FEB. 1991

BULK RATE
U. S. POSTAGE PAID
Permit No. 11
Winneconne, WI 54986

COMMON POINT®

A MONTHLY NEWSLETTER FOR BROADCASTERS

50 cents per copy

Out-Of-State 800-558-0222 Distributed by Electronic Industries Inc., 19 E. Irving, Oshkosh, WI 54901 In-State 800-445-0222

Broadcasters Want FAA To Involve FCC In Setting Airport Interference Standards

The Federal Aviation Administration (FAA) should work with the Federal Communications Commission (FCC) and the broadcast industry before crafting standards to protect airport facilities from harmful electromagnetic interference (EMI), measures that may have the unintended impact of hurting broadcasters and other spectrum users, broadcasters have said.

Strict FAA rules are already in place to avoid RF interference to air traffic control communications and to avoid physical obstruction of airlines by tall structures, such as broadcast towers. Few suitable broadcast tower locations exist, especially in large cities with one or more large airports. New proposed guidelines could make FAA approval for new communications towers nearly anywhere in the U.S. impossible.

The FAA has argued that FM stations and other spectrum users are at the root of some interference problems at airports, threatening their safe operation. But in joint comments on FAA efforts to expand interference rules, the National Association of Broadcasters (NAB) and the Association for Maximum Service Television (MSTV) challenged the assertion, saying that the FAA's methodology was wrong and pointing out that actual FM interference has never been documented at airports to the extent asserted by the FAA's prediction methods. The group also challenged the manner in which previous interference rules have been fashioned.

The issue is not airspace versus airwaves but rather airspace and airwaves, broadcasters said, noting that no one seeks to compromise the integrity or safety of national airspace.

By failing to work with the FCC and other communications licensees, the FAA has proposed rules that "are technically flawed and discriminatory" against the broadcasters and other spectrum users, broadcasters told the FAA. "These proposed rules wholly fail to serve the public interest. Moreover, because of the one-sided input into the formulation of the proposed rules, the FAA has dramatically underestimated the burdens and impacts of its proposals on communications licensees in its flawed regulatory impact evaluation."

Congress passed amendments to the Federal Aviation Act in 1978 requiring the FAA to consider EMI. In response to the congressional mandate, the FAA prepared a computer model outlining possible electromagnetic interference from broadcast towers. The FAA proposed changes to its rules governing spectrum management last fall based in part on that model's predictions.

The groups argued that before any rules are adopted, "a public proceeding, coordinated by the FCC and the FAA, should be initiated to develop specific technical standards" on EMI. "The FAA should rely on the expertise of the FCC," NAB and MSTV said. As the expert federal agency on spectrum management, the FCC has the expertise to resolve any interference problems.Among their criticisms, broadcasters said the FAA has developed interference rules and put them into use without requiring the public comment period required by federal law. For many broadcasters, this has imposed a heavy regulatory burden.

Broadcasters also said the FAA should narrow the scope of its proposed notification requirements, taking steps to exempt VHF television facilities and permit minor facility modifications without FAA notifications and aeronautical study.

The FCC itself agrees that more discussion is needed between the two agencies and that final rules should not be adopted until both agencies come to a mutual agreement after inter-agency discussions. While there have been several meetings between the FAA and FCC to discuss electromagnetic radiation, there apparently exists widely differing views on how to solve the problem.

Many broadcasters feel that the FAA has not taken advantage of the FCC's expertise in the area of EMI before formulating their requirements. As an example, many broadcasters say that the most effective solution would be increased shielding around air navigation devices, however the FAA has tentatively concluded, without citing any study, that more drastic measures are needed.

It would appear that until the FCC, FAA and broadcasters can arrive at a solution that will allow broadcasters to construct and operate stations at locations that they would like, without compromising the safety of air travel, any restrictions now in effect are likely to stay.

*****

Editor's Notebook

By the time this issue of Common Point gets in the mail 1991 will already be at least a month old. Nevertheless, I'll try and summarize some of the things that went on in the broadcast industry during 1990 and some things that will be coming up in 1991.

DAB

Without a doubt DAB (Digital Audio Broadcasting) got more press coverage than any subject since AM stereo. Prior to the NAB convention in Atlanta there had been relatively few articles written about DAB, except for those calling attention to the fact that there would be a booth set up by the European Broadcast Union demonstrating their system. Since that time, every issue of every trade publication seems to have had at least one article on the subject.

Some of the advantages of DAB over conventional AM and FM broadcasting are: Better frequency response and signal-to-noise, no multipath problems, lower power requirements and more efficient use of the frequency spectrum.

As with any new technology, there are a lot of questions that come up. For instance, where can the new service be put in the frequency spectrum and will transmission be via satellite or terrestrial, or will it be a combination of both.

In order to try and solve these problems, a number of study groups have been set up by various agencies, such as the FCC, NAB, SBE, IEEE and Radio Broadcasting (CDRB), headed by Paul Donahue, VP of engineering of the Gannett Radio Division.

Spectrum space for DAB will be one of the main items on the agenda at WARC 1992 as well as being a major item for the FCC in 1991.

At this point the general feeling seems to be that DAB will not become a reality before the year 2000, although there are a few people who feel it could come sooner, possibly by the mid-1990s.

Broadcasters are urging the FCC to "go slow" and not to make any decisions before all the facts and figures are in.

HDTV

Field testing of the various systems is scheduled to begin in April of this year and conclude in April of 1992. The advisory committee's final recommendation to the FCC is scheduled to be made in September of 1992. An additional complication was added to the whole matter when the FCC asked for comments on the possibility of using the UHF UHF-TV portion of the frequency spectrum for DAB. An idea which is not popular with TV broadcasters.

HDTV could show up before DAB but whether it will actually happen is anybody's guess.

AM/FM

One of the continuing problems facing broadcasters and the FCC is what can be done to give AM radio a shot in the arm so that it remains a profitable jbusiness. AM stereo, which was supposed to be such a "shot in the arm," is not being heard from too much these days, but maybe it will be revived as part of the "AM Improvement" package.

A major interest item during 1991 was the implementation of NRSC-2 requirements by June 30. Stations who installed the NRSC-1 equipment by the deadline were assumed to be in compliance with the NRSC-2 without producing measurements to prove it. This will remain in effect until 1993 when all AM stations will have to prove that their emissions are within the required limits. The FCCs field offices did some spot checking of 374 stations and found an unexpectedly high level of compliance.

Some of the other improvements which are being worked on and could become reality in the not too distant future are:

Stations being moved into the expanded frequency band from 1605-1705 KHz. NAB's experimental antenna which is designed to reduce sky-wave radiation and new receiver designs which would implement the NRSC standards and other improvements.

FM broadcast stations continue to be the big money-makers in radio broadcasting but there seems to be a growing feeling that if things continue in the direction they are going, FM will end up with the same type of overcrowding and interference problems that are afflicting AM.

In spite of the problems facing radio broadcasters and that the country's economy is supposed to be in a recession, I am sure that they will survive. One of the interesting points that was brought out at the Broadcaster's Clinic in Madison last November was that a good number of the "professional broadcasters" who own and operate stations are managing to make money at it and are involved in the day-to-day lives of the citizens that they serve. It seems to be the entrepreneurs and real estate investors who are out to turn a quick profit who seem to be having the most problems.

FCC

Look for increased activity from the Field Operations Bureau. Some of their budget has been restored and inspections are becoming more frequent.

In Washington, the commission will have its hands full, what with AM improvements, DAB, spectrum fees, etc.

SBE

The Society of Broadcast Engineers continues to grow both in members and certification numbers. With the FCC having been out of the operator licensing business for a number of years now, certification is the only way to prove you have the expertise to work on broadcast equipment.

The SBE is also trying to push through a requirement to have at least one member of the FCC be an engineer. At the present time this is not the case and to the best of my knowledge the only member of the commission who even has an engineer on staff is James Quello. With all the new technology around and the number of decisions that involve technical matters, it would seem to be simple engineering logic to have someone who understands the technical area. However, since the commissioners are political appointees, we all know there isn't going to be any "logic" involved in the process. While the idea of an engineer on the commission may be a good one, don't look for it to happen very soon as it will be a long, tough road.

Well, there you have my brief summary of some of the areas of broadcasting. In closing I would like to thank those of you who returned the reply card from the last issue. To those of you who haven't returned the card, please return the card in this issue as in the near future we will be trimming our mailing list due to the increased cost of mailing. Thank you.

*****

NEW PRODUCTS

Tascam Introduces New MiniStudio

Tascam, creators of the industry's first line of portable multitrack recorders and mixers, introduced a new entry-level MiniStudio, the Porta 03, at the recent AES Convention.

The mixable mic/line inputs on the Ports 03 can be recorded separately or simultaneously onto any of its four tracks, each of which has its own independent gain and pan control for stereo output.

In addition to switchable Dolby B noise reduction, Tascam's Porta 03 has a 4x2 tape cue mixer, as well as Overload and Signal-present LEDs for each track.

With a tape speed of 1 7/8 ips, the Porta 03 uses high-bias cassettes for recording and can also be used to play back standard pre-recorded stereo cassettes on tracks one and two.

For more information, contact Tascam at (213) 726-0303.

*****

Panasonic Demos New Pro-DAT Deck

Panasonic demonstrated its new full-function Pro-DAT recorder SV-3700 at this year's AES Convention. Introduced at the 1990 NAB show in Atlanta, the SV-3700 is designed for a wide range of applications within broadcast and post-production facilities. The unit features a front-panel shuttle wheel, with 0.5 to 15 times speed range.

"Building on our SV-3500's reputation for sonic integrity, this new third-generation machine's features and functions are enhanced considerably," said Steve Woolley, Panasonic's national sales and marketing manager. "At the analog input we have high-performance, single-bit stream A-to-D converters. At the analog output precision Quad DACs dramatically reduce zero-cross distortion and enhance linearity at low signal levels.

For more information, contact Panasonic at (201) 348-7000.

Audio-Technica Adds To AT871 Uniplate

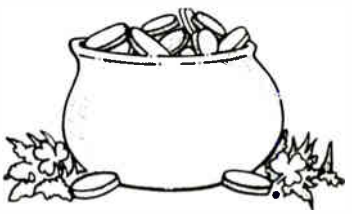
Audio-Technica has added to the AT871 Uniplate microphone series the AT851A Micro Uniplate (a smaller version of the AT871), the phantom-powered AT871R and the omnidirectional AT841A. The series is designed to offer audio specialists flexibility and naturalness for sound reinforcement, conferencing, recording, television and other applications which demand surface mounting and minimum visibility. The AT851A incorporates a Unipoint element in a housing that is less than three inches wide, four inches long and 3/4 of an inch high.

The AT41A Omniplate is suited to situations requiring sound pickup over a broader area and can be battery or phantom powered.

The AT871R is phantom powered with 10dB more sensitivity and is designed to plug into a mic jack with phantom power, providing greater working distance flexibility in a low profile design.

Audio Technica, 1221 Commerce Dr., Stow, OH 44224; (216) 686-2600.

*****



SBE

From SBE Chapter 28, Milwaukee, WI

PROFESSIONAL CERTIFICATION SESSION HELD IN MILWAUKEE ... Cert Chair Rick Ryan organized a special session on Tuesday, December 11 at Video Images for those with 20 years or more of broadcast employment who desired to take advantage of the Professional Certification "window" ending December 31. Here is Rick's report:

On Tuesday, December 11, 1990, Video Images hosted Chapter 28's Professional Certification meeting. Engineers from southeast Wisconsin with 20 years of employment in broadcasting were invited to apply for certification at the level of "Professional Broadcast Engineer." Many local members already holding the PBE certification were present to write letters of reference and recommendation for the new applicants. Thirty-one qualified engineers attended the session, and several additional applications were submitted before the end of the month. The applications were reviewed by Certification Chair Rick Ryan for the local committee and by National Certification Chair Jim Wulliman, who also attended the meeting. All applications have been forwarded to the national SBE office for processing. Members have already begun being notified of acceptance and we should have the results for next month's newsletter.

Rick Ryan,
Chapter 28 Certification Chair

SBE Board Of Directors

The SBE Board unanimously approved the appointment of Marvin Born to fill the unexpired two-year term and Terry Baun to fill the unexpired one-year term on the SBE Board of Directors.

Mr. Baun is the President of Criterion Broadcast Services, a radio broadcast technical consulting and service company. He has been involved in broadcast engineering for over 20 years. He has been active with SBE since 1976, serving at both the national and local level. Mr. baun is a certified SBE Professional Broadcast Engineer.

Mr. Born is the Vice President of Engineering, WBNS Stations, Columbus, Ohio. He has been in broadcast engineering since 1967 and an SBE member since 1977. Mr. Born is a certified SBE Professional Broadcast Engineer and a senior member of the SBE.

*****

VOA Engineer Dies In Transmitter Mishap

A veteran VOA engineer died of cardiac arrest November 15, 1990, apparently induced by a 6,000 volt shock he received while performing maintenance at a transmitter site here.

Based on unofficial reports, Dallas Cox, an engineer and 20-year employee of the VOA, was called to check one of the 10 transmitters at the Greenville-jrelay site after a "faulty indication" had been traced to it.

The transmitter was sending a Spanish program on 6040 kHz when a malfunction was discovered. The program was switched to another transmitter while the faulty one was in repair.

At 5:50 a.m., VOA's network central office in Washington, D.C., received a call stating a man had been electrocuted, was in full cardiac arrest and that "it didn't look good," according to a VOA source.

Based on the preliminary investigation, Cox entered the transmitter after turning off the voltage, , but did not turn off the filament supply. While inside the transmitter, he apparently made contact with some equipment that was still charged, resulting in the severe shock.

This is the first accident at any of the VOA sites in Greenville.

Overall, the VOA engineering staff has had an "exemplary" safety record and operates under comprehensive safety procedures when working with transmitters, according to VOA spokesman Joe O'Connell.

*****

Powers and Marti To Receive 1991 Engineering Achievement Awards

The National Association of Broadcasters has announced that Kerns H. Powers, a consultant with the David Sarnoff Research Center, Princeton, NJ, and George W, Marti, chairman of the board, Marti Electronics, Cleburne, Tex., will be the television and radio recipients, respectively, of NAB's Engineering Achievement Award.

The awards will be presented at the engineering luncheon on Tuesday, April 16 during NAB's annual convention in Las Vegas April 15-18, 1991.

For over 40 years, Kerns Powers has contributed to the development of practical color television systems and new television signal processing techniques. He was a member of the team at RCA Laboratories that pioneered color television development, which led to the current NTSC color television system.

Powers holds 16 patents and has authored numerous papers on communications and television. He is a Life Fellow of the Institute of Electrical and Electronics Engineers (IEEE) and a Fellow of the Society of Motion Picture and Television Engineers (SMPTE).

George Marti revolutionized remote broadcasts for radio using portable microwave transmitters. He built one of the first transmitter remote control units and successfully lobbied the FCC to permit its use. A former radio station owner and engineer, Marti has been instrumental in developing a number of technical improvements adopted by broadcasters worldwide.

Marti has served on the boards of a number of broadcast organizations and was in the business of manufacturing remote broadcast equipment and studio transmitter links for over 30 years.

*****

WVUT Receives Award

Vicennes University's public television station, WVUT Channel 22, is the recipient of a Cable News Network Broadcast Journalism Award. WVUT is one of only 18 college-based television stations to receive the award from CNN.

According to Jack Hanes, chair of the Broadcast Production Technology Department, WVUT received the award in recognition of "our efforts to present students with an in-depth, real-world exposure to broadcast journalism."

WVUT, which will celebrate its 22nd year of broadcasting on February 15, broadcasts both PBS network programming and local programs produced by staff and students enrolled in broadcasting. Students are involved in daily news broadcasts, sports broadcasts, public affairs programs such as "22 Country," and special programs on such topics as elections, drug abuse and literacy.

One educational program produced at WVUT beginning in 1983, "Featherby's Fables," is today distributed throughout the United States and several foreign countries.

According to Hanes, a significant improvement in the daily news broadcasts began last fall with the introduction of CNN News Source video service. "This has made a significant improvement in not only the on-air look of our broadcasts, but has also given our students the final step we've been looking for in recreating a television news atmosphere for their learning experience," Hanes said. He credits VU alumnus David Goodnow, a CNN anchor, with helping to negotiate arrangements with CNN for use of the video service.

Over 200 students are enrolled in the VU Broadcast Production Technology program, making it one of the largest programs at the Indiana two-year college.

*****

Nevin Is BE's CEO

Broadcast Electronics President Lawrence J. Cervon has named former Glenayre Electronics VP John J. Nevin as BE's new Chief Executive Officer (CEO).

Nevin replaces company sales VP Curtis Kring, who was interim acting CEO.

Nevin has worked in the electronics and telecommunication industries for more than 30 years. He previously served as senior VP/GM of Glenayre Electronics, Ltd. and president/CEO of Plexsys Corp.

Nevin also has worked for Quintron Corp., Celwave Corp. and Phelps Dodge Corp. as well as several overseas companies.

Cervon will remain as BE president. He will focus his efforts on long-term planning for BE and its parent company, Cirrus Technologies, Inc.

*****

Zenith, AT&T Propose All-Digital HDTV

Zenith Electronics Corp. and AT&T have entered the High Definition Television (HDTV) race as joint contenders.

The partnership has decided to submit for official testing an "all-digital" system in its bid to establish an advanced television transmission standard for the U.S. Three out of six firms that will bring their systems for testing at the Advanced Television Test Center (ATTC) in Alexandria, VA, now have opted for full-digital over analog or "hybrid" systems.

(Cont. to pg. 12)

New Technology

Ten-Year Battery

Scientists at Sandia National Laboratories (Albuquerque, NM) have developed a battery for military and space applications that can provide power for 10 years. The longevity was achieved by making a number of modifications to existing lithium-sulfur dioxide batteries, which are primarily used by the armed forces for applications requiring long life and high energy density and which experience failure most frequently occurs due to glass corrosion.

The major change made involved the use of a specially developed glass, CABAL 12, that eliminates corrosion in the glass-to-metal seal. Other modifications included using molybdenum as the positive terminal to inhibit corrosion by products of electrolysis, placing a nickel grid in the lithium anode for increased efficiency and using an improved method of attaching the cathode tab to the positive terminal. In addition, by fully annealing the case and increasing the radius of curvature at the bottom of the can, stress was reduced, which eliminated cracking in the steel cell case.

The ten-year-lifespan was predicted based on studies evaluating the performance, reliability and aging characteristics of battery cells over a period of years.

*****

Computerized Auto Convoys To Save Lives, Reduce Congestion

Several billion dollars are likely to be spent by the U.S. before the year 2000 on so-called Intelligent Vehicle Highway Systems (IVHS), according to International Resource Development, Inc. (IRD).

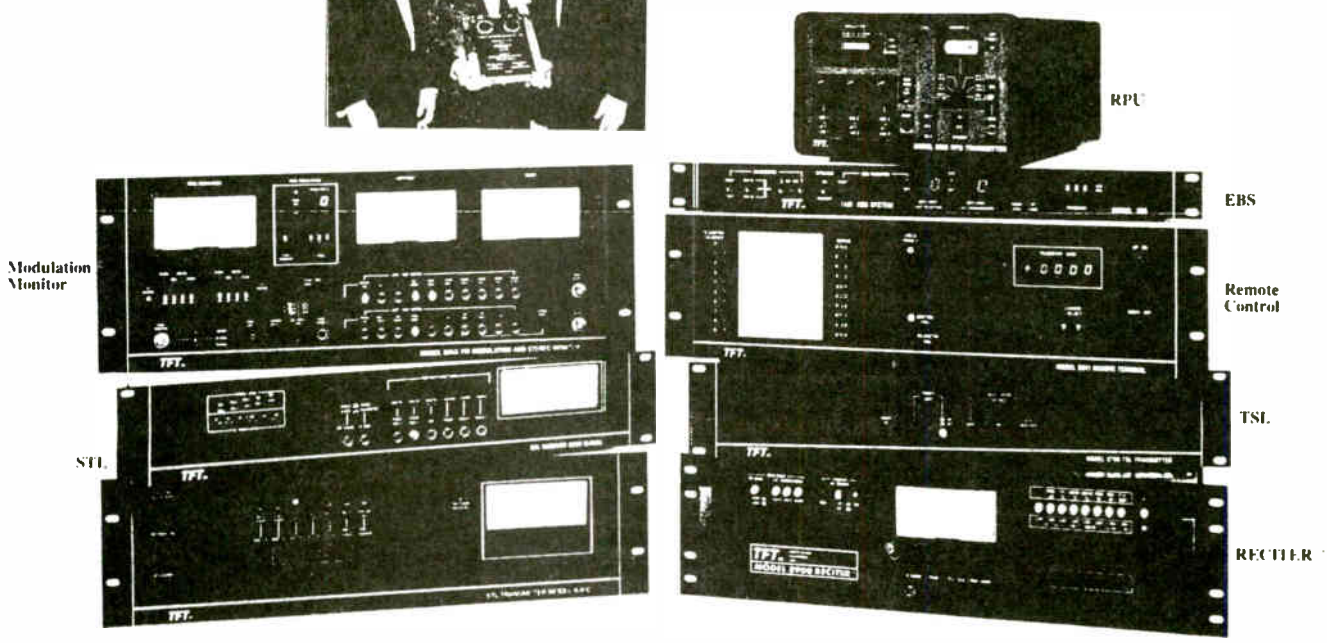
The Connecticut-based market research firm says these systems may eventually permit cars to steer themselves in 100 MPH bumper-to-bumper "convoys" on interstate highways, leading to safer, faster travel and less congestion.

Work by U.S. automobile manufacturers and the Highway Traffic Safety Administration are exploring two kinds of IVHS systems, says IRD. Internal systems are self-contained within the car, using inertial guidance or relying on radio signals from Loran C stations or Global Positioning System (GPS) satellites. External systems use various combinations of beacons, computer networks, buried copper strips and sensor interrogator devices placed along or around highways.

*****

NEW TECHNOLOGY
Cont. to pg. 14

Manufacturer of the Year Award presented to Joe Wu by Director K.E. Bolton and Mr. J. Lira from MBDA, Dept. of Commerce, October 3, 1990.



After 20 years of sound accomlishments, it's time we gave you some credit.

Your response to our innovations helped us reach two decades of success. We've enjoyed worldwide acceptance to our advances in Modulation Monitors, STL, RPU, EBS, RECITER and the Synchronous FM Booster Systems.

Now, we'd like to show our appreciation with a 20th Anniversary Cash Back Program. When you buy 2 or more types of equipment you'll qualify for a special refund from the factory. The chart below shows the amounts you can earn. For detailed information, contact Electronic Industries, 19 E. Irving Avenue, Oshkosh, WI 54901, Out-of-State: 800-558-0222 or In State: 800-445-0222.

For sure, we intend to give the industry more innovations during the next 20.

20TH ANNIVERSARY CASH BACK PROGRAM

You will receive the amount shown below for each type of equipment

When You Buy:	RECITER Models	STL Models	RPU Models	MOD Monitors	EBS Models	TSL Models	REMOTE CONTROLS	CIRCLE AND ADD ACROSS	Maximum Cash Back:
2 types of equip.	$ 520	300	230	170	100	130	260		820
3 types	$ 830	480	370	270	160	240	420		1,730
4 types	$1,250	730	550	410	250	360	630		3,160
5 types	$1,560	910	690	510	310	450	780		4,450
6 types	$1,770	1,030	780	580	350	520	890		5,570
7 types	$1,880	1,090	830	620	380	550	940		6,290

Qualifications: Buy 2 or more types of equipment at the same time. Amount of cash back must be confirmed by EFT at time of order. Invoice for each order must be paid in full. Valid in U.S.A. & Canada. Offer expires July 1, 1991. EFT reserves the right to disqualify any order that does not meet the program qualifications.

FCC NEWS

New Class

The FCC has created a Technician Class for amateur radio licenses that does not require Morse code proficiency. The Novice Class retains the five words per-minute Morse code requirement. The commission also adopted rules that make it easier for handicapped persons to get amateur radio licenses in other classes by allowing exemptions from the five-words-per-minute requirement.

FCC Eyes Spectrum

The FCC will initiate action to reserve spectrum to meet the requirements of new technologies, according to FCC chairman Al Sikes.

In a recent speech, Sikes underscored the need to set aside spectrum for any new technologies, without impinging on the needs of existing users.

Sike's announcement is similar to a provision of legislation introduced into Congress last year, freeing government spectrum for private use.

New AM Chief Named

The FCC has named James R. Burtle as the Mass Media Bureau's new AM branch chief.

Burtle formerly worked in the FM branch, field engineering enforcement and the Low Power Television branch of the FCC.

AM Rule Relaxed

The FCC has relaxed a 1989 AM rule that increased limits on low power AM emissions for such services as college radio stations and travel information services.

The Commission originally adopted the stricter limit to bringing uniformity to Part 15 of the rules of governing operation of radio frequency devices that do not require a license.

FCC Streamlines Comparative Hearings

In order to expedite the resolution of cases, the FCC last week streamlined its comparative hearing process for new applicants. The Commission said the action will substantially reduce unnecessary delays in these cases.

Under the changes, the FCC will:

*Encourage more and/or earlier settlements through earlier payment of the hearing fee, modify the settlement policy to end divestiture commitments made during the comparative hearing process and provide for settlement conferences before settlement judges;

*Expedite discovery through the use of standardized document production orders, and impose time limits on discovery;

*Speed up hearings by encouraging written proceedings and establishing time guidelines for various phases of the hearing;

*Limiting oral arguments and imposing time guidelines on the completion of the review process.

The Commission said settlements can be a significant factor in expediting new services. To further this objective, the FCC said that hearing fees comparative hearing cases will now be due approximately 30 days after the petition to deny deadline (what the FCC calls its "B" cutoff deadline). Because hearing fees will now be paid at an earlier stage in the process, the FCC has established provisions for obtaining fee refunds.

*****

Antenna Tower Inspection May Yield Windfall

The FCC's two-day inspection of antenna towers last month may yield a windfall for the federal treasury. According to FCC officials, of the 1,031 towers checked by FCC field agents across the country, 160 (16 percent) were found to be in apparent violation of safety rules governing their painting and lighting.

As a result, the FCC has begun levying tentative fines (mostly $2,000) against each user--broadcast or nonbroadcast--of the allegedly improper lit or painted towers. Since it is common for a single tower to have dozens of users, a single tower could generate dozens of fines and tens of thousands of dollars.

Regardless of who owns the tower, said Richard Smith, chief of the FCC Field Operations Bureau, "each licensee is separately responsible for lighting and painting."

To protect aircraft, FCC rules require antenna towers to be painted with alternating bands of white and "aviation orange." They also require a flashing light at the top and, on taller ones, lights on the sides.

The FCC inspection found 63 that apparently violated the painting requirement; 71, the lighting rules; and 26, both.

Disappointed by the results of the inspection Smith warned that the FCC will "definitely" conduct another mass inspection of towers. "Compliance is not at a level where we can declare victory and walk away," he said.

But before the reinspection, he said, the FCC will try to educate licensees of every stripe as to their responsibilities and liabilities regarding towers. Part of the educational campaign may include a stop at the National Association of Broadcasters convention next spring, he said.

Versatile Invention For HDTV Passes Initial Tests
ATTC Format Converter Boosts State Of The Art For Testing Advanced TV Systems

The advanced Television Test Center (ATTC) has disclosed the successful demonstration of the process of "format conversion" which permits several different, incompatible forms of advanced television (ATV) signals to be recorded in real time on a commercially available high definition digital videotape recorder.

The demonstration took place in Beaverton, Ore., where the ATTC Format Converter, a new device which accomplishes the conversion process, has been under development by Tektronix, Inc. for the Test Center for the past year and which is expected to be completed soon.

"This demonstration proves possible a better means to help evaluate the very different systems proposed as the new standard for broadcasting," said Peter M. Fannon, executive director of the Test Center. "This is because part of the actual performance of these ATV systems can be videotape recorded for viewing and comparison by government and industry decisionmakers," he added. Without the device, such an evaluation would have had to rely, as in the past, largely on performance claims and separate, but not comparable, demonstrations by system proponents as well as on technical reports and professional assessments by television engineers and analysts.

While the Test Center invented the ATTC Format Converter to respond to the challenge of evaluating advanced television systems, it could find application in related fields, such as systems design, imaging, data storage and other areas of video. The Test Center has applied for a patent on the invention.

The format conversion process is key to the plans of the FCC Advisory Committee on Advanced Television Service for testing the several different advanced television (ATV) transmission systems seeking to become the new U.S. television standard. The Test Center was created in part to support the work of the Advisory Committee, which is the organization chartered by the Federal Communications Commission to advise it on the adoption of a high definition television (HDTV) standard for broadcasting.

The ATTC Format Converter will permit "off-line" analysis of certain videotaped test results. This analysis will include "subjective assessment" of each ATV system by scores of non-professional viewers who will view the tapes in order to help rate the picture quality and other performance characteristics. Such rating tapes can be prepared during the course of a system's technical, "objective" testing at ATTC. Then the tapes can be used for the subjective work on the system, even as another ATV system is undergoing objective testing and its subjective rating tapes are prepared.

The ATTC Format Converter will also be used for creation of many of the official test materials (i.e. video sequences). For the comparative testing planned by the Advisory Committee, identical "real TV" images are needed in each of the four discrete "scanning formats" used by the different ATV systems. Attempting to repeat "live action" pictures during testing will not produce identical images and computer-generated or film-based sequences do not reflect all the electronic video production features of television. So videotape recording of test materials is required.

Only one of the six ATV systems to be tested, however, uses a scanning format for which there is commercially available tape recording hardware to capture its high definition pictures and sound. Therefore, working with this high definition digital video tape recorder (Sony's HDD-1000), which was built to record and playback this one format (1125/60,2:1), the ATTC Format Converter rearranges the signals of the other three formats (1050/59.94, 2:1 and 787.5/59.94, 1:1 and 525/59.94, 1:1) so that they can be recorded. The digitally recorded results must then be played back through the ATTC Format Converter in order to be viewed. The format conversion process is "transparent" and does not affect the content of the original TV signal in any way.

****

PROPOSED ADVANCED TELEVISION TRANSMISSION SYSTEMS BEFORE THE FCC ADVISORY COMMITTEE 1/

	ATV SYSTEM NAME, [TYPE], & PROPONENT (in alphabetical order by system)	SCANNING FORMAT 2/
1.	ACTV: Advanced Compatible Television [E] David Sarnoff Research Center/ATRC 3/	525/59.94, 1:1
2.	Analog Simulcast HDTV [S] North American Philips Consumer Electronics Company/ATRC 3/	1050/59.94, 2:1
3.	Channel Compatible HDTV [S] Massachusetts Institute of Technology	787.5/59.94, 1:1
4.	DigiCipher [S] General Instrument Corporation	1050/59.94, 2:1
5	Narrow MUSE [S] NHK Japan Broadcasting Corporation	1125/60.00, 2:1
6.	SC-HDTV: Spectrum Compatible HDTV [S] Zenith Electronics Corporation	787.5/59.94, 1:1

LEGEND:

1/ From data provided by proponents to ATTC
2/ Number of scanning lines/cycles per second, interlaced (2:1) or progressive (1:1)
3/ Advanced Television Research Consortium (NBC, Philips, Sarnoff, Thomson)

[E] Enhanced NTSC
[S] Simulcast HDTV
ATV Advanced Television
HDTV High Definition Television

MEMO FROM METZ

by
David L. Metz

TELCO RING DETECTION

In a past column I talked about using the Wheellock horn relay to detect the telephone ring signal to flash a light in the studio. Well, as time has stomped onward, better ways have appeared (If you like to build that is).

In the dim past of radio, neon bulbs were used for all kinds of wonderful things. Neat little gadgets, a glass bulb with two wire electrodes filled with a tiny amount of neon gas. They had a kinda cute orange glow when you put about 90 volts through them. You had to have a resistor in series to limit the current and they lasted damned near forever. Think of them as sort of a primative high voltage LED.

They had an amazing list of applications in everything from power supplies to photo cells and audio oscillators. I still use them for fishing for RF in transmitters. All you need to do is tape one (a NE-2) to the end of an insulated stick and go fishing. When you probe near a strong RF field they glow first orange, then blue as the field increases.

Well....Someone put two and two together and wired a neon bulb as shown in FIG. one. The ever popular telco 2 mF capacitor blocked the loop DC. When the central office sent out the ring voltage, the neon bulb flickered. Then a photocell was added. Put the thing in some kind of light tight enclosure and connect the cell to a relay and you had the beginnings of an auto-coupler!

The circuit still works well, but they're a pain to build (light tight remember) and most parts places don't know what a NE-2 is anymore. Plus, all the strange transients that come floating down the phone line cause the bulb to blink at inappropriate times. Lucky for us, Texas Instruments came to our aid with the TMS1520 ring detector chip.

This little 8 pin chip does something the NE-2 can't, it ignores all the glitches that can cause falsing on the line. It rectifies the AC ring voltage, checks its timing to ensure its a valid ring signal, then filters out a DC voltage that we can use to operate a solid state relay or drive logic through a opto-isolator.

FIG. two shows the TMS1520 connected to the line with a solid state relay (SSR) to make a completely solid state horn relay. I used this circuit to replace the old Wheellocks to elimiante the problem I had with their relay contacts fusing together. With care a ten amp SSR and the rest of the components can be mounted in the old Wheellock case if you use them.

Now lets say you have the old problem of jocks that won't answer the request line. Build up this little solid state horn relay and then go down to the local distributor and buy one of those cheap psychedelic strobe lights. You know, the kind that have a photo flash lamp in them that goes off about ten times a second with a blinding flash.

Mount the thing in a well protected (as in armored) box pointed right at the jock and wire it up with the horn relay. Fix it so the only way the jock can shut it off is by answering the phone. B.F. Skinner would love this thing. One shift with it blasting your eyeballs and the request line will be answered on the first ring every time!

OK, so you're not that mean. Some stations do use strobes, check the broadcast supply catalogs. And they do work great in high noise areas. My prototype solid state horn relay flashes a 300 watt bulb in my work shop. Now I know when the phone rings when I'm running my shop equipment!

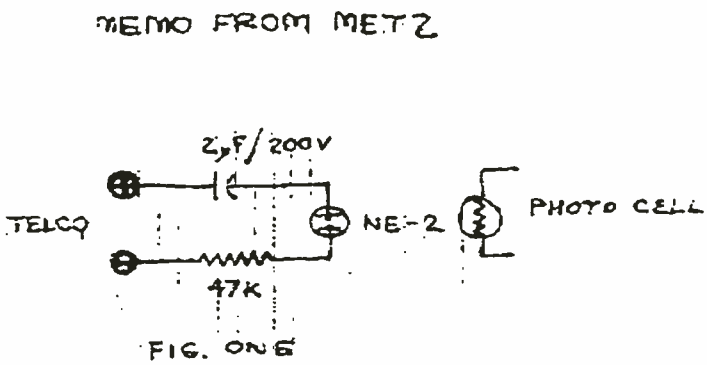


FIG. ONE

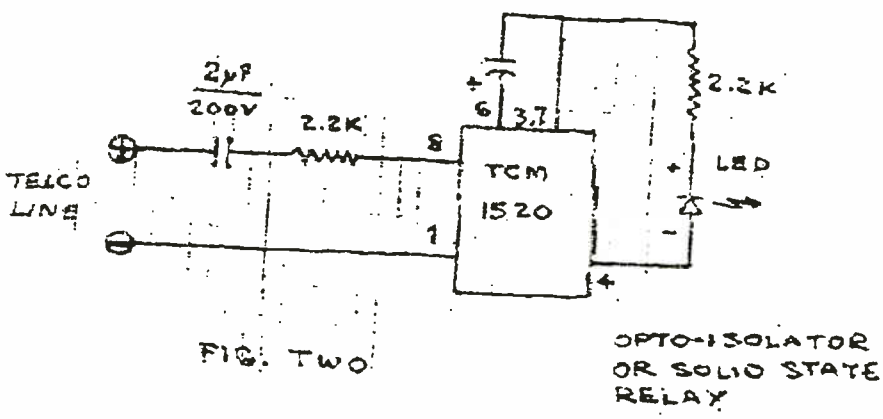


FIG. TWO

Buffer Zone

Some of the more far-reaching IVHS proposals include such concepts as laying inductive strips to guide computer-coordinated convoys. As a vehicle approaches the highway, a gap would occur in the convoy allowing the vehicle to slip into place. Once the vehicle was in place, the convoy would close the gap, maintaining a constant space or "buffer zone" between vehicles. Speed would be controlled by the computer and would take into consideration road and weather conditions.

According to Kenneth G. Bosomworth, editor of Geographic Information, Mapping and Positioning newsletter, "One of the big payoffs from IVHS occurs in the decrease of new highways being built." An IVHS system could allow two to three times the current number of vehicles on a highway at one time. "This savings alone could amount to billions of dollars over the next 20 years."

Although the potential of saving billions of dollars is very real, the cost involved in setting up such a system is also very great, according to IRD. Almost all approaches require major expenditures on sensor and computer networks, in addition to what is mounted in the vehicle itself.

Some IVHS proposals would cost several billion dollars over the next two decades. Many decisions have to be made at the federal and state level as to which of several competing technologies should serve as the basis for IVHS. Planners at car and truck manufacturers are being forced to guess which IVHS techniques will come out on top. Equipment required in a vehicle varies vastly from one IVHS scheme to another and selection of the "wrong" approach to IVHS can result in expensive redesigns and retooling.

Automobile manufacturers are hesitant about making large research investments on IVHS or committing their future vehicle design directions to any one IVHS concept. However, cars are now rolling off assembly lines (mostly in Japan) with built-in navigation systems and competing automakers in the U.S. and Europe must make some IVHS plans soon, even if they're unsure of the future, says IRD.

*****

1990 Summary of FCC Field Inspections

1. Thirty percent of all broadcast stations were inspected.
2. Half of the stations inspected were as a result of complaints. The other half were conducted on a random basis.
3. Sixty-nine percent of the stations inspected were issued a violation notice.
4. The most common violations were:
   a. Improper AM directional antenna parameters 33%
   b. Failure to have EBS checklist 15%
   c. Failure to have current EBS authentication materials 10%.
   d. Failure to maintain a public inspection file 12%.
   e. Items missing from public inspection file 11%.
   f. Failure to have tower lights or failure to have tower lights-working properly 7%.
   g. Failure to have tower painted or failure to have tower-painted properly 9%.

The objective of the Field Operations Bureau is to maintain a compliance level of 70 percent of all stations with 100 percent compliance in all categories.

*****

(Cont'd from pg. 5)

The two companies said they decided to develop digital systems after several unexpected technological breakthroughs were made in digital information transmission systems earlier this year.

According to ATTC, the new Zenith/AT&T proposal must be reviewed by the FCC Advisory Committee to determine whether it is compatible with the already completed test plans and laboratory facilities, as was done with the North American Philips/Advanced Television Research Consortium all-digital system announced last month.

HDTV systems in Europe and Japan are expected to be analog, an older technology that does not offer the computer and interactive capabilities of digital. Proponents claim that digital transmission will provide better and more flexible HDTV service. For example, they say that with digital HDTV, consumers would be able to share information with other types of equipment, including videocassette recorders, medical devices and cameras.

ATTC is scheduled to begin testing the six systems, which are incorporating their prototype hardware, in April 1991. The FCC plans to establish the nation's new advanced television standard by mid-1993.

*****

Standard and Proponents Sought For New Service That Allows Radio Listeners To Tune In Their Favorite Station By Format

A panel of America's broadcasters and receiver manufacturers announced that they plan to select and develop a single standard for a new technology that would allow radio listeners, among other things, to tune in their favorite radio stations by format and receive electronic ticker-like displays on their radio receivers.

The new technology is called radio broadcast data system (RBDS) and operated using subcarrier radio frequencies. Subcarrier frequencies are part of the larger radio signal used by broadcast stations.

The National Radio Systems Committee (NRSC), the standard setting body of the broadcast industry, is asking potential proponents to submit their systems for consideration before February 28. A March 14 meeting is scheduled to review the submissions and begin standards work. Interested parties are welcome to attend and participate.

With RBDS technology, radio listeners could potentially scan stations by format, rather than frequency or channel numbers. In addition, station logos, numbers, even electronic ads, can be displayed at the radio station's option. Another possible feature would interrupt a CD, cassette or digital or audio tape, in the event the listener wants to hear a traffic update, or the station needs to break in to report an emergency.

RBDS also can have paging capabilities and, for car drivers listening to network programming, an RBDS system can automatically change stations to pick up the station with the strongest signal.

*****

PBS Plans Demos Of HDTV, SuperNTSC

The Public Broadcasting Service is offering its facilities as test sites to all comers in advanced television, but the two that appear ready to go are NHK and Faroudja Laboratories. Howard Miller, senior vice president, broadcast operations and engineering at PBS, said his organization is attempting to get the elements pulled together for a demonstration of NHK's system by early spring. Also, it expects to air some programming in SuperNTSC.

The only matter to be concluded for a SuperNTSC demonstration, Miller said, is determining appropriate programs to run: "Faroudja prefers to have his feed as a component, rather than composite, signal, and most of our programming is in component form."

As for the high-definition showing, the game plan is to do demonstrations of such musical and miniseries programming as The Orchestra and The Ginger Tree at 20 stations or other sites around the country at a single time via satellite, Miller said. After those demonstrations were completed, PBS would pick up the equipment and move to another 20 locations. He noted satellite delivery would cut expenses by minimizing the number of high definition VTRs needed.

Miller said that PBS feels an obligation to educate the public on advanced televisions systems, but without aligning with any particular proponent. The demonstrations would be held for the both PBS supporters and the general public. He said Scientific Atlanta probably would supply the satellite encoder/decoder equipment. Also, PBS has an understanding with Cable Labs that it would work with local cable systems to provide links to public auditoriums when the demonstrations are held there.

Unlike the Super NTSC demonstrations, the high definition showings would be separate from regular broadcasts.

*****

PERSONS' POST SCRIPTS

by Mark Persons

Sine Systems Remote Control

After installing two dozen Gentner VRC-1000 and VRC-2000 telephone voice remote control systems, I recently had the pleasure of installing a Sine Systems remote control. The Sine Systems RFC-1/B Remote Facilities Controller with its companion RP-8 Relay Panel is a direct competitor to the Gentner units. The difference is that the Sine system is a "no frills" low cost alternative. While Gentner is priced at $3,544 for eight channels of relay control and metering, the Sine Systems equivalent is only $1,498.

The Sine unit is exceptionally easy to install. All control and metering inputs are on individual plug-in connectors. This feature allows users to add, subtract or reconfigure remote functions in seconds.

Each metering input has multi-turn controls for quick and easy calibration.

If someone is trying to call the transmitter site while you are doing calibrations, the remote control will speak the word "ring." You can then answer the call by dialing 99 on the telephone key pad.

The Sine Systems Remote Control does not have a battery backup because it doesn't need one. All information, including user definable data is kept in non-volatile memory. Battery backup is needed only if the user wants to do control and/or metering during a power outage at the remote site.

Other options include an audio fail-safe relay to shut down a transmitter when audio is lost for five minutes. There is a temperature monitor module, a rack mount kit and a relay module for AM antenna monitor interfacing.

The unit is easily programmed to automatically call out to advise of an out of tolerance or any other alarm condition. In spite of all the features, the Sine System Remote Control still adheres to the KISS (Keep It Simple Stupid) principle which is so very important, especially when working with people who have had a minimum of broadcasting training. I found the system took half the time to install, one-tenth the time to program and half the time to teach operators its functions. In short, I was exceptionally pleased with the Sine Systems Remote Control.

*****

New Technology

Long-Life Power Source

A patented power-source technology developed by the E.F. Johnson Company, a divisions of Diversified Energies, Inc. (Minneapolis, MN), couples of unique light-emitting polymer with solar-type cells to generate continuous, low-power electrical energy for more than 25 years. Because the power is not generated by a chemical process, it is not adversely affected by extremely cold temperatures. It has been successfully tested at temperatures. It has been successfully tested at temperatures ranging from 196 degree Celsius (the temperature of liquid nitrogen) to plus 100 degree Celsius (the boiling point of water).

Electricity is generated when a photovoltaic cell is optically coupled to a light-emitting polymer. The light, generated when a phosphor molecule is closely coupled to a hydrogen isotope (H-3 or tritium) within the polymer. Tritium is a radioactive material that is currently used in a gaseous form as the basis of light sources in watches and exit lights in theaters, and that will require licensing by the Nuclear Regulatory Commission. In the new power source, the tritium is chemically bound into a solid plastic matrix.

E.F. Johnson has achieved power outputs in the microwatt range, enough to power a pocket calculator or watch, or to charge a capacitor that would periodic surge requirements and then recharge, and expects to significantly increase the power output. While no end products have been created, and commercial usage is several years away, potential future applications for the long-life, low-temperature power source could be in medical implants, space, computers, and superconductivity.

System Spots Static, Jamming-Georgia Tech engineers have developed a system for pinpointing the location of ground stations that interfere with communications satellites.

The system could be used to locate accidental interference caused by poorly aimed transmitters, human error or deliberate jamming efforts like those of "Captain Midnight," who interrupted the HBO network four years ago, according to Tech.

*****

Automatic Circuit Card Testing Helps Air Force Cut Maintenance Costs

As military electronic equipment grows more complex, so does the problem of testing and maintaining it. Engineers at Georgia Tech Research Institute (GTRI) have developed a set of software tools to automate and improve the testing of analog and hybrid circuit cards.

Developed for the U.S. Air Force and currently in use, the Automatic Test Equipment Software Support Environment (ATESSE) will help boost aircraft readiness-while reducing maintenance costs. The tools may eventually help designers produce electronic equipment that is easier to test.

The ATESSE tools help engineers (1) simulate normal circuit performance based only on design information, (2) determine proper tolerances for testing, (3) simulate the operation of faulty circuits, (4) automatically produce software code for test programs based on flow chart information and (5) compare circuit simulations to actual circuit operation.

Test engineers face a complex problem: detecting, isolating and replacing faulty components in malfunctioning circuit cards. With the rising cost of circuit cards and the components on them, the Air Force would like to replace only the malfunctioning components. but isolating those parts can be difficult, particularly in analog circuits, where faulty behavior can be expressed in a large number of ways.

To find the faulty part, engineers calculate what tolerances are acceptable in the circuit's electronic operation, then design a sequence of diagnostic tests designed to single out the malfunctioning parts.

To help them, the ATESSE can convert a test flow chart directly to ATLAS code, eliminating the need for engineers to learn ATLAS programming. Cox believes that will help engineers produce better test programs-with fewer bugs.

The ATESSE also helps calculate the tolerance values, combining specifications from the various components involved and the test equipment itself. The software can even perform its simulation at different levels of circuit abstraction, reducing simulation time.

During the next phase of the project, Cox hopes to partially automate the test program development process, using artificial intelligence to design the test sequence from a schematic diagram of the circuits and basic performance data.

*****

Non-Polluting Electrical Power

With alternative methods of generating electricity being explored around the world to counter the growing problems of atmospheric pollution and power outages due to natural disasters, researchers at Bellcore (Livingston, NJ), have developed a non-polluting process that might lead to smaller, lighter, more reliable and less costly power sources. "Fuel cell" systems designed using the new method could be used in a wide range of applications, including replacing traditional rechargeable batteries as emergency backup power sources for many applications.

In small, experimental prototypes of the fuel cell, Bellcore has converted gas to electricity using a thinner-than-paper material sandwiched between two conducting metal films. Electricity is generated when hydrogen or other fuel gases are "blown" over the fuel cell's surface in the presence of oxygen or air. According to Christopher Dyer, who discovered the method while exploring new ways to improve communications power systems, no pollutants are created in this process, since the hydrogen is simply converted to water vapor.

While NASA has used fuel cells in spacecraft, commercialization had been slow due to high production costs of existing designs that require separated gas intakes of pure gases.

The prototype's extremely good power-to-weight ratio-more than 50 watts of electrical power per pound of weight-means that potential commercial devices could be small as well as lightweight. The prototype generates quiet, clean power and has no moving parts, suggesting that future devices could provide users with a reliable, long-lived power source.

Some possible future applications of devices are emergency power supplies for remote telephone terminals, refillable power supplies for portable phones, integrated-circuit power sources, home generators running off natural gas, power sources for portable computers and power plants for electric vehicles.

*****

COMMON POINT CLASSIFIEDS

EI Classifieds

EI Classifieds are free to the readers of Common Point magazine. To place an ad type it on the acknowledgement card that comes with each issue and mail to us. We assume no responsibility for the condition of any of the equipment or services in these ads.

FOR SALE: Colins 250B FM transmitter. Contact Bob WLSU 608-785-8380.

FOR SALE: RCA 77 microphone. Excellent condition, $500.00, firm. Phone 505-746-6590.

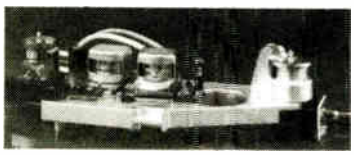
FOR SALE: 2-IGM time announcer 382 A's with manuals; 1-old Ampex 602 reel to reel with manual; 2-SMC 252 Carousels-stripped but few good parts left; 2-SMC 20 ars Carousel trays left; 2-Gates RDC 10 Remote Controls; 1-Gates Audio amplifier. Ron Pastorik, WCMY Radio, 216 W. Lafayette St., Ottawa, IL 61350. Phone (815) 434-6050.

FOR SALE: 2-SMC 250RS Mono Carousel, very good $600.00 ea (automation); 1-CRL PMC-300A AM Limiter with CRL SPF-300 NRSC adapter, excellent $1000.00 (limiters); 1-Collins 310Z-2 FM Exciter. Excellent $2000.00 (transmitters); 1-CRL IPP-100 Mic Processor $1200.00 (limiters). Contact Mark Persons 218-829-1326 phone or 218-829-2026 fax.

FOR SALE: 1--Collins A830-2 FM Exciter $900.00; 1--Marti RMC-2AXS Remote Control System $300.00; 1--XTEL AF-11R Printer (good) $100.00; 1--XTEL AF-11R Printer (parts) $ 50.00; 1 California Microwave AD2 Downconverter $ 50.00; 1 Rackmount for Harris 90 Cart Recorder $ 25.00; 1 Rackmount for Harris 90 Cart Playback $ 25.00. Contact: Mark Persons, 402 Buffalo Hills Lane, Brainerd, Minnesota 56401, Phone: 218-829-1326, Fax: 218-829-2026.

$3495.00

Radio's All-Terrain Vehicle



A machine that pulls its own weight–and then some–the PR99 MKIII delivers top performances over some pretty tough terrain ...

Whether you're downlinking or uplinking satellite feeds, taping news call-ins, producing commercial spots, or using the Playback Only version of the PR99, the new MKIII is the vehicle you want. This is a machine that won't quit. And proves it everyday in radio stations throughout the world.

The PR99 MKIII reflects the same engineering expertise that has made Studer Revox the world standard for excellence in audio recording.

Compare these MKIII features with the competition: • a solid die-cast aluminum transport chassis and head block • record and playback heads machined to the same tolerances as the heads for Studer multi-track recorders • easily accessible modular electronics for tough, reliable broadcast performance • a true Autolocator with digital counter in hours, minutes and seconds • speed configurations of 3 1/2 - 7 1/2 ips & 7 1/2 - 15 ips • rack mounts standard.

In whatever terrain you operate—in radio production or on-air work—the PR99 MKIII is a no-nonsense machine that gets you where you want to go. Before you buy, check out the MKIII for value and performance. Over the long haul, the Revox PR99 MKIII leaves the competition in the dust.

Available from Studer Revox Professional Products Dealers. Or contact us directly.

Call Electronic Industries for our Special Price

19 E. Irving, Oshkosh, WI 54901
In State 800-445-0222
Out of State 800-558-0222