



The Feedline

Newsletter of the Cass County Amateur Radio Club, Logansport, IN



NIST: secret to atomic clocks

That new "atomic" clock you have sets itself to a millionth of a second every day. But how does it work?

The secret is radio station WWVB, operated by the National Institute of Standards and Technology (NIST), and designed for this purpose.

WWVB is a digital station that transmits on 60 kHz (That's 60 KiloHertz, not MegaHertz.) and is beyond the tuning range of nearly all receivers.

The 50kw signal can cover all of the US any time of the day or night.

There are no voice announcements on the sta-

tion, but a time code is synchronized with the 60 kHz carrier and is broadcast continuously at a rate of 1 bit per second using pulse width modulation. The carrier power is reduced and restored to produce the time code bits. The time code contains the year, day of year, hour, minute, second, and flags that indicate the status of Daylight Saving Time, leap years, and leap seconds.

WWVB uses two identical antennas that were originally constructed in 1962, and refurbished in 1999. The antennas are spaced 857m apart. Each

antenna is a top loaded monopole consisting of four 122m towers arranged in a diamond shape. A system of cables, often called a capacitance hat or top hat, is suspended between the four towers. This top hat is electrically isolated from the towers, and is electri-

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Operating at 60 kHz, antennas for WWVB are huge, measuring 100s of meters.

Plans for W9V on track

The Special Event station to commemorate the 50th anniversary of the Cass County Radio Club is set to operate from the club station at the EMA building on SR 17, 2 miles North of Logansport.

Records show that the

first club meeting took place in May of 1953.

The station, W9V, plans to operate on the following frequencies: 7250 kHz, 14,280 kHz, and 146.52 mHz. The club repeater on 147.18 mHz will also be used.

Depending upon conditions and interference, the HF choices may be shifted slightly.

Certificates will be provided free to anyone contacting W9V who makes a request.

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Special points of interest:

- W9V to operate around noon to 6:00 PM, Saturday, Oct. 18.
- One or two stations will operate, depending upon conditions and operators.
- Social gathering to follow!

Field day for 2003 scores with members

While the actual Field Day contest totals weren't known when this was written, it seems generally agreed the number of contacts totaled nearly 700. Contacts were made by three stations: 40 meters, 20 meters, and a third station that operated 75 meters, plus 144 MHz and 450 MHz.

The highlight as usual was the gathering on Saturday evening. Enough food and "prizes" were donated so that members had only to bring their appetites (and a few dol-

lars for raffle tickets). The raffle raised over \$200 for the club.

Those businesses that donated food included The Burger Barn, Martin's Supermarket, Ponderosa Steak House, The Corner Cupboard, B-K Root Beer East, Parrett's Catering, Tyson Foods, The Pork Shop, and Dominos. Thanks for food also goes to K9WET, KB9SIR, and

WHEN
ALL
ELSE
FAILS...



Dozens of members and friends enjoyed field day at the QTH of K9DVL.

N9ZMW.

Other prize contributors were Catfish Lake Family Recreation Center, Staples, El Arriero Mexican Restaurant, Soft Touch Car Wash, Mancino's, Pizza Hut, Auto Zone, Advanced Auto Parts, Hardee's, Family Video, NAPA Auto Parts, Radio Shack of Rochester, and Pulaski-White Rural Telephone Company. N9YFW obtained the contributions.

Hamvention draws 22K visitors

Rain may have had a dampening effect upon Hamvention attendance. Official attendance at the 52nd show was counted at 22,168, a drop of 10% from 2002.

Hamvention Production Manager, Garry Mathews, KB8GOL, stated weather played a big part.

"Our biggest contributing factor to the drop was the near-constant

Attendance at Hamvention has declined in recent years after a peak in 2000 when the ARRL Convention was in Dayton.

rain on Saturday," he said. "We had a whole day washed out."

Many vendors reported good sales despite the weather, but there was concern about the attendance drop.

The 2002 attendance was down from 2001.

Meanwhile, negotiations are nearly complete to retain Hamvention at Hara Arena for many years to come,

WWVB (continued)

(Continued from page 1)

cally connected to a download suspended from the center of the top hat. The download serves as the radiating element.

At 60 kHz, a one-quarter wavelength antenna would be 1250m tall, or about 10 times the height of the diamond-shaped WWVB antenna towers.

As a compromise, some of the missing length was added horizontally to the top hats of this vertical dipole, and the download of each antenna is terminated at its own helix house under the top hats.

A computer is used to automatically tune the antennas during icy and/or windy conditions. This auto-

matic tuning provides a dynamic match between the transmitter and the antenna system.

There are three transmitters at the WWVB site. Each transmitter consists of two identical power amplifiers that are combined to produce the greatly amplified signal sent to the antenna.

New high quality digital AM proposed

Kahn Communications, Inc. (KCI) of New York, has developed a new technology that it says will restore AM Radio Broadcasting to 15 kHz stereo fidelity by use of digital processing. The system, Compatible AM Digital (Cam-D), unlike the pending proposal now before the FCC, will not increase adjacent or co-channel interference. The system will be able to operate day and night.

KCI says the system is fully compatible with the over a half billion radios presently used by the American

Public every day of the year. Listeners of existing radios will hear noticeably improved sound. The new system will need special new receivers, using frequency compression, digital transmission and digital reception techniques.

The Cam-D System should provide improved fading performance over vast distances at night. KCI is negotiating with stations in Indiana, Michigan, Nebraska, Tennessee, Utah, and Wisconsin to act as test stations.

These Test Stations will provide

spectrum measurements as well as practical demonstrations.

KCI president, L. R. Kahn, acting individually, had filed a Petition for Rule Making on January 24, 2003, requesting the FCC to appoint a Blue Ribbon Panel for evaluating all new technology so as to avoid possible future control of FCC Advisory Committees by individual firms. It also requests the Commission evaluate and compare the Cam-D System with the presently proposed Hybrid AM DAB system. (DX News)

New band means careful operating

It's not a ham "band," but specific channels. That's how hams need to look at the five new 60 meter frequency allocations now available for General and higher class amateurs.

By having specific frequencies, hams must assure that they are on the precise

Because specific frequencies are assigned, hams must assure proper operation.

frequency, typically within 50 Hz, as is typically required of other radio services.

USB is the only authorized mode, and will require setting the transmitter dial to read 1.5 kHz lower than the assigned frequency so as to put the signal in the right spot. Here are the five channels.

Channel	Dial set
5332 kHz	5330.5 kHz
5348 kHz	5346.5 kHz
5368 kHz	5366.5 kHz
5373 kHz	5371.5 kHz
5405 kHz	5403.5 kHz

The maximum power is 50 watts ERP, figured by taking the PEP of the transmitter times the antenna gain.

Nation's oldest ham newsletter, QRT

The W5YI Report has ceased publication with the July 15th issue.

Fred Maia started the newsletter in his garage 25 years ago as a service to members of the Richardson (Texas) Wireless Klub.

Now Fred, W5YI, wants to "retire from the twice-a-month grind" but he will continue writing his monthly col-

umn for CQ Magazine.

Fred sold his company in 2000 which included VEC testing, and the newsletter, agreeing to continue publishing the W5YI Report for three more years.

Remaining newsletter subscriptions will be fulfilled by CQ Magazine. (W5YI Report)

For a quarter century the W5YI Report brought readers the latest news about ham radio and the broader electronics industry.



Cass Co. Amateur Radio Club

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The Cass County Amateur Radio Club is an Indiana Not For Profit Corporation in continuous existence since 1953.

We're on the web!
www.culcom.net/~ccarcinc

Bits, bytes and beyond

- Correction: The special event callsign is expected to be W9V, not W9C as reported last time.
- 19 states have adopted amateur antenna laws based on the limited federal preemption known as PRB-1. Three more laws are pending.
- According to the National Radio Club, the record distance for picking up WSAL, 1230 kHz, Logansport, is held by a Winnipeg, MB, DXer. Niel Wolfish heard the station late one night at a distance of 855 miles.
- I think I'm going to change my password to six asterisks.
- Local hams making news: Don, K9EQT, and Rae, N9YFW, were heard on WSAL radio's morning talk show recently discussing the CCARC, and it's activities. (K9EQT was also heard another day trying to win a pizza!)
- Tommy, N9YJT, won the top prize at the CCARC field day raffle, a dual-band handheld transceiver. This seems only fair as Tommy bought the most tickets!
- The Radio Society of Great Britain (RSGB) is celebrating its 90th anniversary this year.
- 11 Billion e-mails are sent each day world wide. (USA Today)

Repeaters

Primary repeaters operate on 147.180 MHz, and 443.650 MHz. The VHF repeater is located at the Chase Park water tower with an open receiver. Additional receive sites are located at the Cass County EMA building and in Delphi. These are accessed with a 77 HZ sub-audible tone. The UHF repeater is located at the EMA building. The VHF transmitter also transmits a 77 Hz tone. Setting your receiver to *decode* will reduce unwanted signals. A second VHF repeater located at the Logansport Municipal Airport operates on 145.230 MHz. Autopatch is available on the main VHF repeater to members. Repeaters may be out of service from time to time for repairs or upgrades. The club station is W9VMW.

CCARC Meetings

Meetings are held the third Saturday of each month at 9:00 AM at the Cass County Emergency Management Agency building, 2 miles North of Logansport on SR17. Dues are \$15.00 per year. Immediate family members may join for an additional \$5.00.

Amateur License Tests

Test sessions for all classes of amateur radio licenses are offered the first Friday of each odd month at 6:30 PM at the Cass County EMA building, 2 miles North of Logansport on SR17. Pre-registration is not necessary.

Cass County Amateur Radio Club Officers

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