

**Chapter 24
Madison, Wisconsin**

Society of Broadcast Engineers

May 1994

The Info Highway Expands

by Tom Smith, WHA-TV

Last fall the FCC opened a new lane on the information highway by establishing a new service called Personal Communications Services or PCS. As part of the Info Highway, PCS's, and its many uses, have been the subject of articles in various trade publications. Until the FCC made the final rules, it was not clear what would be permissible.

This service will operate in the 2 GHz portion of the spectrum with 160 MHz of bandwidth allocated. There is also a PCS service in the 900 MHz frequency area with 3 MHz available.

The FCC envisions PCS's will include a variety of mobile and fixed services including small portable phones, wireless PBX's, portable facsimile machines, multi-channel digital cordless phones and other wireless communication devices. They would be similar to the existing 800 MHz cellular services and be an extension of the existing telephone and data network. The cable television industry is also interested in PCS as a way of getting into the phone business. They would use their existing cable lines to interconnect the PCS base stations. The broadcasting industry, as defined in the Communications Act, is prohibited.

The FCC is allocating 40 MHz of spectrum from 1890-1930 MHz to unlicensed PCS services. Twenty MHz will be allocated for isochronous operations used mainly for voice. The other 20 MHz for asynchronous data operations. The voice services could include private wireless PBX, or, in other words, your own cellular phone system within your business location. Data services could include wireless modems for business computer networks. The unlicensed service will operate at low-power and is covered under Part 15 as other unlicensed services are presently covered.

The FCC is coordinating this service with the present users of this band through a private firm called UTAM INC. Coordination is required until Operational-Fixed Microwave Service is relocated or until interference is no longer a concern.

In the bands of 1850-1890, 1930-1970, 2130-2150 and 2180-220 MHz,

Continued on page 3

FIBER OPTIC OSP

PART 5 - NETWORK MAPPING by Neal McLain

Communication Technologies, Inc.

This is the fifth in a series of articles about fiber optic Outside Plant (OSP).

In previous articles in this series, we have discussed route planning, pole-attachment rights, and land-access rights. In this article, we will discuss the preparation of maps to specify the routing and design of the fiber plant.

The complete mapping process associated with the design and construction of fiber OSP requires three types of map: Base Map, Route Map, and Design Map, all oriented to a common underlying grid. We will begin with a discussion of the underlying grid, followed by a discussion of each type of map.

THE UNDERLYING GRID

Unless the fiber network is very simple, it is likely that it will require more than one map. Therefore, an underlying grid is needed to specify the boundaries of the individual maps, and to assure that adjacent maps match edge-to-edge.

The grid system most commonly used for OSP records is based on the United States Public Lands Survey (USPLS).

The USPLS is the original survey of lands owned by the federal government. It established the boundaries of federally-owned land sold (or later, under the Homestead Act of 1862, given away) for homestead development. The Northwest Territory, including what is now Wisconsin, was surveyed during the 1800s.

Under USPLS guidelines, the land was divided into parcels called "sections," each containing one square mile, or 640 acres. Each section was subdivided into four quarter sections of 160 acres each; each quarter section was further subdivided into four quarter-quarter sections of 40 acres each. Farm land has been bought and sold in 40-acre parcels since the early 1800s, and the word "forty", used as a noun (as in "the back forty"), has long been part of the lexicon of rural America.

Blocks of 36 sections were grouped together into "Congressional Townships," numbered with reference to a specified "point of beginning":

"Town" number north or south of the point of beginning. Examples: Town 20 North; Town 35 South.

MAY MEETING

Wednesday, May 25

DINNER: Kicks Restaurant
674 S. Whitney Way at 5:30
(across from Westgate Mall)

MEETING
(6:45 p.m.)

and

PROGRAM (7:30 p.m.)

UW Hospital & Clinics
600 Highland Avenue
G5 113 Auditorium
"New Technologies in Sports
Medicine and Orthopedics"
*also, Election of
Chapter 24 Officers*

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"Range" number east or west of the point of beginning. Examples: Range 14 East; Range 22 West.

In Wisconsin, the point of beginning is the point where the "Fourth Principal Meridian" (the Grant/Lafayette County line) intersects the Illinois state line. A state historical marker, about 15 miles south of Platteville, marks the spot.

Most Congressional Townships were subsequently organized as "civil towns" which still exist today. Two examples:

- The Congressional Township originally designated "Town 7 North, Range 9 East" was organized as the "Town of Madison." Fragments of the Town of Madison still exist, in spite of a century of piecemeal annexations by the City of Madison and the Villages of Maple Bluff and Shorewood Hills.

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CHAPTER 24 OFFICERS

CHAIR:

Leonard Charles (WISC-TV)
W - 271-4321
H - 274-0041

VICE-CHAIR:

Fred Sperry (WI Public TV/TOC)
W - 264-9600
H - 833-6074

SECRETARY:

Kerry Maki (WMSN TV)
W - 833-0047
H - 835-5195

TREASURER:

Paul Stoffel (WI Public TV)
W - 263-2175
H - 241-4621

COMMITTEE APPOINTEES

Program Committee:

Mark Croom	271-1150
Denise Maney	277-8001
Kerry Maki	833-0047
Steve Zimmerman	274-1234

Membership: Leonard Charles

Sustaining Membership: Stan Scharch

Strategic Plan: Dennis Behr

Special Events: Kevin Ruppert

Certification and Education:

Jim Hermanson (Past-Chair)
Tim Trendt, UW-Platteville

Frequency Coordinator: Tom Smith

work 608-263-2174
home 608-837-2729

Chapter Liaison: Steve Peck 608-246-9797

SBE National Vice-President & Liaison:

Terry Baun (Chapter 28 Milwaukee)
414-449-5300 (voice)
414-449-5380 (fax)
414-873-7807 (BBS)

April Business Meeting Minutes



Chapter 24 of the Society of Broadcast Engineers met on Tuesday April 26, 1994 at WISC-TV's studio in Madison. Total attendance was 29. SBE members totaled 25 of which 17 were certified.

Chair Leonard Charles called the meeting to order at 7:00 p.m. March Minutes were approved as printed in the newsletter.

Treasurer and Newsletter Editor Paul Stoffel reported a checking account balance. The newsletter deadline is May 9, with the folding session set for May 11, 1994. Paul also indicated he would like to turn the newsletter editor position over to someone else. If you are interested please contact Paul.

Nominations Chair Dennis Behr reported nomination procedures are moving along. Chapter 24 elections will be held next month (May 25). Ballots will be enclosed with the next newsletter and supplied at next months business meeting.

Membership Chair Leonard Charles reported a total membership of 68. Newsletter copies sent out total 168 including sustaining members. If you haven't paid your SBE membership dues for this year, you currently are in arrears.

Sustaining Membership Chair Stan Scharch reported membership is holding steady at 24.

Dennis Behr, Strategic Planning Chair, suggested after the elections, that new officers get together for a half day session on strategic planning for Chapter 24.

Denise Maney of the Program Committee, reported next months program will be at the UW Hospital & Clinics and will showcase the technology used there. Paul Stoffel indicated MRC in Brookfield was willing to provide a tour of their new facility if there was enough interest. The tour would be June 30.

Special Events Chair Kevin Ruppert received many positive comments about the breakfast program held recently, at which Richard Schaphorst of Delta Information Systems discussed measurement techniques for evaluating codec performance.

Certification Chair Jim Hermanson reported 6 people will be taking the certification exam June 5th through 15th. Jim also reports he has the new 1994 Radio Operator Certification forms and some Maintenance of Recertification forms.

Frequency Coordinator Tom Smith has been working on several radio STL's.

In news from the national office, Chair Leonard Charles reminded everyone the National is holding a new membership contest through May 31. Also in an effort to keep the membership up-to-date, Broadcasting Magazine is running an SBE column.

In old business, Chair Leonard Charles reminded all that the Summer WBA/SBE Engineering Conference will be July 12, in Door County. This years Broadcaster's Clinic will be held November 8-10. Dennis Behr on behalf of the UW-Platteville, wanted to thank all who attended the second annual UW-Platteville's Spring Broadcasting Symposium.

There was no new business.

The meeting was adjourned at 7:20 pm. At this time Chair Leonard Charles introduced Chris Cain who updated the membership on the progress of the UW-Candelabra Tower Project. Afterwards there was a program and tour of WISC's new satellite newsgathering vehicle built by ROSCOR Corporation.

Secretary, Kerry Maki

SHORT CIRCUITS

SBE National News

SBE MEMBERSHIP DRIVE

One more month to go to recruit your member during the SBE membership drive - "One New Member". Until May 31, SBE members who recruit at least one new will be eligible to win the Grand Prize - A Trip for Two to Los Angeles for the SBE Engineering Conference, October 12-15! The prize includes air transportation on Continental Airlines from anywhere in their system within the 48 continental United States and first class hotel accommodations for five nights at the New Otani Hotel and Garden in downtown LA. Full Conference and World Media Expo registration, complimentary spouse tour program and \$100 credit towards a rental car from Hertz are all a part of the Grand Prize. For each new member you recruit, your name will be entered into the drawing. Other winners will receive a publication from the SBE Book Store or a SBE Certification Study Guide. All SBE members should have received Membership Drive information in the mail. Check yours for official rules and details.

REVISED CHAPTER MANUAL RELEASED

SBE is now distributing a revised edition of the SBE Chapter Manual. The Manual is designed to help chapter leadership in organizing and operating a local SBE chapter. The manual

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Milwaukee
Madison
Chicago

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Jim Braun
District Sales Manager

Video Images, Inc.
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PRESIDENT

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COTTAGE GROVE, WI 53527 (608) 839-4075

PSCs

Continued from page 1

there is 120 MHz of spectrum available for licensed services. The services will be wide-area in nature with base station powers of up to 100 watts and tower heights to 300 meters. Mobile units will be allowed a power limit of 2 watts.

The frequencies will be split up into two 30 MHz blocks, one 20 MHz block and four 10 MHz blocks. This will allow for up to seven providers per service area. Present cellular providers will be limited to one license for no more than 10 MHz. This will allow cellular companies to use their current expertise and give an early start to PCS, but not give them an unfair advantage. Other licensees will be allowed up to 40 MHz of spectrum.

Local exchange carriers (local phone company) will be allowed the same entry rights as any other provider unless they also hold a cellular license, then, they will be restricted to 10 MHz of spectrum. The FCC hopes the allocation plan will allow for up to seven providers in an area. By allowing for a greater number of providers, the FCC hopes to foster diverse offerings from both large and small businesses.

The PCS services in the 900 MHz band is to be used for advanced voice paging, two-way acknowledgment paging, and one- and two-way data messaging and facsimile services. Three 1 MHz bands are allocated from 901-902, 930-931 and 940-941 MHz. Two MHz will be allocated now and one MHz at a later time. The bands will be split up into 21 paired groups of 50 KHz with a return channel of 50 or 12.5 KHz each. There will also be five 50 KHz and eight 12.5 KHz unpaired channels. The channels will be allocated on a national, regional or trading area basis. No entity can hold more than three licenses in any one area. Authorized operating power will be 3500 watts at 183 meters for base stations and seven watts for mobile units.

The service areas will be based on Rand McNally's defined Trading Areas. A license term will be for a term of ten years and will be awarded on competitive bidding as mandated by Congress in the Budget Reconciliation Act of 1993.

Four entities were awarded pioneers preference in the new PCS services because of their contributions to the development of PCS. In the 2 GHz band, they are American Personal Communications for their developments in frequency sharing, Cox Cable for their PCS/Cable interfacing and Omnipoint Communications for equipment for spread spectrum technology. This preference is for the 47 largest trading markets in the country. In the 900 MHz band, Mobile Telecommunication Technologies Inc. received a nationwide 50 KHz channel preference for development of a multi-carrier 24 kbs data system in a single 50 KHz channel. As a reward for their effort in developing a service, a pioneer preference guarantees a license to the grantee, if they are otherwise eligible and without challenge from other applicants.

To meet future wireless communication needs, the FCC has given the new PCS service the flexibility to develop new services within the FCC's framework.

The May issue of BYTE magazine has additional information on PCS computer applications.

This Article is based on releases in the FEDERAL REGISTER from the FCC rulemakings on Personal Communication Services.

Jim Rogers
Western Regional Sales Manager

Western Office 12612 Arabian Way Poway, CA 92064	TEL: (619) 748-2151 FAX: (619) 748-1879 C-Serve: 70410,2032
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Regional Sales Manager

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FAX 608/836-1848

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Branch Manager

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Milwaukee, Wisconsin 53204
Phone: 414-223-2600
FAX: 414-223-3434

SCHARCH ELECTRONICS CO.

Small Business Communications
1105 Middleton Street
MADISON, WI 53717-1078
(608) 831-2266 (800) 831-2266

Fiber Optic OSP

Continued from page 1

- The Congressional Township originally designated "Town 6 North, Range 9 East" was organized as the "Town of Fitchburg." Even though Fitchburg subsequently incorporated itself as a city, most of its boundaries still follow the original USPLS survey lines laid down 130 years ago.

Using USPLS designations, it is possible to cite any 40-acre parcel in the entire state by specifying five parameters:

Quarter-quarter section.
Quarter section.
Section number.
Town number north.
Range number east or west.

Example:

NE 1/4, SE 1/4, Section 25, Town 7 North, Range 8 East
or, as it's commonly abbreviated,
NE 1/4 SE 1/4 Sec 25 T7N R8E

The boundary lines established by the USPLS are still in use today. In many places, on-ground evidence of the original boundary lines is readily apparent: the centerline of a road; an old fence line; an old tree line. The distinctive grid pattern formed by these boundary lines is clearly visible from the air.

USPLS boundary lines form the basis of most land-records systems in use today. Most government agencies use USPLS-based mapping systems for land subdivision records, property tax-collection records, and roadway right-of-way records. Utility companies of every description — natural gas, water, sewer, electric power, telephone, and cable television — use USPLS-based mapping systems for OSP records.

BASE MAP

The base map is the starting point for the preparation of an OSP mapping system. The base map should show, at a scale of 1" = 400' or larger, at least the following: property lines, highway right-of-way boundaries, railroad right-of-way boundaries, and municipal boundary lines. The base map also may show significant topographic features such as lakes, rivers, roadway curb lines, and railroad tracks.

The base map is usually an existing map obtained from a local government or a local surveying firm. In most Wisconsin counties, base maps are available from the county government. They are identified by such terms as "survey maps,"

"section maps," "quarter-section maps," or "tax-parcel maps." Depending on the map scale, each base map may contain one section, one quarter section, or one quarter-quarter section.

In Dane County, section maps at a scale of 1" = 400' are available from the office of the County Surveyor. Quarter-section maps are also available to show more detail in congested areas.

It should be noted that quadrangle topographic maps, published by the U. S. Geological Survey, are usually not satisfactory as base maps. There are three reasons for this:

- USGS maps do not show roadway and railroad right-of-way boundaries.
- With a few notable exceptions (cemeteries, military reservations, Indian reservations), USGS maps do not show property lines.
- The boundaries of USGS maps are based on latitude and longitude. Unlike USPLS survey lines, there is no on-ground evidence to indicate the location of latitude and longitude lines.

Figure 1 shows a portion of a typical base map.

ROUTE MAP

The route map is the base map after the addition of the fiber network route and all related information. The completed route map should show the following:

- Highway and railroad right-of-way boundaries.
- Other relevant property lines, including the boundaries of any privately-owned parcels which the fiber will cross.
- Municipal boundaries.
- Significant topographic features which affect cable construction (lakes, rivers, steep grades, rocky terrain).
- Boundaries of major utility easements, such as electric transmission lines and gas transmission lines.
- Landmark buildings (schools, shopping centers, etc.).
- All buildings in which one or more fibers will be terminated.
- All existing utility poles to which the fiber will be attached, and the span distances between poles.
- The actual route of the fiber network, indicating location (overhead or underground).
- The location of all possible fiber splice points.
- The location of all guys and anchors.
- Any other information which will assist the construction crew. Ex-

amples: restrictions on roadway access during rush hours; land parcels to be avoided because of hostile landowners; names and telephone numbers of landowners who wish to be contacted prior to construction; potential conflicts with other utilities.

Figure 2 shows the sample base map after the addition of the route information.

DESIGN MAP

The design map is the base map after the addition of the fiber design information. Information shown on the design map includes:

- The fiber route, taken from the route map. If the design is relatively simple, the route map itself can be used, and the design simply added. However, if the design is complicated, considerations of legibility usually make it desirable to create a separate map (frequently on another copy of the base map) which shows only the actual fiber route, and omits such items as span distances, guy locations, and construction notes.
- The actual fiber layout, shown parallel to the route. In most cases, the layout will be shown as a single fiber cable paralleling the route; however, if two or more fiber cables follow the same route, all should be shown.
- The cable reel number to be used for each individual length of cable. As we noted in Part 2 (February, 1994), fiber cable is generally ordered in specified lengths, and each length is pre-cut by the manufacturer and shipped on a separate reel.
- Splice points. Insofar as possible, the number of splice points should be held to a minimum because of the signal loss caused by splices. It is often possible to reduce the number of splice points by running two or more fiber cables in parallel for a portion of the route.

In some cases, the design map also shows how individual fibers are to be spliced at each splice point.

This information may be very simple; for example, if only two cables are to be spliced, and all fibers are to be matched color-to-color.

However, if special splicing requirements exist (such as the situation which would occur if two or three fibers must be split off in a different direction), special splicing instructions are necessary; these instructions may be shown on the design map, or they may be placed on a separate block diagram.

MAY MEETING and PROGRAM



SBE

Society of Broadcast Engineers CHAPTER 24 MADISON, WISCONSIN Wednesday, May 25, 1994

5:30 p.m. Dinner at **Kicks Restaurant**
674 South Whitney Way
(across from Westgate Mall)

6:45 p.m. Meeting and Program at **UW Hospital & Clinics**
600 Highland Avenue
(See directions and map on back of this insert.)
G5 113 Auditorium in Clinical Science Center

**"New Technologies in Sports
Medicine and Orthopedics"**

*Also, Election of
Chapter 24 Officers*

Each year, Chapter 24's program committee offers members a look at technology in a profession other than broadcasting. Dr. John F. Orwin, Assistant Professor, Division of Orthopedic Surgery, UW Hospital, will talk about new technologies in medicine.

Visitors and guests are welcome at all our SBE meetings!

1994 MEETING/PROGRAM DATES

<u>Date</u>	<u>Topic</u>	<u>Presenter</u>
June 23, '94 Thurs.	NOON MEETING@Kick's Restaurant "Emergency Broadcast System"	Jim Engeseth Deputy Dir., Emergency Management for Dane County
SPECIAL EVENT June 30, '94 Thurs.	MRC Telecommunications Tour (Leave Madison @6:15 p.m., rental van or carpooling to Brookfield.) Tour at 7:15 p.m.	MRC Staff

Program Committee: Mark Croom Kerry Maki Denise Maney Steve Zimmerman
271-1150 833-0047 277-8001 274-1234

WBA/SBE SUMMER ENGINEERING SEMINAR PRELIMINARY PROGRAM

TUESDAY JULY 12, 1994

LANDMARK RESORT, Egg Harbor, Door County, WI

- | | |
|--------------|--|
| 8:00 AM | On-Site Registration Table Open |
| 8:30 | Seminar Opening, Welcome to participants and introduction of Steering Committee |
| 8:35-9:15 | "Digital Video Developments"
presented by Panasonic |
| 9:20-10:05 | "New Technologies for RF Systems Maintenance"
presented by Broadcast Communications |
| 10:05-10:15 | BREAK |
| 10:15-11:00 | "Hard Disk Storage for Radio"
presented by Computer Concepts |
| 11:05-11:50 | "MPEG Video Storage on Hard Disk"
presented by Channelmatic, Inc. |
| 12:00-2:00PM | SBE REGIONAL LUNCHEON AND MEETING
Seminar Keynote Presentation
by Evans Associates
"Broadcasting at the Crossroads:
The Information Highway" |
| 2:15-3:00 | "Magneto-Optical Disk Storage"
presented by SONY |
| 3:00-3:15 | BREAK |
| 3:15-4:00 | "Recent Developments in Transmitter Systems"
presented by Continental Electronics |
| 4:00 | Close of Engineering Seminar |
| 4:30-7:00 | WBA Opening Exhibition and Reception.
An SBE Booth will be staffed by representatives of all area chapters. Volunteers are needed for set-up and booth duty. |

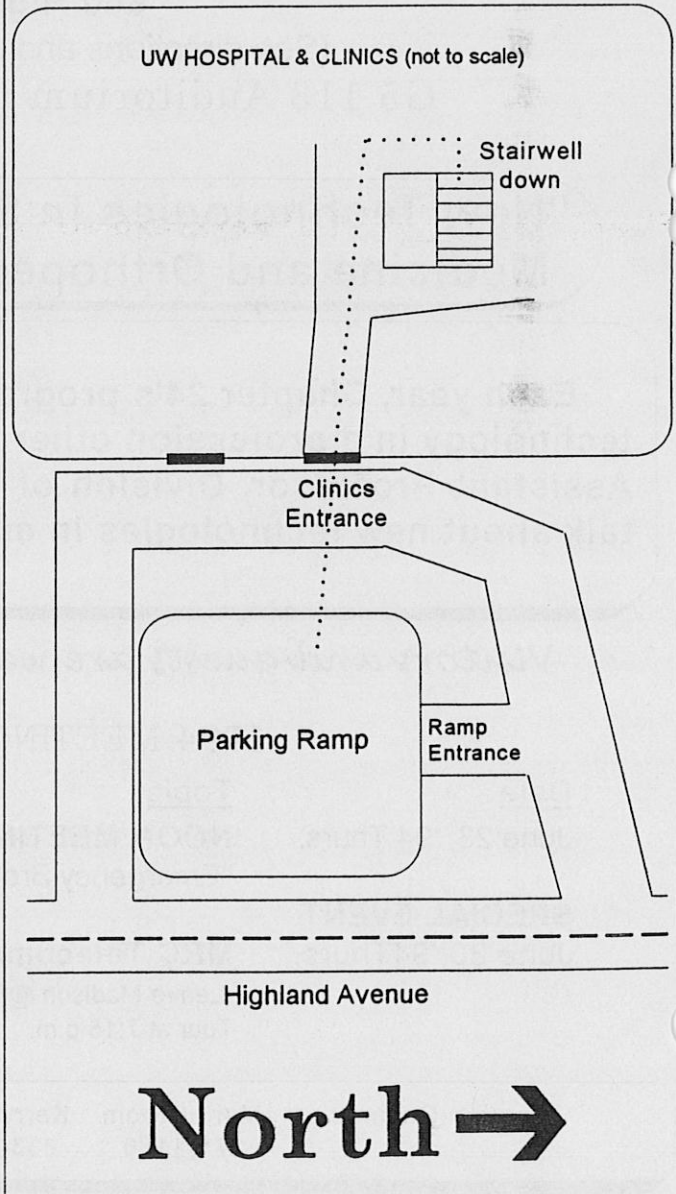
Cost is the same as last year—Just \$25.00 for the entire seminar, which includes the SBE Lunch and keynote address. For \$40.00 you can also attend the exhibits, reception, and evening dinner.

Call 608/255-2600

Directions for May 25 SBE Chapter 24 Meeting and Program: "New Technologies in Sports Medicine and Orthopedics"

From Highland Avenue, enter at east driveway entrance of Hospital. Parking is available in parking ramp.

Walk to building and use north-most Clinics entrance. Down hallway straight ahead to Atrium area. Locate stairwell near OUT PATIENT CLINIC entrance. Down two flights of stairs to G5 113 Auditorium. Entrance to auditorium is in stairwell.



1994 Chapter 24 Election Ballot

PLEASE MARK AN "X" NEXT TO YOUR SELECTION

CHAIRPERSON

_____ Leonard Charles

_____ _____
(write-in candidate)

VICE-CHAIR

_____ Paul Stoffel

_____ _____
(write-in candidate)

SECRETARY

_____ Mark Groom

_____ _____
(write-in candidate)

TREASURER

_____ Stan Scharch

_____ _____
(write-in candidate)

Elections are scheduled to take place at the May 25th Chapter meeting. If you are unable to attend this meeting, you may send the completed ballot to:

Dennis Behr
3319 W. Beltline Highway
Madison, WI 53713

Ballots must be received by noon on Friday May 27, 1994.

Please note that you must be a current member of Chapter 24 to be eligible to vote.

Leonard Charles - Chair

My broadcast career began in 1974 as Chief Engineer of then WAGO AM Radio in Oshkosh. My Radio career included employment at KLEE AM/FM, Ottumwa, IA; KQDS FM, Duluth, MN and WIBA AM/FM, Madison, WI. In 1988, I made the move to Television, gaining employment at WISC TV-3 in Madison. I hold an AS Degree in Electronic Engineering Technology from the Wisconsin School of Electronics, a Diploma in Radio-TV Broadcasting studies from Brown Institute in Minneapolis, a Lifetime General Class FCC certificate and SBE Certification as a TV broadcast engineer. I am past Treasurer of Chapter 24, two term Vice Chairman, and the current Chairman. I served as the SBE delegate to the Dane County Telecommunications Commission until it was dissolved in 1993, and as Chapter 24's first Sustaining Membership Chairman. As past Newsletter Editor, I achieved the National SBE award as Best Newsletter Editor and in 1987 was bestowed with the Chapter 24 Dedicated Service Award. In my spare time I enjoy computer programming, circuit design, and an occasional round of golf.

Paul Stoffel - Vice-Chair

For the past three years, I have served as Treasurer for Chapter 24, and as newsletter editor for the past two years. With an opportunity to contribute to our local chapter by "balancing the books" and, also, by editing a monthly newsletter, I have personally and professionally benefited. Plus, the chapter provides a sense of belonging within our broadcast community whereby we are able to share experiences and concerns.

I have worked in television broadcasting for 19 years. For the past 14 years I have worked for Wisconsin Public Television at both the TOC and Vilas Communications Hall. Presently, I am the Engineering Operations Supervisor of Wisconsin Public Television's production facility in Vilas Hall. I devote my spare time to my wife and four kids, gardening, softball and volleyball.

Stan Scharch -Treasurer

I have been a member of SBE Chapter 24 since 1988. I am certified as Senior TV. It has been my pleasure to serve in the capacity of Sustaining Membership Chair for the past 2 years. I am a staff engineer at WISC-TV where I have been employed for 8 years.

Mark Croom - Secretary

Mark Croom started in radio as a volunteer announcer on the college campus station at Pillsbury College in Owatonna, Minnesota, where he attended from 1980-1984. An interest in Broadcasting led him to study communications, and begin work at KTIG-FM in Pequot Lakes, Minnesota in 1984. While there, he received training in broadcast electronics from Cleveland Institute of Electronics, and began applying his technical skills at KTIG. He was named Chief Engineer in 1987. During the period from 1986-1990, he also began repairing other electronic equipment from his shop at home, and took care of technical needs at KLLR AM and FM in Walker, Minnesota. Throughout the years at KTIG, Mark worked a daily airshift as well as taking care of engineering duties.

In 1990 he accepted the position of Chief Engineer at WCMR-WFRN in Elkhart, Indiana, where he worked for 13 months. Then in 1991 he began work as Chief Engineer at WNWC, Madison, Wisconsin where he works today.

Mark says, "I would like the opportunity to serve SBE Chapter 24 as Secretary to help maintain a "radio" presence on the executive committee, and because I feel I can do a good job it. I have experience serving on Church boards also which could be helpful in working with other members of the executive committee."

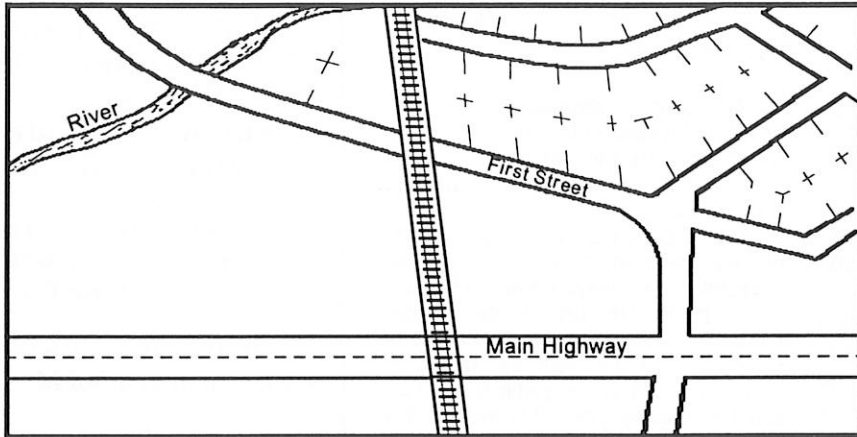


Figure 1: BASE MAP. This is a portion of a typical survey map of the type that would be obtained for use as a base map. Note that: buildings are not shown; roadways are represented only by right-of-way lines; property lines are shown as tic marks; except for the river and the railroad, topographic features are omitted.

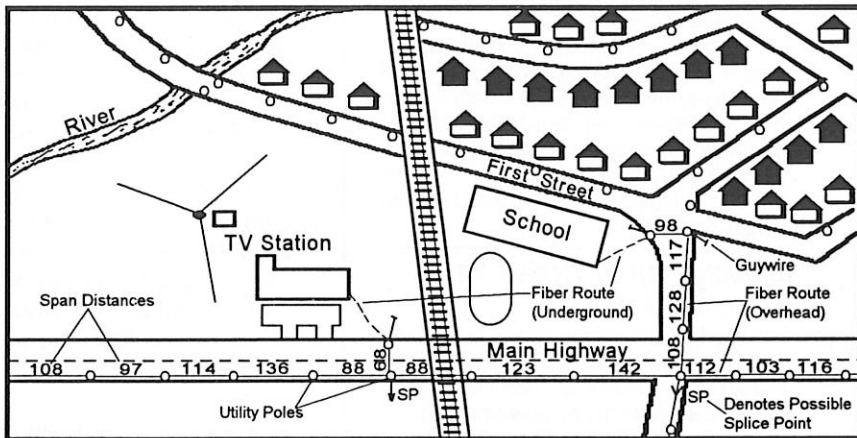


Figure 2: ROUTE MAP. Note the addition of: the proposed fiber cable route; utility poles necessary to support the overhead portions of the fiber; landmark buildings (TV station and school); actual curb lines where driveways and parking lots exist outside of roadway rights-of-way; other significant topographic features (tower; athletic track). Note that the fiber route, and the supporting poles, are shown inside the roadway right-of-way; only the fiber necessary to interconnect the buildings is placed outside of the right-of-way.

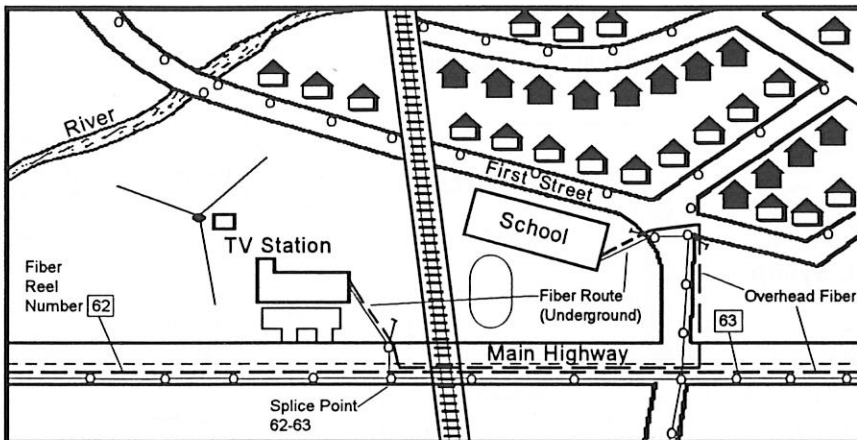


Figure 3: DESIGN MAP. Note that the actual fiber network is shown paralleling the fiber route; a single splice point is used for the fibers feeding both buildings in order to minimize the number of splices; fiber cable reel numbers identify specific reels of cable.

Figure 3 shows the sample base map after the addition of the design information.

CONSTRUCTION CONSIDERATIONS

Both the route map and the design map are generally needed during the construction process. If the network is to be constructed by a construction contractor, both maps should be incorporated into the bid documents and the construction contract.

In the next article, we will discuss the actual construction process further.

Panasonic 

Panasonic Broadcast Systems Company
Division of Matsushita Electric Corporation of America

1707 N. Randall Road, #1-C-3
Elgin, IL 60123-7847
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(708) 468-5160
(608) 493-2519(fax)


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DBS Delayed Again

by Tom Smith

DirecTV and USSB have once again delayed the start of their DBS services. They missed the original start date of April 1 and, also, missed the later date of May 1. They are hoping to start offering the service in select areas later in May.

The delay is due to problems in fine tuning the digital compression system. DirecTV has installed receivers in the homes of employees to evaluate the system and report signal errors. Both parties would like to have all the bugs ironed out before the service is offered to the public.

Neither DirecTV nor USSB expressed concern over the delays and wish to make a good first impression with a flawless system.

(from BROADCASTING&CABLE and TV TECHNOLOGY)

SBE News

continued from page 2

is in a 3-ring notebook and will be updated regularly. The Chapter Manual should be passed on from one Chairman to the next. Its use will help to provide a smooth transition of chapter leadership.

MEMBERSHIP RENEWALS DUE

SBE members are reminded that dues renewals must be received by the National Office by June 30 to preserve your membership standing and avoid any interruption of member services. If your membership renewal notice has been misplaced, contact the National Office. We will be happy to provide you with another renewal form.

Fee Increases Proposed

by Tom Smith

The Clinton Administration has proposed an increase in fees to the FCC paid by broadcasters and other users of the Rf spectrum. They also proposed spectrum royalty fees.

The FCC fee program is slated to start this year and covers part of the FCC's cost of operation and returns the rest of the fees' money to the Treasury. Under the proposal, the fees would allow the FCC to be self-funded. The current fees total \$138 million with \$95 million going to the FCC and the Treasury getting \$43 million. The FCC's proposed budget for 1995 is \$167.4 million.

The second proposal was for a spectrum royalty fee which may total as much as \$5 billion. These funds would go to the Treasury to offset costs due to the GATT free-trade agreement.

Both the broadcast and cable industries voiced their objections to both sets of fees. Also, the leaders of the committees in both the House and Senate voiced concerns over the fees that would fund the FCC, but did not totally object. Sen. Hollings and Rep. Dingell did object to the spectrum royalty fee.

COMING UP IN THE NEXT "SBE SIGNAL"

The May/June issue of the "SBE SIGNAL," due out the first week of June, will include information and a nomination form for the SBE National Awards program.

Also, initial registration and housing information for the SBE Engineering Conference and World Media Expo will be included.

Learn about four new videos which have been added this month to the SBE Video Library.

Read an update on the use of the term "engineer" and the effort going on in one state to overturn legislation which limits its use.

The "SBE SIGNAL" is mailed quarterly to all SBE members.

Announcing the 1994 WBA Engineering Workshop and Regionwide SBE Meeting & Lunch

Tuesday, July 12, 1994
Landmark Resort
Egg Harbor, Door County

Registration begins at 8:00AM.
Sessions end at 4:30PM.

The focus on this year's workshop will be:

Systems In Transition: Broadcasting in the 90's

The program committee has a entire day of sessions that will deal with all manner of technological and computerized issues. (See back of program insert.)

Cost for this year's workshop remains the same as in years' past.

\$25.00 Sessions, Lunch and Exhibits.

\$40.00 All of the above plus the WBA Banquet at 7:00 p.m..

The WBA will mail registration information soon.

Program Co-Chairs:
Terry Baun, Chris Cain,
Art Williams, Mark Berg,
Greg Dahl



Chapter 24 BBS
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Chris Cain, Sysop

Leonard Charles is the editor for the Electronic Version of this Newsletter uploaded monthly onto SBE Chapter 24's BBS.

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Radio News

by Mark Croom, WNWC-FM

On April 28th, the Commission released a Supplemental Order regarding the amendment of the Rules to establish a single AM Radio stereophonic transmitting standard. Earlier, the Commission released a Report and Order implementing C-Quam as the AM stereo transmission standard. In the course of this proceeding, the Commission apparently overlooked a number of comments.

Most of the concerns were from parties that allege some technical inferiority in the C-Quam system; areas such as platform motion, loss of coverage, and increased adjacent channel interference. The Commission has stood by its decision, stating that modern C-Quam receivers compensate for the platform motion problem by blending into mono as signal strength decreases, making a transition to mono before the platform motion effect becomes objectionable.

Commissioners further stated that the record of the proceeding shows no complaints of reduced coverage from any of the many broadcasters using the C-Quam system. Finally, the Commission said it found no evidence that currently authorized C-Quam equipment violates the bandwidth standard of 73.44 when used according to the manufacturer's instructions. Essentially the commission said it found nothing in the overlooked comments which would materially affect the issues considered in selecting C-Quam as the AM stereo standard back in November of 1993.

(Information from NAB Radio TechCheck)



Local Legals

compiled by Tom Smith

WHA-TV Channel 21, Madison, WI seeks modification of permit to change ERP to 1127 Kw visual at 453.1 meters. Transmitter location 0.8 km SW of intersection of Mineral Point Road and Junction Road in the Town of Middleton, Dane County, WI.

Amateur Radio News

by Tom Weeden, WJ9H

The Wisconsin Amateur Radio Balloon Association (WARBA) is planning another balloon flight this summer. The unmanned weather balloon is scheduled to launch on June 18 from the Hillsboro, WI area. It will have several radio transmitters and accessories on board. Included will be an 8 mm video camcorder with a 3-watt amateur TV transmitter, a Global Positioning System (GPS) receiver and UHF data transmitter, and a 144-to-440 MHz FM repeater. The balloon is expected to reach an altitude of 100,000 feet which gives approximately 500 miles worth of radio coverage. The last WARBA balloon flight which carried a video transmitter had been received briefly in Arkansas at its peak altitude. The flight's sponsors expect the balloon to burst at 100,000 feet and parachute safely back to earth somewhere in southern or southeastern Wisconsin. Several chase teams are being organized to track and recover the balloon, either by monitoring its GPS-reported position beacons, or by using standard radio triangulation methods.

Commissioners Nominated by Tom Smith

President Clinton has nominated Susan Paula Ness and Rachele Blossom Chong to the FCC as Commissioners.

Ms. Ness will replace Ervin Duggan who left to become the president of PBS. She will be filling a Democratic seat on the Commission. Ms. Chong will fill an empty Republican seat on the Commission.

Both women are attorneys and have experience in communications law. Ms. Chong's husband is project director for a consulting firm to the cellular and digital communications industry. They also have been involved in political activities in their respective parties.

Ms Ness lives in Bethesda, MD and Ms. Chong lives in San Francisco.

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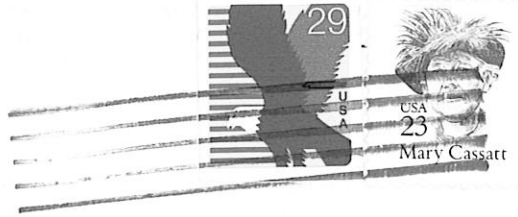
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