

# SPARK GAP

Vol. 32, Issue 12, December 2015 *MARC - Serving Central Indiana Communities for thirty-two years*

**Season's Greetings!**

**A New Year is right around the corner. 2015 has been a busy year for MARC and hopefully 2016 will be just as busy and productive. I would like to thank everyone for all they have done for the club in 2015. Together, we have accomplished a lot.**

**I would like to thank all those that came out for the Strawberry Fest, Field Day, Heartnut and our final event of the year, Goblin Patrol. Looking forward to 2016 for all the events the Club will be attending and hoping we get many people out to participate.**

**Thanks also to the PIO Team, IT Team for getting the work out and keeping our website up to date. And to the VE team for running a smooth testing place for our new hams. And I would like to thank Chris, KQ9Y for getting our new repeaters on line using the Yaesu System Fusion repeaters on 146.835MHz and 443.525MHz.**

**A reminder, the Club will be putting on another one day Tech Review Course Feb 13th. The class will be held at WRTFD Station 53 off Smith Valley and 37. Please pick up a flier to put up in your bank or stores that have a bulletin board. We really need to get the word out.**

**Saturday, Dec. 19th at 8:00 a.m., we will have our annual Christmas pitch breakfast and club meeting. We will also be having a white elephant gift exchange. For your viewing pleasure we will also get a chance to see the premier of the MARC year-in-review video from Parker Productions. We hope that you will be able to join us.**

**Just a reminder that Dec. 31st marks the end of our membership year. It is time for all of us to renew our dues and support our club. At \$18 per year, a MARC membership is one of the best deals around. Please see Cy Young, N9CHY, about getting dues current for 2016.**

**Finally, I would like to wish everyone a Merry Christmas and a Happy and safe New Year!! May your holiday season be filled with the joy of family and friends, rest and relaxation, and peace. May good health and prosperity be yours in the year ahead.**

**Jacki KI6QOG  
President**



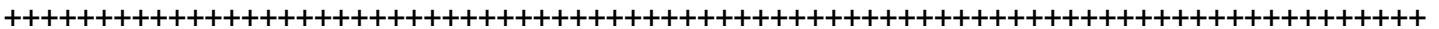
*Birthday's for the month of December:*

*KQ9Y-Chris Frederick*

*AE9H-Phil Melick*

*KC9YIA-Chris Rose*

*N9LLP-Rusty Kirty*



## **DECEMBER 2015 M.A.R.C. MEETING**



The December M.A.R.C. meeting will be held at our usual location at 8:00 A.M. In keeping with the Christmas Season there will be a pitch-in breakfast. Members are encouraged to bring their favourite thing for breakfast and share it with the rest of the group. The club has done this for the past few years and it has been something to look forward to and also enjoyed by all that attend.

If you would like to contribute to this annual breakfast feast please bring what you like for breakfast so everyone there can enjoy.

..... Editor



*2012 Breakfast Feast*

## The Netherlands Opens 100 kHz Band at 5 MHz

Just days after delegates to World Radio Communication Conference 2015 (WRC-15) reached consensus on a new global 15 kHz-wide allocation at 5 MHz, the Netherlands opened a 100 kHz band for Amateur Radio use. Article 4.4 of the ITU Radio Regulations lets countries authorize frequency assignments that are contrary to the international Table of Allocations, but only on a non-interference, non-protected basis.

Hams in the Netherlands have been authorized to use 5350-5450 MHz at up to 100 W PEP. The Netherlands' IARU member society VERON has recommended the use of USB.

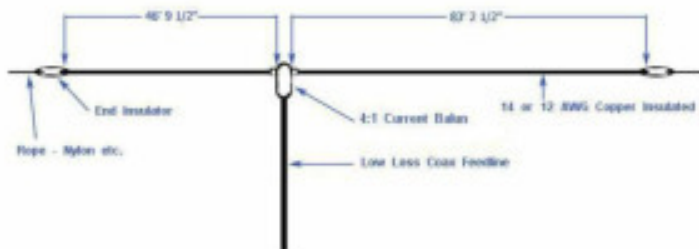
WRC-15 laid the foundation for a global, secondary Amateur Radio allocation of 5351.5 kHz to 5366.5 kHz at up to 15 W effective isotropic radiated power in the US (some Region 2 countries will be permitted up to 25 W EIRP). The new worldwide band won't be available for use in the US until the FCC institutes a rule making proceeding and establishes operating parameters for the band.

..... *ARRL Newsletter December 2015*



# OCF ANTENNA PROJECT

Looking to build an antenna. Check out WE5TYL's OCF antenna.



This is a popular antenna design as the performance is very good across the HF bands and requires little or no tuning. It's a dipole fed off center with a 4:1 current balun at the offset feedpoint.

The antenna shown covers 80, 40, 20 and 10 meters with 15 meters and WARC bands only available with an antenna tuner and should be limited to less than 500 watts due to elevated SWR. The formula can also be used to adjust the overall length to cover more or fewer bands and the resulting overall length. 160-10m, 80-10m or 40-10 meters depending on your available space. In all cases 15m and the WARC bands will require a tuner. Design Parameters For an 80-10 meter OCF dipole antenna, divide the 1/2 wavelength standard of 468 by the lowest operating frequency of 3.6 MHz and you arrive at an overall length of 130'. This is the length of a standard dipole but instead of dividing the result in half, use a 36/64% offset to determine the feedpoint. The total length of 130' multiplied by 0.64 (64%) gives the long leg length of 83.2 feet. The short leg length is the remainder or 46.8 feet. If you prefer, you can also correct the length based on the velocity factor of the wire (.975) although this generally does not make a noticeable difference in the antenna performance. Using a quality 4:1 current balun at the feedpoint (Balun Designs Model 4115ocf, 4114ocf or 4113et) is crucial to the overall performance of the antenna. The feedpoint impedance at the offset is at or about 200 Ohms and the balun will provide good transformation to the coax feedline impedance of 50 Ohms. To build the OCF dipole (in this case 80-10m) cut a single length of wire to an overall size of 133'. The 3 additional feet of wire will be used to fine-tune the OCF after you install it. Next, cut the 133' into two separate lengths of 85' 2 1/2" and 47' 9 1/2". Strip one end of each length, install through the balun strain relief and solder to the connector at the balun. Now install the other end of each wire through the end insulators but leave 1 foot of wire dangling from the short length and 2 feet of wire dangling from the long length. The antenna can be installed in an inverted V configuration keeping in mind that this design changes the feedpoint impedance and will tune differently.

After installing the OCF, check the resonant frequency on or lowest SWR for 80 meters. It should be in the low portion of the 80 meter band (e.g., 3.5 MHz or lower). Now you can begin trimming small lengths of wire off each end of the OCF to obtain the lowest SWR at 3.6 MHz. Begin with no more than 6 inches in total with 4 inches removed from the long leg and 2 inches off the short leg. Be sure to trim each wire proportionately. For example, if you cut 6 inches off the long leg, cut only 3 inches off the short leg. Depending on your surroundings and antenna height, 80m may only reach an SWR of 1.8 – 2.0:1. This is normal and the higher bands will be lower. This antenna has been calculated using 14 AWG stranded copper wire, with the jacket on. If you use bare twisted or solid copper wire, the lengths may change slightly.

..... *Coastal Ham Radio Vancouver, BC December 2015*

# Technician Class Ham Radio License Review and Testing

## **NO MORE MORSE CODE!!**

The Mid-State Amateur Radio Club plans to offer a 1-day review on the Technician Class License on Saturday February 13th, 2016. The presentation is scheduled to begin at 8am in the training room of the White River Twp. FD Station#53, at 850 S. Mullinix Rd., Greenwood, IN. To help prepare for the test feel free to use the study resources below.

Topics covered include:

### Important Registration Information:

Review session is free but students must purchase a Ham Radio License Manual and study before the review session. This is a review and test preparation session, not a class to teach the material, review only. This is a review and test preparation session, not a class to teach the material. Space is limited so enroll early, email [vicepresident@midstatehams.org](mailto:vicepresident@midstatehams.org). This is an intense 8 hour review with license testing at the end of the day!

### Study Resources:

The following exam practice aids and resources have been developed by hams for prospective licensees and other hams who want to upgrade to a license with more privileges. Find out which resources will be most useful to you!

101 Science.com has a very good straight forward on line course that covers the basic electronics needed for the technician license and more. This course is for studying the electronics theory portion only.

AA9PW.com offers testing options for visually challenged users with its option for "no figures" in the exam. QRZ.com Check the "resources" link for test and study resources. Bookmark this one as a good information source once you get you license!

HamExam.org offers flash cards, practice exams and question pools with either multiple choice answer format or the correct answer only options.

HamStudy.org offers flash cards and practice exams developed by Richard Bateman, KD7BBC and sponsored by ICOM America. Ham Testing.com offers on line question pools in many formats. On line test with score tracking and question pools with either multiple choice answer format or the correct answer only options. KD0FNR provides a set of free online exam practice tests. Fred Benson, NC4FB, offers several exam practice tools. AH0A offers Ham Academy for exam practice. It is designed to be downloaded and run off-line in any browser. It has been tested on the iPhone and Android phones.

### Hints & tips for passing your Amateur Radio Technician Class License on the 1st try:

It's not a college exam, so don't stress! Study a few minutes each day; try not to 'cram' for the test.

In the Technician class question pool there are 426 questions possible. The actual test only has 35 questions, you are required to get over 75% (26 out of 35 – you can miss 9!) for a passing grade.

Find what subject you're best at (antennas, feed lines, rules, safety, theory, etc.) and study where you can pass those questions no problem. Find the one weak subject, study it but don't kill yourself doing it. You can miss 9 questions and typically each element has 2 to 4 questions on the test. The idea is you can miss the 2 or so questions in the subject you are weaker on and pass the others.

When taking the online tests, take them often and when you can pass the tests 8 out of 10 times, you are probably ready for 'the test'.

# DHS S&T establishes advisory panel to help ensure radio interoperability among first responders

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Tue, 2015-12-15 10:20 AM

Washington DC, December 9 - The Department of Homeland Security (DHS) Science and Technology Directorate (S&T) today announced the membership of its Project 25 Compliance Assessment Program (P25 CAP) Advisory Panel, to help establish standards for interoperability among digital two-way land mobile radio communications products.

"To successfully respond to day-to-day incidents and large-scale emergencies, first responders must be able to communicate with each other regardless of the make or model of their equipment," said DHS Under Secretary for Science and Technology Dr. Reginald Brothers. "S&T has been working to address this challenge by promoting the acceleration of interoperability standards and establishing compliance testing."



*Dr. Reginald Brothers*

Project 25 aims to solve the issues that first responders face as manufacturers often use different technical approaches that make their radios unique, and, thus, potentially incompatible with other systems. P25 CAP is a formal, independent process, created by DHS and operated in collaboration with the National Institute of Standards and Technology, for ensuring that communications equipment that is advertised as P25 is actually compliant. Through a well-defined testing process with publicly published results, the P25 CAP provides public safety agencies with evidence that the equipment is tested against and complies with standards for performance, conformance and interoperability.

The P25 CAP Advisory Panel will provide S&T's Office for Interoperability and Compatibility (OIC) with federal, state, local, tribal, and territorial perspectives on portable, handheld, and vehicle-mounted radios and infrastructure equipment. Through the P25 CAP AP, S&T OIC can support the collective interest of organizations that procure P25-compliant equipment.

The Advisory Panel members will provide recommendations on promoting the P25 CAP, review and comment on proposed compliance assessment bulletins and updates to existing test documents, establish new test documents for new types of P25 CAP equipment, and propose P25 user input for improving functionality through the standards-making process.

The inaugural Advisory Panel membership includes the following members as it commences its activities across the fall/winter of 2015:

- Dan Robinson, State of Michigan
- Arnold Hooper, State of Tennessee
- Morton Leifer, State of New York
- Marty McCoy, State of Wyoming
- Roger Strobe, State of Missouri
- Chris Kindelspire, State of Illinois
- Mike Kionka, State of Colorado
- Gerald Reardon, Commonwealth of Massachusetts
- Joseph Heaps, National Institute of Justice
- John Evanoff, Federal Communications Commission

For more information, visit <http://www.firstresponder.gov//P25CAP>.

..... *GSN, Government Security News December 2015*

# INDIANA HAMFESTS

## HAMFEST/CONVENTION

02/13/2016 | 5th Annual Brownsburg Hamfest

Location: Brownsburg, IN

Type: ARRL Hamfest

Sponsor: Hendricks County Amateur Radio Society

Website: <http://www.hcars.org>

Civic Auditorium

## HAMFEST/CONVENTION

02/27/2016 | Cabin Fever HamFest

Location: LaPorte, IN

Type: ARRL Hamfest

Sponsor: LaPorte County Amateur Radio Club

Website: <http://www.lpcarc.org/>

Dugger Community Building

## HAMFEST/CONVENTION

02/27/2016 | DUGGER HAMFEST 2016

Location: Dugger, IN

Type: ARRL Hamfest

Sponsor: Dugger Amateur Radio Club

Website: <http://www.facebook.com/groups/550912628262491/>

Monroe County Fairgrounds

## HAMFEST/CONVENTION

09/17/2016 | Bloomington ARC Hamfest

Location: Bloomington, IN

Type: ARRL Hamfest

Sponsor: Bloomington Amateur Radio Club

Website: <http://www.bloomingtonradio.org>



*..... 73, and everyone have a Merry Christmas !!!*

# MID-STATE AMATEUR RADIO CLUB

The Mid-State Amateur Radio Club meets the **THIRD SATURDAY** of each month in the basement of the Johnson County Law Enforcement Center, Conference Room 1111 Hospital Road, Franklin, Indiana 46131.

See our website, [www.midstatehams.org](http://www.midstatehams.org), for maps on how to get to our meeting.

Everyone is welcome; you do not have to be a *HAM* to attend our meetings or a member of the club.

## WA9RDF Repeaters:

146.835/  
146.235 MHz  
(151.4 Hz PL Tone)

## WA9RDF Repeater:

443.525/  
448.525 MHz  
(151.4 Hz PL Tone)

## Club Officers:

President: Jacki Frederick – KI6QOG  
Vice President: Bruce Tisdale -- K9ICP  
Secretary: Rhonda Curtis – WS9H  
Treasurer: Cy Young – N9CHY  
Repeater Trustee - Chris Frederick – KQ9Y

Weekly Net: Sunday evening 7:00 PM ARES/RACES members and ALL RADIO AMATEURS  
146.835/146.235 MHz (151.4 Hz PL Tone)

The Official Newsletter of the Mid-State Amateur Radio Club

P.O. Box 836  
Franklin, Indiana  
46131

Editor: Robert LaGrange N9SIU

Please send your articles to my email: [n9siu@yahoo.com](mailto:n9siu@yahoo.com) no later than the 3rd of the month

**Remember Club Dues for 2016 are due; please see Cy Young N9CHY at the meeting Saturday.**

