Chapter 24
Madison, Wisconsin

Society of Broadcast Engineers *September 1998*

BROADBAND NETWORKS
PART 24 - SIGNAL LEAKAGE CONTROL

By Neal McLain

This is Part 24 in a series of articles about broadband networks. In this article, we'll continue our discussion of leakage with a look at the FCC rules governing leakage.

INTRODUCTION

As we have noted previously in this series, broadband networks are subject to signal "leakage." A leak is a break in the continuity of the sheath which allows RF signals to pass.

Leakage manifests itself in two ways:

• **"Ingress"**: leakage from the outside airspace into the network. This form of leakage disrupts the operation of the network. We discussed ingress in detail in Part 13 (August 1997).

• **"Egress"**: leakage from the network into the outside airspace. This form of leakage disrupts communications services using the airspace.

Egress from broadband networks — particularly cable television systems — is a hot-button issue with the FCC. Obviously, the Commission must protect the users of the over-the-air spectrum from interference. Yet at the same time it recognizes that cable television systems serve a valid public purpose and have compelling reasons for using the same frequency bands as over-the-air users.

Further complicating this issue is the fact that cable television systems

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Next Meeting:

Wednesday, September 16, 1998

NDS ATSC Encoder

Dutch Treat Dinner at 5:30pm

Fitzgerald's of Middleton
3112 W. Beltline Highway

Meeting and Program at 7:00pm

In This Issue:

EAS Update

By Leonard Charles
SBE EAS Committee Chair

The Year 2000 has not spared broadcast EAS equipment. The magnitude of its effect depends not only on the manufacturer of the equipment your station owns, but also on the version of software installed in that equipment. The SBE EAS Committee is in the process of surveying all seven certified EAS equipment manufacturers to determine the scope of the problem. The results of the survey should be available on the SBE web site by mid October 1998, in plenty of time to head off January 1 of 2000.

The FCC is informing the State Emergency Communications Committee Chairs that the EAS Authenticator Lists will be discontinued starting in 1999. Expect a public notice soon. The SBE will publish it on its Home Page EAS section when it becomes available.

Following an August meeting with the National Weather Service in Wisconsin, SECC Chair Gary Timm announced that the new Lake Michigan location codes as well as other miscellaneous inland codes will be dropped from SAME messages originated from the Sullivan office. These codes were pre-programmed in the new semi automated SAME origination consoles installed earlier this year and were causing problems with Wisconsin broadcasters' EAS decoders.

The elimination of these codes is a temporary fix to the problem. Eventually, the NWS will be using the codes permanently. The hope is that the codes will not be re-introduced into operation until NOAA Weather in Washington DC releases an entire

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August Business Meeting Minutes

Chapter 24 of the Society of Broadcast Engineers met on Tuesday, August 25 at the National Weather Service Office in Sullivan, WI. There were fifteen members and four guests present.

The meeting was called to order by Chair Fred Sperry at 7:15 PM. Minutes of the July 1998 meeting were read and approved as published in the August newsletter.

New Business: Chair, Fred Sperry, reported that we have two new Sustaining Members, bringing the total to 28. He also congratulated two Chapter 24 members who received National SBE Awards:

Leonard Charles, Broadcast Engineer of the Year

Tom Smith, Best Chapter Frequency Coordination Effort

Kevin Ruppert reported that we will be able to tour the Harris/ PBS DTV Express on September 22; plan to car pool and leave Madison by 4 PM for a 5-7 PM tour time slot.

Steve Zimmerman reported that our October meeting will be held on Wednesday evening, October 21, 1998, at the Broadcast Clinic.

Certification: Jim Hermanson reported that four people have signed up to take SBE certification exams.

Frequency Coordination: Tom Smith is reviewing the latest proposed rule-making threatening our 7 GHz band.

New Business: Wednesday evening program for Broadcast Clinic has been lined up.

Chapter 24 is in the running to host the 1999 SBE National Convention

Tom Weeden, WMTV, asked about how other stations handle waiver requests from satellite receiver owners to view national network feeds. A discussion followed.

Tom Smith, Frequency Coordinator, reminded all stations to report frequencies and upcoming uses of RF devices, especially for the fall sports season.

The Business Meeting was adjourned at 7:42 PM

Mark Croom then introduced Steve Davis from the National Weather Service. Mr. Davis led the evenings program, a tour and demonstration of the new NWS facility.

Submitted by Lloyd Berg, Secretary

CERTIFICATION PROGRAM CHANGES

By Jim Hermanson,
SBE Chapter 24 Certification Chair

In an August 13th letter to all SBE Chapter Certification Chairs, David Carr announced his resignation as Chairman of the National Certification Committee. Citing an extremely busy schedule, he felt that he could not devote the time necessary to keep the certification program moving forward.

Ed Miller, SBE President has appointed Terry Baun as the new chairman. Terry has served for many years in various capacities, including SBE National President. He has also served as a member of the National Certification Committee for several years.

In an August 18th letter to all SBE Chapter Certification Chairs, Terry Baun announced some of the goals that he brings to the National Certification Committee. Following are the goals mentioned in his letter.

First, a new generation of study guide/reading list materials is in active development. These tools are intended to be the best tools possible for growth and for preparation for real-world exams. When complete, a heavy emphasis will be put on marketing them. The intent is to make the Certification process as accessible as possible for engineers.

Second, the application process will be made easier by shortening the "waiting period" and adding additional exam dates. Two more local exam sessions will be added, starting next year, with new testing dates in February and August. See the following table for the remaining exam date for this year,

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AMATEUR RADIO NEWS

By Tom Weeden, WJ9H

• NASA has scuttled plans to include the Space Amateur Radio Experiment (SAREX) payload aboard shuttle flight STS-95 this fall. That's the flight that will carry Senator and astronaut John Glenn into space. NASA flight managers also removed nine other secondary payloads because of time constraints on the already-busy mission. Five schools which had been tentatively lined up for radio schedules to talk with the shuttle will be first in line for consideration on future SAREX missions, such as next year's STS-93 and the International Space Station.

• Despite numerous setbacks, Amateur Satellite Corporation (AMSAT) officials again express tentative confidence that the advanced "Phase 3D" satellite will some day ride aboard an Ariane 5 series vehicle—or another compatible launcher—perhaps next year. That's a change from the glum mood of last June, when the European Space Agency dropped the Phase 3D payload from the Ariane 5 "proveout" series, replacing it with a dummy Eutelsat payload. AMSAT-NA Executive Vice President Keith Baker, KB1SF, said that AMSAT still considers the Ariane 503 test important, even though Phase 3D won't be aboard. Baker said AMSAT continues to be optimistic that Phase 3D will be a standby passenger for the European Space Agency program.

• The first major storm of the Atlantic hurricane season, Hurricane Bonnie, hit the North Carolina coast on August 26. Hams at shelters provided communication support and backup, and handled outgoing health-and-welfare traffic. Hams also staffed emergency operations centers. In Texas, meanwhile, the remnants of Tropical Storm Charley flooded parts of South Texas, leaving much of the town of Del Rio underwater. At least 15 deaths in Texas and Mexico were blamed on the floods. Hams in South Texas were asked August 24 to cooperate by recognizing a voluntary communications emergency and relinquishing frequencies on 40 and 75 meters for emergency and health-and-welfare traffic.

(Excerpts from September 1998 "QST" and "The ARRL Letter")

Chapter 24
World Wide 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.

Broadband Networks Part Twenty-Four (continued)

utilize frequency bands which overlap non-broadcast bands. Four of these bands are particularly critical:

- Aeronautical Radionavigation
- Aeronautical Mobile
- Amateur Radio
- Public Safety Communications

On several occasions, the FCC has found itself caught in the middle of jurisdictional battles between users of the over-the-air spectrum and the cable television industry. At one time or another, the FAA, the ARRL, and NABER have all submitted interference complaints to the FCC, accompanied by demands that FCC prohibit cable systems from using conflicting frequency bands (see Sidebar, page 6).

As a result of these complaints, the FCC has established a number of regulations designed to control egress. These regulations are contained in Part 76, Subpart K, of the Code of Federal Regulations. Part 76 covers Cable Television Service generally; the technical standards set forth in Subpart K apply to all broadband networks, CATV or otherwise.

The specific rules affecting egress are:

76.605(a)(13) - Maximum Permissible Leakage Level
76.609(h) - Leakage Measurement Procedures
76.610 - Operation in FAA frequency bands
76.611 - Basic Leakage Performance Criteria
76.612 - Frequency Separation Standards
76.613 - Interference from a Cable Television System
76.614 - Regular Monitoring
76.615 - Notification Requirements
76.616 - Operation near Critical Frequencies

In this article, and continuing next month, we'll discuss these rules in detail. This month, we'll concentrate on four rules which apply to all cable television systems without regard to the signals actually being carried: 76.605(a)(13), 76.609(h), 76.613, and 76.616.

76.605(a)(13) - MAXIMUM PERMISSIBLE LEAKAGE LEVEL

This rule specifies the absolute level of permissible egress, expressed in microvolts per meter at sync peaks, at a specified distance from the leakage source:

FREQUENCY BAND (MHz)	EGRESS LIMIT (MICROVOLTS PER METER)	DISTANCE IN METERS
0 - 54	15	30
54 - 216	20	3
216 +	15	30

This is a very old rule, dating back to the early 70s when the FCC first began to regulate the cable television industry. Although this rule has been largely supplanted by more recent rulings, it remains on the books as an absolute-maximum benchmark.

It's interesting to note how terminology has changed over the years: the 1976 edition of the rules calls signal leakage "radiation," and specifies distances in feet instead of meters.

76.609(h) - LEAKAGE MEASUREMENT PROCEDURES

This rule specifies the procedure for measuring leakage.

Figure 1 illustrates this rule. A resonant half-wave dipole antenna is placed three meters from the leakage source, and the field strength is measured with a field strength meter. The antenna is rotated about a vertical axis and the maximum reading is used.

Complicating the situation are three further stipulations:

- The antenna must be placed at least three meters above the ground.

- The antenna must be placed at least three meters away from all other conductors.

- The antenna must be placed directly below the leakage source.

On a typical joint pole, it's no problem staying at least three meters away from electric power conductors. But it's obviously impossible to stay three meters away from the telephone cable if the telephone cable is below the CATV cable — precisely where most telephone companies put it.

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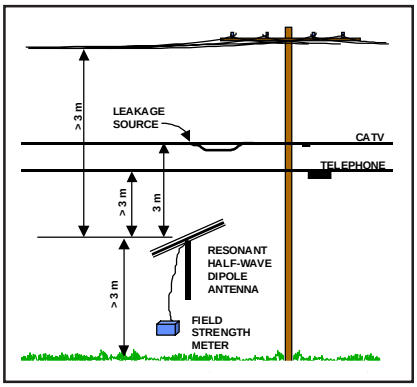

Figure 1. Signal leakage measurement setup specified by the FCC. The dipole antenna must be placed three meters below the leakage source, at least three meters above the ground, and at least three meters away from all other conductors.

Broadband Networks Part Twenty-Four (continued)

Fortunately, there's an exception which allows measurements to be made at one side rather than directly below the leakage source. By placing the antenna three meters to the side, at the same height as the CATV cable, it's usually possible to comply with all separation requirements. A conscientious field technician can take readings three meters away from the leak in several directions (below and on each side), and use the maximum reading.

The frequency used for this reading is not specified. By implication, readings must be taken at all frequencies carried on the network (which would, of course, mean retuning the dipole antenna for each frequency). As a practical matter, the FCC usually accepts readings made at just one or two test frequencies.

The rules do not specify anything about the meter itself except that it shall be "of adequate accuracy." Presumably, any standard field-strength meter can be used. One of the earliest field strength meters used in the cable industry was manufactured by Texscan. Texscan took their standard unit (originally designed for the broadcast industry), and made a few special adaptations for the cable industry: a high gain preamp for greater sensitivity, and a 75-ohm F-type input connector.

A wide variety of leakage-measurement equipment is available today (see Figures 2 and 3).

76.613 - INTERFERENCE FROM A CABLE TELEVISION SYSTEM

This is the catchall rule: it says that, anything else notwithstanding, a cable television system (and, by implication, any broadband network) shall not cause harmful interference to any authorized service using the over-the-air spectrum.

The enforcement provisions parallel those found in other parts of the FCC Rules: the owner of the network must correct the interference or cease operations, and the Engineer in Charge of the local FCC field office has the right to enforce it.

Technically, this rule applies only to cable systems which utilize frequencies in the aeronautical bands (108-137 MHz; 225-400 MHz). This seems like a moot point, however: if an Engineer in Charge says "cease operations," technicalities don't matter.

76.616 - OPERATION NEAR CRITICAL FREQUENCIES

This rule prohibits operation of network carriers near international distress frequencies. The specific rule prohibits operation of any carrier which meets two criteria:

• Falls in any of the following bands:

121.5 MHz ± 100 KHz
156.8 MHz ± 50 KHz
243.0 MHz ± 50 KHz.

• Exceeds a power level of +28.75 dBmV (10^{-5} watts) at any point in the distribution system.

To understand how this rule works, we have to identify the frequencies and locations in the network where signal levels are greatest.

We know from previous articles that:

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Figure 2. Measuring egress with ComSonics leakage-detection equipment, Flint, Michigan, 1982. The pickup antenna is a helical coil inside a plastic housing, an arrangement accepted by the FCC based on tests provided by the antenna manufacturer.

Figure 3. ComSonics leakage-detection meter. For simplicity, the meter is calibrated in red, yellow, and green bands rather than microvolts per meter. Red indicates an excessive egress level.

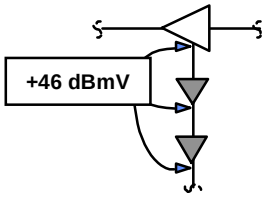
Broadband Networks Part Twenty-Four (conclusion)

• Visual carriers are the strongest signals carried on a cable television network.

• Maximum signal levels occur at the output the amplifiers which drive feeders: bridger amplifiers and line extenders.

This tells us that the highest signal levels anywhere in the network are visual carriers at the outputs of bridgers and line extenders.

This level varies from network to network. A typical value is +46 dBmV:



Since +46 clearly exceeds +28.75, it is immediately obvious that we can't put visual carriers in any of the prohibited bands.

Other FCC rules require that aural carriers operate at levels between 10 and 17 decibels below visual carriers. Thus, the permissible range of aural carrier levels is +29 to +36 dBmV. These levels also exceed +28.75, so we can't put aural carriers in the prohibited bands either.

As it happens, this prohibition is not a problem for any cable television system which utilizes one of the three frequency plans we discussed in Part 16 (November 1997). The prohibited bands fall in cable channels 14, 20, and 27; however, they do not conflict with any aural or visual carrier (Figure 4). The prohibited bands overlap only the video sidebands, which are assumed to be below the +28.75 dBmV maximum.

Next month, we'll continue with this discussion of leakage with a look at the FCC rules applicable to broadband networks which utilize carriers in the aeronautical bands.

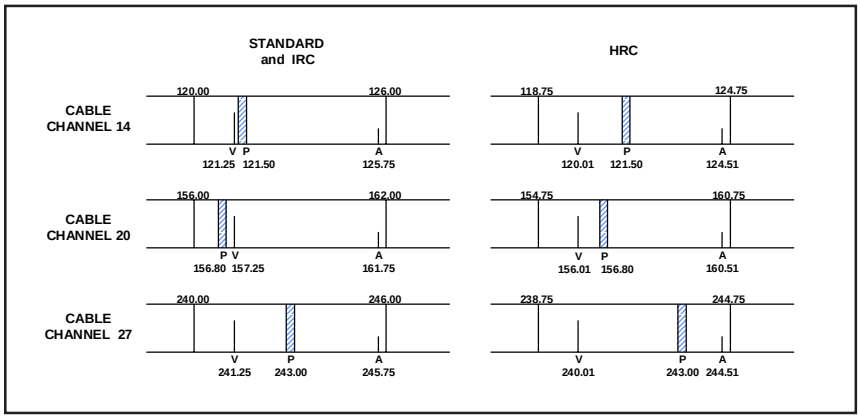


Figure 4. Prohibited frequency bands. A = aural carrier. V = visual carrier. P = prohibited frequency band. Note that the prohibited frequency bands do not conflict with any aural or visual carrier. All frequencies have been rounded to two decimal places.

THE FLINT MICHIGAN LEAKAGE CASE

By Neal McLain

One of the more famous cases involving signal leakage from a cable television system occurred in Flint, Michigan in 1979.

In this particular case, the local cable television operator, Comcast Cablevision, utilized Jerrold "Starline 20" distribution equipment. Starline 20 amplifier circuits utilize the frequency 118.25 MHz as a "pilot" carrier. This carrier is injected into the distribution system at the headend, and provides a reference signal for the AGC circuits throughout the distribution system.

As it happened, the local airport also used 118.25 MHz for ground-to-air communications.

Local pilots were apparently aware of this situation. Some of them had noted that squelch circuits would randomly open, with a burst of buzzing noises, whenever they were flying low over Flint. Although this situation was clearly illegal under FCC rules, Comcast apparently took no action beyond routine monitor-and-repair activities. The local pilots, for their part, apparently worked around the situation: since they were familiar with the occasional bursts of noise on 118.25, they simply ignored the noise, or moved to other frequencies.

One day, however, the inevitable happened: a general aviation pilot from Berea, Ohio was attempting to land at the Flint airport. Not knowing the situation, he tried to communicate with the control tower on 118.25 MHz. He wasn't able to understand the landing instructions; eventually,

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FCC Rulemakings

Compiled By Tom Smith

Please note that there are a number of important rulemakings this month which include a proposal for sharing of the 7 GHz TV band, and important final rulemakings on studio location, public files and the new rules on granting of broadcast stations licenses by use of auctions. As the auction rules are quite long and complex, they will be addressed in a separate article next month.

PROPOSED RULEMAKINGS

CS 98-12
Carriage of Transmission of Digital Broadcast Stations

The FCC has extended the comment period concerning proposed rules about the carriage of digital TV stations on cable systems. Comments are now due on October 13, 1998 and replies are due on November 24, 1998. The original dates were September 30th for comments and October 30th for replies. This notice was adopted and released on August 27, 1998.

ET Docket No. 98-142
Amendment of Parts 2, 25 and 97 of the Commission's with Regard to the Mobile-Satellite Service Above 1 GHz.

The FCC is making a number of new allocations in numerous frequency bands above 1 GHz for use as both uplink and downlink transmissions in a number of Mobile-Satellite Services.

One of the bands the FCC is proposing for an additional allocation is the 6700 to 7075 MHz band. The allocation would be for the use of downlink transmissions from non-geostationary satellites in the mobile-satellite service (Big Leo's). This allocation would be on a co-primary basis with a number of services, including the 6875 to 7075 MHz band used by TV broadcast fixed links such as studio to transmitter links and broadcast and cable TV remote pick-up transmitters. There are also uplinks to fixed geostationary satellites and Amateur Radio Service allocations in the band.

The FCC plan would allow for non-geostationary MSS satellites to transmit signals from the satellite to fixed gateway stations. The FCC is seeking comment on the number of these gateways that would be needed and whether they would be located in rural or urban areas. Information on potential interference, and if meeting proposed limits on interference from a resolution from the World Radio Communications Conference, (the international spectrum planning organization) is also sought.

Comments are due on September 21, 1998 and replies are due on October 5, 1998. This notice was adopted on July 28, 1998 and released on August 4, 1998. It was published in the FEDERAL REGISTER on August 20, 1998 on pages 44,597-44,599.

FINAL RULEMAKINGS

MM Docket No. 97-138, RM-8855, RM-8856, RM-8857, RM-8858, RM-8872
Review of the Commission's Rules regarding the main studio and local public inspection files of broadcast and radio stations.

The FCC has issued new rules concerning the location on the main studio of a broadcast station and made a number changes of the rules concerning the public file that must be keep by all broadcast stations.

The new rules concerning the location of the main studio of a broadcast station have been changed from requiring a station to locate it's main studio within it's city grade contour, to either allowing the locating of the studio within 25 miles from the center coordinates of the city of license or locating within the city grade contour of any other station (AM, FM, or TV) licensed to it's community. The FCC maintains that with better transportation and communications, there can be greater flexibility in locating a stations main studio. Comments varied from deleting the rule to fixed mileage limits of 24 to 62 miles, to various contour limits, to combinations of mileage and contour limits. The FCC decided on the combination method as the easiest to administer.

For those stations that use the contour method, it would be possible for a lower powered AM (1 KW or less) or FM (Class A) that located at the edge of a TV or Class C FM's city grade contour to be unable to receive it's own signal off-the-air. This would be even more possible if the transmitters were on opposite sides of the community of license, and could even be possible for higher power stations located on opposite side of a community.

The rule changes concerning public files will make it easier for stations to deal with the public file rules. Stations will now be required to maintain the public file at it's main studio instead of in the community of license. Stations with studio's outside it's community of license had to have it's files at some law office or library within it's community license to meet the old rule. Applicants for new

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1998 Broadcasters Clinic and Upper Midwest Regional SBE Meeting

October 20-22, 1998
Marriot-Madison West in Middleton, Wisconsin

$155 any two days; $180 all three days

To register by phone, please call 608-255-2600.

Tuesday sessions:

- Digital Signal Processing And The New RDS/RBDS Standards
- Is This The Right Time To Buy A Digital Console?
- Medium Wave Digital Audio Broadcasting: World Developments And Their Impact On Data Services
- Applications Of Network Analyzers In Optimizing Transmission Systems
- What's New In Site Control
- New Developments In Passive RF Technology
- Frame Relay Linked Radio Stations
- Being On-Call: The Collapse And Rebuilding of WOLX

Wednesday's sessions:

- The Future of Wire & Cable
- Surge Suppression For The 21st Century
- DTV in Studio: Handling DTV Signals in your Plant
- DTV Audio
- UHF Television Broadcast Antennas
- Digital STL Transport Solutions
- Preparing For The Year 2000

Thursday's sessions:

- 8VSB And The IOT
- Digital Facility Management Systems: More Than Automation
- Adjacent Channel DTV/NTSC Television Transmitters Using The Diacrode Tetrode Solution
- Video Server Lite Transfer Over Wide Area Networks
- Digital Adaptive Precorrection (DAP): A Must In Digital Transmitters
- An N Minus 1 UHF Combiner and Adjacent Channel Antenna
- 8VSB Transmitter Testing
- DTV Integration and Distribution

FCC Rulemakings (continued)

stations or unbuilt stations would still need to meet the old rules.

Other rules about the public file include requirements for access to the files and the public right to copy. Broadcasters may cover their costs for making copies and now must make copies available by phone request. Stations now must place copies of their FCC authorizations, applications for changed facilities and ownership changes, contour maps, and copies of e-mails in the public file. Time limits for holding some records have been reduced and the FCC will issue a new copy of the manual "THE PUBLIC AND BROADCASTING" via it's internet site. New stations owners will no longer be liable for missing information in the public file that was supposed to be filed by the previous owner. The FCC requests that a good faith effort be made to transfer the file complete and that FCC reports filed by both owners be held for the required length of time.

There are a large number of rule changes concerning the public file, and lack of knowledge of these rules could be costly if a FCC inspector finds that the file is incomplete.

This notice was adopted on July 27, 1998 and released on August 11, 1998. The full text is available on the Mass Media page of the FCC web site under notices as file FCC 98-175.

MM Docket No. 97-234, GC Docket No. 92-52, GEN Docket No. 90264 Implementation of Section 309(j) of the Communications Act-Competitive Bidding for Commercial Broadcast and Instructional Television Fixed Service Licenses; Reexamination of the Policy Statement on Comparative Hearings; Proposals to Reform the Commission's Comparative Hearing Process to Expedite the Resolution of Cases

On August 6, 1998, the FCC adopted rules that require that auctions be held to select new licensees when there are two or more applicants for a new station license, or when two requests for upgrading station facilities conflict. The whole application procedure has been changed with these new rules, and will affect both new and existing broadcasters when filing for new facilities or upgrades.

New application procedures include electronic filing of initial applications for new stations, filing windows for new stations and upgrades, and changes in filing of technical information for new facilities The notice and appendices are about 150 pages and are available on the Mass Media page of the FCC web site under notices. The notice is file number FCC 98-194 and the appendix is file number FCC 98-194a. These rules will take effect in 60 days after being published in the FEDERAL REGISTER. They had not been published as of September 3rd.

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

Broadcast Clinic Scholarship Offered

By Kevin Ruppert

Chapter 24 is offering one scholarship to the Broadcaster's Clinic, taking place October 20 through 22, 1998 in Madsion, WI. The scholarship will be awarded on the basis of the following criteria and maximum number of points accumulated:

1) Must be a current member of Chapter 24.
2) Attendance at 6 of the 12 meetings prior to the October 2 application deadline.
3) Employment in or a student of a broadcast related field.
4) Must have SBE National dues paid for the current year.

Points will be assigned as follows:

a) 5 points for each month applicant has at least one article published in the Chapter 24 newsletter spanning the 12 issues prior to the July 2 application deadline.
b) 5 points for certification, any level.
c) 2 points for each monthly meeting attended in excess of the 6 required.

In the case of a tie, final selection will be by the elected officers of Chapter 24 or by a committee appointed by those officers, excluding any whom may have applied. If more than one applicant, an alternate will also be selected based on the second highest number of points. The scholarship winner will be required to write a summary article to be published in the chapter newsletter.

Scholarship recipient will receive free admission to this year's Broadcaster's Clinic and Upper Midwest Regional Society of Broadcast Engineers Meeting at the Marriott Madison West in October.

Applications should be in the form of a letter which is signed, dated and received no later than October 2. 1998. Please send the application to Kevin Ruppert at the following address:

Kevin Ruppert
WISC-TV
7025 Raymond Road
Madison, WI 53719

CERTIFICATION PROGRAM CHANGES
(continued from page 3)

and exam dates for next year.

1998 Exam	Location	Application Deadline
November 13-23	Local Chapters	September 25, 1998

1999 Exam Dates	Location	Application Deadline
February 10-20	Local Chapters	December 31, 1998
April 20	NAB Convention	March 22, 1999
June 11-21	Local Chapters	April 30, 1999
August 18-28	Local Chapters	July 5, 1999
November 12-22	Local Chapters	September 30, 1999

Third, an ambitious goal of increasing Certification recipients by up to 15% for 1998-1999 is set. This will be done through a combination of increased publicity at the national and local levels, increasing emphasis on the real benefits of Certification at the station level, and an overall upgrade of the quality and relevance of our testing materials.

Fourth, some sort of PC/computer-related certification element will be instituted within the Certification program. This may be as simple as incorporating additional questions within existing exams; it may require creation of a whole new level of certification; or perhaps an "endorsement" to existing levels will be created. This effort is seen as essential in maintaining the skill levels in Certification that are necessary for today's real-world broadcast environment.

Terry Baun looks forward to his new duties as National Certification Chairman and welcomes our input. He, the Certification Committee, Certification Director Linda Godby-Emerick and Assistant Kathleen Moran are dedicated to accomplishing the goals set forth.

If there is anything that I can do for you locally, please do not hesitate to contact me. I can be reached at (608) 274-1234 days; (608) 836-8340 after hours; and via e-mail at jmh@execpc.com on the Internet.

Leakage Case (continued from page 6)

he flew back to Berea.

Nobody was injured, and no property damage resulted from this incident. But the pilot (and presumably his passengers) were understandably upset. The incident was reported to the FAA, which in turn reported it to the FCC.

The FCC took the issue seriously. After several weeks of deliberations, the Commission imposed a $20,000 fine.

Comcast appealed the issue, but eventually paid the fine.

A personal note: in the wake of this incident, Comcast's vice president of engineering left the company. His replacement, Tom Polisf, immediately set out to ensure that all Comcast properties fully complied with FCC rules and regulations.

I was one of the engineers involved in this effort. Over the course of the following year, I visited every Comcast system to perform an "FCC Compliance Audit."

SBE's Short Circuits - September 1998

John L. Poray, CAE
SBE Executive Director

BOARD ELECTS NEWEST FELLOW

The Society of Broadcast Engineers will welcome its newest Fellow inductee during the SBE National Meeting in Bellevue, Washington, October 28. Terrence M. Baun, CPBE, of Milwaukee, has been elected a Fellow of the Society. To be elected a Fellow, a member must have rendered conspicuous service to the Society or made a valuable contribution to the advancement of broadcast engineering. Baun is Immediate Past President of SBE and also serves as Certification Committee Chairman (see "Baun Named Certification Chairman" elsewhere in this issue). A complete story about Terry will appear in the November/ December issue of the SBE SIGNAL.

MEMBERS' RESUME SERVICE AVAILABLE

SBE members have begun taking advantage of the new Resume Service which opened July 1. One member has already found new employment by utilizing the service. Members may submit five copies of their resume to the SBE National Office, along with a short questionnaire outlining individual preferences. They are matched with employers who can request resumes of those on file who generally match the specifics of the position they need to fill. The service is free to members submitting resumes and just $25 for employers requesting resumes. Call Teresa Ransdell or Scott Jones at the SBE National Office to make use of the Resume Service.

CHAIRMEN INPUT SOUGHT ON 2 GHz ISSUE

SBE President, Ed Miller, CPBE, recently mailed a letter to all Chapter Chairmen, requesting input on the Society's future involvement in preserving the 2 GHz BAS spectrum. As of this writing, many responses have already been returned. Chairmen are asked to fax their responses in by September 8 to the SBE National Office at (317) 253- 0418.

BALLOT DEADLINE NEARS

Voting Members are reminded to have their SBE National Election ballots in to the National office by 5:00 pm, September 17. Ballots received after that time will not be counted in the total.

BAUN NAMED CERTIFICATION CHAIRMAN

SBE President, Ed Miller, CPBE, has appointed Terrence M. Baun, CPBE of Milwaukee, chairman of the SBE Certification Committee. Baun replaces David Carr, CPBE, who stepped down from the post at the end of July. Baun is Vice President of Engineering, Cumulus Broadcasting, Inc. and founder of Criterion Broadcast Services. The Certification Committee is responsible for the development of the certification program, setting program policies and developing the exams.

In the announcement, Miller expressed thanks and appreciation to David Carr for his dedicated service as Certification Chairman for the last two years.

CERTIFICATION EXAM PERIODS ADDED

SBE Certification Chairman, Terry Baun, CPBE, has announced that opportunities to take SBE Certification Exams will double in 1999. There will be four 10-day periods when exams can be offered in local chapters. This should provide more flexibility and convenience to members wishing to become certified. It's not too late to register for a November 1998 exam. For more information about SBE Certification, see your Chapter Certification Chair or contact Linda Godby-Emerick, Certification Director at the SBE National Office at (317) 253-1640 or lgodby@sbe.org.

ENNES SCHOLARSHIP RECIPIENTS NAMED

The Scholarship Committee of the Ennes Educational Foundation Trust has announced two recipients of 1998 Ennes Scholarships. Both will receive $3,000 awards, the largest amount ever granted by the Trust.

Receiving the Harold E. Ennes Scholarship is Alex Roman. Alex will be attending the University of California. He is employed by radio stations KVEN/ KHAY/KBBY in Ventura, California.

Receiving the Robert D. Greenberg Scholarship is Skeet Skaalen of Brookings, South Dakota. He is a student at South Dakota State University and is employed at KJJQ and KKQQ radio.

Congratulations to these two recipients as they continue to further their education in broadcast engineering.

SBE OPENS MEMBERSHIP TO YOUTH

SBE's new program targeting high school age students officially began August 1. High school students interested in the technical aspects of broadcasting are invited to become Youth Members. They will receive a special newsletter three times during the school year containing information on school operated stations, post secondary institutions offering broadcast engineering related courses,

(continued on next page)

Chapter 24 On the World Wide Web
http://www.sbe24.org

Steve Paugh is the editor for the Electronic Version of this Newsletter, uploaded monthly onto SBE Chapter 24's web page.

Short Circuits (continued)

scholarship information and age appropriate technical articles. Youth Members will also receive other SBE member benefits including discounts on technical books and seminars and access to the SBE Job Line. Annual dues are just $10. For an application, contact the SBE National Office.

NATIONAL MEETING IN SEATTLE

Check out the August/September issue of the SBE SIGNAL for information about the 1998 SBE National Meeting in the Seattle suburb of Bellevue. It's being held in conjunction with Chapter 16's Electronic Media Expo, October 28-29. Although targeted for those in the Pacific Northwest, anyone may attend the event. It includes technical papers and a large exhibit hall - for free! Ennes Workshops and the SBE National Awards Dinner will both be held on Wednesday, October 28. There is a charge for the Workshop, which includes lunch, and tickets to the Awards Dinner are just $10. Craig Tanner, Executive Director of the Advanced Television Systems Committee, will be the keynote speaker. To register, visit the Electronic Media Expo web site at www.emexpo.org.

The Chapter 24 Newsletter is published monthly. Submissions of interest to the broadcast technical community are always welcome. You can email your articles to:

MNorton@ecb.state.wi.us

or send them to:

SBE Chapter 24
Newsletter Editor
5174 Anton Dr. #15
Madison, WI 53719-4201

EAS Update
(continued from page 1)

listing with the explicit definition of each. Using this official list, the codes can be amended to the rules and EAS equipment can be trained to react properly to them so that both the EAS and SAME systems can again work in harmony.

Future plans of the National Weather Service are to use a synthesized computer voice which turns text into speech to streamline and accelerate the dissemination of weather information. This would be most beneficial when bad weather is approaching and staffing is limited.

There is no set timetable on the use of this in warning situations, though it is already being used in limited service in some non-emergency announcing duties.

Some broadcasters have already expressed concern over the sound of the synthesized voice. It may be a voice that some broadcasters will not allow on their air. Some feel the NWS should adopt a catenated voice similar to that being used in Canada. That would involve some re-engineering and a sizable added expense to a system already partially implemented.

One thing is for sure, if there is not a sizeable objection expressed against the synthesized voice to NOAA headquarters in DC, it will not be changed.

If you have an internet connection you can hear the voice at this address: <http://www.nws.noaa.gov/oso/oso1/oso12/document/crs2txt.wav>. If you have an opinion you should write to: National Weather Service, NOAA Weather Radio, 1325 East-West Highway, Silver Spring, MD 20910.

CHAPTER 24 SUSTAINING MEMBERS

RECENT RENEWALS:

WMSN-TV 47

THANKS TO ALL OUR SUSTAINING MEMBERS:

Alpha Video
BCS Wireless
Belden Wire and Cable
CTI
Clark Wire and Cable
Comark Communications
Fuji Film
Harris Corporation
Hewlett-Packard
Louth Automation
maney-logic
National Tower Service
Norlight Telecommunications
Niall Enterprises
Panasonic Broadcast
Richardson Electronics
Roscor Wisconsin
Scharch Electronics
Skyline Communications
Sony Broadcast
Tektronix
Teleport Minnesota
Token Creek Productions
Video Images
WISC-TV 3
WKOW-TV 27
WMTV-TV 15

SBE

SBE Chapter 24 Newsletter
5174 Anton Drive #15
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FIRST CLASS MAIL

Newsletter edited on Pagemaker 5.0 by: Mike Norton
Contributors this month: Lloyd Berg, Leonard Charles, Jim Hermanson, Neal McLain, Tom Smith, Kevin Ruppert, and Tom Weeden. Thanks to Chris Cain for his work on the Chapter 24 WWW page.

SEPTEMBER MEETING and PROGRAM

Society of Broadcast Engineers
CHAPTER 24 MADISON, WISCONSIN
Wednesday, September 16, 1998

NDS ATSC Encoder

This month's program will consist of an explaination of ATSC encoders, presented by Jim Scupian of NDS.

Dutch Treat Dinner
at Fitzgerald's of Middleton at 5:30pm
3112 W. Beltline Highway
(next to Schoepp Motors)

Meeting and Program
at 7:00pm

Chapter 24 Special Event

Tuesday, September 22nd is the Harris/PBS DTV Express tour for Chapter 24. Plan to car pool from WISC-TV at 4 PM for our 5-7 PM tour time slot. Call Kevin Ruppert at 277-5151 if you want to attend this tour.

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

1998 UPCOMING MEETING/PROGRAM DATES:

Day	Date	Program
Wednesday	October 21	Broadcasters Clinic

Program Committee:	Kerry Maki	Denise Maney	Steve Zimmerman	Mark Croom
	833-0047	277-8001	274-1234	271-1025