



August 2008

# Society of Broadcast Engineers Newsletter Chapter 24 Madison, Wisconsin



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## Next Meeting

**Wednesday, August 13**  
**WPR Tour**

Steve Johnston, director of engineering and operations for Wisconsin Public Radio will give us a tour of the WHA and WERN studios located in Vilas Hall on the UW-Madison campus. Enter via the stairs or ramp near the corner of University and Park. Take the elevator to the 7th floor.

Parking is available under Grainger Hall; entrance is off Brooks Street. Alternately, you can use the Lake Street parking ramp.

**Dutch Treat Dinner, 5:30 p.m.**  
Nitty Gritty  
223 N. Francis St., Madison  
(no reservation; just gather together)

**Meeting & Program, 7 p.m.**  
Wisconsin Public Radio  
UW-Madison, Vilas Hall  
821 University Avenue, Madison



## Coming Up

**Thursday, Sept. 11:** Trends in Nuclear Energy  
**Wednesday, Oct. 15:** Broadcast Clinic/SBE National Meeting  
**Wednesday, Nov. 12:** TBD

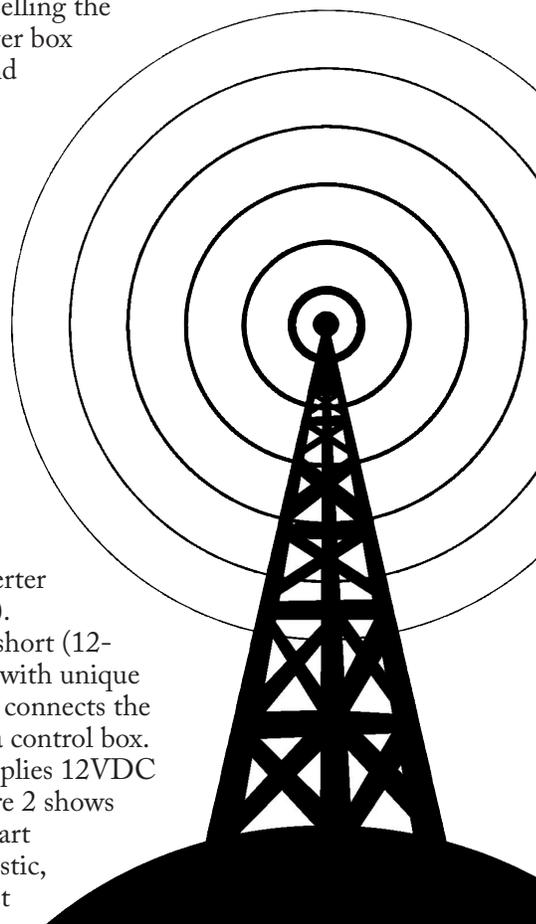
# Smart Antenna Review

>>>By Paul Stoffel

Various DTV converter box manufacturers include the Smart Antenna interface in their products. The Smart Antenna interface is standardized as EIA/CEA-909. The actual Smart Antenna provides for automatic adjustment of antenna direction and gain electronically, with no need for the viewer to physically adjust the antenna.

Best Buy stores are now selling the Apex DT250 digital converter box with analog pass-through and a Smart Antenna interface. Available on the Web is a Smart Antenna DTA-5000 from DX ANTENNA, and also marketed by Sylvania, has directivity of 360 degrees. In a scan taken from the DX Antenna instruction manual, Figure 1 shows the connections between the Smart Antenna and the DTV converter box.

The Smart Antenna is intended to be connected to one device at a time (a converter box or TV with an interface). Splitters are not allowed. A short (12-inch) antenna control cable, with unique RJ-11 plugs and offset clips, connects the converter box to the antenna control box. The antenna control box supplies 12VDC to the Smart Antenna. Figure 2 shows the outdoor VHF/UHF Smart Antenna, made of sturdy plastic, mounted on an antenna mast with a coaxial cable coming



Smart Antenna >>> continued on page 4

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**Meeting Minutes**

July 2008

Chapter 24 of the Society of Broadcast Engineers met on Tuesday, July 15, 2008 at the studios of WISC-TV. There were 13 members present, of whom 9 were certified. There was one guest present. Chairman Dennis Baldrige called the meeting to order.

Clif Groth made a motion to accept the June minutes as published in the Chapter newsletter. The motion was seconded by Leonard Charles. Treasurer Leslie Franzen reported on the current bank balance in the Chapter's checking account.

Certification Chair Jim Hermanson reported that the application date for the next certification test at the National meeting to be held in Madison has closed; the application deadline for the next test period from November 7-17 will be September 19. Jim also reminded everyone that attendance at SBE meetings, conferences and technical courses all qualify for credits toward recertification. Chairman Dennis Baldrige reported that Jim had received a plaque for serving 15 years as certification Chairman.

National Liaison Leonard Charles reported that the SBE was looking musicians to put together a musical ensemble for the cocktail hour preceding the National Awards Dinner in October. He also asked for help for the National Webcast which will be presented the Monday of the week of the national meeting here in Madison. The Webcast will originate from Vilas Hall with Paul Stoffel of WHA-TV in charge of organizing it. Paul needs a number of persons to operate a number of technical positions and answer phones and e-mail.

Frequency Coordinator Tom Smith noted that he had received an e-mail from Doug White, the Frequency Coordinator for the Rockford area, on their 2 GHz band plans for the BAS transition and asking for other surrounding markets band plans when they will make the transition. Nextel also sent an e-mail on local coordination during the BAS transition. Tom suggested that a meeting be held to review our 2 GHz band plan and create a 7 GHz band plan.

Program Chairman Steve Paugh reported that the next meeting would be a tour of Wisconsin Public Radio with an informal dinner at the Nitty Gritty. The September meeting would be on nuclear power and be held at the UW Engineering School. The October meeting will be the National Dinner Meeting at Broadcasters Clinic.

In new business, Leonard Charles said that the WBA would have the NAB DTV Awareness truck at the Dane County Fair and needed some volunteers to man it. He also noted that DirecTV would begin digital pickup for SD transmissions the week of the July meeting. Clif Groth reported that AT&T was installing equipment near WIBA Radio for their U-Verse video system. Tom Smith reported that Antennacraft, Channel Master and Winegard had started to make antennas for the DTV post-transition that covered channels 7 to 51, which meets the needs of viewers in most TV markets.

Randy Kroll made the motion for adjournment, with the motion seconded by Kevin Ruppert.

The evening's program was on loudspeaker measurements and was presented by Steve Paugh.

*Respectfully submitted by  
Tom Smith, Secretary*

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AUDIO VIDEO A/V LIGHTING



from the antenna control box.

Once the connections are made, the converter box can be powered ON. The Apex converter box senses if a Smart Antenna control cable has been connected. A menu option for controlling the Smart Antenna is enabled. The viewer can either manually choose antenna phases or "positions" 1 through 16 or let the smart antenna technology automatically choose the best position, see Figure 3. A determined position value is unique to each DTV channel tuned, and that value can be stored in the converter box by using the menu option "Save New Position."

Unfortunately, the Smart Antenna menu does not show the "Signal Strength Meter" at the same time to view the results of the determined or manually selected position. The signal strength meter can be viewed by pressing the SIGNAL button on the Apex remote control after getting out of the Menu mode. The meter's scale is divided into 3 groups: Weak, Good and Excellent. I found that even a weak signal will decode with good results if the signal strength meter shows a steady indication. A meter indication that is bouncing up and down the scale will give poor decode results, so repositioning of the antenna would need to be done.

\*\*\*

Overall, I found that the Smart Antenna performed well, most times better than when using a Zenith Silver Sensor UHF antenna. I conducted three antenna setup scenarios:

1. Far eastside of Madison in a home
2. Outside in West Towne's parking lot between the two TV towers
3. In the Essen Haus parking lot with a hill between the Smart Antenna and the towers

In most cases the Smart Antenna technology found the best position of the antenna for each DTV channel tuned. On a few occasions, I needed to manually tweak the position, bouncing to/from the signal meter to see if my manual choice was better than the automatic. The in-home reception works well.

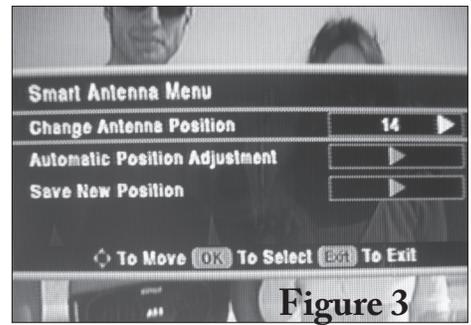
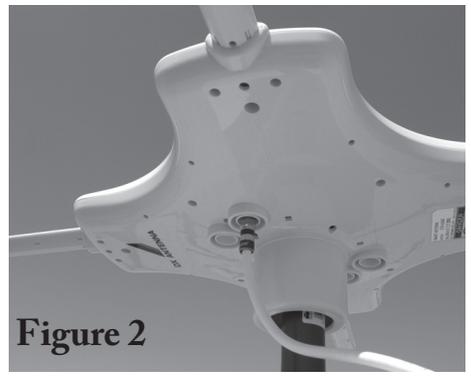
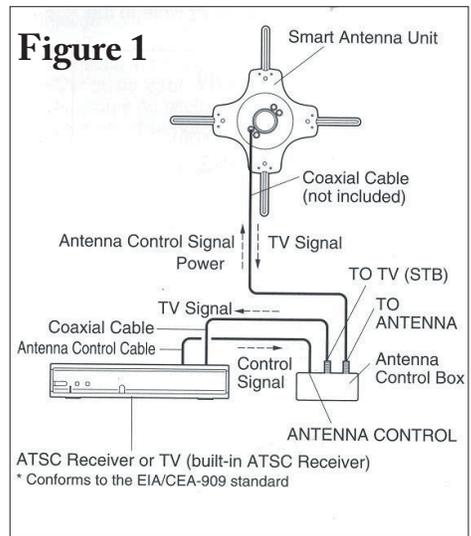
The Smart Antenna technology is really meant to be used in a TV market where two or more TV towers are in opposite directions from the receive antenna. With the Channels 15 & 57 tower so close in proximity to the Madison candelabra, the opposite direction test didn't prove difficult to decode a signal, even for the regular Silver Sensor antenna. This scenario would have been better proved if the towers were five to 10 miles apart. The urban setting, with ghosting and multipath, proved to be a challenge, but I was able to receive and decode all the DTV stations, even with some stations having, at best, a weak but steady signal behind the hill. (It is nice to have 5th generation or greater ATSC receiver chips, as well.) The DTA-5000 is a green zone antenna and has a built-in amplifier and automatic gain controller, but is not recommended for use in near-fringe or fringe receive areas.

A few interesting things to pass along about the Apex DT250 converter box:

- The box runs hot to the touch, so provide good ventilation.
- The user's manual states "A rooftop antenna is strongly recommended."
- The analog pass-through works by shutting OFF the box's power. The box's RF (channel 3 or 4) output doesn't look as crisp as the video composite output, but if you desire analog pass-through, then RF is your only option.
- The Apex box can be used with a regular antenna, but the smart antenna menu option can no longer be accessed.
- The Apex remote control lacks TV power and TV volume controls, like the Digital Stream remote has.

The availability of Smart Antennas is limited at this time; and, be careful when selecting a true EIA/CEA-909 Smart Antenna. Some DTV converter box manufacturers are designing their own proprietary omni-directional antennas.

Smart Antenna >>> continued from cover



*Overall, I found that the Smart Antenna performed well...*

# Teamwork

From the  
Chair

Dennis Baldrige



Life would be great — if it wasn't for people. How many of us have felt frustration when interacting with others. Yet as broadcast engineers, our success depends on our ability to perform our responsibilities as well as work together. We can maintain professional working relationships when we understand its importance to the success of our profession.

Benjamin Franklin understood this when he said "We must all hang together, or assuredly, we shall all hang separately." One work ethic, for which all employers long, is that of treating others in an appropriate way. Teamwork is realized as we properly interact with those within our own ranks.

Demonstrating respect for other engineers, as evidenced through our words and actions, is a key aspect addressed in the SBE's "Canon of Ethics." The fourth main area of our SBE code of ethics, *Relations with Engineers*, encompasses nine sections.

Section 19. *The Broadcast Engineer will endeavor to protect the broadcast profession collectively and individually from misrepresentation and misunderstanding.*

Section 20. *The Broadcast Engineer will take care that credit for work is given to those to whom credit is properly due.*

Section 21. *The Broadcast Engineer will uphold the principle of appropriate and adequate compensation for those engaged in broadcast work, including those in subordinate capacities, as being in the public interest and maintaining the standards of the profession.*

Section 22. *The Broadcast Engineer will endeavor to provide opportunity for the professional development and advancement of personnel in his or her employ.*

Section 23. *The Broadcast Engineer will not directly or indirectly injure the professional reputation, prospects or practice of another colleague. However, if he or she considers that an individual is guilty of unethical, illegal or unfair practice, he or she will present the information to the proper authority for action.*

Section 24. *The Broadcast Engineer will exercise due restraint in criticizing another colleague's work in public, recognizing the fact that the engineering societies and engineering press provide the proper forum for technical discussion and criticism.*

Section 25. *The Broadcast Engineer will not try to supplant another engineer in a particular employment after becoming aware that definite steps have been taken toward the other's employment.*

Section 26. *The Broadcast Engineer will not use the advantages of a salaried position to compete unfairly with another engineer.*

Section 27. *The Broadcast Engineer will not become associated in responsibility for work with engineers who do not conform to ethical practices.*

John Hancock once said "The greatest ability in business is to get along with others and to influence their actions." We demonstrate this aptitude with other engineers by firm adherence to a code of moral and ethical values. Our integrity will not only enable us to be a good employee, but will benefit the entire company. Let us all work to practice the SBE's "Canon of Ethics," particularly in our *Relations with Engineers*.

## State broadcasters exemplify public service

NAB recently unveiled a new Web site highlighting the valuable public service contributions made by local television and radio stations in Wisconsin and across the country. The new, interactive resource features state by state statistics documenting local broadcasters' unrivaled commitment to community service on both a state and national level.

The new site, [www.BroadcastPublicService.org](http://www.BroadcastPublicService.org), and

an accompanying downloadable file, the 2008 National Report on Broadcasters' Community Service, provides countless examples of how local broadcasters are supporting their communities and quantifies the value of public service contributions generated in each state.

According to the most recent data available, in one year local radio and television stations in Wisconsin generated an estimated \$269,849,992 in public service through a combination of airtime donated for public service announcements and money raised for charity and disaster relief. This is part of an aggregated \$10.3 billion in public service generated by local broadcasters nationwide.

### September '08 newsletter

**Copy deadline:**  
Sunday, Aug. 31

**Folding party:**  
Thursday, Sept. 4

E-mail submissions to  
John Salzwedel at  
[john@tokencreek.com](mailto:john@tokencreek.com).

\* *Because of Labor Day, please try to get your submissions in before you head out for the long weekend.*



# Amateur Radio News

compiled by Tom Weeden, WJ9H

## Digital voice programs yanked from Web, put back up

Citing codec (coding/decoding) licensing issues, three free Windows programs for sound card-based HF digital voice were yanked from their download site for a short time recently, surprising hams who are interested in HF digital voice operation; several online groups that supported the software were also closed for a short time.

WinDRM, DRMDV and FDMDV, all written by Cesco Lanza, HB9TLK, used a codec that was developed for the U.S. Department of Defense and NATO. Rights to various forms of the codec are held by several companies. According to Gary Pearce, KN4AQ, the companies have “winked” at ham radio use for several years, but a recent complaint caused the programs to be pulled from the download site.

“Lanza did a quick rewrite to use an open-source codec, and now WinDRM and FDMDV are back,” Pearce said. “DRMDV, an intermediate program between the other two, has been abandoned. WinDRM could always use the open-source Speex codec, but FDMDV users will need to download the new version.”

Pearce said these three programs all allow hams to transmit and receive digital voice by connecting their PC sound card to an ordinary single-sideband trans-

ceiver: “The result has been surprisingly high-quality audio, with virtually no noise — sort of like listening to FM, but in the narrow bandwidth of a sideband signal. WinDRM, the best sounding program, uses 2.5 kHz of spectrum. FDMDV sounds a little rougher, but uses only 1.1 kHz of spectrum. They both use OFDM modulation, a set of close-spaced carriers that are each modulated with a little bit of data to add up to the final digital signal. The main problem with HF digital voice is that it needs fairly strong signals. FDMDV works better with weaker signals than WinDRM.”

## NN3SI off air

After more than 30 years on the air from the nation’s capital, NN3SI, the Amateur Radio station at the National Museum of American History — part of the Smithsonian Institution — became silent on Thursday, July 31.

Originally located in the Nation of Nations exhibit, the station first went on the air in 1976 in celebration of the U.S. Bicentennial. The FCC caught the patriotic spirit, giving the station a temporary call sign — NN3SI — standing for Nation of Nations, Smithsonian Institution. The Commission later made the call sign allocation permanent.

NN3SI has been situated in several different exhibitions in the Museum; it was most recently housed in the former Infor-

mation Age exhibit. This exhibit chronicled the birth and growth of the electronic information age — from Samuel Morse’s invention of a practical telegraph in the 1830s through the development of the telephone, radio, television and computer.

The Museum has been closed since 2006 while undergoing a major renovation and is scheduled to reopen to the public this fall.

The station participated in many special events throughout its history.

During the dedication of the World War II Memorial on the National Mall, station operators made many contacts and taught children visiting the Museum how to spell their names in Morse code. Over the years, operators at NN3SI — who hailed from the District of Columbia, Maryland and Virginia (and the occasional guest operators from various parts of the globe) — have logged contacts with amateurs in all parts of the world and with astronauts and cosmonauts in orbit. By operating the station, NN3SI ops promoted Amateur Radio as a national resource for emergency communications, trained operators, technicians and engineers — as well as an outstanding hobby — to the more than 4 million people who visit the museum each year.

*Excerpts from the American Radio Relay League’s Web site, arrl.org*

## Your FEEDBACK is requested!

We are currently contemplating switching from a paper-based newsletter to an e-mailable newsletter. Not only will it save paper and postage costs, but we can create a more colorful and interactive e-newsletter so you can get more out of it!

## What do you think?

E-mail newsletter editor John Salzwedel at [john@tokencreek.com](mailto:john@tokencreek.com).



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## SBE Chapter of the Air

HamNet meets the second Sunday of each month at 0000 GMT on 14.205 MHz. Hal Hostetler WA7BGX is the Control Station. Any amateur operator is welcome and encouraged to participate.

## Using the SBE logo

SBE chapters and members may use the SBE logo on business cards, letterhead and chapter newsletters. When referring to a chapter, it must be used with that chapter's name or number adjacent to the logo. Members must put "Member of" or "Certified by" adjacent to the logo.

The proper logo must be used in any case. The correct logo can be obtained only through the SBE National Office. Send your request to Angel Bates at abates@sbe.org.

## Certification Exam Session Dates

The SBE National Certification Committee has announced exam session dates. Check the list below for the exam period that is best for you. For more information about SBE Certification, see your Chapter Certification Chair or contact Megan Clappe, Certification Director at the SBE National Office at (317) 846-9000, or mclappe@sbe.org.

<u>Exam Dates</u>	<u>Location Application</u>	<u>Application Deadline</u>
November 7-17, 2008	Local Chapters	September 19, 2008

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