



The Indianapolis Radio Club Newsletter

Founded 1914

"The oldest continuously meeting Amateur Radio Club in the United States"

Reporting news from the Indianapolis Radio Club meeting held on Friday, November 11, 2005, and other items of possible interest to amateurs.

Indianapolis Radio Club 2005 Officers and Phone Numbers:

Here is a list of the names, calls, and phone numbers of the Indianapolis Radio Club officers for 2005, in case you need to make contact. A more complete list showing email addresses will be published next month, if they are available.

• President:	Chuck Crist	(W9IH)	H-787-6674
• Vice Pres.:	Dave Miller	(K9RTT)	O-921-4548
• Sectretary:	Mike Henney	(KE9YA)	H-388-9343
• Treasurer:	Tom Chance	(K9XV)	H-862-8483
• Chief Op:	Trevor Fulk	(N9YM)	C-496-2386
• Director:	Joe Labraico	(K9OOA)	H-255-3000
• Director:	Paul Bohrer	(W9DUU)	H-881-5288
• Trustee:	Don Hemenover	(N9DOO)	H-890-1235

November Meeting Highlights:

The meeting was called to order at about 7:30pm in the first floor dining area of the Indianapolis Training Center, following a 30-minute informal social gathering over coffee and cookies provided by the club and the ITC staff. Self-introductions were followed by the President's announcements:

- Our 91st year – Get RadioActive!
- This is Veteran's Day, and the club applauded 30 vets who stood to be recognized
- Seats on the bus going to the Ft. Wayne Hamfest are still available for \$20, round trip.
- Bring a youth or Ham friend to the next meeting and get radio active!
- Upcoming Hamfests: November 19th – 20th Ft. Wayne Hamfest
- A committee is meeting to select the club Amateur of the Year and the recipient of the Technical Excellence Award for 2005. The results will be announced in future meetings.

Attendance at the meeting was 72. Current membership is just over 100.

Board Meeting:

An Executive Board meeting was held on November 11th at the ITC and called to order at 6:00pm by the club president, Chuck Crist. The significant items of business were reported to the club during the regular membership meeting.

Next Meeting:

The Annual December Club Dinner meeting will be held at the MCL Cafeteria, 2730 E. 86th Street (nr. St. Vincent's Hospital) on Friday, December 9th, 2005 at 6:00PM. The program for the December meeting is "**Australian Medical Trip,**" presented by Dr. Gary Stouder (K9SG). For further details, contact Dave Miller (K9RTT) or visit the club website. The club web site can be viewed at www.indyradioclub.org. The club meeting talkin frequency is the 146.67 repeater.

Club Elections Held:

The annual election of officers was held during the November business meeting. The Nominating Committee consisted of: Dave Miller (K9RTT), Tom Chance (K9XV), Ed Conder (N9IZN), and Dave Jarvis (N9KZJ). The slate of officers proposed by the nominating committee was adopted unanimously by the membership. The slate of officers elected to serve during 2006 is:

[Unfilled], President
Dave Miller (K9RTT), Vice President
Mike Henney (KE9YA), Secretary
Judy Gardner (AA9GW), Treasurer
Ed Conder (N9IZN), Chief Operator,
Dave Jarvis (N9KZJ) Board of Directors Member
Tom Chance (K9XV) Board of Directors Member

The Board of Directors is charged with selecting a Club President for 2006.

Ft. Wayne Hamfest Bus Trip:

The IRC sponsored a bus trip to and from the Ft. Wayne hamfest on Saturday, November 19th. The cost was \$20 per person, with a total of 44 seats available. Reports from the travelers indicate that the bus made it as far as Muncie before the first coffee and pit stop. Reports also indicate that a good time was had by all!

Monthly Club Traveling Awards Presented:

IRC President Chuck Crist (W9IH) presented the traveling awards for the month, along with handcrafted trophies depicting the nature of the award. Each of the trophies was created at the skillful hands of our club president and resident artisan, Chuck Crist.

The awards presented this month were:

QRP Contact – Steve Wendt (KB9RDS) (repeat) for his contact with YV5YMA on 15m SSB

Digital – Bob Osterhous (W9PSE) (repeat) for a 10m PSK contact with ZP8AE

DX – Kenneth Brandy (KC9GLQ) (repeat) for a 15m SSB contact with JA1LET

Mobile – (not presented)

Mentor – Hank Wolfla (K9LZA) and Mike Blake (K9JRI) for helping local Indy hams with “SDR” systems

Homebrew – Jim Keeth (AF9A) for his homebrew “SDR” receiver project. **Health and Welfare:**

Please send any known health and welfare updates to IRC Vice President Mike Henney (KE9YA) at his email address of mickyh@peoplepc.com.

Club Station Report:

Our club station Chief Operator is Trevor Fulk (N9YM), who maintains the club station. He reminded the membership to check the club website at www.indyradioclub.org for information on upcoming contests.

The club station equipment is located on the first floor of the Indianapolis Training Center, while the antennas are located on the roof of the building. The station transceiver is a Yeasu HF unit, and the antenna is a directional beam for 10-15-20m that is mounted on a small tower and rotor on the building roof. That makes its height about 150 feet above ground. Tours of the club station are available following most Indianapolis Radio Club meetings. The club station call is W9JP.

Program:

The program "Software Defined Radio (SDR)" was presented by Hank Wolfla (K9LZJ) and Mike Blake (K9JRI). A Software Defined Radio Receiver (SDR) consists of a single conversion receiver front end, a high quality computer sound card, and signal processing software, including the Fast Fourier Transform (FFT) and other control software. A commercial radio consisting of a SDR receiver and a more traditional transmitter was used during the demonstration. It was manufactured by Flex Radio and retails for about \$1000. However, Hank found one on eBay for \$500. He reported that the software quality for SDR has improved greatly during the June to November time period and that the receiver specifications for the receiver now exceed those for a \$10K amateur receiver. He also reported that the transmitter quality is improving.

Hank noted that this new breed of software radios is software defined, and this is distinct from the software control programs that are available for many amateur radios on the market today. The software portion of SDR is open source and public domain. Innovations and enhancements are appearing almost weekly. For example, a software noise spike filter was just contributed by an Australian amateur that averages the signal values just before and just after the spike in order to eliminate the spike. Another example reported by Hank was a notch filter that just appeared. Because of the electronic simplicity of the receiver front end, performance is being achieved that is not possible using analog techniques.

Mike described some of the details of the SDR. He said that the design of the radio is based on a Quadrature Sampling Technique. Many SDRs utilize a Motorola Talo Detector circuit that generates up to 24K samples per second and produces an I (in-phase) and a Q (quadrature or out-of-phase) signals for input to the computer sound card. The 24K/second sampling rate is input to the FFT processing algorithm. Two features that result from this design are Point Click Tuning and no AGC Pumping. Another feature resulting from the FFT processing algorithm is a real-time RF spectrum display that is presented on the PC color monitor. The receiver can tune signals from 11KHz to 65MHz. Mike commented that there are not many used SDRs because a new updated radio is available each time you download a new version of the software.

Additional features of the SDR are:

- 25, 50, 100, 250, and 500 Hz CW filters
- Graphic Equalizer for Tx and Rx
- No Splatter ALC and Speech Compressors
- Low Distortion Feed Forward Compressors
- Standard and Custom Bandwidth Filters up to 6KHz
- Waterfall Signal Display
- Virtual Serial Port

Mike indicated that the Softrock 40 V5 radio kit is popular, with 400 of the available 500 in the latest batch of kits already sold. PC requirements are a 1 GHz processor chip, and good quality stereo soundboard. The presenters agreed that few if any laptop PCs have a soundboard that is adequate for use with SDR. A commercial kit for the receiver is available for about \$30, and new designs and features are coming, according to Mike. Member Jim Keeth (AF9A) showed a homebrew version of his SDR front-end receiver that he constructed for \$15.

We are all grateful to Hank and Mike for preparing and presenting such an interesting discussion of Software Defined Radio. The array of equipment they had assembled for use during their presentation was impressive.

For those wishing to view them, a copy of the presentation PowerPoint presentation slides is available in PDF format at the club web site at <http://www.indvradioclub.org>.

Membership Drive:

The club membership has grown to over 100 as of the November meeting. Over 200 copies of the IRC Newsletter, *The Ama Chewer*, are distributed by email.

Club Webmaster:

Brian Stone (KC9GSA) is the manager of our Indianapolis Radio Club web site (www.indvradioclub.org). If you have content ideas or suggestions for the site, please contact Brian using his email address of labradog@speakeasy.net.

Homebrew Award Selection Criteria:

Club Vice-President Dave Miller (K9RTT) reminds us that future Homebrew entries will be judged on the basis of the quality of construction and soldering, the schematic diagram, operating instructions, and for antennas, the antenna radiation pattern and SWR chart, if applicable.

Door Prizes:

A number of fabulous door prizes are collected by the club prize-master, Bob Osterhous (W9PSE). These are usually distributed to randomly selected members of the IRC who are in attendance. You can learn more about the potential benefits of the door prize distribution process by attending the next IRC meeting in November! Prizewinners this month were (recipients not verified): WB9CER, W9BX, KC9HSZ, KC9HSW, and NE9O.

Announcements:

Are you interested in volunteering your amateur radio operating skills? Michael Palmer (N9FEB) maintains a list of amateur activities in the Indianapolis area. For information about such activities, please visit www.indyhams.org for details and who to contact.

Any Additional News Items:

If you have news that should be included in the next issue of club newsletter, please pass it on to your new club newsletter editor, Michael Newman (KA9ZKV) at mnewman6221@comcast.net. Mike has volunteered to fill the position vacated by Tom Price (WB9UNG), who has served as the newsletter editor for the past 16 months. News items for this issue were contributed by Bob Osterhous (W9PSE), Assistant Editor; Mike Henney (KE9YA), Club Secretary; Chuck Crist (W9IH), Club President; and the two speakers, Hank Wolfla (K9LZJ) and Mike Blake (K9JRI).