or hams --- it can be a WINLINK RMS server, and I believe it will also work as an ALE (automatic link establishment) transceiver for both voice, CW and digital. As the stock software is quite new, no one has done much with it yet, but that will change soon!*

Welcome to the Second Annual Gainesville Hamfest 2018 held by the

Gainesville Amateur Radio Society.
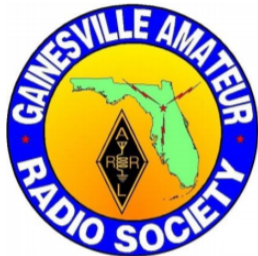
The Gars Hamfest 2018 is an ARRL Fully Sanctioned event.

Talk-in on 146.82 -600 offset No PL

Located at the First Baptist Church of Waldo, Florida 32694
14370 Kennard Street (SR-24) in Waldo
Saturday April 21, 2018

Vendor Setup Time: 6:45am – 8:00am / Show Time: 8:00am – 2:00pm

Advance Purchase Tickets $5.00 Until April 7, 2018 Tickets at the gate $7.00
Contact hamfestinfo@gars.club 352-317-2820

# *FCC Testing Information*

**LMARS FCC Testing**

- Every month
- Third Saturday
- 9:15 AM
- Seminole County Sheriff's Office
  Off SR 17-92, on 100 Eslinger Way in Sanford
- For more information and registration,
  contact Bob Cumming, W2BZY, 407-333-0690 or
  w2bzy@cfl.rr.com

**North Florida ARS**

- Weeknight testing for all grades of license in Feb., May, Aug. and Nov.
- Hogan Baptist Church at the corner of Hogan Rd. and Parental Home Rd. in Southside.
- Advance registration is required.  See http://nofars.net/home/fcc_testing

**Lake ARA**

- Monthly on the 3rd Saturday, prior to monthly meeting. (Except December)
- 8:00 AM
- LARA Clubhouse (11146 Springdale Ave, Leesburg – off of CR 473)
- For more information and registration, contact David A. Pennell, NP2MR    (352) 602-5164 np2mr@yahoo.com in advance of the meeting.
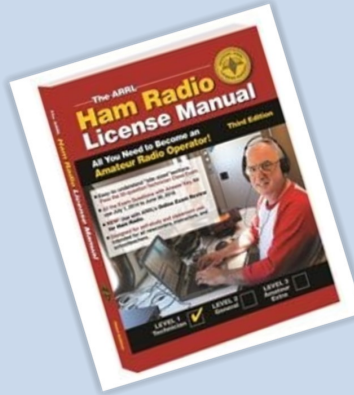
**Suwannee ARC**

- First Tuesday of the month prior to the meeting
- Saturdays available with advanced notice
- N4SVC, 9707 58th Street, Live Oak, FL 32060
- www.suwanneearc.org for more information

**Silver Springs Radio Club**

- **Go to** http://k4gso.us/class/ to signup for classes
- Go to http://k4gso.us/test-signup/ for testing.  Testing is held on the 2nd Tuesday at 7 PM.
- Note  http://k4gso.us/ncvec605/ is requested to be filled out before you show for testing. It is best to download the form and open it as a PDF so you can fill in the blanks.

# Upcoming QSO Parties
Alan Sewell, N5NA                                         http://qsoparty.eqth.net/

| Montana | 1/27/2018 | 1/28/2018 | Flathead Valley Amateur Radio Club |
|---|---|---|---|
| British Columbia | 2/3/2018 | 2/4/2018 | Orca DX and Contest Club |
| Vermont | 2/3/2018 | 2/4/2018 | Radio Amateurs of Northern Vermont |
| Minnesota | 2/3/2018 | 2/3/2018 | Minnesota Wireless Association |
| South Carolina | 2/24/2018 | 2/25/2018 | Columbia Amateur Radio Club |
| North Carolina | 2/25/2018 | 2/26/2018 | Raleigh Amateur Radio Society |
| Idaho | 3/10/2018 | 3/11/2018 | Idaho QSO Party |
| Oklahoma | 3/10/2018 | 3/11/2018 | Oklahoma DX Association |
| Wisconsin | 3/11/2018 | 3/12/2018 | West Allis Radio Amateur Club |
| Virginia | 3/17/2018 | 3/18/2018 | Virginia QSO Party |
| Louisiana | 3/17/2018 | 3/18/2018 | Louisiana Contest Club |

# Links to the NFL Web Site

For net, hamfest and other events go to www.arrl-nfl.org or select the option below.  Web Master Bert Garcia, N8NN, maintains an up-to-date and detailed listing of all NFL nets and activities.  If you need to make a change to an existing net or activity, or add a new one, contact Bert at:  n8nn@earthlink.net.

*Section Nets*

*Northern Florida STM Report*

*Florida Hamfest/Convention Calendar and Operating Events*

# NFL Officials

**Section Manager** – Stephen W. Szabo WB4OMM
**Assistant Section Managers** –  Joseph D. Bushnel W2DWR, John C Reynolds W4IJJ, Dave Davis WA4WES, Jeff Capehart W4UFL,  Neil Light KK4VHX, Ray Crepeau K1HG
**Section Emergency Coordinator** – Steve Palmer W4LOM

**Assistant SE Coordinator** – Robert A. Mitchell W4HKG
**Section Technical Coordinator** – Frank Haas KB4T
**Affiliated Club Coordinator** – Steve Palmer W4LOM
**Section Traffic Manager** – Tom Housworth, KI0JO
**Official Observer Coordinator** – Rick A. Lloyd AA4W
**State Government Liaison** – Darrell Brock N4GOA

**Newsletter of the Northern Florida Section of the ARRL**

1. Spread the word about our website www.arrl-nfl.org and *QST NFL* on your club web-site, in a newsletter or at a meeting.
2. Send a write-up and picture of your next activity.
3. Make sure you, or the appropriate member of your club is on the email reminder list.
4. Contact:  Marty Brown WB2VYK, wb2vyk@gmail.com

*QST NFL is a monthly publication of the ARRL Northern Florida Section.  QST NFL is intended for wide distribution within the NFL Section, including club Leaders and all licensed Amateurs in Florida.  A current issue of this publication can be found at the ARRL Southeastern Division web site, Northern Florida Section.  www.ARRL-NFL.org  Opinions expressed by writers are their own, and may not express the positions of the ARRL.  Submissions may be made to the editor, Marty Brown, WB2VYK, wb2vyk@gmail.com.*