



Next Meeting:

**Wednesday,
August 13, 2003**

**Broadcast Richardson
and Digital One**

**Dutch Treat Dinner
at 5:30pm
at Perkins
1410 Damon Road**

**Meeting and Program
at 7:00 PM
at Wisconsin Public
Broadcasting Center
3319 W. Beltline Hwy**

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New Tower in Town

By Vicki W. Kipp

WHIT-FM 93.1 MHz "The Lake" may feature a timeless rock format, but their sign-on was almost eight years in the making. WHIT is the seventh Madison station owned by Mid-West Management, Inc. WHIT-FM has its studio at 2740 Ski Lane in Madison. The new radio station began transmitting test signals and TV show theme songs in mid-July. DeForest, Wisconsin is the city of license for this six kilowatt FM station.

Planning

The tower and antenna were designed and constructed by Warmus and Associates from Cleveland, Ohio, in conjunction with Carl E. Smith Consulting Engineers radio engineering firm.

Issues

When the FCC approved Mid-West Management, Inc.'s license application in 1996, the station expected to be on the air in 1997 or 1998. Finding an acceptable tower site was the greatest concern. "The time involved in this project is the most significant issue," says Mid-West Management, Inc.'s Director of Engineering John Bauer. The biggest roadblock to finding a workable tower site was that WHIT's city of license, DeForest, limited the possible tower sites to an area that is used for aircraft traffic.

Mid-West Management, Inc. first approached the FAA with possible tower sites, but this effort turned out badly. Luckily, the broadcasters fared much better when they first worked with the Dane County Airport on site selection, and then dealt with the FAA. The Dane County Airport authorities were straight forward in telling Mid-West Management, Inc. which sites would or would not work.

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NEW SPECTRUM POLICY INITIATIVE

By Tom Smith

On June 5th, The White House released a Presidential Memo that created a Spectrum Policy Initiative. This Initiative will create legislative and other recommendations on modernizing and improving the management of spectrum, provide for more efficient use of spectrum, and provide a more predictable management process for existing users.

The Initiative will also address the deployment of new services and the needs of national security, public safety, transportation infrastructure, and

science. The Initiative will address these issues at the national, state, local, and private use levels.

The Spectrum Policy Initiative will consist of a task force headed by the Secretary of Commerce. The Commerce Department will manage the task force. Most of the other department heads will be on the Task force, as well as NASA, the Office of Management and Budget, and the Office of Science and Technology Policy.

The White House also released a Fact sheet on spectrum management,

outlining the Task Force duties and objectives and the past successes in spectrum management, which mostly listed recent FCC actions that allocated new spectrum and legislative proposals for new fees for unauctioned spectrum and streamlining the auction process.

The proposed objectives of this Task Force duplicate the efforts of the Spectrum Task Force which the FCC created a little over a year ago, and which is making its own recommendations on spectrum management.

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July Business Meeting Minutes

Chapter 24 of the Society of Broadcast Engineers met on Tuesday, July 15, 2003 at WISC-TV, Madison, Wisconsin for the chapter's monthly meeting. There were 32 members in attendance, 19 of whom were certified and 9 guests.

The meeting was called to order at 6:48 PM by Chapter Chair Vicki Kipp. The minutes of the previous meeting as published in the July newsletter had the incorrect date of the July meeting. Minutes were approved as corrected.

Don Heinzen of Belden Wire & Cable and Pat Keller of Graybar were thanked for providing the pre-meeting pizza and drinks.

Chapter Chair Kipp introduced Keith Kintner and his wife Katie. Keith is a member Chapter 49 and is on the National SBE Board of Directors and works for WILL in Urbana, IL. He said that each board member is assigned 5-7 chapters to serve as a liaison with, mostly working with inactive or low activity chapters. (Chapter 24 is one of the chapters for which he is a liaison.) He enjoys the Chapter 24 newsletter and getting up to our meetings. He is looking forward to the National meeting here in October.

Newsletter editor Mike Norton announced the deadline for articles for the August issue will be midnight, Friday, August 1st. The folding party will be held Wednesday, August 6th at 5:30 PM at WKOW-TV.

Treasurer Stan Sarch had submitted his report that the chapter bank account had a balance that is in the black.

Sustaining membership chair Fred Sperry reported on the recent renewals of Ross and Token Creek and one non-renewal. There are 23 sustaining members.

Program Committee Chair Steve Paugh reported that the next meeting will be a presentation by Richardson Broadcast on real time streaming over IP, on August 13 at the Wisconsin Public Broadcasting TOC.

Certification Chair Jim Hermanson reported that Dennis Baldrige had received his Radio Engineer certification. Two others have been recertified with one recertification pending. The next exam dates are August 15-25, but the application deadline was June 13th.

Frequency Coordinator Tom Smith reported that WHIT (Sun Prairie/93.1MHz) is on the air, broadcasting TV themes. The FCC issued their ownership Report and Order on July 2nd. The FCC is also seeking comments, due August 8th, on an agreement to streamline the review process for communication facilities under the National Historical Preservation Act.

National Liaison Leonard Charles reported that the SBE Certification program, operating since 1995, was recognized by the

(continued on next page)

July Business Meeting Minutes (continued)

National Skills Standards Board. The SBE has also adopted a fixed link coordination policy which has been published in the newsletter and is available on the national SBE website. Nominations for national office have been closed and published on the website.

In new business, Chapter Chair Vicki Kipp presented Jim Hermanson a plaque from the national office recognizing 5 years of service for certification and education. The recognition is a new tradition started by the SBE National Certification Committee to recognize the service anniversaries of the local certification chairs. New plaques will be issued every five years. Jim has served as Chapter 24's Certification Chair for 10 years.

Chapter Chair Kipp also reported that the Chairperson of the SBE Awards Committee, Mark Humphrey, had informed her that Chapter 24 would be receiving an award for Best Chapter Newsletter at the SBE National Meeting in October. Congratulations to newsletter editor Mike Norton.

In professional announcements, Tom Weeden announced that Saturday, July 19th would mark the 50th anniversary of WMTV signing on.

Leonard Charles reported that the schedule for the Broadcaster Clinic has been posted on the Chapter 24 website. The Wisconsin Broadcasters Association will be having an early-bird registration discount before September 15th.

The meeting adjourned at 7:01 PM. The program this month was a Taste of NAB presented by Larry Bloomfield

Submitted by Jim Magee, Secretary

Chapter 24 Web Site

<http://www.sbe24.org>



Steve Paugh is the editor for the HTML Version of this Newsletter, available monthly on the SBE Chapter 24 web page.

AMATEUR RADIO NEWS

By Tom Weeden, WJ9H

• "A Pandora's Box of unprecedented proportions," was the declaration from the American Radio Relay League (ARRL) in a 120-page response to the FCC's Notice of Inquiry on Broadband over Power Line (BPL). Citing the potential for interference to and from Amateur Radio, the ARRL has called on the FCC to "take no steps" to permit BPL—a form of power line carrier (PLC) technology. The NOI asking how the FCC should regulate the delivery of broadband services to homes and businesses using electrical wiring to conduct high-speed digital signals attracted some 1900 comments—many from the amateur community—by the July 7 comment deadline.

"ARRL is unwilling to have the Amateur Service gored with the double-edged sword of an incompatible service that will at once 1) cause widespread interference, and 2) preclude any future changes in the amateur HF allocations," the ARRL said. The League said that based on "diligent and exhaustive research," it's concluded that BPL must avoid any and all amateur MF, HF and VHF allocations without exception. "This interference potential, as a matter of both law and fact, disqualifies access BPL as a potential future competitive broadband delivery system."

The National Association of Broadcasters and the Association for Maximum Service Television (MSTV) also came out opposing BPL in their comments to the FCC. They noted that BPL would operate between 1.7 and 80 MHz and "pose serious risk of interference to television channels 2-5, especially the eleven stations currently transmitting a digital broadcast signal on those channels, as well as several stations who are likely to elect lower VHF channels at the end of the digital television transition."

ARRL asked the FCC to modify its Part 15 rules to prevent interference to users of the HF and low-VHF spectrum from the start and "to prevent consumers' reliance on BPL as an interference-free broadband delivery system." ARRL comments: <<http://www.arrl.org/announce/regulatory/et03-104/>> NAB/MSTV comments: <<https://www.nab.org/Newsroom/PressRel/Filings/broadbandComs7703.pdf>>

• A new channelized allocation for hams at 5 MHz, which opened at midnight local time July 3, marks the first new HF amateur band since the 1980s. US amateurs had been counting down the weeks and days. Five lightly-used government frequencies on the 60-meter band—5332, 5348, 5368, 5373 and 5405 kHz—have become available to US amateur radio operators. Since the amateur allocation is secondary to primary government users, the American Radio Relay League has been advising members to demonstrate their best operating behavior and to use common sense when operating under the new rules.

The only legal mode is upper sideband voice (USB), with a maximum bandwidth of 2.8 kHz (centered within each channel). The FCC has imposed a 50 W effective radiated power (ERP) limit, which its rules—§97.303(s)—define as the transmitter output in peak envelope power (PEP) multiplied by antenna gain relative to a half-wave dipole or the equivalent calculation in decibels. The rules also impose a new record-keeping requirement on amateurs using antennas other than half-wave dipoles or their equivalent. "Licensees using other antennas must maintain in their station records either manufacturer data on the antenna gain or calculations of the antenna gain," the newest addition to the FCC's Amateur Service rules says.

(Excerpts from the ARRL and NAB web sites)

New Tower In Town (continued from page 1)



Figure 1. WHIT-FM tower(right) located adjacent to the WNWC-AM antenna array.

An acceptable tower site was found near the intersection of Bailey Road and Bird Street in Sun Prairie in the center of Christian radio station WNWC 1190 AM's antenna array (Figure 1). Once the Sun Prairie tower site was chosen, there were more matters to be considered. The tower's location within a low-grade wet land meant that environmental issues had to be accommodated.

Aside from that, locating an FM tower in the middle of an AM array raised some RF issues. For WNWC's pattern to be acceptable, the WHIT-FM tower was not to have more than one Watt of re-rated energy coming off of it. When the tower construction was complete, an AM Reproof was performed to verify that detuning efforts on the WHIT tower were adequate to restore WNWC's AM coverage pattern to what it was before WHIT's tower went up.

For proper detuning, it is critical to

repeat the phase angle and ratio between the two detuning networks. WHIT-FM will soon permanently install an AM antenna monitor to keep skirt detuning in proper order.

Transmitter

When operating at full power, WHIT will transmit 5.5 kW ERP from their Nautel FM-8 solid-state transmitter. The transmitter is housed a Trachte Building.

Tower

The guyed PiRod tower measures 317 feet tall, but reaches 320 feet tall with appurtenances. The WHIT tower is striped in maritime white and aviation orange, and is lit with medium strobes during the day and red beacons at night. Guy wire composition was a big deal because the guy wires must not affect the radiation from the AM array surrounding WHIT's tower. The tower is steadied by very light-weight but strong electrically-transparent

Phillystran Kevlar guy wires with a copolymer coating. Guy wire insulators are not needed for Phillystran guys because the line is completely isolated. The tower is adorned with multiple detuning skirts (Figure 2) to deal with the AM transmission in close proximity. To meet Dane County tower co-location zoning criteria, the WHIT tower has space reserved in the middle of the tower for two cellular antennas.

Antenna

The two-bay directional Jampro JMPC-2R antenna bays are covered by radomes. Parasitic reflector elements behind the antennas are in place to protect Milwaukee FM station WJZI. WHIT provides city grade coverage in their city of license, Deforest, and also covers Madison and other high-population areas in Dane, and parts of Rock, Jefferson, and Columbia counties.

Welcome to the skyline, WHIT-FM!



Figure 2. WHIT-FM tower, with radomes, reflectors, and STL near the top. Vertical detuning skirts are attached, allowing placement close to the AM array.



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Let The Class Begin . . .

By Paul Stoffel

Video Lesson 101: The North American analog composite video signal uses black level setup, which is often referred to as simply "setup." In the signal, video black is raised 7.5 IRE units above the zero-voltage blanking level (Figure 1). Since peak whites occur at 100 IRE, both luminance and chrominance levels of the entire signal fit into a 92.5 IRE range.

Video Lesson 201: An international committee developed standards for consumer digital video, called DV. The native DV format, like any digital component format, doesn't have setup (Figure 2). Setup exists only in the analog video world and has no relationship to DV as an encoding scheme or as a tape format. (This DV standard eventually became the basis for the formats called mini-DV, Sony DVCAM, and Panasonic DVCPRO.)

Reality: In television and video production houses, both analog and digital videotape formats are used. It is essential to maintain the proper black level setup for the format you are working with. Editors work in either analog (DVCPRO, Betacam,

¾" U-Matic, VHS) or digital (serial digital 601 and DV) (Digibeta, DVCPRO50, DVCAM) editing suites. The analog and digital formats cross paths within these editing suites or when transfer dubs are struck from digital to analog or analog to digital.

Solution: To simplify the mixing of the analog and digital formats, videotape decks can feature both analog and digital Video INs and OUTs. For example, Panasonic DVCPRO50 and Sony 1500A DVCAM digital decks and their respective menu settings can have the following parameters selected to help with format mixing: (1) "Remove setup" on composite Video IN, and (2) "Add setup" on composite Video OUT.

Lab Assignment 1: Avid Express DV editing software connects to a Mac G4 via IEEE 1394 (sometimes called Firewire; Sony uses i.LINK). Again, this DV video has no setup. The Avid's software-based, internal waveform monitor will not show setup. Setup would be added to the composite video during playback by the deck itself or a proc amp.

Lab Assignment 2: Avid Media Composer suites can function using digital video, where there is no setup.

These suites have can have a Tek WFM-601A digital video waveform monitor that shows setup at blanking (or zero %) on the display graticule. The Avid's software-based, internal waveform monitor also shows no setup. Again, setup would be added to the composite video during playback by the deck.

Lab Assignment 3: An exception to the remove/add setup capability is the Sony DVCAM deck, model DSR-20. The deck is connected, via a Firewire interface, to a PC running Adobe Premiere editing software. For monitoring purposes, the DSR-20 deck's composite video out feeds an analog video waveform monitor and picture monitor. There is no black level setup on this signal. The Premiere editing software can temporarily add setup to an edited package when making an in-suite VHS dub. Edit masters from Premiere, for example when played in a 1500A DVCAM deck, will have setup on the analog Video OUT.

Lab Assignment 4: VIP Duplication Services in Madison uses the Sony DSR-2000 deck for VHS dubbing. This deck has selectable setup modes. VIP uses reference color bars to help determine the correct menu selection for proper setup.

Class Dismissed.

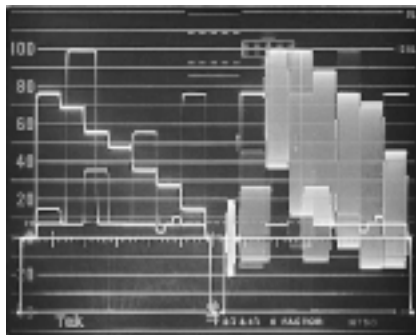


Figure 1. A analog composite waveform monitor showing 7.5 IRE setup. (Photo from www.tek.com)

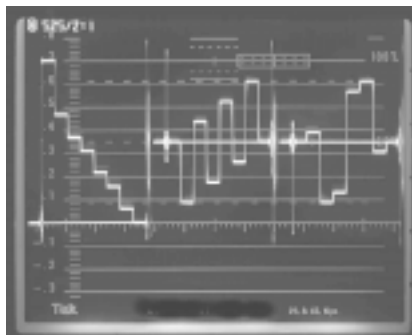


Figure 2. A digital component waveform monitor showing zero percent setup. (Photo from www.tek.com)

The *Chapter 24 Newsletter* is published monthly by SBE Chapter 24 Inc., Madison, WI.

Submissions of interest to the broadcast technical community are always welcome. You can email articles to: MNorton@ecb.state.wi.us



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A Glimpse of “Taste of NAB”

By Vicki W. Kipp

Larry Bloomfield's “Taste of NAB” show rolled into Madison on July 15th. At the request of Chapter 24 Program Committee Chairperson Steve Paugh, Madison was the 25th destination out of 36 venues in Larry Bloomfield's 2003 “Taste of NAB” tour.

Taste of NAB presenter Larry Bloomfield (Figure 1) is known for many things. Some of us were introduced to Bloomfield through his “Beyond the Headlines” column in *Broadcast Engineering* magazine. As the leader of a broadcast survivor's group called the “Order of the Iron Test Pattern” (OITP), Larry bears the title of “Sagacious Pixel.” When not busy publishing his newsletter, *Tech-Notes*, Bloomfield serves as the web master for the oitp.org web site. Larry is also known by his amateur radio call sign, KA6-UTC.

Larcan

Larcan makes FM translators, VHF and UHF television translators, and analog and digital low-power and high-power VHF and UHF television transmitters. In Larry's experience, Larcan transmitters have been exceptionally reliable. Larry noted that translators are widely used by stations west of the Mississippi with spread out viewing areas.

Jampro

Jampro doesn't just make FM antennas - they also make television



Figure 1. Larry Bloomfield confirms his next venue with a caller from Minneapolis.

antennas. Jampro creates rotatiller style, turn style, and slotted panel antennas. Larry Bloomfield has toured the Jampro factory, and can attest to the manufacturing quality of their antennas. When you approach Jampro to buy an antenna, they don't ask what type of antenna you want. Instead, they ask what coverage pattern you want and where you will mount the antenna on the tower. The tower is a natural shield which creates a substantial null in the coverage pattern behind the tower. Jampro uses parasitic elements to compensate for the null and to produce a more circular pattern. Jampro's antenna testing method stands out. Before they ship an antenna, they test the antenna in an environment similar to what it will have when mounted on the tower. Larry Bloomfield feels that there is a significant advantage to doing actual outdoor antenna testing as opposed to computer-simulated testing. Jampro can supply parts for any antenna that is on the market today. If you own a Jampro antenna, they have the blueprints for your antenna available. During their almost 30 years, Jampro has kept the plans for every antenna they have ever made.

Lightning Master

Lightning Master Corporation sells lightning dissipaters (Figure 2) and other structural lightning protection devices, bus bars, tower leg grounding straps, and transient voltage surge suppressors. Larry showed us a stainless steel lightning suppressor that resembled a “porcupine on steroids.” There are six ways to generate electricity: batteries (chemical), light (solar), thermocouples, magnetism, static electricity caused by friction, and lightning. Bloomfield explained that electricity is one of three things: lack of electrons, excess electrons, or the movement of electrons. Recall that 6.24×10^{18} electrons is a Coulomb. The absence of 6.24×10^{18} electrons is a negative Coulomb. When you stop to think how many amps of electricity travel down a bolt of lightning, you realize that bolt has an awful lot of Coulombs. That's an awful lot of electrons. You know that if you have a half dozen pieces of

equipment at your site, the lightning will choose the most expensive or most difficult-to-replace component to burn up as it travels to ground.

To understand how a lightning dissipater works, Bloomfield asked us to imagine a Van de Graaff generator which generates static electricity. If you approach a Van de Graaff generator while holding a blunt object, an arc will jump three or four feet from the generator to the blunt object. If you approach the generator holding a pointy object, you have to get closer to the generator before an arc forms. If you approach the generator holding an object with multiple points, you can walk right up to the generator without it forming an arc.

Although you can't put a lightning dissipater on an AM tower, you can install a lightning dissipater on the tower's guy wires to disperse charges without affecting the coverage pattern. When lightning hits an AM tower, it travels down the AM tower and down the guy wires. Insulators on guy wires do not stop lightning, but a lightning dissipater can help.

AJA

AJA makes rack-mount and portable interface and converter devices for most television formats. Bloomfield suggested that AJA products are useful for plants who have just converted to SDI. Let's say that they spent several thousand dollars on a Quality of Service (QoS) monitor a year or two prior to converting. The station doesn't want
(continued on next page)



Figure 2. On the left, model tower and antenna from Jampro. To right, lightning dissipaters from Lightning Master Corporation.

A Glimpse of "Taste of NAB" (continued)

that expensive QoS monitor to go to waste. AJA sells a converter that has an SDI input and an alphabet soup assortment of outputs, including RGB and YPbPr.

Wohler

Wohler makes rack-mount monitoring and alarm systems for audio and video. A Wohler VAMP2-SDZ SDI video and audio monitor, AMP1-S8 Series 8-channel audio meter, and ALM53-8AS/P audio monitor were on display.

Bloomfield described Wohler's innovative 7-inch MONFlex LCD Video Monitor which folds up to fit in 1 rack unit. The monitor is mounted on an adjustable gooseneck to allow the user to adjust the monitor for the best viewing angle.

Bloomfield showed us a Wohler 8-channel ALM53-8AS/P Analog Stereo Audio Alarm System with level metering. The Wohler bar meter indicates audio deviation, peak, average, and compression. The closer together that peak and average occur on the meter, the greater the amount of compression occurring.

ESE

The El Segundo, California-based company ESE has been in business forever. They sell every kind of clock you can possibly imagine, along with counters, distribution amplifiers (DA), and many other analog devices. Larry showed us an ESE clock that had both an analog and digital display of the time.

ESE manufacturers rack mount or portable DAs. Larry demonstrated ESE's 1 in X 12 out stereo audio and video orange distribution amplifier (DA).

ESE's portable DAs are colored bright orange for easy visibility. Bloomfield explained, "No one loses an orange DA!" ESE even makes an S-Video DA.

If anyone has any old or new ESE products being used in your plant or in the field, please take a picture and mail it to ESE. ESE is rewarding people who send them photos of ESE gear in use with promotional items.

Evertz

Bloomfield fondly recalled his first experience using Evertz equipment when he was the Chief Engineer for the show "Hard Copy" the first year that show was on the air.

One of the Evertz products demonstrated was the Quattro 4 SDI video and audio quad split monitoring card. The Quattro 7765AVM-4 has analog, SD, HD and VGA outputs. It is sometimes cheaper to display video on a VGA display than a traditional video monitor.

Bloomfield showed us the Evertz SDI high-definition logo inserter, which allows you to move the logo around the screens. The flexibility to move the logo helps local affiliates avoid having their local logo collide with the national network's logo.

Quartz

If you open any router made by Grass Valley in the mid-1990s and pulled a module out, you would see that it contained Quartz parts. Quartz is based in the United Kingdom.

Quartz QMC master control is a master control switcher which can execute switches via a computer interface or a more traditional master control console. It does downstream

keys, voiceovers, cross-fades, DTV output, and the whole nine yards. A paper simulation of the Quartz's multi-channel QMC master control switcher panel was displayed, along with a functioning switcher chassis. The QMC switcher can control two different stations at the same time. If you add more rack units, you can control more channels. The switcher features a dual-channel DVE and built-in logo store. Currently, the upper limit being used is 126 channels. Quartz QMC can be automated by Sundance Digital Automation. Quartz QMC can also be used as a routing switcher. Currently, 1024 X 1024 is the largest router that Quartz has installed in a station.

Sundance Digital

The Sundance Digital slogan proclaims "If it can be remote controlled, we can automate it!" Sundance Digital representative Kurt Caruthers explained Sundance Digital's products to our group.

Sundance Digital clients can choose between two service plans: TotalCare is 24 X 7 service and all upgrades; TotalCare-Plus includes 24 X 7 service and all hardware replacement and software update every three years. With Sundance, you buy the computer hardware and the software licenses. A distinction of Sundance Technical Support is that when you call in, you will speak directly with a technician. When you call in after hours for technical support, the automated phone answering system will dial the mobile and home phone numbers of the engineers until someone picks up, ensuring a rapid response.

Sundance Titan is the newest multi-channel centralcasting automation facility management system. Titan will

(continued on page 8)



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Thanks to WISC-TV for maintaining the web server for the Chapter 24 Web page!



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A Glimpse of "Taste of NAB" (continued)

allow you to have a multiple list processors running simultaneously. A station can have a couple of list processors running your on-air play list in Master Control, and have a bunch of computers on a LAN or WAN all adding to the playlist at the same time. The station can switch between controlling your channel locally and running it out of a central facility.

Sundance's NewsLink product streamlines playback of news content from an iNews or ENPS newsroom computer system by integrating the news computer with video servers, editors, CGs, and still stores.

Sundance's Intelli-Sat product organizes your satellite record schedule, tunes satellite dishes and receivers, and then works with Sundance's RecordManager to record the desired satellite feeds. The Intelli-Sat's scheduling utility will alert the operator of any resource conflicts.

Sundance's TimeLiner product is a server or tape machine event sequencing system.

Caruthers discussed Seeker, Sundance's first facility asset management system. Seeker allows users to access footage from stations across the country.

Sundance's Segment Share product allows broadcast groups to have one station time show segments, and then let Segment Share send the timing data to all of the other stations in the group. Each station has to set the appropriate in-point for their record.

Leader Instruments Corporation

Leader makes analog and digital television test equipment. At the meeting, we saw a Leader LV 5700

Multi SDI Monitor. In 2003, the LV 5700 received 5 awards: Broadcast Engineering Pick Hit, Videography Magazine Vidy, Government Video Salute, Digital Cinema Premiere Product, and DigitalTV-Television Broadcast Editors' Pick of Show. The scope features a XGA output, Ethernet output so you can monitor the scope output on the Internet, and a USB port output. With a flash memory card, each engineer can set and save their preferred scope operating parameters. They can use the flash memory card to record a specific part of the signal that is impaired, and then e-mail that sample to others. The LV 5700 menus are difficult to get lost in because the menu is only two layers deep. The Multi SDI Monitor can process digital video, analog PAL, and analog NTSC. The scope automatically senses and changes to the parameters of the input format connected to it.

Leader representative Bob Sparks spoke to us about Leader's popular FS 3018 Lighting Monitor Software which runs on the LV5700. Communicating via WiFi 802.11b, the Lightning Monitor Software on a Pocket PC works in concert with Leader's LV 5700 SDI Monitor. The FS 3018 software allows users to monitor on SD and HD SDI signals on a Pocket PC. The software allows custom settings for peak alarms of YRGB, and displays of waveform, vectorscope, audio, and status screens, along with the picture the camera is viewing. You can add screen edge markers for 4X3 or 16X9 resolution.

Cobalt

Based in Champaign-Urbana, Illinois, Cobalt makes A-to-D and D-to-A converters and interfaces. Cobalt design work is done in Illinois, the U.K., and California. Before starting Cobalt, Cobalt owner Gene Zimmerman built



Figure 3. SBE National Board Member and Chapter 24 SBE liaison Keith Kintner examines the equipment.

Odetics cassette handler transport electronics. Cobalt orders circuit boards for their products from companies in California and Wisconsin. Many Cobalt products contain circuit boards from Multicircuits in Oshkosh.

When shopping for converters, Gene Zimmerman advises engineers to look for isolated BNCs on the universal inputs. Isolation BNC inputs help to avoid ground hum and power supply switching noise, which can show up in A-to-D conversions. Zimmerman showed a converter with presets for Betacam, SMPTE, M-2, widescreen, composite, and component formats, and the option to custom set the digital processor controls.

The companion product is a D-to-A converter, with a SDI input and 2 SDI outputs. This converter accepts a digital input and outputs an analog signal. This converter is handy for connecting in-line with a Codi or a Duet production switcher.

Gene Zimmerman demonstrated a prototype converter, whose dual-rate BNC input accepts SD or HD, and an output offers choices of 12-bit HD analog out, 12-bit analog composite, and SDI SD or HD outputs.

(continued on page 11)

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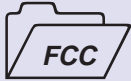
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FCC Rulemakings

Compiled by Tom Smith

PROPOSED RULEMAKINGS

**WT Docket No. 03-128
Nationwide Programmatic
Agreement Regarding The Section
106 National Historic Preservation
Review Process**

This notice seeks comment on an agreement signed by the FCC, The National Conference of State Historic Preservation Officers, and The Advisory Council on Historic Preservation.

The effect on broadcasters and other RF users is that they will have to fill out another application form when siting a tower or making modifications to existing towers. This application requests information on whether the tower will affect historic sites on tribal lands or sites that have religious or cultural significance to native American tribes.

The application also asks if notice has been made and comments been gathered from the public, as well as local governments. Applicants must note all historic sites in the affected area, note if they are any listings in the National Register of Historic Places, and describe the site with maps and photos. The application asks for both information on the historic sites and on the tower facility.

The application must note all buildings in the area 45 years old and older and photos of such buildings must be included. The agreement considers buildings of that age and older as possible historic sites. This will affect wireless providers greatly as they place many of their antennas on the roofs of buildings, including in such places as church steeples, schools, and downtown rooftops.

This notice was adopted on May 27, 2003 and released on June 9, 2003. Comments were due on August 8, 2003 and replies due September 8, 2003.

**ET Docket No. 03-137
Proposed Changes in the
Commission's Rules Regarding
Human Exposure to
Radiofrequency Electromagnetic
Fields**

The FCC is seeking comment on new rules concerning RF exposure. This docket covers both existing high power services including broadcasting, and low power devices that had not been covered in the past. The low power devices include such things as wireless transmitters like those in cell phones and two way pagers, part 15 devices such as WI-Fi transmitters for wireless computer networks, cordless phone and spread spectrum devices including the higher power units used for across town wireless LANs.

The rules concerning low power devices ask at what power limits a device is to be excluded from the rules, labeling requirements, and exposure in the workplace.

For broadcasters and other higher power users such as cellphone providers, the FCC is proposing that tower height no longer be considered in the determination of dangerous RF exposure areas, but that only radiated power and distance from the antenna be used in determining unsafe exposure areas near antenna sites.

This notice was adopted June 12, 2003 and released on June 26, 2003. Comments are due 90 days from publication in the FEDERAL REGISTER with replies due 30 days later.

TEMPORARY WAIVER

**MB Docket No. 03-15, RM 9832, MM
Docket Nos. 99-360, 00-167, 00-
168: DA 03-1292
Simulcasting Requirements**

In this notice the FCC waived some of its DTV simulcast rules for non-commercial educational stations. The first waiver is for six months and waives the requirement that NCE stations simulcast 50% of their analog

programming. This will allow NCE stations to air direct DTV feeds from PBS and other sources on a pass through basis.

The second waiver is for WMVS-WMVT in Milwaukee. In this waiver, the FCC will allow the Milwaukee Public TV stations to air both WMVS and WMVT analog simulcasts on WMVS-DT and air separate HDTV programming on WMVT-DT.

This notice was published in The FEDERAL REGISTER on July 7, 2003. The action was adopted on April 28, 2003 and released on April 29, 2003.

FCC REPORT TO CONGRESS Auction Reform Act of 2003

This notice does not concern a rulemaking, but instead is a report to Congress concerning spectrum auctions for TV channels 52-69 that will have to be returned to the government after the DTV transition.

The report covers such issues as the DTV transition, including must carry, tuner requirements, the rate of DTV transmitters going on the air, and actions to speed up the transition. The FCC discussed the delay in the channel 60-69 auctions and the effect of the speed of the transition on the new public service bands on channels 64-65 and 68-69. The auction of spectrum in the 52-59 band was discussed, including the desires of auction winners to access the spectrum that is currently in use by broadcasters. The broadcasters wish to hold onto the spectrum until there are sufficient DTV sets in use, while the winners wish to start operations as soon as possible of their new services. Allocation of spectrum in these bands for third generation wireless is also covered.

The most interesting part of the report is 38 pages of maps in the appendix. There are maps showing the coverage of all of the stations on channels 52-69 and a map for each channel showing both the analog

(continued on page 11)

FujiFilm Fosters Digital Photography

By Vicki W. Kipp

The FujiFilm 18-wheeler stopped at the Woodmans West Grocery Store in Madison last week to promote digital photography. FujiFilm has embarked on a "Get the Picture Digital Camera Tour" of America (Figure 1). Described as a digital photography learning center, the trailer was divided into two sections.

On one side, attendees were photographed in front of a chroma-key background to have their images superimposed on the tourist site backdrop of their choice. The other half of the truck showcased FujiFilm's digital photography products, including many models of the Fuji FinePix digital camera. (Figure 2) The new FujiFilm xD memory card is about half the size of a SmartMedia card. FujiFilm promoted their 4th Generation Super CCD SR camera for its near-film color and detail. The 4th Generation Super CCD SR camera uses larger sensitivity and range sensors to capture a more life like image. The display that I found most interesting was the digital photo printer because it is extremely expensive and reportedly produces prints that last for years without the fading that is typical of home-printed digital photos (Figure 3).

While the exhibit was not technical, I did glean a few useful bits of knowledge. Digital camera with a 2 mega Pixel resolution photo can be

enlarged to a 5 X 7 print, a 3 mega Pixel photo to 8 X 10, a 4 mega Pixel photo to 11 X 14 print, a 5 mega Pixel photo to 12 X 16 print, and a 6 mega Pixel resolution photo can be enlarged to 16 X 20 inch print. At the exhibit, I received clarification on the difference between optical zoom and digital zoom. Optical zoom involves manipulation of a camera lens with variable focal length to make an image appear larger. Digital zoom is electronically extending the zoom beyond the range of an optical lens by

amplifying the pixels. Digital zoom is cheaper and easier to incorporate into a digital camera than optical zoom is. However, digital zoom can produce fuzzy results because it resizes the image by interpolation as it crops in and magnifies.

While the FujiFilm display lacked in technical detail, it compensated with pleasant photos displayed on LCD monitors and plenty of digital cameras to ponder.



Figure 2. Fuji digital camera models displayed inside the trailer.



Figure 3. Fuji digital photo printer.



Figure 1. FujiFilm digital photography demonstraton trailer.

NEW WEB SERVICES

By Tom Smith

The FCC has introduced three new services on its Website. The first two are upgrades to the Universal Licensing System. The ULS now will allows searches for up to 3000 licenses that can mapped. The maps are not highly detailed, but will give a fair idea of the location of the transmitter. The notice was issued on June 16th and includes an appendix that describes how to use that map search.

The FCC has added a error checking feature to the online application system of the ULS. This allows applicants to correct applications prior to filing them. In the future, applicants will be no longer allowed to edit completed and filed applications. This notice was issued on June 16th and includes information on using the error checking system.

The last service that the FCC has added is a History Of Television. This site gives the history of TV and has links to other websites including museums, libraries, personal collections and other sites pertaining to the history of TV. The web address is <http://www.fcc.gov/omd/history>.

From FCC Release
(www.fcc.gov)



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**NEW SPECTRUM
POLICY INITIATIVE
(continued from page 1)**

This release can be found on the White House Website at <http://whitehouse.gov/news/releases/2003/06/20030605-5.html>

From www.whitehouse.gov

**FCC Rulemakings
(continued from page 9)**

stations and the DTV stations. Most of the stations are located east of the Mississippi River with the densest area on the Eastern Seaboard. West of the Mississippi, most of the states have few if any stations in the channel 52-69 band. While the Eastern Seaboard may have the densest population and the most need for spectrum, other dense areas in the rest of the country may have no problems in accessing most, if not all of the spectrum.

The FCC is not asking for comment on this Report.

From FCC Releases (www.fcc.gov)

UPCOMING EVENTS

Broadcasters Clinic

Date: October 14, 15, and 16

Location: Madison Marriott West, Middleton, WI

Contact: Wisconsin Broadcasters Association at (608) 255-2600

Registration: For more info go to <http://www.wi-broadcasters.org>

A Glimpse of "Taste of NAB" (conclusion)

Belden Wire and Cable

Don Heinzen of Belden Wire and Cable was a co-sponsor of the dinner before the meeting. Don pointed out that much of the equipment on display was connected by Belden cable.

Graybar Electronics

Pat Keller from Graybar Electronics was a co-sponsor of the dinner before the meeting. Graybar sells peripheral devices such as cable, racks, shelves, grounding devices, emission testers, cable locators, TDRs, and many other products.

OITP

Larry Bloomfield explained the professional group that he heads, the Order of the Iron Test Pattern (OITP). OITP recognizes people who have survived working in the broadcast industry. The OITP has member certifications and gives awards. Larry invited all meeting attendees to join the Order of the Iron Test Pattern. There are no dues or membership fees.

Prizes

The meeting ended with a drawing for prizes donated by Fluke, Jensen Tools, Wohler, Cooper Tools, Sencore, Harris Corporation, Clark Wire & Cable, and DSC Labs.

For those who weren't able to attend NAB2003, a "Taste of NAB" was the next best thing.

Thank to Steve Paugh for arranging the July 'Taste of NAB' program, and to Belden Wire & Cable and GrayBar for providing pizza and soda.

**CHAPTER 24
SUSTAINING
MEMBERS**

**THANKS TO ALL OUR
SUSTAINING MEMBERS:**

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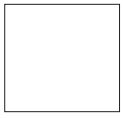
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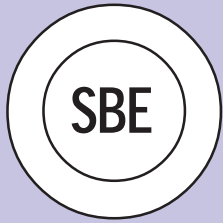


FIRST CLASS MAIL

Newsletter edited on Pagemaker 7.0 by: Mike Norton
Contributors this month: Vicki W. Kipp, Jim Magee, Tom Smith, Paul Stoffel, and Tom Weeden.
Thanks to Leonard Charles for his work on the Chapter 24 WWW page.

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AUGUST MEETING and PROGRAM



Society of Broadcast Engineers CHAPTER 24 MADISON, WISCONSIN Wednesday, August 13, 2003

Broadcast Richardson and Digital One

Digital One, an Illinois-based internet services company, was founded in 1999 to establish a standard for emerging broadcast services in the growing Internet business. Kevin Yahl, Chief Technical Officer for Digital One, will discuss the IP broadcast market and review the services that are available for broadcasters and corporate communications professionals wanting to enhance their web presence. Mr. Yahl touches on several topics, including mobile digital media production vehicles, and web-based media delivery systems.

Dutch Treat Dinner
at 5:30pm
Perkins
1410 Damon Road

Meeting and Program
at 7:00pm
Wisconsin Public Broadcasting Center
3319 W. Beltline Highway

Visitors and guests are welcome at all of our SBE meetings!

2003 UPCOMING MEETING/PROGRAM DATES:

<u>Day</u>	<u>Date</u>	<u>Program</u>
Monday	September 15, 2003	Entercom Studio Tour and Urban Demo
Wednesday	October 15, 2003	Broadcasters Clinic
Tuesday	November 18, 2003	Maastech Automation

Program Committee:

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