Chapter 24, Inc.
Madison, Wisconsin

Society of Broadcast Engineers *January 2001*

TOWER INDUSTRY PART 1 - WAVE COMMUNICATIONS/ SKYLINE

By Vicki W. Kipp

INTRODUCTION

This is Part 1 in a series of articles about the tower industry. Most of us broadcast engineers deal with towers directly or indirectly in our jobs. We may work at a transmitter site or broadcast station at the base of a tower, or may be responsible for remote monitoring of tower conditions such as lighting and antenna icing. If nothing else, we utilize towers in that our signal is transmitted from an antenna on a tower. Since the tower industry relates to the broadcast industry, I would like to study the issues of this associated industry. My plan for this series is to begin by looking at the development and operation of a tower company, and move on to more technical coverage of issues in subsequent articles. For this article, I focused on a tower company called Wave Communications/ Skyline. I chose this company because I am familiar with their operation.

DEVELOPMENT

In the late 1960s, an industrial technology teacher named Bernie Heinemann worked part time at the local Motorola two-way radio shop, Evans Industrial Communications. Evans started sending him out on antenna installation jobs. The antenna work allowed him to enjoy two strong interests – electronics and climbing. When people wanted to hire Heinemann for free-lance jobs, he started a company called Wave Communications.

Bernie did many installation jobs by himself. When he needed help, he assembled a crew that included his son, Bob, and a fellow industrial technology teacher. His wife, Barbara, did all of the bookkeeping. For many years, Wave Communications operated in this manner.

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Next Meeting:

**Thursday,
January 18, 2001**

Tour of WISC-DT

**Dinner
at 5:30 PM**

(Chinese take-out, please see insert)

**at WISC-TV
7025 Raymond Rd.**

**Meeting
and Program
at 7:00 PM**

In This Issue:

WISCONSIN'S TURN TO APPLY

By Tom Smith

It's Wisconsin's turn for sending in those applications for the new low power FM service. The FCC will be accepting applications from Wisconsin and eleven other states and territories. The filing window will open on January 16, 2001 and close on January 22, 2001. Other states and territories include American Samoa, Colorado, Delaware, Hawaii, Idaho, Missouri, New York, Ohio, South Carolina and South Dakota. The public notice was released on December 15th.

On December 21st, the FCC released a list of 255 applicants in 20 states that are eligible to receive new LPFM licenses. Petitions to deny must be filed against any of these applicants by January 22, 2001. These applications meet all spacing requirements including third adjacent protection demanded by Congress and the applicants have certified that they have not operated pirate radio stations.

The FCC will announce additional eligible applicants from those groups whose applications conflicted with other applications (multiple applications for same frequency or adjacent channel conflicts). The FCC had received about 1200 applications from the two filing windows which cover 20 states, including California and Michigan.

About half the applicants were religious groups and the rest were split up among schools and colleges, local and state governments, civic groups and clubs, and a few Native American and other ethnic groups. The State of Georgia Transportation Department had four applications accepted, with the FCC accepting a few from other traffic departments. A

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December Business Meeting Minutes

Chapter 24 of the Society of Broadcast Engineers met on Wednesday, December 20, 2000 at Wisconsin Public Broadcasting (TOC) in the Educational Communications Board boardroom in Madison, Wisconsin. There were 16 members in attendance, 14 of who were certified.

Chairperson, Kevin Ruppert, called the meeting to order at 7:05 PM. Minutes of the November meeting, as published in the December newsletter, were approved as published. Treasurer, Stan Scharch, reported that the chapter treasury is in the black.

Membership Chairperson, Paul Stoffel, reported that the National SBE office has not been notifying Chapter 24 when new members join our chapter. Paul will call the national office to investigate.

Newsletter Editor, Mike Norton, reported the deadline for the next newsletter as midnight on Friday, January 5, with the folding party the following Wednesday, January 10 at WKOW-TV beginning at 5:30 PM. Sustaining Membership coordinator, Fred Sperry, announced that Chapter 24 remains at 23 sustaining members. WISC-TV and WKOW-TV recently renewed their memberships.

Program Committee, Denise Maney, announced that the topic for the January 2001 meeting would be RF measurements. For the February 2001 meeting, ADC will present on the topic of AES audio.

Certification Chair, Jim Hermanson, reported that the next local exam period will be February 9 – 19, with the application deadline on December 31, 2000. There will be testing April 24, 2001 at NAB. The subsequent local exam period will be June 8 – 18. Jim is processing one local re-certification application. Jim announced that Terry Baun tentatively plans to hold a CBNT Course and Exam Session in Madison during March or April of 2001.

Frequency Coordinator, Tom Smith, gave a frequency coordination update. Tom announced that on December 19, the Milwaukee SBE Chapter had discussed the Milwaukee/ Chicago frequency reallocation coordination plan sent by Craig Strom of WLS, Chicago. MSS will pay to convert ENG equipment to the 12.1 MHz wide digital channel spacing. The local group needs to meet to discuss how to handle the 2 GHz and 7 GHz bands. For Wisconsin, there will be a low power FM filing from January 16 – 22, 2001. Tom cited an article in *Interactive Week* called “Regulator’s Pet: Einstein vs. Next Wave Telecom” as good reading.

National Liaison, Leonard Charles, mentioned that there is a letter on the National SBE web site regarding the 2 GHz band that would be interesting reading. A vendor is surveying top 30 TV stations to see what equipment they currently have. The NAB

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Meeting Minutes (continued)

is also conducting a study of this issue to see if joint negotiations would be beneficial. On another note, in October the SBE Board of Directors passed an amendment about board member conflicts of interest. The amendment is published on the SBE web site. In February 2001, Chuck will attend a National Advisory Committee (NAC) meeting on EAS issues in Washington, D.C. Frank Lucia, the father of EAS, is retiring at the end of 2000.

Chairperson Kevin Ruppert asked if there was any new business. Paul Stoffel gave an update on local EAS. Those with all-hazard receivers are waiting for the FCC to approve the new event code that will include non-weather hazard codes. Dave Janda has written an all-hazard plan for Dane County.

For Professional Announcements, Leonard Charles informed us that WISC-DT started a program test signal on their digital channel, RF channel 50, at 11:00 AM on Wednesday, December 20, 2000. Chuck said that channel 3.1 will have the CBS-HD feed which will be shown in HD when possible, and upconverted when the original signal is not HD. Channel 3.2 will contain the WB Network in standard definition. Using PSIP, WISC is able to have channel 50 show up on digital receivers as 3.1 and 3.2. WISC is testing the allocation of the data rate between the two channels with 15 Mbps for CBS-HD and 4 Mbps for WB SD, given a total rate of 19.39 Mbps. The signal is broadcast from an antenna at 950 feet up on the Candelabra at 120 kilowatts, with a severe null to the west. WISC is not transmitting data with their digital signal at this point. WISC will continue to transmit their digital station on the temporary antenna until late May 2001.

Chairperson Kevin Ruppert adjourned the business meeting at 7:45 PM.

For the evening's program, Mike Norton and Dan Maney presented on the topic of Vertical Blanking Interval Systems.

Submitted by Vicki W. Kipp, Secretary

AMATEUR RADIO NEWS

By Tom Weeden, WJ9H

• December was a tense month for hams following the progress of the recently-launched "Phase 3-D" amateur radio satellite after contact with the satellite was suddenly lost on December 13th. Ground controllers waited through an automatic on-board software routine which attempts to re-establish communications after 3 days without success. The US military stepped in to help, using NORAD's sensitive satellite-tracking radar to determine that the satellite was still in one piece, even though no contact could be made with it.

Finally, on Christmas Day, a ground station in New Zealand was able to successfully transmit an L-band reset command while the satellite was overhead, and it began transmitting its beacon signal on 2401.305 MHz. As of December 28th, the recovery efforts of AO-40 continued, mainly centered around housekeeping tasks designed to improve and stabilize the systems onboard the satellite. Phase 3D Project Leader Karl Meinzer, DJ4ZC, said AO-40 command stations "will continue to follow a conservative philosophy" with a primary goal of not causing additional damage while retaining as much evidence as possible to analyze what made the beacon transmissions stop.

• Late December ice storms caused power and telephone outages and hazardous driving conditions in Texas, Arkansas and Oklahoma. Amateur Radio Emergency Service nets were activated to handle emergency traffic and to support public safety and relief agencies. Several deaths were attributed to the severe weather, and hundreds of thousands were without power. Many residents had no telephone service, with even cellular systems being out. At one point, amateur operators helped with communication after hospital telephones were knocked out; they also got a generator going after one hospital's emergency power system failed.

• Have you always wanted to obtain your ham license but your busy job in broadcasting prevented it? Madison-area radio clubs are co-sponsoring a two-day Technician license crash course and testing session at the UW Space Place at 1605 South Park Street in Madison. The dates are Saturday and Sunday, January 20-21. You must pre-register to attend the class. For more information, contact Don, W9IXG — n9uw@sal.wisc.edu.

(Excerpts from the AMSAT News Service and the American Radio Relay League's "ARRL Letter")

Thanks to WKOW-TV for providing copying and folding facilities for the Chapter 24 newsletter!

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

TOWER INDUSTRY PART 1 (continued from page 1)

In 1989, things started to change at Wave Communications. When son Bob Heinemann graduated from college, he went to work for Wave Communications. At the same time, Bernie left teaching to run his tower business full time. Wave Communications began taking on larger jobs. They hired additional employees. Growth was steady. Heinemann built a large pole building behind his house for Wave Communications, but the company outgrew the building by 1993. Heinemann built a 23,000 square foot facility for Wave Communications in Sun Prairie.

Then the wireless telecommunications boom started. There was a tremendous amount of work to be done for the build out of the Personal Communications System (PCS) infrastructure. Growth was very rapid at that time. Heinemann hired more employees and bought more work trucks. Growth has been constant, although uneven ever since.

The larger facility and the sudden growth in the telecommunications industry allowed Wave Communications to experience substantial growth over the next few years. Their growth was also enabled by their involvement with the National Association of Tower Erectors (NATE.) NATE was formed in 1995. As a founding member, Wave Communications collaborated with other NATE members to develop safety standards for the tower industry.

In 1999, Wave Communications purchased Skyline Communications from Richard Wood. The purchase of Skyline Communications broadened the types of services that Wave Communications offered. Wave Communications increased their broadcast tower work. Cellular tower work slowed down in 1999 because of the uncertainty of the auction for PCS spectrum licenses. The broadcast business has added needed stability to the company's workload, and compensated for the volatility of the wireless communications market.

According to Bernie Heinemann, the greatest challenge in the tower industry is finding qualified people to be tower technicians. Training new workers takes a long time, while the need for qualified labor is immediate. Wave Communications/Skyline has grown to a work force of twenty tower technicians plus office staff. They continue to grow slowly, limited mostly by difficulty hiring new employees in the tight labor market.

OPERATIONS

Wave Communications/Skyline focuses on bigger, heavier, more complex jobs. Their work can be divided into the categories of construction and maintenance. Their clients are typically from either from the wireless communication or the broadcast industry, although they do perform some jobs for other industries. Their client list includes railroads, pipe lines, microwave relay providers, data transmission providers, two-way radio, paging, wireless telecommunications, and broadcasters.

Wave Communications/Skyline performs the erection and construction of guyed towers, self-supporting towers, and monopoles up to 500 feet. This is not to say that 500 feet is the highest level they climb to. They will climb until they run out of tower. To date, Wave Communications/Skyline's highest climb was to 1,423 feet at the top of the Candelabra Tower in Madison.

Maintenance jobs would include several types of work. Technicians use TDR testing to troubleshoot problems with antennas and feedline. They can also perform sweep testing, ultra sonic steel density testing, microwave signal generator/alignment testing, and RF level measurement. Wave Communications/Skyline does relamping, shelter and structure inspection and repair, red light and strobe light repair, equipment audits, site survey, HVAC repair, fencing, civil work, and tower painting. The purpose of an equipment audit is to find out if someone else has placed unauthorized equipment on your tower. Examples of troubleshooting include everything from handling air leaks in a Doppler Radar to dealing with reflected power in cellular sites.

Turnkey completion of jobs is a new mode of operation for Wave Communications/Skyline. Wave Communications/ kyline performs their own civil and electrical work for turnkey jobs. A typical assignment would be getting hired to increase the load capacity of a tower and to install additional antennas. First, Wave Communications/Skyline would complete a site survey. Then, they would send the survey to a mechanical engineer so that they can design structural engineering changes to allow a greater load on the tower. A technique called rebracing is used to increase the load capacity of a tower. For the last step, Wave Communications/Skyline performs the actual tower reinforcement work to implement the mechanical engineer's plan.

The majority of Wave Communications/Skyline's business is wireless communications towers.

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TOWER INDUSTRY PART 1 (continued)

They offer turnkey service for the complete construction of wireless communication cell sites. They perform maintenance of antenna systems and support structures for cellular sites. A challenge of cellular is trying to get new structures past zoning boards. They see a strong demand for building "stealth sites." A stealth site is an installation where an antenna is concealed behind something when it is installed. Antennas are often hidden behind false chimneys. Wave Communications/Skyline has installed antennas on rooftops, industrial chimneys, water towers, utility towers and silos. Since zoning boards are reluctant to approve new towers, the communications industry trend has been to install systems on top of existing tall structures.

Wave Communications/Skyline performs tower construction and maintenance for the broadcast industry. They have erected 500 foot tall guyed towers for FM radio stations. They have also performed turnkey jobs building complete FM radio transmitter stations. Wave Communications/ Skyline performs radio/TV antenna system maintenance. Richard Wood subcontracts for Wave Communications/Skyline for transmitter maintenance. Their broadcast business presents a wide range of assignments.

CONCLUSION

Hopefully, this look at the development and operations of a tower company gives you some perspective about a typical tower company. Next month, we'll continue our discussion of the tower industry by taking a look at the career of a tower technician.

SBE Short Circuits - January 2000

By John L. Poray, CAE
SBE Executive Director

LEADER SKILLS COURSE II IN FEBRUARY, IN ATLANTA

Leader Skills Course II, "Expanding Your People Skills" will be held in Atlanta, Georgia February 14 to 16, 2001. This in-depth seminar continues where Course I leaves off, providing broadcast engineers with a management training program developed just for them. Individuals interested in taking Course II must have completed Course I (three-day seminar) or any of the previous Leader Skills five-day seminars presented by SBE or NAB since 1965.

Our course instructor is Richard Cupka, who has presented leader skills training to broadcast engineers for more than 30 years. The cost for Leader Skills Course II in Atlanta is $490, which includes instruction, materials and refreshment breaks. Transportation, hotel and meals are additional.

The seminar will be held at the Courtyard Marriott Atlanta Midtown. A special room rate of $99 has been arranged for those needing overnight accommodations.

To register, call Angel Bates at the SBE National Office, (317) 253-1640 or e-mail her at abates@sbe.org by January 15.

ENNES WORKSHOP ON CBNT PLANNED FOR NAB CONVENTION

Many people have expressed interest in the new certification offered by SBE - Certified Broadcast Networking Technologist. More than 100 industry professionals now hold this certification rolled out less than a year ago. As a part of the 2001 NAB Broadcast Engineering Conference at the NAB Spring Convention in Las Vegas, a special Ennes Workshop will be held with the sole topic being a five-hour program on broadcast networking technology titled, "Putting the Pieces Together."

The workshop will cover network topologies and layouts, common network protocols, wiring and connector types, system standards and installation practices, maintenance, troubleshooting and connectivity issues, challenges unique to media based network platforms and an overview of digital compression technologies and related storage issues.

The Ennes Workshop will be held Saturday, April 21 from 9:00 am to 3:00 pm. Since this is the day before the convention officially opens, participants will not miss any time on the exhibit floor or regular paper sessions. Instructor will be Terry M. Baun, CPBE of Criterion Broadcast Services and chairman of the SBE Certification Committee. Moderator will be Richard Farquhar, CPBE, President of RAF Companies and education director of the Ennes Trust.

Attendees will have the opportunity to take the SBE CBNT examination following the workshop at 3:15 pm. Registration for the exam will be encouraged in advance, although on-site registration will be possible. Watch for more details in upcoming issues of the SBE SIGNAL and NAB Convention promotional information.

FCC Rulemakings

Compiled By Tom Smith

PROPOSED

MM Docket No. 00-244; FCC 00-427
Broadcast Services: Radio Stations, Television Stations

The FCC is asking for comment on the methods that it uses to determine the number of stations that one entity can open in a market. Currently the FCC uses a method based on signal overlap, with the signal contour reference of 5 millivolts for AM and 3.16 millivolts for FM. The FCC counts any signal that puts the required signal level within the contour of any station in the principal community as being in the market. The size of the market is then set by coverage of the most powerful station in the market. Any station that overlaps the most powerful station is in the market, no matter how far it is from the principal city, is considered in the market. These overlaps set the total number of stations that one can own in the market. The limit one can own goes up as the number of stations in the market increases. To add to the confusion in figuring ownership limits, an individual owner is limited by the overlap of each of his stations to the others he owns. The owner could be in a market that has a limit of four stations, but could own 5 or six stations. This could happen if the 5th or 6th station did not overlap one or two of the other stations.

Because of the way the rules are written concerning overlap, the FCC is proposing to use Arbitron market definition to determine market size and area as one method of market measurements. The other proposal is that the FCC continue to use contour overlap, but with different standards. This issue has been a concern raised in ownership reviews by Commissioner Susan Ness in the past.

The notice was adopted on December 6, 2000, released on December 13, 2000, and published in the FEDERAL REGISTER on December 28, 2000 on pages 82,305-82,310. Comments are due on January 26, 2001, with replies due on February 12, 2000.

ET Docket No. 00-47; FCC 00-430
Software Defined Radios

The FCC is proposing rules that would allow radios in which transmit and receive parameters can be modified by a software change to the radio. Changes that would be allowed include modulation type, power, and frequency. The manufacturer would have to file with the FCC new test data on the radio that any software changes would affect. The FCC is seeking comment on safeguards to avoid illegal changes, if use of these radios is adopted.

The FCC is interested in these radios as it is a way for services to switch bands depending on market availability. This could open spectrum to secondary market trading. These units could be considered the ultimate agile radio, if the rules take effect as proposed.

Comments are due on March 19, 2001 and replies on May 18, 2001. The notice was adopted on December 7, 2000 and released on December 8, 2000. Published in the FEDERAL REGISTER on January 3, 2001 on pages 341-345.

WT Docket No. 00-230; FCC 00-402
Promoting Efficient Use of Spectrum Through Elimination of Barriers to the Development of Secondary Markets

The FCC is proposing that licensees of spectrum be allowed to lease part or all of their spectrum to other users who may need more spectrum. These leases would be similar to those leases that are bought for satellite transponder leases. Under the proposed rules, the original licensee would be responsible for proper operation in that part of the spectrum.

This is another method that the FCC would like to use to encourage marketplace answers for allocating spectrum. The FCC gave a number of proposals on implementing secondary of trading of spectrum. They have excluded broadcasting spectrum from these proposals.

Comments are due on February 9, 2001 with replies due on March 9, 2001. The notice was adopted on November 9, 2000 and released on November 27, 2000. Published in the FEDERAL REGISTER on December 26, 2000 on pages 81,475-81,486.

ET Docket No, 00-258; RM-9920, RM-9911; FCC 00-455
Amendment of Part 2 of the Commission's Rules to Allocate Spectrum Below 3 GHz for Mobile and Fixed Services to Support the Introduction of New Advanced Wireless Services, including Third Generation Wireless Systems
Petition for Rulemaking of the Cellular Telecommunications Industry Association Concerning Implementation of WRC-2000: Review of Spectrum and Regulatory Requirements for IMT-2000
Amendment of the U.S. Table of

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FCC Rulemakings (continued)

Frequency Allocations to Designate the 2500-2520/2670- 2690 MHz Frequency Bands for the Mobile-Satellite Service

The FCC has issued a Notice of Proposed Rulemaking concerning allocation of spectrum for Third Generation Cell Phones. They had proposed using 1710-1755 MHz , 1755-1850 MHz, 2110-2150 MHz, 2160-2165 MHz and 2500-2690 MHz.

The 1710-1755 and 1755-1850 MHz bands are currently used by the government, the 2110-2150 MHz band is adjacent to the 2 gigahertz TV remote pick-up band. The 2500-2690 MHz band is currently used by ITFS and MMDS TV services. The FCC also denied a petition by the Satellite Industry Association requesting the use of 2500-2520 and 2670-2690 MHz bands.

This notice was adopted on December 29, 2000 and released on January 5, 2001

FINAL RULEMAKINGS

ET Docket No. 98-206 Amendment of Parts 2 and 25 of the Commission's Rules to Permit Operation of NGSO FSS Systems Co-Frequency with GSO and Terrestrial Systems in the KU-Band Frequency Range; Amendment of the Commission's Rules to Authorize Subsidiary Terrestrial Use of the 12.2-12.7 GHz Band by Direct Broadcast Satellite Licenses and Their Affiliates; Applications of Broadwave USA, PDC Broadband Corporation, and Satellite Receivers, LTD to Provide A Fixed Service in the 12.2-12.7 GHz Band

The FCC has issued a First Report and order that will allow for terrestrial use of the 12.2 to 12.7 GHz band. This band is currently used for direct broadcast satellite service (DirecTV, Dish TV). The FCC is creating a new terrestrial service in this band called Multichannel Video Distribution and Data Service. In creating this service, the FCC also issued a Further Notice of Proposed Rulemaking to get comments on technical and service rules for the new service.

One proposal by a company called Northpoint is for antennas to be placed north of the proposed service areas to deliver TV and data services. Antennas that point north would receive the terrestrial service, while antennas pointing south would receive DBS Service. Receive antenna directionality would prevent interference between the services in theory.

This notice was adopted on November 29, 2000 and released on November 30, 2000.

MM docket No. 98-93; FCC 00-368 1998 Biennial Review-Streamlining of Radio Technical Rules

The FCC has adopted several rule changes that will make life easier for some FM broadcasters. They include the following.

• One step application for stations that need coordinate corrections of 3 seconds or less. No need to fill an application for both a construction permit and a new license.

• Creation of a new class of FM station, Class C0, which will fall between class C and Class C1. The new class of station would operate at between 300 and 450 meters above average terrain at 100 kilowatts. Currently Class C stations operate at 100 kilowatts from 300 to 600 meters HAAT. Class C1's operate at 100 kilowatts 150 to 299 meters. Class C stations would now operate at 100 kilowatts at 451 to 600 meters. Stations currently operating at the heights of 300 to 450 meters will be reclassified only after there is request to be downgraded because of the filing of a petition for amending the table of assignments. Stations will be give a chance to upgrade before the petition can be granted. This change will allow for some other stations to upgrade or possibly new allocations to be granted because of the reduced spacing requirements.

• Allow eligible FM stations a minimum of a 6 kilometer relief when having to modify transmitter location that cause new or increase short spacing.

• Changed some spacing requirements in Puerto Rico and the Virgin Islands to allow greater flexibility in transmitter placement.

• Adopted 2nd adjacent interference ratio of 40 dB for non-commercial translators.

• Adopted a signal coverage requirement of 1 mV/m over the principal community for non-commercial FM stations. There is currently no requirement for signal strength for NCE station over the principal city of license.

• Adopted a one step application for FM translators and boosters to reduce power to eliminate interference.

This notice was adopted on October 12, 2000 and released on November 1, 2000. It was published in the FEDERAL REGISTER on December 20, 2000 on pages 79,773-79,781.

From FCC Releases (www.fcc.gov) and the FEDERAL REGISTER (www.access.gpo.gov)

The *Chapter 24 Newsletter* is published monthly. Submissions of interest to the broadcast technical community are always welcome. You can e-mail your articles to: MNorton@ecb.state.wi.us

Iridium Satellite System To Be Purchased

By Mike Norton

The U.S. Bankruptcy Court for the Southern District of New York approved the bid of Iridium Satellite LLC to purchase the operating assets of Iridium LLC and its subsidiaries. Under the agreement, Iridium Satellite LLC will purchase all of the existing assets of Iridium LLC, including the satellite constellation, the terrestrial network, Iridium real property and intellectual property owned by Iridium LLC. The reported purchase price of $25 million is far below the original cost of building the system, which was in excess of $5 billion.

The global satellite telephone system began offering service in 1998, but ceased operation to commercial customers in August 1999 after filing for bankruptcy. Following this sale, Iridium Satellite LLC will continue to provide commercial satellite communications to the U.S. government, and it plans to re-launch affordable satellite communications services to those industry segments that have a particular need for satellite communications (government, military, humanitarian, heavy industry, maritime, aviation, adventure) within 60 days.

In December 2000, the U.S. Department of Defense awarded Iridium Satellite LLC a $72 million contract for 24 months of satellite communications service. This contract provides for unlimited airtime for 20,000 government users over the Iridium satellite network.

Iridium Satellite LLC has contracted with Boeing Company to operate and maintain the satellite network. Motorola has been maintaining the constellation, at a reported loss of $10 million per month since the initial bankruptcy filing. Motorola has agreed to continue to provide subscriber equipment for the system.

The 66-satellite low earth orbit constellation, along with associated ground stations around the world, allows voice communication anywhere on the globe. The inclined polar orbit in each of six planes results in each satellite orbiting the earth a little over 14 revolutions per day. Iridium system information and previous bid attempts were reported in a June 2000 article in this *Newsletter*.

A non-operational Iridium satellite reentered the atmosphere and burned up over the Arctic Ocean on November 29, 2000. The satellite was launched in September 1998, but failed and was reportedly tumbling out of control just two months later. Another failed satellite was expected to reenter in December 2000. NASA predicts there is only a one-in-10,000 chance of anyone being hurt on the ground by falling Iridium spacecraft.

In December 2000, Iridium Satellite LLC announced additional launches of 7 additional satellites. Tentatively planned is a launch in June 2001 by a Boeing Company Delta II with five satellites on board. The goal is to maintain 6 orbital planes with 11 operable satellites, along with two or more spares per plane. The Delta II rocket was the primary launch carrier, initally placing 45 satellites into orbit. Russian Proton and China Long March launch vehicles were also used for establishing the initial fleet of spacecraft. The expected lifetime of each Iridium satellites is 5 - 8 years.

(Information from Via Satellite, Boeing Company, www.spaceflightnow.com, www.spaceviews.com, and the Chicago Tribune was used for this report.)

Visit Chapter 24 on the World Wide Web

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.

FCC SCHEDULES FM BROADCAST AUCTION

By Tom Smith

The FCC has scheduled an auction of FM broadcast construction permits starting on February 21, 2001. There are 357 FM allocations that are up for auction. In a FCC request for comments, they had proposed minimum bids and upfront payments starting at $2,500 for some of the smallest markets with the highest being for $800,000 for a Class A in Amherst, NY. Location, not class of station, seems to determined the minimum bids. There are five allocations set for auction from Wisconsin. They are in the following cities; Augusta (C3,$115,000), Hayward (C2,$60,000),Solders Grove (A,$60,000), Two Rivers (A,$140,000), and Westby (A,$60,000). The class of station and minimum bid are listed in parentheses. The minimum bids are subject to change as this is the FCC proposed minimums and the final notice has not been released.

From FCC Release (www.fcc.gov)

PCS AUCTION IS UP TO $11.1 BILLION

By Tom Smith

The FCC opened bidding on a group of 422 PCS licenses, most of which were originally granted to bankrupt NextWave Telecom which is in default to the FCC with it's payments from the original auction of this spectrum. When the FCC halted bidding on December 22nd for the Holidays, the high bids totaled $11.1 billion dollars. The auction was to restart on January 5th. NextWave had bid $4.8 billion for the spectrum. Verizion and Vodaphone have current bids totaling $5.5 billion for licenses in New York, Chicago, Boston and Washington, D.C. Other high bidders are Alaska Native Wireless with a $2 billion bid and Salmon PCS with a $1.5 billion. Nextel and Sprint PCS dropped out of the bidding along with 27 others. There are 58 bidders still left.

From Washtech.com and NY Times (www.nytimes.com)

SBE Listserver Info

Chapter 24 members are invited to join the chapter listserver. To subscribe, send an e-mail message to the following address: majordomo@broadcast.net

In the body of e-mail message type: subscribe msnsbe. (The subject line can be left blank.) Instructions and a confirmation message will be sent to you. To post to the list, address you e-mail to: msnsbe@broadcast.net

Also, join the Wisconsin SBE Chapters listserver. To subscribe, send e-mail to: majordomo@broadcast.net Body of e-mail message: subscribe sbe-wi To post to the list, send e-mail to: sbe-wi@broadcast.net

The SBE National also has a listserver: To subscribe, send e-mail to: majordomo@broadcast.net Body of e-mail message: subscribe sbe. To post to the list, send e-mail to: sbe@broadcast.net

Professional Announcement

James W. Stellpflug (dba: PFLUG Productions) has accepted a new job with EVS Broadcast Inc. Beginning in January 2001, James will be the director of U.S. Training and Tech Support in the New Jersey, USA office.

EVS Broadcast is a Belgium company which designs, manufactures and markets digital electronic systems, mainly for the television industry. EVS markets MPEG2/DVB servers, the LSM (Live Slow Motion) server for sports production, and other products relating to the digital transport streams in television today. (http://www.evs-broadcast.com)

WISCONSIN'S TURN (continued from page 1)

few of the applicants were cable TV access groups with LPFM a logical extension of their service.

The strangest named groups whose applications were accepted were the Fellowship of the Holy Hip Hop, Inc from Atlanta, GA and the Duct Tape Radio and Humanities Forum from Tok, AK.

From FCC Releases (www.fcc.gov)

CONGRESS LIMITS LPFM

By Tom Smith

Congress has ordered the FCC to require Low Power FM stations to provide protection to the third adjacent channel of nearby existing FM stations. The FCC was ordered to provide the protection in a rider to a budget bill that President Clinton Signed. Clinton had vetoed an earlier budget bill with a similar rider. It is estimated that the limitations would reduce the number of LPFM stations granted by half.

The bill does allow the FCC to conduct tests in nine markets to determine if LPFM stations can operate without causing interference to existing stations, when third adjacent protection is not given.

In the end, the bill is seen as a compromise between the FCC and the groups desiring LPFM and the NAB and NPR, which opposed LPFM.

Compiled from Radio World Online (www.rwonline.com), NY Times (www.nytimes.com) and Broadcasting and Cable (www.broadcastingcable.com)

CHAPTER 24 SUSTAINING MEMBERS

RECENT RENEWALS:

WISC-TV 3
WKOW-TV 27

THANKS TO ALL OUR SUSTAINING MEMBERS:

Alpha Video
Belden Wire and Cable
CTI
Clark Wire and Cable
Harris Corporation
maney-logic
National Tower Service
Norlight Telecommunications
Panasonic Broadcast
Pinnacle Systems
Richardson Electronics
Roscor Wisconsin
Ross Video
Scharch Electronics
Sony Broadcast
Swiderski Electronics
Teleport Minnesota
Token Creek Productions
Video Images
WMSN-TV 47
WMTV-TV 15

SBE Chapter 24 Newsletter
2029 Greenway Cross #11
Madison, WI 53713-3000

FIRST CLASS MAIL

Newsletter edited on Pagemaker 5.0 by: Mike Norton
Contributors this month: Vicki W. Kipp, Mike Norton, Tom Smith, and Tom Weeden.
Thanks to Leonard Charles for his work on the Chapter 24 WWW page.

JANUARY MEETING and PROGRAM

Society of Broadcast Engineers
CHAPTER 24 MADISON, WISCONSIN
Thursday, January 18, 2001

WISC-DT Tour

This month, join us at WISC-TV to see how they've brought the latest Madison DTV station on the air. There will also be an informal discussion about DTV issues that are of concern to broadcasters in the area. We hope to see you there.

We are going to order a variety of Chinese food and have it brought to the station. We will also provide soft drinks and ask for a $6.00 donation for the food. Those who do not wish to join in the dinner should show up around 7:00 PM.

Dinner at WISC-TV
7025 Raymond Road

at 5:30 PM

Business Meeting
and Program at 7:00 PM

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

2000/2001 UPCOMING MEETING/PROGRAM DATES:

Day	Date	Program
Tuesday	February 20	AES Digital Audio
Wednesday	March 21	Youth Night
Wednesday	April 26	NAB Review/Elections

Program Committee:	Denise Maney	Steve Paugh	Fred Sperry	Steve Zimmerman
	277-8001	277-5139	264-9806	274-1234