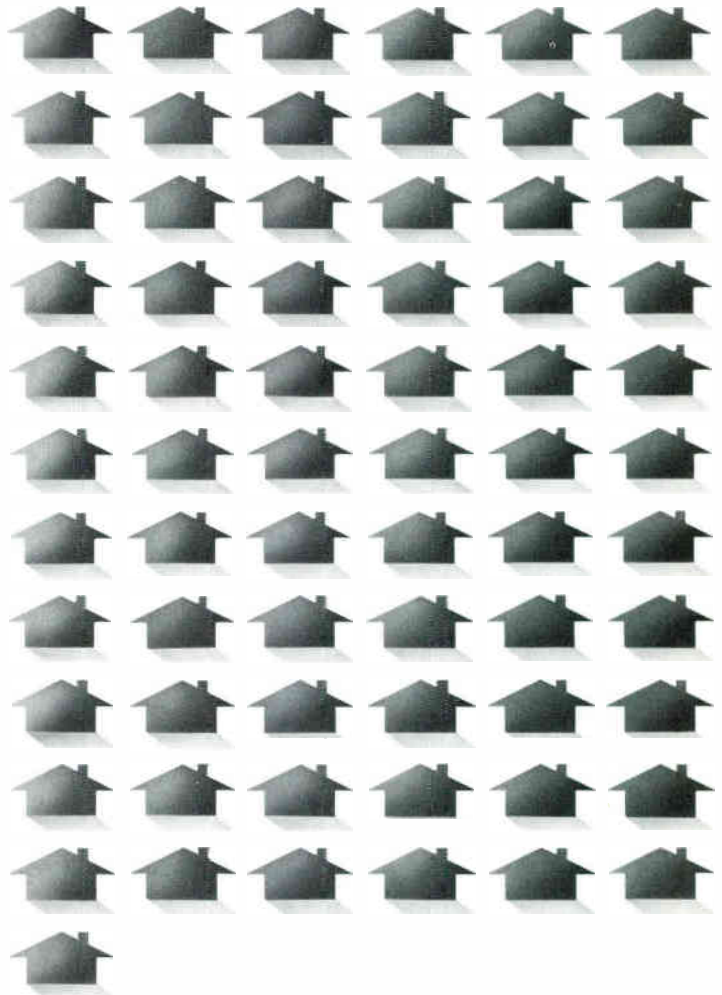


Homes passed per day.



This is one difference between their cable burial methods and ours.

If you've come to expect an average of 600-800' of coax burial per day (that's about 5½ homes passed), get ready for some great expectations with GTC.

In a recently completed project for Cablevision Systems of Woodbury, Inc., GTC's 60-man crew buried 80 miles of cable and passed 5,000 homes in 75 work days. Each day's work included cutting the trench, laying cable, filling and sealing; digging, installing, and wiring vaults; and final clean-up of the entire area, with resodding at the vaults. The installation came in

well ahead of schedule, and the job was so quick and clean that some residents didn't even know we'd been there.

GTC's innovative methods are designed to help you save time and money while enhancing community relations. We'll be happy to tell you how we work, and our new capabilities brochure is available for your file.

GTC.

1772 East Jericho Tpk.
Huntington, LI, NY 11713
(516) 462-9810



**We have more
Blonder-Tongue CATV
equipment in stock
than Blonder-Tongue.**

Or anyone else.

On hand for immediate delivery, we keep an enormous stock of such Blonder-Tongue items as modulators, amplifiers, converters, filters, headend accessories, traps, processors, preamps and more.

So, whenever you need something in CATV—equipment or answers—write or call Toner toll-free. 800-523-5947.
In Pennsylvania 800-492-2512.

Call us toll-free. Get same-day shipment plus advice from people you can trust.

TONER
cable equipment, inc.
969 horsham road
horsham, PA 19044

CATJ is a Copyright © 1982 by the Community Antenna Television Association, Inc. All rights reserved. Quedan reservados todos los derechos. Printed in U.S.A. Permission to reprint CATJ published material must be given by CATA, prior to republication.

CATJ VOL. 9 NO. 3

CATJ, The Official Journal for the Community Antenna Television Association is published as a service for Association Members and others providing services to the industry.

OFFICERS

Ben D. Campbell, Chairman of the Board
Ben V. Willie, President
Peter Athanas, Vice President
G. H. Dodson, Secretary/Treasurer

DISTRICT DIRECTORS

One Clarence Dow (Maine)
Two Ed Smith (New York)
Three David Fox (West Virginia)
Four Pat McConnell (Florida)
Five Joe Bain (Oklahoma)
Six Wayne Sheldon (California)
Seven Carl Schmauder (Oregon)
Eight Neil Webster (Iowa)
Nine Peter Athanas (Wisconsin)
Ten Jim Hays III (Kentucky)

VICE DIRECTOR

Jim Garvalia (Wisconsin)
Lee Holmes (Guam)

ASSOCIATES' DIRECTORS

Raleigh B. Stelle III, Texscan/Theta Com
Ernie Larson, Larson Electronics

DIRECTORS EMERITUS

Gene Edwards (Ohio)
Chuck Kee (Oregon)
William Ridsen (Kentucky)

CATJ STAFF

President and Publisher
G. H. Dodson

Business and Managing Editor
Celeste Rule

Executive Assistant To The Editor
Diane Howard

Circulation Manager
Rose Capshaw

Contributing Editors
S. J. Birkill, Stephen Effros,
Ralph Haimowitz

Art Director/Marketing
Phyllis Crumpler

Assistant Art Director
Dianna Johnson

OFFICES

National Headquarters
CATA/CATJ
Celeste Rule, Managing Editor
4209 N.W. 23rd, Suite 106
Oklahoma City, Okla. 73107
(405) 947-7664; 947-4717

CATA (Washington Office)
Stephen R. Effros, Executive Director
3977 Chainbridge Rd.
Fairfax, Va. 22030
(703) 691-8875

CATA (Engineering Office)
Ralph Haimowitz, Director
518 S. W. 21st Street
Vero Beach, Florida 32960
(305) 562-7847

The Community Antenna Television Association, Inc. is a nonprofit organization formed under Chapter 19, Title 18 of the Statutes of the State of Oklahoma. As such, no part of its assets or income shall be the property of its members, such assets and income shall be devoted exclusively to the purposes of the Corporation.

The Community Antenna Television Journal (CATJ) — ISSN-0194-5963 — is published monthly by TPI, Inc., 4209 N. W. 23rd, Suite 106, Okla. City, OK 73107. Subscription price: \$18.00 per year, \$22.00 per year Canada, Mexico, and foreign. Second class postage paid at Oklahoma City.

POSTMASTER: Send address changes to 4209 N. W. 23rd, Oklahoma City, OK. 73107.

on the inside...

FEATURES

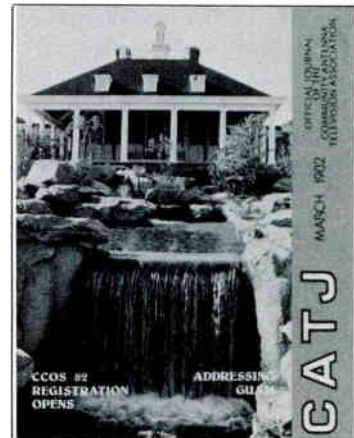
- GUAM CABLE TV ADDRESSES ITS TERRITORY** . . . a public service story concerning the Guam Cable TV's community-minded project to map the island after a hurricane in 1976 smashed all the landmarks. **8**
- FINANCING ALTERNATIVES: A CURRENT REVIEW** . . . Rick Michaels, Communications Equity Associates, discusses different approaches to financing cable TV **14**
- CCOS '82** **NASHVILLE** . . . registration is now open to CCOS attendees and CATJ presents a lot of the background on the area, as well as program material and a tentative schedule for the sessions and exhibits. . . **18**
- RCA DOES IT: SATCOM IV PLACED IN GEOSYNCHRONOUS ORBIT** . . . **30**
- THE FILTERED EARTH STATION, PART 7**—Glyn Bostick, Microwave Filter Company, Inc. explores Earth Stations and Harmonics. **44**

DEPARTMENTS

- CATA-TORIAL**—CATA President, Ben Willie, discusses the many aspects of the cable television industry. . . . What Business Are You In? **4**
- LETTERS TO THE EDITOR** **6**
- STEVE BIRKILL ON EXPERIMENTAL TERMINALS** . . . this month, Mr. Birkill talks about the Satellite Systems of the World: SBS **36**
- WASHINGTON UPDATE**—happenings in Washington change constantly; keep up with Steve Effros' column to find out what's going on. **48**
- THE TEXAS SHOW WRAP-UP** **52**
- ASSOCIATES' ROSTER** **54**
- CLASSY—CATS** **56**

on the outside...

OPRYLAND HOTEL in Nashville, Tennessee, beckons!
CCOS '82 Registration officially opens with this issue of CATJ.



catatorial

Ben V. Willie,
President of CATA

WHAT BUSINESS ARE YOU IN?

At first glance that might sound like a somewhat strange question. However as we progress into 1982 you are going to find that that question will become more and more important. This is not just with relation to the copyright fight, which we have discussed in depth before, but with a lot of other aspects of the cable television industry.

Remember our roots. We started as the CATV industry. We were, just as CATA's name memorializes, a "community antenna" service. Now of course that service has grown. We now not only serve to bring in the local and some more distant television signals, we also serve our subscribers by supplying them with a host of entertainment programming which we receive via satellite. That programming is now branching out and includes not only entertainment, but it also supplies needed information such as all news channels, weather channels, sports channels, specialty programming for children that is commercial-free, channels on educational opportunities, a health channel and it is foreseeable that a lot of other programs will be coming along to serve the specialized need of our subscribers. Thus, we became a "cable television" industry rather than just a "community antenna" industry. But now there is a clear new development. In the larger urban markets, where population density may warrant, and business uses may support the construction of a new type of communications entity, the "broadband communications system" is being promised. Unfortunately for all of us, at the moment that new system is being mis-labelled a "cable television system", and therein lies the rub! The two are not the same, but the perception at the moment is that they are. That will lead to trouble for all involved, and it is up to us to see that the confusion is cleared up.

By the definition we are using, "broadband communications" not only includes all of the things provided by cable television operators, it also, at least in theory, will be an "electronic highway" for many different types of data transmission, including electronic funds transfer, shopping at home, computer interlinking, and even electronic mail. It will also provide services such as burglar and fire alarms, energy management, power load controls, meter reading, traffic light controls, and who knows what else!

You should notice that I qualified the last statement by saying "in theory". It is important for all of us to remember, and even more important for the regulators to understand that these great things do not really exist today! They have been promised, to be sure. And written about until we are all sick of them already. Indeed the "industry" is being chastised for not already having something "new" to offer because all of that stuff is "old hat"! But we haven't really supplied those things yet,

and there is some question whether they will ever be supplied on an economical basis.

Now we are not saying here that it won't work. All we are saying is that broadband communications is a high-risk, unproven industry at this point. We have no idea whether the companies that have promised all these great new things in Dallas, or Denver, Boston, or New Orleans will really come through and provide all the people with all the promises. The things that have been promised, especially when you consider the "access studios" and the "mobile vans" and even, in one RFP, a demand for a satellite UPLink facility (!) amount to a great deal of money. Combine that with financing schemes that give a percentage of the system away to the local government and promise all sorts of extras in the way of programming at very low prices and you have the ingredients for a full-scale disaster.

How did we get to this point? Well, remember that the cable television industry "came of age" in 1976 when small satellite receive-only earth terminals opened up satellite reception to all corners of the country. This, in turn did two things. First, it allowed programmers to economically deliver their product to the cable subscriber nationwide, and second it gave an incentive to subscribers. Until that point cable television only fared well in areas of limited television access. With the introduction of innovative programming that was not available in any other form, cable had a unique product to sell. And of course the first way it was sold was via "pay" cable. That, in turn, had the effect of almost doubling, in some instances, the profit margin of the cable operator.

Needless to say, cable took off. Now we could bring cable to the big cities. Now we had product in increasing variety that was not available anywhere else. But then the trouble started as well. There is little question that "cable", just as described, is what people want. That is what the subscribers are willing to pay for, and that is why they are so anxious to have their community wired. But as the competition for franchises got stiffer, and as that competition entered the truly big markets, CCCa shift started taking place. The very big companies, the only ones, in fact who could afford to attempt to build a major city, saw the POSSIBILITY that this coaxial cable going into the homes of citizens would become the "new" electronic highway which MIGHT be used to transmit all of that wonderful material discussed in the beginning of this piece. This PRESUMPTION led to a second one, that is that three new services would also generate a great deal of money for whoever owned the highway. The telephone company served as the model for that part of the puzzle.

Now all of this is very interesting, and the big companies MAY be right. But we simply do not have any pro-

of of that right now. The doubling of the bottom line that occurred with pay cable may indeed happen again and again IF the home electronic and computer "revolution" really takes place. But if it does not, or if there is significant alternative competition for delivery of all that information then the projections of the futurists will be way off. The big companies will have given Caway much too much in the "goodies" department of the franchising process. The cities may have demanded too much based on the "guesstimates" of "consultants" who really were consulting not about economic reality but rather about the technical feasibility of cable television. It may very well be that we have a situation where the theoretical technology has outstripped the economic reality of the "broadband communications" business.

Then again, maybe not. Maybe they are all right. Maybe the fact that AT&T will be competing with the broadband folks to deliver data will not have a big effect on those companies. Maybe there really will be a giant demand by John Q. Public, and not just the business community for computer interaction. MAYBE. We will all have to wait and see as the broadband industry develops. We wish them luck and success. After all, they generally started in the cable industry before branching out into this new and exciting field. But let's make it clear that all cable operators, and all cable systems are not, and cannot be broadband communications systems. The economics simply are not there. Most smaller communities, or the bedroom suburbs of the larger communities cannot expect large financial gains from business data services. They cannot afford to build two-

way, interactive high-tech facilities that include "institutional loops" to subsidize the local government. And if those things are demanded, out of greed or out of ignorance the net result will be that local subscribers will suffer. Remember? Those folks who, WHEN ASKED (not the consultants, the study groups or the college professors — but the folks who PAY for the service) will tell you that all they really want is more program diversity and the opportunity to be left alone.

The Community Antenna Television Association is charged with the mission of serving cable television operators. We are not against those who are interested in the high-risk, and potentially high pay-offs of broadband communications. We also foresee that in the future some of the more successful uses of high technology will be incorporated into all cable systems. However there IS a definite difference today between those who are offering cable television service and those who are offering broadband communications promises. Both sides of the industry need to be represented, and indeed there are some companies who recognize already that depending on the location and the economic viability they will offer cable in one area and broadband in another. We must establish that distinction in the popular perception of what "cable television" is. If we do not, there will first be massive confusion and then disenchantment with our industry due primarily to lack of knowledge. It is our job to impart that knowledge. The job would be a lot easier if we all joined together to do it! □

CATA MEMBERSHIP APPLICATION

Please enroll my CATA system(s) in the COMMUNITY ANTENNA TELEVISION ASSOCIATION (CATA). I understand that we have the right to cancel our membership at any time. Please see that I receive all of the initial CATA material.

System Name _____
 System Address _____
 City _____ State _____ Zip _____
 Individual Authorizing Membership _____
 Telephone(_____) _____

About Your System— CONFIDENTIAL— For CATA use Only

1. Number of current subscribers (FCC count) _____
 Projected number of subscribers _____
2. Number of homes in franchise area _____
 Top 50 Market (35 mile zone)
 Second 50
 Smaller TV Market
 Outside All Markets
3. Channel capacity _____
 System start-up date _____
4. Do you plan to build a TVRO earth station?
 Yes No
5. Congressional District _____

ABOUT YOUR CATA DUES STRUCTURE

SURCHARGE scale is \$5.00 for systems with subscribers up to 500; \$10.00 for systems with subscribers between 500 and 3500; \$15.00 for systems with more than 3500 subscribers. The surcharge, PLUS 3 cents per subscriber per month determines the monthly dues charge.

Numbers of Subs _____
 X .03 _____
 Sub Total _____
 + Surcharge _____
 Total _____

PLEASE ATTACH CHECK FOR THAT AMOUNT WITH APPLICATION.

Note on Corporate Membership:

Dues for systems or MSOs with more than 16,666 subscribers are established with a dues limitation of \$5,000 annually.

Personal memberships for those in related industries are available at \$50.00 annual dues.

CATJ SUBSCRIPTION RATE FOR CATA MEMBERS IS \$1800 per year.

If you are not presently a subscriber and wish a new subscription, enclose \$18.00 for you CATJ magazine.

CATJ

Mr. Ralph Haimowitz,

I could not help but comment on the recent articles appearing in CATJ about scrambling signals to prevent private TVRO systems from receiving premium services direct via satellite. For a private system to take a crumb from your piece of cake seems to upset your industry. It is not likely that private TVRO systems will ever be a threat to CATV franchise areas primarily because of cost comparisons to CATV rates, terrestrial microwave problems, prohibitive community ordinances, lack of installation space and obstructed look angles. You would do better to develop your franchise areas fully and to push for legislation that would make private TVRO systems illegal within your boundaries. You know as well as I do, your association members are not making their service available to everyone within their franchise area because of so called technical problems when truly the problems are cost versus profit. Those that decide to scramble will discover that all is not well. Actually signal degradation and technical breakdowns will cause loss of subscribers. Unscrambled services will prove to be far superior in quality and will become more popular for cable use in the long run. Let's not forget that the technology and development that led to what makes this all possible came paid for by American tax dollars. The on-going technical contributions and breakthroughs cost reduction factors in this field can be directly related to people working in the private TVRO industry. Even Steve Birkhill, a major contributor to your publication, is regarded as a pioneer in developing the private industry. Mr. Birkhill has recently accepted a position with Sat Finder Systems, a major system supplier for the home terminal business.

No, private TVRO terminals will not die or fade away. I can see no threat to cable TV or its common carrier associates. HBO seems to tremble at the thought that anyone may be watching their transponder without paying. Most private ter-

minals are willing to pay for their service but they refuse to accept it.

Scrambling, along with its associated headaches, is not the answer and will not deter the private industry. Proper legislation to protect the cable systems within their franchise boundaries is the road to pave. Cable TV will grow with leaps and bounds at an unprecedented rate in the years ahead and mushrooms will continue to grow in the country.

Jerry Mills

Letter To The Editor

Dear Mr. Mills:

I could not agree more with your comments to push for legislation to control private TVRO systems use. In point of fact, I stressed the need for such legislation in the article.

I also agree that any method of

scrambling satellite signals is going to cause some additional problems for cable operators, because of potential signal degradation and equipment failures. However, we have all learned, sometimes at great expense, that scrambling signals has proven to be the most secure way to protect the cable television product with current technology.

Where Mr. Mills apparently missed my point was in his application of home earth terminals for private use. The problem for cable systems today is not the private user, but the MATV system that installs a home satellite terminal and sells these signals to his subscribers. More and more of these systems are in use every day, and in areas where there is already a cable franchise or service, the MATV operator is approaching apartment/condominium complexes and mobile home parks offering MATV with satellite services at a lower rate than the cable system. One basic reason the MATV operator can do this is because he frequently does not pay the program supplier (HBO, Showtime, the Movie Channel, etc.) for the service as the cable operator does.

Home satellite terminals for private use are of greater concern to the program suppliers than to the cable system operators at present. They, after all, have a right to payment for their services, and a monthly income of \$4 or \$5 per month from each of these home terminal viewers is nothing to turn your back on in business. The suppliers are looking for a solution to this problem before it becomes an issue with Mr. Vallenti like the home video recorders did last year.

Fairness involves looking at both sides of the question from every aspect. Private home earth terminals certainly fill the void for those individuals who have no other means to obtain satellite television service. On the other hand, it is only fair to pay for these services when everyone else has to do so.

Ralph Haimowitz

How to bank on 20,000 channels of experience around the world.



Bank on Hughes performance record. Hughes AML is the world's most experienced and most widely used means of distributing CATV. You'll find satisfied customers in big cities and small towns from the tropics to the tundra. That's why Hughes AML installations aren't confined to the U.S. You'll find they are now delivering thousands of channels in Austria, Belgium, Canada, Denmark and Switzerland, as well.

Bank on seven important features. Hughes delivers 60 channels per transmitter and receiver, with up to 5 watts per channel at the transmitter. 440 MHz system is compatible with either single or dual cable. Transmitters accept standard head-end signals and cable powered outdoor receivers

can be mounted anywhere. Works with multiple tier and addressable scrambling systems. And Hughes AML is phase locked for HRC systems and to reduce co-channel interference.

Bank on 100,000 hour reliability. At Hughes we build our own klystrons to our own rigid specifications. They last because they're constructed of the same materials and by the same people who make our space-qualified tubes.

Bank on protecting your investment. Hughes "upgradable" design approach means your Hughes AML never becomes obsolete. Even our very first 12 channel AML system can easily be modified to match the per-

formance and capacity of our latest model.

Bank on knowledgeable product support. Wherever you find Hughes AML you'll find product service just a phone call away: Installation, Field Engineering Service, Application Engineering, Path Surveys and Technical Seminars.

For more information on Hughes AML systems, write or call: Hughes

**MICROWAVE™
COMMUNICATIONS
PRODUCTS**

P.O. Box 2999, Torrance, CA 90509, (213) 517-6233. For 24 hour emergency service (213) 534-2170. In Canada: Micro-Sat Communications, Ltd., 975 Brock Road South, Pickering, Ontario Canada L1W3A4, (416) 839-5182.

*NEW
AML system designs
provide more than 160 channels*

HUGHES

HUGHES AIRCRAFT COMPANY

Guam Cable TV Addresses It's



When this story reached us, we read it with interest, appreciating the problems that faced the cable people and that were presented to the residents of those "no-address" areas. Taking this on was a tremendous task, but it isn't surprising that Lee Holmes (CATA's Vice Director from Guam and owner of this system) and his staff would take on the tedious task of developing an island-wide mapping system. Not only was this commendable to increase the efficiency of their operation, but from a public service standpoint, this service to their community was invaluable.

This isn't the only location where this kind of indeterminate locations goes on; we heard recently of a little old lady on the eastern outskirts of Oklahoma City, rocking on her front porch, who was asked about the name of the street upon which she had lived for more than twenty years. She replied, "oh, it doesn't have a name!!" The maintenance man asked her, "oh, it doesn't have get your mail then?"; she replied, "oh, the post man brings it!" Rural route designations just won't cut it for people needing to locate a given residence; think of the problems with fire fighting, utilities, medical assistance, etc.

We think this is a great success story and commend Guam Cable TV for their efforts on behalf of their community and its citizens.

Editor

Cable Television in the American territory of Guam dates from 1970, but building the system which presently serves over 20,000 subscribers on this tropical island has been anything but a routine construction project because there are few existing street names or house numbers.

Guam is only 32 miles long by 8 miles at its widest point, but the population of 105,000 lives in villages and on military bases scattered all over the island. Terrain that includes mountains and jungles creates further headaches for the installer. In fact, Sergeant Yokoi, a Japanese soldier left over from World War II, turned up as recently as 1972.

Territory

BY: Bruce Lloyd
Reporter
Guam Cable News
Agana, Guam



But the worst problem for Guam Cable TV has been simply finding its customers.

Guam's street address system was a casualty of the intensive fighting here during World War II. While buildings and roads were soon rebuilt, street names and numbers were never restored.

Home delivery of mail is taken for granted in the continental United States, but not on Guam. Islanders have become accustomed to picking their mail up at local post office boxes and giving directions by drawing maps. Local officials and private developers made numerous stabs at recreating the address system,

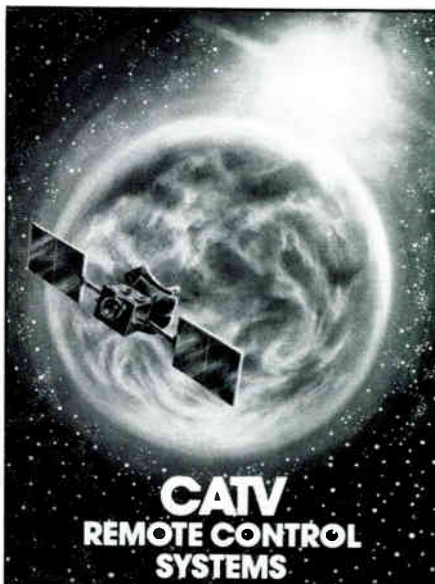
but that still left 65% without addresses.

Meanwhile, Cable TV was growing, but with a lot of difficulty, thanks to the address problem.

"We spend more road hours trying to locate customers than in actually doing installations," says Guam Cable TV Marketing Manager Ernie Galito. Installers resort to hand-drawn maps and written descriptions which tend to be colorful, but difficult to follow:

"Turn left at the mango tree on the broken road, go to the brown farm house with the bananas in front, and follow the pipeline to the

continued



CATV REMOTE CONTROL SYSTEMS

From Monroe Electronics, Inc.

Satellite Cue Tone Receiver
Model 3000R-64



- Features up to 8 cue tone decoders
- Monitors 4 program channels
- Provides 4 balanced audio and
- 4 co-axial SPDT switches for base band video or IF switching
- Isolation in excess of 80 db at 4.5 MHz
60 db at 41.25 MHz



See Monroe 6-page brochure

Satellite Cue Tone Signaling Products

Also ask for data on Emergency Access Units 3000R7-R71-R72. They provide for dial up access to cable audio for emergencies.

NEW DEVELOPMENT AGILE RECEIVER CONTROLLER 3000R-82

for dial-up telephone remote control of most brands of frequency agile receivers. Permits selection of channel and polarization by telephone call.

Phone Monroe for all your tone signaling needs:

Northern CATV Representatives:

800-448-1655

Monroe Electronics Factory:

716-765-2254



MONROE ELECTRONICS, INC.

214 Housel Avenue
Lyndonville, NY 14098

pink house with tin roof. The house is right behind it. It has a Chevy in the driveway.”

The problem with this system was vividly brought home to the company in 1976, when Super-Typhoon Pamela smashed into the island. When the winds died down, the 300 miles of plant had to be rebuilt and 13,000 subscribers reconnected. But under the circumstances, it was a tough job to complete.

“Pamela ‘76 taught us a lesson,” says Galito. “Landmarks were wiped out and the maps were useless. That familiar banana tree in the front yard was blown down. The house was repainted a different color and there was a Ford rather than a Chevy in the driveway.”

Other problems unique to the island remained. Close family ties

make for dozens, even hundreds of persons with similar or same names.

Misunderstandings and worse, from the company point of view, accidental disconnections occurred from these problems.

So, it’s not surprising that Guam Cable TV decided something had to be done about the situation, both from a business and a public service standpoint. The result was “**OPERATION ADDRESS.**”

Guam Cable TV worked with all levels of local government to

develop an island-wide address and mapping system. The company hired three graduating draftsmen from the local community college, Andrew Eay, Glenn Eay, and Ray Mantanona. Galito and the company’s Engineering Supervisor, Tim Camacho, taught them how to update earlier surveys in the field and to create the maps. The territorial government provided aerial photos and staff support, while in the villages, local commissioners and planning councils worked out street names. The company’s two full-time field auditors, John Puletu and Frank Casares, who know Guam like the backs of their large hands, helped the students

Turn left past the bus stop, follow the road to a speed bump, then...

How often do you try to follow a hand drawn map to a friend's house for a visit, party or fiesta?

The maps are usually inaccurate, out of perspective, and often very confusing. The problem is there is no complete address system for the entire island. But now, Guam Cable TV is sponsoring "Operation Address" together with the Department of Land Management and the Bureau of Planning.

Our specially-hired and trained employees are updating maps and assigning house numbers in Guam, village-by-village. Eventually, a road map with street names will lead you to your next fandango! For more information contact your village commissioner.

A public service brought to you by GUAM CABLE TV.

Is your house address unique?

How many times have you looked for a house address and found house numbers out of sequence, duplicate numbers, or no number at all? Confusing, frustrating and time consuming.

The problem is there is no consistent address system for the entire island. But now, Guam Cable TV is sponsoring "Operation Address" together with the Department of Land Management and the Bureau of Planning.

No more problems with duplicate or confusing house numbers for service companies, mail delivery, or emergencies. Your house address will be unique, no duplications of street names or confusion on "Operation Address" contact your village commissioner.

A public service brought to you by Guam Cable TV.

A letter from across the miles can warm the heart...

If you live on Guam and mail a first class letter to a friend in California, he receives your letter at his house. If he writes you back, he pays the same postage you do, but you probably will have to go to the post office to pick it up.

The difference is there is no complete address system for the entire island. But now, Guam Cable TV is sponsoring "OPERATION ADDRESS" together with the Department of Land Management and the Bureau of Planning.

Our specially-hired and trained employees are updating maps and assigning numbers on Guam village-by-village. For more information go to when your house will have its permanent address and mail delivery, contact your village commissioner.

A public service brought to you by GUAM CABLE TV.

Samples of Public Service Announcements run in Guam Publications

Financing Alternatives: A Current Review

By J. Patrick Michaels, Jr.

With the prime rate continuing to hover at its all-time record level, it is no small wonder that the euphoric haze enveloping the cable TV industry is beginning to lift slightly. Although funds are still available from financial institutions, the availability of significant leverage opportunities is still being further reduced due to the combination of continuing high interest rates and the effect of inflation on start-up costs and capital expenditures. Simply stated, high interest rates and inflation have destroyed the buying power of the available equity dollars and forced the cable TV operator to rely more and more on borrowed funds. An environment has been created where more sophisticated financing structures are being necessitated to offset the current adverse interest rate climate.

The availability of fixed rate financing for cable TV projects has continued to be further reduced on a straight rate basis as more insurance companies demand equity positions. Most, if not all, regional and national banks have long since eliminated fixed rate financings.

On the brighter side, the long-term picture for the cable TV owner has never been brighter as the number of potential subscribers and the cash flow potential per subscriber continues to escalate. If the correct type of financing is put

"... the long-term picture for the cable TV owner has never been brighter ..."

into place, the effects of the current rate environment can certainly be mitigated, if not totally eliminated.

We have now been urging our clients over the past eighteen months to formulate their financing plans in order to protect their position not only against rising interest rates, but also against a possible tightening of credit. In spite of current economic conditions, there is, somewhat paradoxically, an opportunity for most cable companies to reassess their plans for financing. Most large cable companies can still find a ready supply of institutional funds, though at high rates. This is particularly true of the public companies. The significant problem, as it has been in times past, is for the smaller privately held firms. These companies are always the first to feel the effects of adverse conditions in the money markets.

This article is essentially addressed to the owners and operators of these types of firms, many of whom have always relied on local or regional bank financing to support their growth. Ironically, many of these firms have recently experienced attractive growth in cash flow, and they continue to be the beneficiaries of the pay cable-satellite revolution. Some have embarked on ambitious acquisition, construction and franchise expansion programs, drawing on their balance sheet equity, improved cash flow levels and experience with their local lenders. Unfortunately, along with prosperity and growth, many are beginning to outgrow these long standing relationships.

With the darkening clouds on the financial horizon, it would be wise for these firms to carefully examine their current financing, and if a need to make other ar-

"... first step should be to meet with your own accountant ..."

rangements is found, there would be no time like the present to pursue other avenues so that the potential borrower will be poised and ready if we experience a dip in interest rates. If rates do not decline, or, in fact, if rates should increase further, the cable TV company should examine in detail the various options available to counteract high interest rates.

Assessing the Need

People seeking financing for cable television properties often complain of the difficulty in finding the "right" type of financing. The real problem is that many of these same people are really unaware themselves of just exactly what their needs are and what the true financial condition of their company actually is.

The first step should be to meet with your own accountant to review the past financial history of the company. Carefully review your company's statements and ask your accountant what assumptions he is utilizing. Also ask for his assistance in developing a pro-forma sources and uses of funds statement, which will detail the amount of funds needed and the anticipated development of these funds.

cont. on P. 26



East: 777 Henderson Blvd., Folcroft, PA 19032.
(215) 237-1100/01 or (800) 345-8104.
West/Main Office: 8500 Balboa Blvd., Van Nuys,
CA 91409. (213) 891-7911 or (800) 423-5651.
California License #176131C61

RCA Cablevision Systems

RCA Adds New 800 Phone Line

Serving the eastern half of the country, the new number is:

1-800-345-8104

Puzzled About Headend Type?

RCA Cablevision Systems has the capability to custom design and build the headend type of your choice. Pre-assembled, tested, packed and shipped by RCA, all that remains is to unpack, plug-in and turn-on.

Here are some recent custom headends designed and built by RCA:

Type	Facility
HRC	United Cable TV Corp. Cupertino, CA
IRC	American Cable Systems, Inc. Arlington, MA
Standard	Camden Communications Carson, CA

There's More Than One Way To Move A Headend

Gusting winds had calmed after blowing the rain-filled clouds to the South. The dawn sunrise captured dozens of technicians and laborers preparing for the helicopter lift of the UA-Columbia Cablevision headend to its location atop the 21-story NBC building in downtown San Antonio. Almost stopped by torrential rains and foot-deep mud, the 626 foot vertical airlift would succeed in moving the complete RCA headend along with tons of additional equipment in less than six hours. The alternative was to hand maneuver everything up a winding stairwell.

To prepare for this airlift, RCA Cablevision Systems had fit special lifting pallettes to the headend equipment to meet the requirements of the rooftop staging area. This special preparation by RCA to facilitate on-site installation is not unusual.

To meet a completion schedule for the Philadelphia, PA, Police and Subway Surveillance System, RCA literally hand-delivered specially configured racks and rearranged room layouts for timely, economical installations. And, when another customer required rush headend delivery, the system was put on a rapid cycle build schedule and was flown to the location. RCA on-site crews have

the authority to get the job done logistically.

As in the saying, "It's easier the second time around," RCA Cablevision Systems has the experience and expertise to get the job done. We're responsive to customer needs.



400 MHz-A Serious Consideration

Expanded channel capacity systems are in style and undeniably, we have not yet reached the technological limits of expansion. The strongest benefit of 400 MHz is the additional 17 channels gained compared to a 300 MHz system. But, the increase in bandwidth does not come for free.

Due to the extra channel loading, there is a degradation in the composite triple beat rating of the amplifiers. The higher frequency channels contribute a disproportionate share of the overload due to the inherent limitations of active devices. There is also the decision of whether to install a standard headend and operate at a reduced dB level, or to use a coherent headend risking possible

off-air signal ingressing. There is also a coaxial cable loss of 15-17%.

These considerations do not mean that a 400 MHz system will perform inferior to a 300 MHz system, only that the installation cost will be higher. Yet, 400 MHz is cost-effective in yielding a 50% increase in channel capacity versus an approximate 20% installation increase.

RCA Cablevision Systems is committed to 400 MHz and to supplying those operators employing the system. The Model 452 Amplifier, Model 450 line extender and 400 MHz passive devices are available from your RCA sales representative. To obtain a copy of a detailed treatise on 400 MHz, call (213) 891-7911.

TRUNK LINE

Q: *We are contemplating converting three UHF channels to channels 2, 4 and 6, then combining them simultaneously on our transportation system line with existing channels 3 and 5. What do you think of this convenient approach of transporting signals from the antenna site to the headend?*

A: It may be convenient, but it may also contribute to a mass exodus of subscribers.

In this instance, you are compounding the already existing problem of the equipment working with adjacent channels, even if the incoming signals from the tower site are AGC or level controlled. The UHF channels in your system are without level control.

By attempting this procedure, you may very well experience a 20 dB fade in one channel along with 20 dB increases in the equivalent adjacent channels. If this headend overmodulation occurs, you would require 80 dB performance in the headend box to get a 60 dB system. Also, there is no doubt that using this down-converting procedure will, at some time, result in adjacent channel leakage.

These problems would be visible by subscribers in the home as poor system performance and would probably result in numerous complaints.

Here's what RCA Cablevision Systems suggests: on transportation systems, do everything possible to ensure that the transported signals are non-adjacent channels. This will reduce the requirement for reprocessing equipment in the headend. This consideration is especially valid if the adjacent channels have non-controlled levels. An old adage at RCA that has undoubtedly saved customers untold dollars is, "A little bit of planning can eliminate a lot of problems."

If you need help with the planning, contract RCA Cablevision Systems.

RCA's Trunk Line Column answers current questions by readers submitted to Cable Today. All questions sent to RCA become the property of RCA and the publication of the question and the corresponding answer is at the discretion of the Cable Today staff. Questions should be sent to: Cable Today, RCA Cablevision Systems, 8500 Balboa Blvd., Van Nuys, CA 91409.

New RCA 400 MHz Converter 58-Channel Digital Control



RCA Cablevision Systems has introduced the new push-button KS series of remote-tuning, set-top converters. The KS series 58-channel (400 MHz) converters utilize the latest digital technology, featuring a microprocessor design that incorporates frequency-synthesized tuning and AFC for automatic, precise channel tuning.

The converters are field-switchable for standard, HRC and IRC channel assignments, eliminating the need to stock three different configurations. The field-programmable, all-channel, in-band decoder option accepts up to 16 levels of pay programming for optimal flexibility in tiering of services. RCA's unique new design provides simple, highly secure authorization of desired channels. The units have been designed to add a future addressability option that will provide control of subscriber service from a central office. An elec-

tronic A/B switch option expands the converter capability to 116 channels for application in dual cable systems. The memory of the RCA KS converter is capable of storing 15 channels which can be randomly selected from either the A cable, B cable, or both.

The new KS series converter joins the RCA family of subscriber devices. The M series of set-top converters now includes a 58-channel model. This series is distinguished by its compact, elegant design. The M series converters are available for 300 MHz applications.

The RCA SCMC converters are available in cord remote or one-piece set-top versions. This product is cost-effective and provides reliable, simple operation.

For operators desiring to add premium channels to existing systems with converters, or who have 12-channel systems, RCA has its Encoder/Decoder system.

I want the full scoop on RCA converters

CATJ - 382

Please send me more information about:

- KS Series Digital Converters SCMC Converters
 M Series Converters RCA Encoder/Decoder System
 Please contact me immediately Phone _____

Name _____

Title _____

Company _____

Address _____

City/State _____ Zip _____

Clip and mail to: RCA Cablevision Systems, Cable Today, 8500 Balboa Blvd., Van Nuys, CA 91409

World Radio History
Paid Advertisement

This issue of CATJ officially opens registration for CCOS '82 for the attendees, and we urge you to complete the registration immediately so that you may be assured of accommodations at the historical Opryland Hotel in Nashville, where the CCOS headquarters will be located.

Maybe you haven't quite decided whether you're going to attend. After digesting all the background information on this area and examining the tentative schedule of technical and management sessions, you will see that it is something you shouldn't miss!!!

First, examine the suggested session subjects listed on page 24A these sessions were among those considered to be of prime importance and suggested for study among the attendees. The CATA Board of Directors has compiled this slate of sessions, taking into consideration their own problems as cable system operators and planning what would be the most desirable for other cable operators to attend. In each case, a panel of knowledgeable and versed people will conduct the seminar, or an individual armed with expertise in that particular area. The Board felt there were many areas to be covered, but from the feedback from cable operators in their areas, it was felt this schedule covered the most requested and vital subjects to the efficient operation of cable systems today. And there are many sessions, such as on Ownership, that you really **can't afford to miss!!!**

Aside from the technical and management sessions, the CATA Associate Members will have a full schedule, some thirteen hours, of exhibit time, planned for time slots when no sessions were being conducted. This exhibit time is something that our attendees always seem to appreciate because this is their opportunity to talk with their vendors, examine new products, learn about new technology, and yes, **place orders!** (Our ex-

hibiting suppliers each year have been very pleased with the actual orders written at our CCOS meetings and continue to support our show for that reason!) The Ryman Exhibit Hall, located in the basement of the Opryland Hotel, is fully equipped to present this exhibition in a most professional way and contains adequate room to allow an easy flow of the crowd through the hall. There will be a full compliment of vendors there, covering all facets of the equipment

business, and you will see many companies, new to the cable business and CATA, but who are anxious to demonstrate their products and services. You will definitely be pleased with the exhibition schedule as it will afford you the opportunity for a relaxed time to fully shop the vendors and visit with their representatives. The tentative schedule for the sessions and exhibit time is as follows:

continued

CCOS '82 NASHV



ILLE!



PUTS TIMES TECHNOLOGY TO WORK FOR YOU

To deliver the superior dielectric performance you need, Times' Cable Television Division harnessed the latest advances in polymer chemistry and molecular engineering to create T4: a new generation of gas-injected dielectrics for trunk, feeder and drop cables.

T4 is a unique system of high-performance polymers and innovative process technology. It culminates a two-year program of research and development by Times' team of material scientists to produce a hard, tightly-structured foamed dielectric with outstanding strength and long-term durability.

What are Times' four T4 secrets? Proprietary nucleating agents, controlled adhesion, tailored polyethylene resins, and new rheological extrusion processes.

We put them together and now we have it! T4—Times' answer to your need for superior performance in total bandwidth systems.

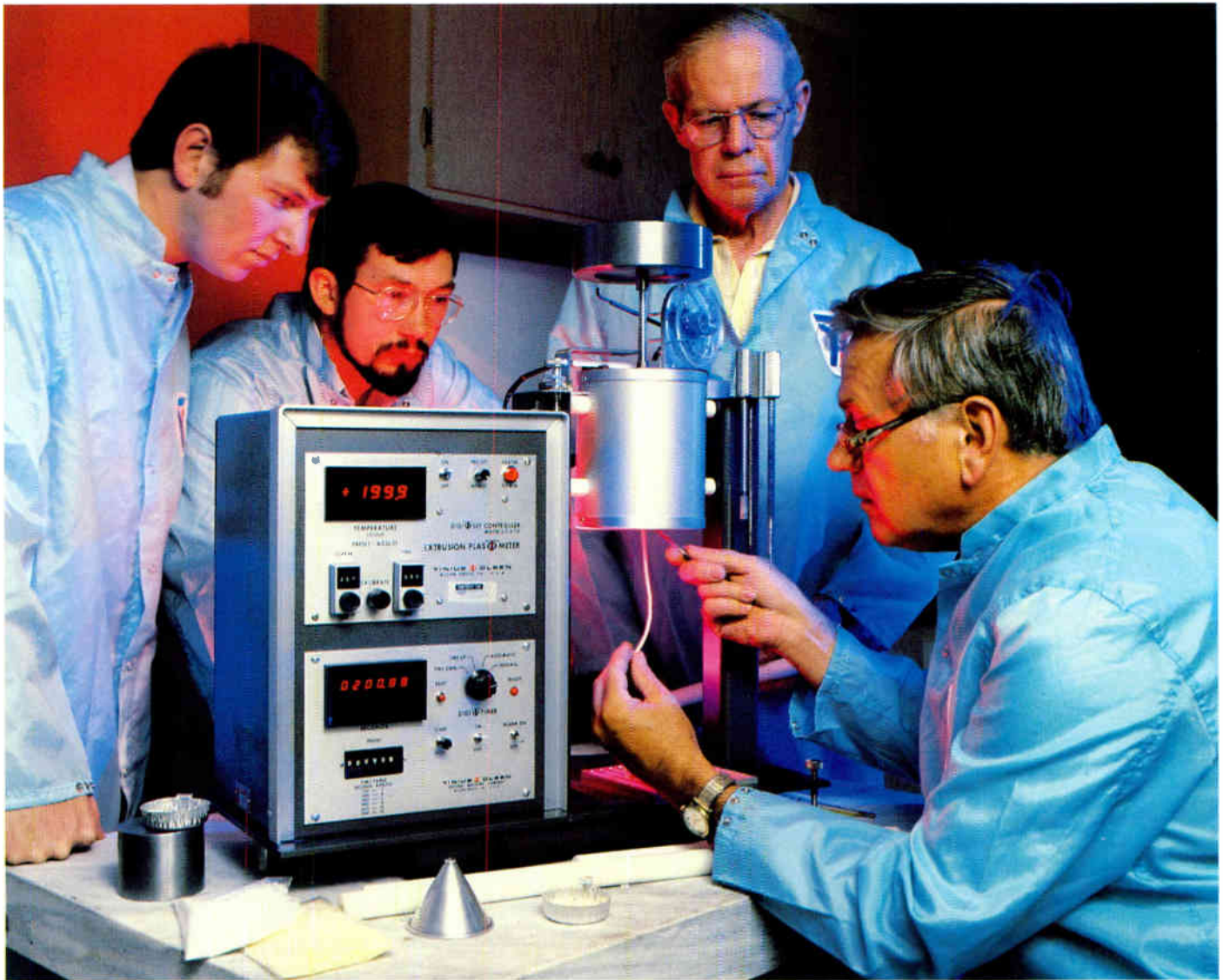
Controlled Bonding for Long Life

T4 provides an improved barrier between the center conductor and dielectric for long-life moisture protection. T4 also provides controlled adhesion for superior strippability.

Tough and Durable Foam Structure

T4 high-strength resins and tight cell structure create a harder, tougher foam dielectric for easier handling, more reliable installation, and improved resistance to kinking and deformation.





Outstanding Electrical Performance

T4 provides a more uniform cell structure to give you improved structural return loss and outstanding attenuation performance.

Total Product Line

The T4 foam dielectric system is available in Times' full line of coaxial trunk, feeder and drop cable, ready now for specification on your next build.

To find out more about how this new dielectric can help you, call your Man From Times today. You can also contact us at 358 Hall Avenue, Wallingford, CT 06492, telephone (800) 243-6904.



TIMES FIBER COMMUNICATIONS, INC.
CABLE TELEVISION DIVISION

An **Insilco** Company

As the sessions and experts presenting them are being finalized, listed below are some of the subjects that will be covered on the CCOS '82 program. The CATA Executive Committee working with the Board of Directors and CATA Director of Engineering, Ralph Haimowitz, has formulated a slate of sessions that holds subjects of vital interest to cable operators and technicians. The sessions are separated into two categories — MANAGEMENT and TECHNICAL — and will run simultaneously.

It will be two **full** days of information — you can't afford to miss this outstanding schedule of sessions, presented by experts in these fields.

To list some of them —

- **FOCUS ON OWNERSHIP** — don't miss this one as it is critical to every cable operator!!
- **THE COPYRIGHT MONSTER BREATHES FIRE AGAIN!** — absolutely vital!!
- A very detailed session on **ADVERTISING ON CABLE PAYS** — will include a comprehensive approach on cable advertising facts, sales, and the technical and mechanical way to implement an advertising program.
- Got a Non-Pay, Bad-Debt Situation? Get the information on **HOW TO COLLECT FROM NON-PAY SUBSCRIBERS**
- **WHAT IS A CABLE SYSTEM?** A basic program to inform new people in the cable business, cable operator spouses, salesmen, etc. on the concept and simple mechanics of cable television. A repeat of a session that was a smash!!!
- **BIG BUCKS IN A SMALL TOWN** (Rural cable development)
- **ARE YOU GOING TO HAVE TO SCRAP YOUR 4 1/2 METER DISH?** What is the 2° or 3° satellite spacing going to do to your earth stations? Attend this one and find out!!
- Do you have a Spectrum Analyzer and don't know how to use it? **TECHNIQUES OF SPECTRUM ANALYSIS** will help you!!

AND MORE!!!! Sessions on **CIRCUITRY — AGC/ASC CABLE SYSTEM INSURANCE COVERAGE, NEWS PROGRAMMING FOR LOCAL ORIGINATION, FINANCE**

Register today to take advantage of these helpful and informative sessions.

The Grand Staircase of the Opryland Hotel

Program Material for

CCOS '82

DON'T DELAY . . . REGISTER NOW FOR

CCOS '82

**TAKE ADVANTAGE OF REDUCED REGISTRATION
AND HOTEL RATES**

PRE-CONVENTION RATES:

CATA MEMBERS*	\$ 75.00
NON-CATA MEMBERS	\$125.00
SPOUSES	\$ 25.00
CHILDREN OVER 16	\$ 25.00

AFTER JUNE 15th, REGISTRATION FEE WILL BE \$175.

**Must Furnish System Name for Verification*

CCOS '82

Enclosed is _____ to cover registration for:

Name _____

System _____

Address _____

City _____ State _____ Zip _____

Telephone (_____) _____

Name of Spouse _____

Names of Children (and ages) _____

Send to: CATA CCOS '82

4209 N.W. 23rd, Suite 106

Oklahoma City, OK. 73107

KNOXVILLE

Site of the 1982 World's Fair

Many COCS '82 bound families have asked about information concerning the World's Fair to be held at Knoxville, Tennessee, and CATJ has assembled some facts and information intended to assist you in making your plans as you travel to Nashville for the annual CATA CCOS seminar July 3-6, 1982.

The World's Fair has been erected on a 72-acre downtown site, wedged between the Knoxville downtown and the University of Tennessee campus. Many of the fair structures are "redos", part of an aggressive downtown renovation scheme that will alter the face of Knoxville forever; however in exploring the fair's theme — "Energy Turns the World" — there are futuristic and symbolic buildings where energy will be explored — from the fuels and facts that do and will power nations to the world's other energies, spawning the arts, music, and life-styles.

At present, some 19 countries are planning to participate in 14 international expositions, with each formulating its own exhibit plans, mindful of the elements that make it unique. A variety of corporations and states will also host exhibits across the grounds, and special musical programs will be presented in the centrally located amphitheater with major off-site concerts planned in conjunction with the fair as well as sporting events, such as international baseball and basketball tournaments.

Opening on May 1, 1982, the World's Fair will run until October 31st, 1982 with opening each day at 10:00 a.m. and closing at 10:00 p.m., open seven days a week.

Admission to the 1982 World's Fair is comparable to most of the theme parks and will allow visitors to enjoy exhibits, pavilions and most entertainment without additional charge. Tickets are now on sale!!

To order tickets, write to:
The 1982 World's Fair
Ticket Sales
P.O. Box 1982
Knoxville, Tennessee 37901.
(615) 971-1982

If you would be interested in group tickets, address your request to Group Sales. For those of you closer to Knoxville where you might be able to frequent the premises, there are also season passes available at a reduced rate from now until April 30 with price increased during the fair time.

Whether you plan to visit Knoxville before or after coming to Nashville for CCOS '82, there are three main intersections serving Knoxville — I-40, I-75, and I-81. The proximity to other attractions, such as Gatlinburg and the Great Smoky Mountains National Park, as well as nearby lakes and dams, is such that a most interesting route can be mapped out to take advantage of this most historic and scenic area.

Listed below are accommodations and available housing in Knoxville so that you can refer to it to make your reservations as you plan your trip.

	Regular	Senior Citizens	Children	(ages 4-11
1 Day	\$ 9.95	\$9.25	\$8.25	Under 4
2 Day	\$15.95	(for all age groups)		years ad- mitted free)

Best Western Cherry
Tree Inn
1500 Cherry Street
Knoxville, TN 37917
*546-7110

Best Western Country
Squire Motel
P.O. Box 10265
Knoxville, TN 37919
584-4674

Best Western Motor Inn
I-75 & Merchants Road
Knoxville, TN 37912
688-9110

The Cobbly Nob Resort
RFD #3, Hwy. 73 East
Gatlinburg, TN 37738
436-9333

Family Inns of America
4300 Rutledge Pike
Knoxville, TN 37914
546-3910

Family Inn Westsider
8167 Kingston Pike
Knoxville, TN 37919
693-1811

Holiday Inn Northeast
P.O. Box 6197
Knoxville, TN 37914
637-0440

Holiday Inn Gatlinburg
P.O. Box 645
Gatlinburg, TN 37738
436-9201

Holiday Inn University
Center
Dale Avenue at I-40
Knoxville, TN 37921
525-5371

Holiday Inn West
1315 Kirby Road
Knoxville, TN 37919
584-3911

Howard Johnson Motor
Lodge
118 Merchants Road
Knoxville, TN 37912
688-3141

Howard Johnsons West
Town
7723 Kingston Pike
Knoxville, TN 37919
693-6111

Hyatt Regency Knoxville
P.O. Box 88
Knoxville, TN 37901
637-1234

Lakeview Motel
6133 Chapman Highway
Knoxville, TN 37920
577-7621

Primeway Inn
9340 Park West Blvd.
Knoxville, TN 37923
693-6061

Ramada Inn West
7621 Kingston Pike
Knoxville, TN 37919
693-8111

Rodeway Inn Motel
323 Cedar Bluff Road
Knoxville, TN 37923
693-7330

Sheraton Campus Inn
1706 Cumberland Avenue
Knoxville, TN 37916
524-4681

Sheraton West
I-40 at Cedar Bluff Road
Knoxville, TN 37923
693-1011

Sunset Motel
6245 Chapman Highway
Knoxville, TN 37920
573-7701

Vagabond Motel
6200 Papermill Road
Knoxville, TN 37919
584-8511

*Area Code 615

KNOXVILLE ACCOMMODATIONS*

SUPPLEMENTAL HOUSING BUREAU

The Chamber based, Lodging Services, Inc., serves as the exclusive housing bureau for quality furnished homes, apartments, condominiums, dormitories and campgrounds.

FOR ADDITIONAL INFORMATION CONTACT:

Lodging Services
P.O. Box 2688
Knoxville, TN 37901
(615) 971-4000

□

Finally, ask for his assistance in developing a realistic set of projections for your company for at least the next five years and make sure that all key assumptions are foot-noted and adequately explained.

Once you have this basic material, you should develop a formal financial proposal. A professional presentation based on realistic goals and assumptions is critical to your search for the appropriate type of financing. If you feel that you do not have the expertise to develop a reasonable professional presentation yourself, you should call several of the well-known cable or consulting firms and ask them for a quotation on the cost of developing a proposal for

“... consider some of the basic ground rules.”

you. You might also consider the services of an investment banking firm or brokerage firm that specializes in cable. More on that subject later.

If you are going to proceed on your own, you should give much thought to the type and amount of financing which you will require.

Some Basic Ground Rules

Although there are many purposes for borrowing, at the risk of being simplistic, there are five basic “types” of cable TV loans: refinancing, acquisition financing, new construction, system rebuild and/or extensions, financing to add new services (earth stations, microwave, converters, scramblers, etc.). Quite naturally, in the “real world,” the actual loans often encompass various configurations of these five basic categories. It is important to keep these basic categories in mind as we explore the various sources of financing available.

Since the readers of this article may have diverse considerations, we should initially consider some of the basic ground rules.

One of the most basic considerations is the need to ascertain the amount of equity available either in real and/or “balance sheet” dollars. While this may appear to be self-evident from your initial financial review of the company, the true equity value of an existing company can be derived from the current cash flow and conservative pro forma cash flow projections which incorporate the sources and uses of funds statement. These figures will be the basis to determine the maximum leverage factor attainable.

Once you have ascertained the cash flow potential, it is then necessary to consider, if necessary, what additional collateral may be available, if any, and whether or not other security, such as corporate or personal endorsements and guarantees, may be utilized. It should be pointed out that non-recourse loans, those that must stand by themselves without additional security, are the most difficult to obtain. Hence, if you have stand-alone financing, the prospective lender will undoubtedly carefully scrutinize the loan in great detail, since all of the risk is directly related to the ability of the particular system to repay the debt out of cash flow.

If you feel that you have a straightforward, uncomplicated, well-secured, short-term loan situation, then you might wish to check with your local and area banks first. This is particularly true if the bank is located in a community served by your cable system. It is always advisable to make a courtesy call on your own bank anyway. Unless you already have an existing relationship, you will probably find that local banks generally approach a cable TV loan opportunity with extreme caution since it is a highly specialized situation. Nevertheless, you just may find a bank sufficiently interested to make you an attractive offer. Also, do not overlook the fact that some local banks may have a regional or national correspondent bank that has had favorable experience with cable TV loans, and could well be interested in participating.

Even if you receive approval of your loan request from your local bank, it is still wise to proceed with much cau-

cont. on P. 32

Our repair team will jump at the chance to fix your busted fraznatz.



Bless 'em, they love a challenge. And the little tinkers know their head-ends from their attenuators, too. So give us your worst shot and we'll give it our best.

Results-oriented professionals, our people are trained and experienced in repairing all makes and types of CATV equipment. Supported by state-of-the-art technology, they can fix almost anything short of cats and bad marriages.

Fast Turnaround: Our normal turnaround is two to four weeks. We will do emergency repairs on request (24- to 48-hour turnaround). With the industry's largest inventory on hand, there are few delays waiting for parts.

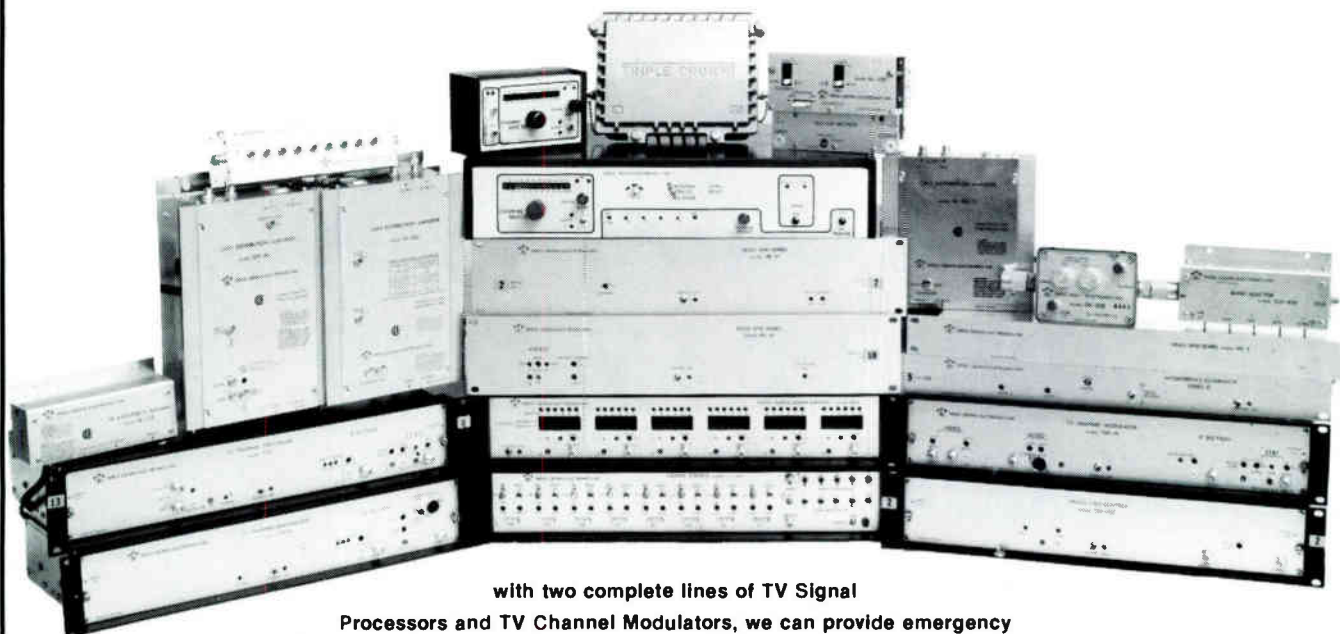
Guaranteed Results: Quality workmanship is backed by the Broadband Performance Guarantee: If it's been through our shop and still doesn't perform up to specs or better, return it and we'll make it right. No charge. No hassle.

Cost: Our repair rates are competitive. Call our toll-free number 800-327-6690, and ask for our Repair Price List.

When you think repair, think Broadband. For more information, call or write Broadband Engineering, Inc., 211 Commerce Lane, Jupiter, Florida 33458.



TRIPLE CROWN ELECTRONICS offers more than the most extensive amplifier line in the industry . . .



with two complete lines of TV Signal Processors and TV Channel Modulators, we can provide emergency override for under \$30/channel (20 CH system). Our TCS 1800 multichannel signal source has been expanded to 400 MHz for one of the most cost effective test and maintenance packages of its kind. Add our Television Satellite Receivers and Amplifiers with feed-forward correction and you'll find that Triple Crown Electronics has the equipment you need . . . at prices you can afford.

CANADIAN DISTRIBUTION REPRESENTATIVES

QUEBEC / MARITIMES
Incospec Electronics Inc.
4050 Rue Charleroi Street
Montreal-Nord, Quebec H1H 1S6
Tel: (514) 322-5540

WESTERN CANADA
Tech Comm Sales Inc.
5349 Imperial Street
Burnaby, British Columbia V5J 1E5
Tel: (604) 437-6122

UNITED STATES DISTRIBUTION

REPRESENTATIVES

B.E. Duval Company
29619 South Western Ave.
San Pedro
California
90732
Tel: (213) 833-0951

TR Pitts Company
P.O. Box 57
501 West Fifth Street
Winona, Minnesota
55987
Tel: (507) 452-2629

Ind. Co. Cable TV Inc.
P.O. Box 3799
755-23rd Street
Batesville, Arkansas
72501
Tel: (501) 793-4174

IN MEXICO

FAG, S.A.
Calle 15 No. 81
San Pedro de los Pinos, Mexico 18, D.F.
Tel: (905) 516-1075

IN EUROPE

HF Transmissie Techniek B.V.
P.O. B 385, De Smalle Zijde 8
3900 AJ Veenendaal, Holland
Tel: 08485-17231

U.S. REPAIR SERVICE

Superior Electronics Center Inc.
2010 Pine Terrace
Sarasota, Fla. 33581
Tel: (813) 922-1551

Lee Dorman Repair Service
Tressler Street
Pleasant Gap, Pa., 16823
Tel: (814) 359-3161

**At last, a big idea
in addressability for
the smaller system
operator.**



The new Oak MiniCon™ System. It's affordable addressability for operators with 8,000 or fewer subscribers—operators who need the cost savings, management information and marketing opportunities that come with addressability, despite their smaller systems.

MiniCon delivers the most important capabilities of Oak's larger TotalControl™ addressable system at a lower cost suitable for smaller operations. Like TotalControl, MiniCon allows headend control of every terminal in the system with up to 56 channels and 16 tiered program levels.

It helps smaller systems build revenue through more program options and better control.

It offers a much shorter payback period than other addressable systems because it

costs just \$21,000 to install with two scrambled channels.

And it's a way to enter the addressability market with a smaller operation, then upgrade to TotalControl when your customer base demands a larger system. All you do is change the headend hardware with no terminal or distribution changes.

Like any addressable system, MiniCon offers complete security. The decoders will unscramble only authorized programs. Any terminal can be activated or deactivated from your central office, eliminating late payment problems and pirated decoders.

MiniCon is a truly integrated system, including individually-coded home terminals, a secure scrambler, a computer system and home terminal control hardware. It comes with fully

documented computer software and is used in conjunction with standard frequency synthesized 300 or 400 MHz TotalControl home terminals.

Since we've miniaturized the size and cost of our MiniCon System, there's no reason for you to forego the advantages of addressability because your operation is limited in size.

A call to our toll-free phone number will bring you more information about MiniCon. Call 800-323-6556 (in Illinois 800-942-6345) and ask for the Oak Communications Systems Information Desk.

We're Oak Communications Systems, formerly Oak Communications CATV Division, and we haven't forgotten operators of smaller cable systems. After all, we were once a small company ourselves.

DAK

Oak Communications Systems

P.O. Box 517 Crystal Lake, Illinois 60014

Subsidiary of Oak Communications Inc.



FOR UNDERGROUND HOUSE DROPS

Discover what compact performance can mean to you!!

NO TRAILER NO LAWN DAMAGE

TRACKS AND CENTERED BLADE DOES IT


140 F.P.M. MAX.

The Line-Ward L-1 Cable-Line Layer "Explodes" the Myth "Big is Better" & Outperforms Units 3 Times its Size Only 24½" Wide

Mud or Fine Lawns (It Will Go Where The Others Will Not)

157 Seneca Creek Rd. Buffalo, N.Y. 14224 Phone 716-675-7373

LINE WARD CORP.



**RCA AMERICOM
SATCOM IV
SATELLITE PLACED IN
GEOSYNCHRONOUS
ORBIT**

**Second All-Cable TV Satellite
Launched January 15**

RCA American Communications, Inc. announced that its Satcom IV communications satellite was successfully placed in geosynchronous orbit following the firing of its apogee kick motor at 2:53 p.m. (EST) today.

Satcom IV was launched from Cape Canaveral, Florida, aboard a McDonnell Douglas 3910 PAM/D launch vehicle by NASA at 8:54 p.m. (EST) on January 15.

Over the next several weeks, RCA personnel will maneuver the new spacecraft into its final orbital position at 83 degrees West longitude, and will conduct tests on its attitude control, power and communications subsystems.

When operational, Satcom IV will be the second U.S. domestic communications satellite fully dedicated to the distribution of cable television programming. It joins RCA Americom's Satcom III-R, launched November 19, in providing this service to a rapidly growing segment of America's business.

Transponder assignments on Satcom IV will be made following successful completion of all tests. Of the 24 transponders aboard, eight will be used by customers who have temporarily held transponders on the Comstar D-1/D-2 spacecraft, and seven will be used by customers who acquired lease rights through an auction held November 9. RCA Americom will hold two transponders for occasional service and will make an announcement shortly on how the remaining seven will be assigned. □

NOW SPECTRUM ANALYZERS
for monitoring, service and testing communication equipment
100 kHz - 2 GHz

The Model 632B-1 is well suited for wide range distortion and noise measurements, test

equipment calibration, EMC tests, and other frequency domain applications up to 2.0 GHz.

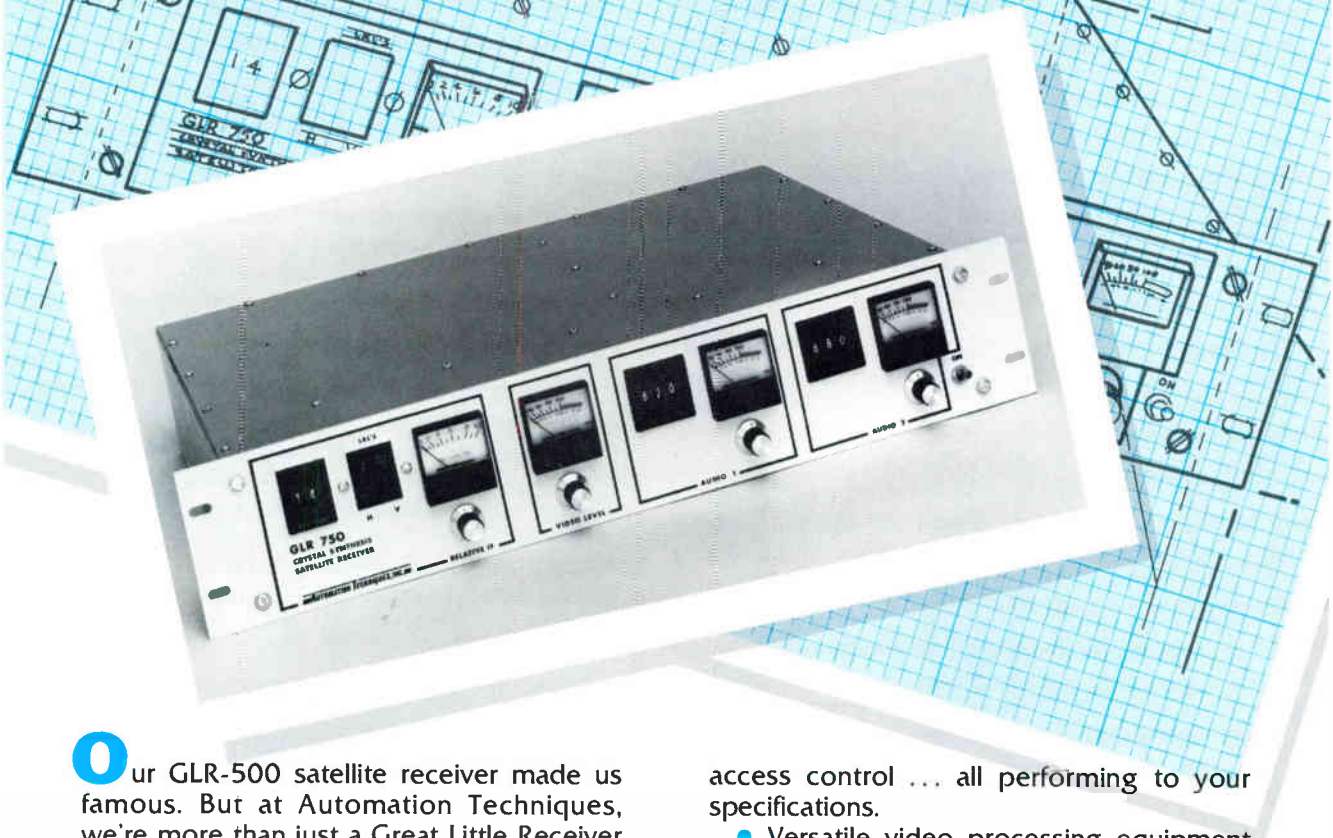


Send for our new catalog.

polarad polarad polarad

Polarad Electronics, Inc. 5 Delaware Dr., Lake Success, N.Y. 11042 TEL 516-328-1100 TWX 510-223-0414

We're more than just a Great Little Receiver!



Our GLR-500 satellite receiver made us famous. But at Automation Techniques, we're more than just a Great Little Receiver ... much more. We manufacture a line of the most dependable ... and affordable ... cable TV and closed circuit system programming equipment in the industry.

Our integrated satellite and video equipment provides more technology for your money, including:

- The Smart Six System of automatic video cassette programmers, designed to give you the flexibility of total customized automatic programming.
- Highly accurate programming components ... cassette programmer changer, digital clock programmer and random

access control ... all performing to your specifications.

- Versatile video processing equipment ... our time-proven time base corrector, multi-purpose utility color generator, automatic proc amp and precision-built random deck control ... all **state-of-the-art** technology.

Of course, we still produce the GLR-500 and several advanced configurations with various accessories.

But we're more than just a Great Little Receiver. At Automation Techniques, we're more technology, more dependability and more affordable prices. What more do you need?

For more information, call us today: 918-836-2584

We make technology affordable

AUTOMATION TECHNIQUES, INC.

1846 N. 106th E. Ave. ■ Tulsa, OK ■ 74116

tion. It can provide a potentially dangerous situation if your financing institution doesn't understand the cable TV industry. If you don't meet the projections or continue to seek higher levels of indebtedness, your local banker may become inflexible and overly cautious.

You should be aware that generally, most cable TV loans in excess of \$350,000 are not placed with local banks, but rather with finance companies, regional and national banks or insurance companies that have had cable TV experience or have loan officers with some expertise in cable TV lending. There are exceptions to this generalization; however, they are comparatively rare.

"... bankers simply do not understand the collateral value of the business."

A frequent complaint of the cable operator seeking financing is that bankers simply do not understand the collateral value of the business. Cable television has many unique financial features. It is principally a cash flow business, rather than a balance sheet business, and in the early years, most cable companies have a negative net worth. Many lenders are concerned that the only tangible assets, cable, strand, head end, etc., are only worth salvage value, and the franchise has little or no value.

If you do not know the obvious answers to these negative arguments, it might be worthwhile having your system appraised by a recognized cable TV appraiser. While it may be difficult for you to argue that your system is worth ten times cash flow or \$600-\$1,000 per subscriber, and that it is an active seller's market, these rules of thumb and industry experience are completely alien to him. However, you would be surprised at the faith some of the lenders put in appraisals by recognized appraisers. Prior to

"... average life of a cable television bank loan ... only three to four years ..."

arranging an appraisal, consult with your investment banker to determine the benefits that can be derived. During 1978 and early 1979, an unusually large number of banks, and to a lesser degree, other financial institutions, were seeking to develop portfolios of cable TV loans. This was largely due to a recognition of the developing status of the industry, as well as the vastly improved fiscal health of the public cable companies. This trend reversed itself in the deteriorating economic climate in the last quarter of 1979 and early 1980. In late 1980 and early 1981, increasing amounts of money became available for cable, although the very high prime rate substantially lowered the leverage possibilities available on numerous loans.

For the small, less experienced borrower, your chances are substantially better to obtain the appropriate type of

financing for your company by seeking a lender with a good track record in cable lending. The problem with cultivating a source of financing new to the industry is several fold.

First, with the continuing high prime rate, you may find that by the time your application reaches the appropriate committee for approval, the funds may not be available. Of course, there is always a degree of risk that the committee may not even approve your loan — "the cold feet syndrome."

The essential problem is that being in the first generation of a bank's cable lending career, you will undoubtedly pay for the bank's learning curve, as well as encounter delays in decision-making. You may find that you might even incur the cost of developing loan and security agreements through substantial legal fees paid by the borrower as part of the closing costs. Unfortunately, you might find the loan and security agreements drafted without benefit of knowledge gained from prior experience in cable lending, may be inadequate or contain needless restrictions and covenants which could cause serious problems later in the relationship.

Although the average life of a cable television bank loan is thought by most of the experts to be only three to four years, it is important to note that most of these loans are actually booked on a relatively long-term basis. Hence, by considering a loan from a financial institution that has a good track record and experience in cable lending, particularly those with "cable TV specialists," it is more likely that they will be more flexible in the relationship and be more considerate of requests for additional funding in the future. Most importantly, if a significant problem develops

"Don't be afraid to ask questions!"

with the loan, the lender with experience in the industry will be less likely to panic, and more likely to work with you than to take drastic action.

Choosing the Right Source

It is really quite difficult to generalize about the various institutions that specialize in cable TV lending, since each of these institutions has an individual corporate personality, not to mention the personalities and varying degrees of experience and sophistication of the loan officers involved. While searching for financing, you should be encouraged to obtain copies of the annual reports of the lenders being approached, as well as references within the industry. It would be very advisable to speak with cable borrowers of the financial institutions being considered.

Don't be afraid to ask questions! If possible, attempt to find out as much as possible about a particular lender's basic loan criteria; experience, as well as attitude toward the cable industry; basic concerns regarding cable/pay cable; willingness to go into additional projects; documentation procedures, closing costs and legal fees; and develop

continued

WITHOUT THE INDEX VOLUME, YOUR LIBRARY IS INCOMPLETE

The 1981 Supplement to CATJ's INDEXED VOLUME is now available!

Included in this group are the articles on:

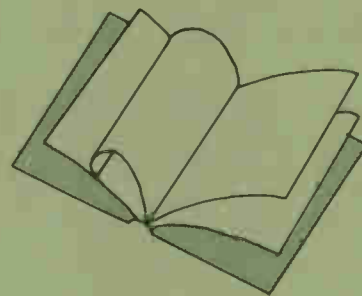
- UPGRADING YOUR SYSTEM
- CATV BILLING AND FINANCING
- 3 METER ANTENNAS
- AML DISTRIBUTION
- INTERFERENCE STUDIES AND SATELLITE
- STATION FREQUENCY COORDINATION
- PREVENTIVE MAINTENANCE OF SYSTEM
- DEGRADATION
- SMALL OPERATOR SURVIVAL AND HELP FOR
- THE RURAL SYSTEMS
- SATELLITE COMMUNICATION
- CONVERTERS
- AND . . . the regular monthly
- STEVE BIRKILL ARTICLES and
- WASHINGTON UPDATE

Separated by subject matter, this addition is designed to fit into the tabbed sections of the INDEXED VOLUME, a compilation of the major articles since the inception of CATJ (May 1974 through 1979).

Completing this library, the 1980 CATJ Supplement is still available.

If you don't have your INDEXED VOLUME and the 1980 and 1981 SUPPLEMENTS, your library isn't complete.

Order today!!



**A
VALUABLE
WORKING
REFERENCE**

YES!

**I WANT TO
KEEP UP WITH
THE CURRENT INNOVATIONS
IN THE FIELD!
SEND ME:**

No. of Sets	Item	
_____	Index Volume with 1980 & 1981 supplement	\$150
_____	Index Volume with 1980 supplement	\$120
_____	Index Volume	\$100
_____	1981 supplement	\$ 30
_____	1980 supplement	\$ 30

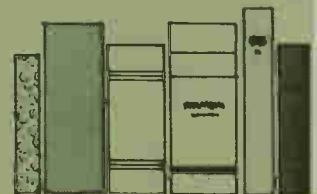
I am enclosing a check for \$ _____ for the items marked above.

Name _____

Address _____

City _____ State/County _____ Zip _____

MAIL TO: CATJ 4209 N.W. 23rd Suite 106 Okla. City, Okla. 73107



KEEP PACE with the Industry All New 1982

Name

Address

City

State

Zip

CATA MEMBER

NON-MEMBER

* \$14.00 enclosed for 1 year

\$18.00 enclosed for 1 year

* \$40.00 enclosed for 3 year

\$50.00 enclosed for 3 year

NOTE: CANADA/MEXICO SUBSCRIBERS: Add \$4.00 per year to rates given above. All other Foreign Countries add \$7.00 per year to rates given above. Special handling arranged upon request. U.S. CURRENCY ONLY.

* MUST FURNISH SYSTEM NAME:

WorldRadioHistory

CATJ

Subscribe



\$4195
Compuvid JR
MORE THAN A MEMORY
COME RAIN OR SHINE

WEATHER/MEMORY

Standard:

- Entire system in one keyboard housing
- Weather uses Texas Electronics sensors
- Field proven reliability
- More flexible format
- Eight page standard memory with static weather intermix
- One thousand character crawl
- Eight colors
- Four character sizes
- Random page access
- Variable page time
- Built in fail-safe

Options:

- Sequential weather available with separate keyboard memory region
- Optional 24 pages of additional memory
- Sixteen additional formats available

- And much more

Computer Video Systems
3678 West 2150 South #2
Salt Lake City, UT 84120
801-974-5380
800-453-8822

**Eastern Regional Sales Office
and Service Center**
Suite 16
2131 Kingston Court
Marietta, GA 30067
404-952-3177
800-241-1453

Steve J. Birkill On Experimental Earth Terminals

Steve J. Birkill
128 Cross House Road,
Grenoside, Sheffield S30 3RX England

©1978 CATJ

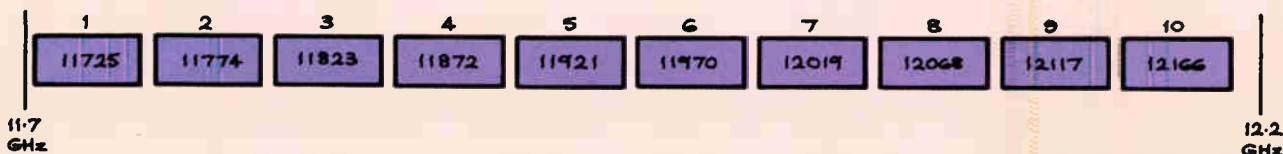
Satellite Systems of the World: SBS

Business communications via satellite have been available since the earliest days of commercial satellite operations. The increasingly sophisticated communications requirements of our large corporations, in recent years, have driven them to satellites to find the wide-

SBS, these services were provided by the existing carriers (Western Union for example) through a network which, quite simply, was not designed for digital service. The very fact that the existing satellites operated in the 6 and 4 GHz bands, shared with terrestrial services,

provided the first satellite system purpose-designed for integrated, high-density, digital intra-company communications traffic. The choice of the 12/14 GHz frequency bands has its own advantages:

1. Wideband channels: There is no standard frequency plan for the



band communication highways capable of carrying high-speed digital data, voice, facsimile and video signals between the widely scattered offices within their organizations, at a realistic cost. Before

meant that the terminals had necessarily to be outside the heavily RF-polluted downtown city areas — the very locations where the information was needed.

Satellite Business Systems has

12 GHz downlink band, so the system designers could choose a channel width to suit the requirements of the SBS system, without being constrained by other factors. The communications band

ADD NEW REVENUE WITH CHANNELCUE™ MESSAGE INSERTION SYSTEM



1

Time Switching With 1 And 2

2

Tone Switching With 2 And 3

3

NOW ...

Message Insertion With 2, 3, 4 and 5

4

Add The Message Insertion System
(4 and 5) To Any Channelcue™ Tone
Switching System

5

Program and store up to 16 alphanumeric messages with the basic unit. (Expandable to 110). Recall them in any sequence required. That sequence recycles until changed.

Satellite Cue Tones Do The Rest.

You can begin generating added revenue from advertising or promoting additional tiers of service for a lot less than you might imagine.



**Gardiner
Communications
Corporation**

A Burnup & Sims Company
1980 Post Oak Boulevard, Suite 2040
Houston, Texas 77056-3869
(713) 961-7348
TWX 910-881-1586

Steve J. Birkill

has a width of 500 MHz (11.7 to 12.2 GHz), and SBS chose to divide this into ten channels, each 43 MHz wide, with 6 MHz guard bands, plus telemetry carriers at the upper band-edge. See Fig. 1. Although a bit-rate in the 80 Mb/s per channel region could theoretically be accommodated, SBS has specified a

channel capacity of 43 Mb/s (Megabits per second). Using the digital switching system known as Time Division Multiple Access, customers are offered data rates up to 1.5 Mb/s, with 6.3 Mb/s available if the demand exists. The TDMA system, monitored at the SBS Network Control Center, McLean, Virginia, operates on a demand-assignment basis, apportioning the total time among the users' data streams awaiting transmission, millisecond by millisecond, to make the best use

of transponder capacity.

2. Freedom from interference: The lack of heavy terrestrial microwave traffic in the 12/14 GHz bands means that the SBS terminals can be located in the main on the premises they serve. This removes the dependence on terrestrial 'back-haul' circuits and puts the terminal within the control of the user. The associated Satellite Communications Controller automatically interfaces the TDMA data bursts to and from the satellite with the internal communications network of the plant or office of the user. Computer data, teleconferencing, telephony, document transmission are all integrated into the one 'all digital' system. Security is assured, as the SCC passes only the data bursts addressed to its own terminal.

3. Small antenna capability: The standard SBS user's terminal is 5 or 5.5 meters for rooftop mounting, with a maximum of 7.7 meters being required in the extreme northern or southern regions of the continental U.S., where EIRP falls below 40 dBW (see Fig. 2). This ensures a bit error rate of 1 in 10^7 , allowing for all cumulative degradations, assuming 300K LNA noise temperature and 500 W HPA output power at each terminal. Forward error correction is employed in the digital coding to achieve this performance.

Following early exploration of the field by Comsat in the early 70s, Satellite Business Systems was formed in 1975 as a partnership among subsidiaries of Comsat General Corp., IBM Corp. and Aetna Life and Casualty Company. SBS was authorized in 1977 to establish an all-digital domestic communications satellite system operating in the 12/14 GHz bands to serve businesses, government agencies and other communications users. The now-familiar Hughes HS-376 spacecraft bus was chosen, three satellites being ordered, two for primary and secondary operational service and one as a ground spare. At the time of ordering, the STS (Shuttle) was to be the launch vehicle, but the spacecraft was designed to permit launching by the Delta



The PHASECOM MODULATOR & The SAW FILTER. A perfect match.

They're a natural. The Phasecom 2000 Series Modulator and the new solid state SAW (Surface Acoustic Wave) Filter.

Top technical performance. Exceptional reliability. It's what they're both all about. We had to put them together.

So now, every Phasecom Modulator has a SAW Filter at IF. For a perfectly shaped vestigial sideband signal. For flat group delay. Without tuning or

maintenance.

And better yet... at no increase in price. It's all part of our ongoing efforts to bring you the best value in headend electronics in the industry today.

 **PHASECOM CORP.**
The Headend Experts
6365 Arizona Circle
Los Angeles, CA 90045
Tele: (213) 641-3501

If you're into Cable Communications, We're Into Your World.

WE REPAIR YOUR WORLD.



From AEL to Zenith. From headend and line equipment to field strength meters. With high quality repair and our inventory of parts, we get you back on, faster.



An Employee Owned Corporation
COMSONICS, INC.[®]

P. O. Box 1106 Harrisonburg, Virginia 22801

1-800-336-9681

IN VA 703-434-5965 COLLECT

3910/3920 vehicle. The telescopic drum-shaped spin-stabilized satellites are designed for a minimum life of seven years. The deployable 'tin-lid' antenna reflector is illuminated by a cluster of feed horns, providing a shaped beam pattern biased towards the east but with spot beams covering Los Angeles and San Francisco, California as shown in the unlikely-looking diagram, Fig. 2. The ten transponders are served by sixteen 20-watt TWTAs, providing a degree of redundancy. Frequency re-use is not employed, all transponders downlinking with vertical polarization.

The first SBS was launched in November 1980, the second in September 1981, both by Delta from Cape Canaveral, and they are both fully operational from their present orbital slots of 100°W and 97°W respectively. The third satellite should see launch this fall, to the 94°W location. The satellites are controlled from SBS's tracking, telemetry and control stations at Castle Rock, Colorado and Clarksburg, Maryland. The principal TT&C functions of telemetry monitoring and satellite control are performed at the Maryland facility, while the Colorado station's 12-meter antenna monitors precise

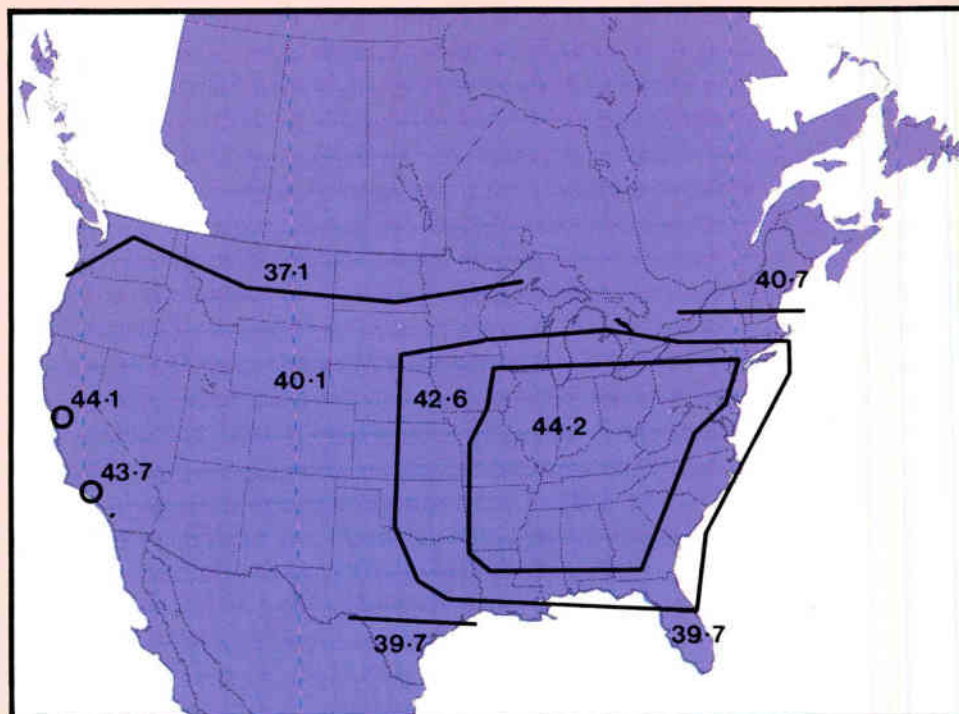
stationkeeping of the spacecraft, and transmits the antenna pointing beacon as well as the telecommand instructions originating at Clarksburg. NEC provided the TT&C terminals, IBM the first SCCs, Fujitsu and Harris produced high-speed TDMA burst modems. NEC and Hughes have provided the first 200 customer terminals.

Just as in teleconferencing or indeed any other type of video transmission the TV signal can be digitized and transmitted over the 'all digital' network like any high-speed data traffic, so the satellite transponders are not peculiarly digital devices. Although they may spend their lives handling pulse code bitstreams modulated by phase-shift keying of the carrier, the transponders are equally capable of relaying analogue signals in the familiar FM-TV format. In July last year, SBS decided to seek interest in using its spare transponder capacity for FM television transmission. Such transmission would provide experience in operating Ku-Band TVRO equipment, establish a new tariff-basis, and could also offer a pre-operational DBS-type service to open up the new frequency band. A glance at the footprint map shows that signals are 15 or 20 dB below what

a full DBS service might aim for, but that in the primary coverage zone, east of the 95-degree meridian, and in the population centers of California, small terminals would be practical. Assuming a standard FM-TV format were adopted, occupying perhaps 30 MHz of the full 43 Mhz transponder bandwidth, and the transponders were run at saturation, then antennas in the 1.8 meter class, with 300K LNAs, would find themselves near threshold in clear weather conditions.

SBS demonstrated the FM video capability in August 1980, and signed up two transponder leases on SBS-2. One of these was the American Hospital Video Network, intending to broadcast 40 hours per week of professional health programming, beginning March 1982 on transponder 6. Latest word seems to be that SBS are withdrawing FM-TV transponders offer due to lack of interest, with only two takers for six transponders.

I suspect this is only a temporary setback. 12 GHz satellite TV will become commonplace by the mid-eighties, even in the USA! Meanwhile SBS, with its all-digital TDMA highways-in-the-sky stands in the forefront of what is truly a communications revolution. □



cont. from P. 34

cial sophistication, you would be well advised to use a recognized investment banker associated with the cable TV industry to provide professional assistance in your efforts to place a loan with the insurance companies.

(l) Initially, you should retain a recognized cable television consulting firm to provide you with a detailed appraisal and/or feasibility study, since this is a requirement of almost all of the insurance lenders.

(m) You must also allow for several months to develop your proposal and for the time it takes the insurance company to consider and process your application.

(n) Many of the larger deals are syndicated among several insurance companies.

(o) Finally, moratoriums on principal payments are generally acceptable and may range from six months to as much as five years in specialized situations.

Finance Companies

These are the best known of all the cable lenders. Some of the leading cable TV finance companies have had years of experience in cable TV lending and have professional staffs with specialized knowledge and experience. These same companies can usually give you a very quick decision as to the degree of their interest in your application. They

are generally willing to take the time to consider the higher leveraged, more "risky" transactions, as well as the tax shelters and other more complex financings. It should be

"... best known of all the cable lenders."

noted that very few banks and insurance companies will consider financing limited partnerships or other forms of tax sheltered financings.


Some of the following generalized criteria pertain to the cable TV oriented financial companies:

(a) Generally, these companies will consider loans as low as \$250,000. Most, but not all, have an internal loan limit of \$3 million or less to any one company; however, one of the largest can consider loans of up to \$10 million. In the event that the finance companies have a large loan opportunity which they cannot do entirely in-house, they can arrange for a participation by one or more additional lenders.

(b) Repayment schedules range up to twelve years in certain circumstances with up to as much as twenty-four months moratorium on principal payments. In most cases, the finance companies tailor the repayment schedule to their perception of the available cash flow, which generally is on a "stair-stepped" arrangement.

continued

ALL PARTS IN STOCK



METERS

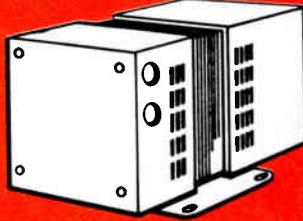
Completely Repaired
and Calibrated
in five to ten days!

**One Hundred Day
Guarantee**



Superior electronics center, inc.
2010 PINE TERRACE • SARASOTA, FLORIDA 33581
Telephone: 813/922-1551

Our Business is Improving your Image



SHAPE
MAGNETRONICS INC.


**STOP THE
DAMAGE AND
DOWNTIME
CAUSED BY
LINE LOSSES,
VOLTAGE FLUCTUATIONS,
BROWNOUTS AND LINE NOISE WITH**

Line Tamer

**FERRORESONANT TRANSFORMERS
FOR COMPUTER, INDUSTRIAL
AND ELECTRICAL APPLICATIONS**

- VA ratings from 15VA to 250KVA
- complete power line isolation
- instantaneous response
- single phase or three phase, 60Hz or 50Hz
- short-circuit protection
- no step up/down transformers required
- no maintenance; one-year-factory warranty

CWY Electronics
405 N. Earl Avenue
Lafayette, IN 47904
Toll Free (800) 428-7596
Indiana (800) 382-7526



(c) Most of these companies have very substantial prepayment fees during the first two to five years.

(d) Presently, these companies are ranging between four to six points over prime rate, and/or 25% to 28% fixed rate of interest. Most require a floor rate and occasionally will negotiate a ceiling rate or a deferral of excess payments above a certain level.

(e) At least one of the major cable TV finance companies is engaged in taking equity positions. The basic interest rate is between 2-1/2 and 3-1/2 points above the prime rate, with an equity kicker in the form of stock purchase warrants of from 5% to 25%. Essentially, most equity lenders are looking for a compounded yield of at least 25%-50% per annum.

(f) On a comparative basis, the finance company rates are high, but finance companies play a very important role in the cable industry. Often the finance companies are able to vastly increase the rate of return on invested equity through substantially increased leverage or through creative structuring because of their detailed knowledge of the industry and its values.

(g) Many times finance companies will consider non-recourse loans, whereas most banks and insurance companies will insist on personal guarantees of the principals as a matter of course, except in larger and more secure and/or collateralized loans.

(h) Unlike most banks and insurance companies, the cable finance companies are cash flow oriented, as opposed to balance sheet oriented. Because of their daily exposure to the industry, they also are cognizant of the present seller's market and corresponding collateral value of systems.

(i) From a continuing relationship point of view, most of these companies are very aggressive, particularly in the past year where they have been feeling very heavy competitive pressure from banks. Most are interested in assisting growing companies, and most are very agreeable when it comes to increasing funds to successful borrowers interested in expanding.

(j) Because many of the loan officers at these companies have been involved for some years in cable and are very active in the industry, the finance companies are the most likely of all of the financial institutions to cooperate with the borrower if problems arise, and the least likely to panic in the event that the borrower developed problems.

Conclusion

In past years, there have been many exotic forms of cable TV financing from guarantees by the Rural Electric Administration to tax exempt Industrial Development Bonds. It is beyond the scope of this article to pursue the many avenues of cable TV financing, because something as relatively simple as loan guarantees by the SBA could be the subject of an entire article. Indeed, a discussion of the other lesser-known institutions and more complex financings, both from a debt and equity point of view, it would be advisable to seek professional assistance from a recognized and experienced financial advisor and/or investment banking firm. The nominal fee charged by reputable firms can be more than offset through savings of time, money and the avoidance of future problems. Because investment banking firms are constantly involved in the financial marketplace, they will be aware of the institutions with cable TV financing experience, and they will know who is the most aggressive, both from a pricing and leverage standpoint at the time you are in need of ad-

"Lending institutions change the philosophy relative to cable TV financing ..."

ditional financing (or possibly refinancing). Lending institutions change their philosophy relative to cable TV financing quite often, and the rates and terms of a credit accommodation can vary greatly depending upon the institution's aggressiveness at a period in time.

A professional presentation specifically tailored to your situation will save both time and money in locating the appropriate lender, and negotiating the right deal. It is very difficult unless you have access to the details of day-to-day cable financings to appreciate the various considerations. It is a tragic mistake to develop your entire placement strategy on apparent rate alone; you must also be concerned with terms, conditions, covenants, structure, restrictions, amortization schedule, moratoriums, etc., not to mention taking into consideration the long-range plans of the company. You might be borrowing from a lending institutions which understands the industry, but are you working with the lender who will best help you to meet your goals.

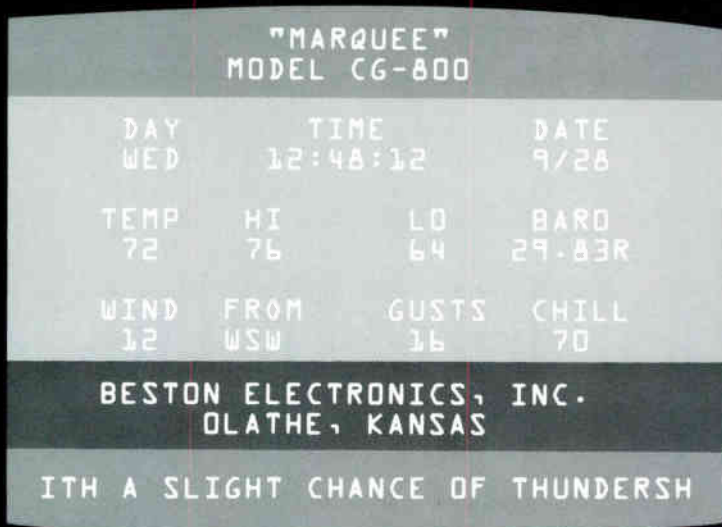
It is important to take the time and make the effort to develop long-range financial plans and goals. Many of the problems in cable television financing can be traced to poor and/or inappropriate planning and can be avoided if proper attention is devoted to this most important aspect of the cable television business. □



CHARLES L. GREENE
President

AMCOM, INC.
Building E Suite 200
5775 Peachtree-Dunwoody Road, N.E.
Atlanta, Georgia 30342
(404) 256-0228

Cable TV Brokerage



Only

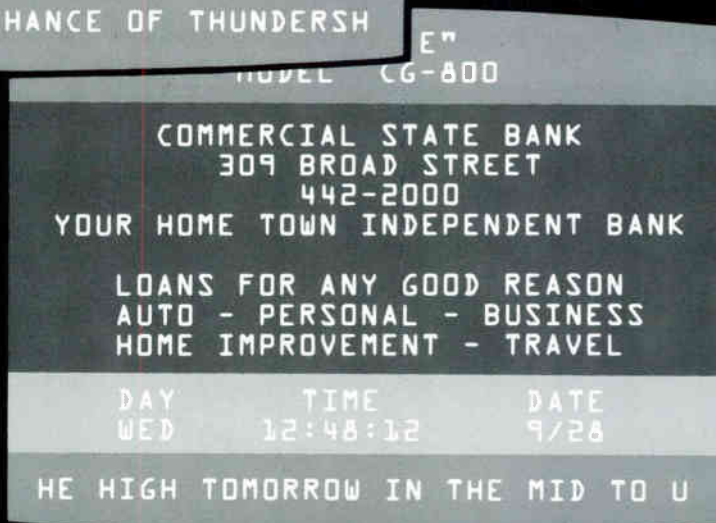
\$4,225⁰⁰

◀ ONE PAGE LIKE THIS!

▼ THREE PAGES LIKE THIS!

(with 8 line messages on each page)
Expanded to 16 pages for only \$300

Crawl line is standard with keyboard entry, optionally interfaced to NOAA. ▶



COLOR DIGITAL WEATHER / MESSAGE

AFFORDABLE BY DESIGN

Only \$4,225⁰⁰ COMPLETE: Including the cost of a factory wired and tested HEATHKIT WEATHER COMPUTER!

BEI has interfaced the CG-800 "Marquee" to the Heathkit digital weather computer for a low cost color digital weather and message channel.

CHECK THESE STANDARD FEATURES:

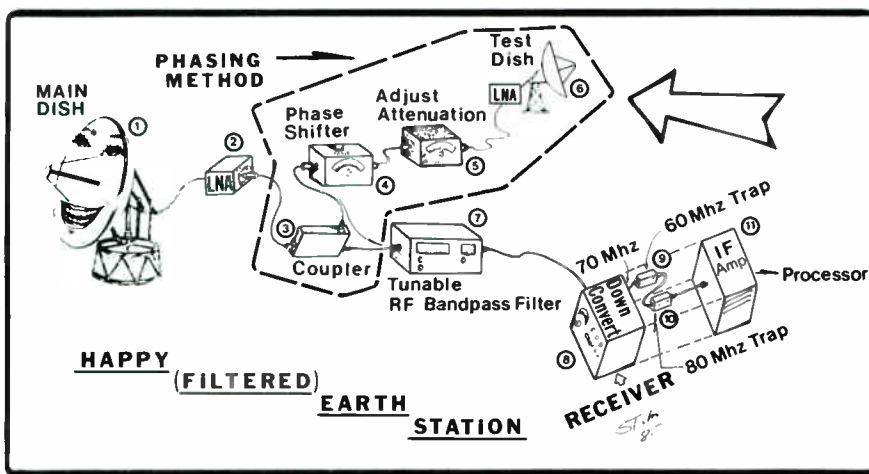
- Keyboard.
- Four message pages.
- Crawl line with 1000 characters.
- RS-170 Color Sync System.
- Color background generator.
- Automatic centering.
- Page by page display time.
- Random page display.
- AND MORE!



P.O. Box 937-Olathe, Kansas 66061
Toll Free 1-800-255-6226
In Kansas 913-764-1900
TWX 910-749-6401

Earth Stations Hate Harmonics

BY: Glyn Bostick
Microwave Filter Company, Inc.



If the interfering harmonic lands in the middle of transponder band, then the trapping approach (microwave or IF) is usually not feasible. Either type trap will remove appreciable transponder bandwidth in the central, vital part of the transponder channel allocation, and deteriorate picture quality.

What's the Solution?

There may be no **satisfactory** solution if the spectrum of the interfering signal is too wide. However, the solution indicated, and which usually works in many cases, is **phasing**.

The Phasing Method

In recent years this method has gained acceptance in Cable TV for reducing video co-channel interference at VHF (see CATJ, September 1975). And for **decades**, it has been applied to military electronic installations under the jaw-breaking name "**Co-location ratio interference reduction.**"

See the area indicated on the Happy Earth Station figure for a diagram of the method.

A test dish is pointed in the direction of the unwanted signal and aligned for maximum pick-up. The received signal is injected (toward the downconverter) into the LNA — downconverter line through a directional coupler.

Between the test dish and directional coupler we insert a **variable** attenuator and **variable** phase shifter.

Perspective

Previous numbers of this series dealt with two types of "**systematic**" terrestrial interfering signals:

- Strong signals originating completely outside the earth station band and tending to interfere with **all** transponder channels. The solution discussed was a microwave bandpass filter placed between LNA and downconverter. This type filter passes all 24 channels and suppresses signals **outside** the earth station band.
- Microwave telephone carriers in the earth station band and **systematically** offset (± 10 MHz) from the transponder center frequency. Here the proposed solution was IF traps tuned to 60 and 80 MHz. Where these signals were very strong, microwave traps were pro-

posed to protect the down-converter from overload.

We now consider **harmonic terrestrial**: which are "unsystematic" — they may hit us anywhere in the transponder band. This situation usually requires its own peculiar solution.

Example

These cases are almost always harmonics of other microwave equipment operating at a primary frequency below the 3.7-4.2 GHz earth station band. Due to "**accidental**" or malfunctional, the low-pass filtering on these equipments is inadequate.

A good example, and one that I've observed several times, is third harmonic emission from airport and other navigational radars:

Primary Frequency	Harmonic Range
960-1350 MHz	2880-4050 MHz (Transponder 1-17)

continued

Component & Spec

Test Dish

Approx. 4 ft. diameter
Type N Feed

Directional Coupler

Coupling 10 db
Directivity 20 db (min)

Variable Attenuator

Adjustable 0-40 db
(continuously adjustable
via knob rotation)

Variable Phase Shifter

Adjustable 360 degrees
Adjustment: knob rotation
("line stretcher" will be too
critical to adjust)

Potential Supplier(s)

RF Systems 305-892-6111
Scientific Atlanta 404-449-2000

Microlab 201-992-7700
Narda 516-433-9000

ARRA 516-334-8770
Narda 516-433-9000

Sage Laboratories 617-653-0844

**NOTE: Check your Earth Station dealer for suitable LNA
NEXT TIME**

We now operate the variable attenuator and phase shifter to make the test sample equal in amplitude, to the original interference (received through the earth station dish) but **opposite** in phase at the input to the converter.

Limitations of the Method

Theoretically, we can but buck out a discrete, single frequency with this method: a change in frequency upsets the **equal but opposite** balance. However, in practice, partial cancellation takes place over a useful bandwidth.

Since we are bucking out a signal with its own "mirror image" — each having a different modulation than the transponder signal, the latter is not greatly affected.

However, care must be taken that the test dish gain is sufficiently large and its pointing proper so that we minimize pick-up of the transponder signal and reduce its gain by "**bucking**" in a similar manner.

Since the original offender and its test sample originate from the same source, it would seem that fading of the source would not effect perfect "**bucking**".

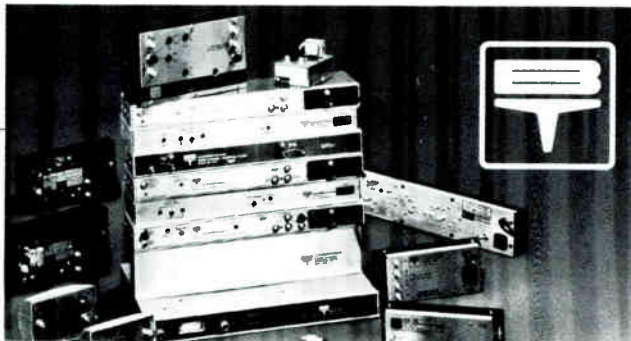
However, due to propagation anomalies, the interfering signal could change **angle of arrival**, upsetting the balance (phase and amplitude). Hence, the attenuator-phase controls should be accessible for occasional "tweaking".

Components

Above is a list of components required together with specs generally suitable for this purpose. Also given are some suppliers of the corresponding **type** of component. The listing of a supplier near a component does not mean that he has the **exact** item specified, but that he is known to make this component type and may have a suitable model.

All components should be capable of operating over the 3.7-4.2 GHz range and should (preferable) have type **N** connectors and be **50 ohm** impedance.

We will return to the **ABOMINABLE SNOW MAN** (strong telephone wipe-out signals) and recount some case histories. □



Look to us for high quality B-T no-wait CATV equipment.

We have it in stock for immediate delivery.
Or pick-up.

Blonder-Tongue stock items include:
antennas, amplifiers, modulators, converters, filters, headend accessories, traps, processors, preamps, and more. Call us for what you need.

Davco, Incorporated

America's Oldest CATV Distributor

- Same day shipment
- Help when you need it
- Everything you need in one stop
- In business since 1949!



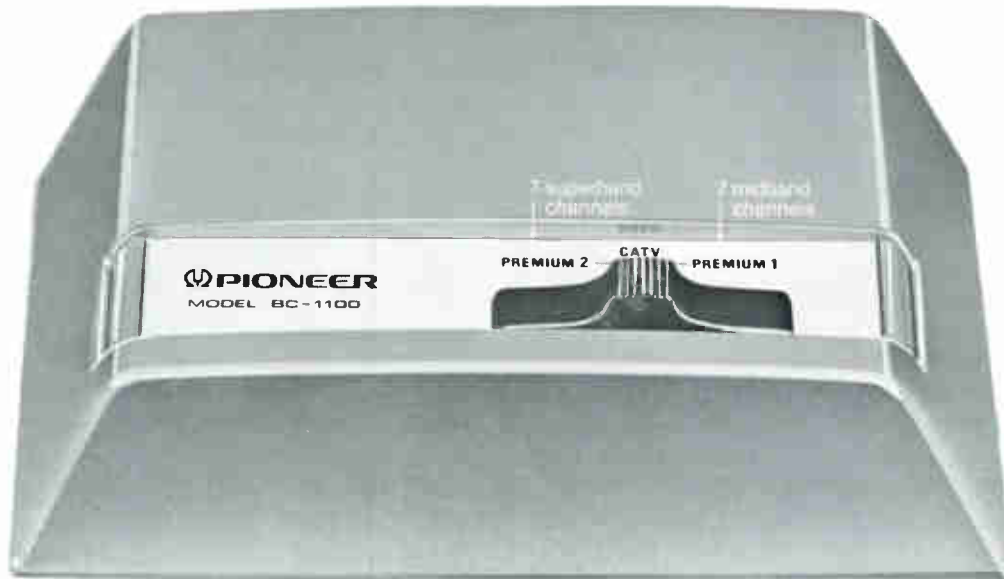
Authorized
Blonder-Tongue
Stocking
Distributor

P.O. Box 2456

Batesville, Arkansas 72501

(501) 793-3816

See how little it costs to add 14 more channels



BC-1100 \$19.99

For orders of 5000 converters
(other quantity prices upon request)

Inexpensively! Pioneer's inexpensive BC-1100 series inverted carrier converters not only allow you to program 7 midband channels, but 7 superband channels as well. With the BC-1100 series converters you can add premium or tier options that will drastically increase your revenue potential.

Compatibility: The BC-1100 gives another 7 channels when you have an existing 7 midband channel system, adding years to the life of your system.

Immediately! Forget about converter delivery problems. Pioneer can fill your orders for the BC-1100.

- The subscriber can install these converters themselves
- No installer fine tuning is required
- Rugged, long-life components and cases
- Unsurpassed surge protection
- Perfect for high traffic, high abuse hotel applications
- Trapping is not a necessity to protect superband channels

Call & request a free sample today. By saving the installation costs...
these converters will cost you practically nothing.

PIONEER®

PIONEER COMMUNICATIONS OF AMERICA
2200 Dividend Drive Columbus, Ohio 43228 (614) 876-0771
© 1981, PIONEER COMMUNICATIONS OF AMERICA

H.R. 3560 • Judiciary Mark-up set for

on update Washington update Washi

"Son of Compromise" is about to get its first major test. The House Judiciary Committee has scheduled discussion and presumably a vote on the bill in early March. This is going to be the crucial vote for the copyright compromise. If you have not already informed your congressman and the members of the Judiciary Committee that you oppose H.R. 3560, do so RIGHT NOW! Since the bill will be voted on probably on the 23rd, we urge you not to use the mails, but to send mailgrams or telegrams to be sure the message gets through loud and clear prior to the vote.

At this point it is not hard to understand, we hope, that if you do not get actively involved in the process right now, you only have yourself to blame if "Son of Copyright" is adopted. Remember that along with the copyright provisions there will be written in stone provisions that require cable operators to give a portion of their channel capacity away, for free, to the broadcasters. How any cable operator can honestly stand up and support such provision is beyond us! However, we have been working against this bill from the beginning. It is now up to you. If you believe, like we do, that Congress has not business requiring us to take up valuable channel capacity with duplicating network programming when we have all sorts of other programming

that our subscribers would prefer to see, then SAY SO, and do it TODAY!

As we have said on many occasions, this is not going to be an easy fight. The biggest problem, at this point, is that the psychology of the whole situation has been turned against the cable industry — and that was done BY the cable industry! Once the word went out that cable was fearful it would lose the compulsory license everyone got it into their heads that that could really happen! Prior to that time the general consensus was that the cable industry — the UNIFIED cable industry could pretty well be assured that it had the power on Capitol Hill to stop any bill that truly hurt its interests. And, that was true! It was only when a part of the industry found it in their best interests to start saying that the "sky was falling" that we got into the mess we are now in. We may have a "self fulfilling prophesy" on our hands if we are not careful! The only way to make sure that does not happen is to get involved.

FCC'S FOWLER COMES OUT AGAINST COMPULSORY LICENSE

As yet another indication that people are gaining a "bandwagon" mentality about the elimination of the compulsory license, the Chairman of the FCC, Mark Fowler, made a speech to the Independent Television station's association (INTV), saying that he did not favor the "compro-

mise" now before the Judiciary Committee, instead, he preferred getting rid of the compulsory license completely. He used the well-worn argument that the "marketplace" would take care of the problem of cable and copyright. Of course Mr. Fowler offered no explanation of how the "marketplace" could be "free" when one of the two competitors, the broadcaster, is given his transmission medium, the spectrum space, for free while the other, the cable operator, has to pay for his transmission medium — cable! So much for the "reasoned" approach to the problem! In any event, it should not come as much of a shock to any CATA member that Fowler would come out with a comment like that. To begin with he is broadcast oriented. Further, the FCC has no jurisdiction over, and no particular expertise about copyright matters. The only unfortunate thing about the whole episode is that Mr. Fowler seems to think it was necessary to curry favor with the broadcasters by making such a gratuitous comment at all! One thing that he did say that WAS within his expertise is that the Commission should probably re-look at the "must carry" rules. Now THAT is something the Commission should know something about. It, of course, is for that reason that the broadcasters are so interested in getting the must carry rules written into legislation. They fear that any rational re-opening of the must carry issue will

Committee March



Steve Effros
Executive Director, CATA

ington update

W

update W

result in the elimination of those rules. So we are back to the use of sheer brute political force. And again (look out — here comes the plug again), the only way we can win is if all the cable operators are willing to play the game, and use the immense political clout that cable really has.

GOING TO YOUR SUBSCRIBERS — HOW TO

Let's just speculate for a moment that H.R. 3560 was adopted by the Judiciary Committee, and it was the worst bill for cable operators ever imagined — that you and most if not all other cable operators, including the MSO's, and including the entire NCTA, decided we had to fight it. How would we go about doing it? Well, to begin with, we would obviously go to our subscribers. But how would you do that?

Here's a check-list of the ways it might be done. Pick the one that applies to you and prepare to do just that! We may have to use these approaches relatively soon.

First, you have to take a look at how you communicate with your subscribers. Do you have a local origination channel? Do you have a character generator or a message wheel? If the answer to any of those questions is "yes", then you have the ideal way to prepare your subscribers for what may be coming next. You should start explaining now that Con-

gress is considering a bill that would result in whatever it would do to your system. For instance, you could put on your message wheel that "the following channels will have to be taken off the cable system, or will have significant blacked out programming should Congress pass H.R. 3560" and you could list the channels. Or, you could mention that because H.R. 3560 is going to REQUIRE your subscribers to watch the following duplicating network stations (and you would then list those) you will not be able to bring them the following programming (and list it) that you had wanted to bring into the community without expanding the system first, which will also mean a rate increase! Your subscribers will start to get the message loud and clear.

Of course there are other ways to convey these ideas. Take a look at the way you bill your subscribers. Can an extra piece of paper be put in with the bill (if it is monthly), or can you at least put in a small message if it is on a postcard? And don't forget that this fight will be important enough that you may just want to send out a special mailing to all of your subscribers to explain the situation. Remember that they are our allies! One way or another they will have to PAY for whatever the Congress does with Copyright and Must Carry. Anything that is done with H.R. 3560 can be shown to affect the

subscribers in the pocketbook. They will listen, and they will act if you get them to understand the problem.

Other ways of getting to your subscribers and asking for their help is to explain the situation to your local newspaper. Of course in the process of that explanation hopefully you can make an ally out of the newspaper as well. A few strong editorials in the local newspaper wouldn't hurt. There is a natural way to approach this. The newspapers are getting increasingly interested in cable for its potential in videotext to the home. They see this as either a dangerous form of competition or they see it as an opportunity. Either way it should be pointed out that the broadcasters intend to get into that business as well, and while the newspapers will have to pay for their transmission capability into the home, whether they use cable, telephone lines, or whatever, the broadcasters, if they win on H.R. 3560, will get another "Free Ride" into the home, and they will be getting an unfair advantage over the newspapers. THAT ought to wake them up!

Of course whether you can get explanatory articles and editorials in the newspaper or not, you can always place an advertisement or two, or five, or ten explaining what is going on. Again, those sorts of things can be very effective if you write them well.

continued

A banner headline on an ad saying, in essence, that Congress is being asked to vote on a bill that would force the networks down the throats of cable subscribers — twice or three times over — should get their attention!

Don't leave out your city council! As you will see elsewhere in this issue, dealing with your local officials is becoming more and more important by the minute. They need to know the reality of cable, and our problems as well as the propaganda they get from the National League of Cities. Here is an opportunity for you not only to inform them, but to get them on your side in a fight! They want the most diversity for their citizens just as much as you do, and they certainly are in no mood for the federal government to be telling them they HAVE to watch anything — let alone duplicating network signals. (Naturally you have to also tell them that if that IS what the citizens want to see — and it is a choice that the subscribers have the right to make, then you will continue to carry those duplicating network signals. But that should be the subscribers choice in conjunction with you as the private businessman — not a decision made in Washington!) Get the mayor and city council to start sending letters. You might want to even help them with a draft letter — some CATA members have already done that with very favorable responses.

In sum, there are plenty of ways to get to your subscribers. This is a "pocketbook" issue for them as much as it is for you — let them know that! Once they understand it, they will start writing letters. Be sure you have available a list of the names and addresses of the Congressman they should be directing their letters to. You cannot have letters like that sent to too many folks on the Hill — the more the better. The local representatives, of course, should be on the list as well as all of the members of the committees the bill will be in front of, both the Judiciary and the Commerce committee. You might also have them send a copy to their Senators. It may pay us to have the Senators forewarned that the issue is not a simple one and that the cable system is on their side.

The key to all this, of course, is to be ready to do it now, and when and if it is necessary to go all-out for subscriber support that you truly be ready to do just that! It is too late to start preparing for that move after the Bill has been adopted by the House. If you need any help establishing your game plan, give the Washington Office a call and we will do whatever we can to assist you.

WHILE ON THE SUBJECT OF COPYRIGHT —

Many CATA members have been getting their new forms for filing copyright payments for the next pay period. Unfortunately there are two different sets of forms being mailed out. Some of them are the old forms, based on the old formula, and some of them are the new forms based on the increase called for in the inflation adjustment proceeding. The reason for the confusion is that the adjustments are being appealed, so it is not clear which way the ruling will ultimately go. In most cases, for CATA members systems it is safe to say that the increase in the threshold numbers, that is, for instance from the old \$41,500 figure for a "level 1" payment of \$15.00 to the new figure of \$55,500 for a new "level 1" \$20.00 payment will be the one you want to file under.

We know that sounds complicated, so lets try saying it another way. Since the new numbers result in cable systems staying in a lower category of payment for higher revenue per half-year it is better to file that way rather than stick with the old numbers which may result in your system being kicked into a higher category because of those increased revenues. Now, does that clarify things? The bottom line is that Washington law firms are advising their clients to use whichever set of figures works out best in your particular case at the moment. The worst that can happen is that you will owe some money later, or that the Copyright Office will have to send some money back to you because you paid too much. If you are still totally confused about all this we can't say we blame you! Give the Washington Office a call and we will see if we can straighten it out.

MUNICIPAL OWNERSHIP — CATA OPPOSES IT, AND WE WILL FIGHT!

There is no secret that a lot of cities are starting to look hungrily at their cable television systems. The hunger comes from a near starvation diet that the cities and states have been put on by the Federal government combined with a move at the federal level to put more of the burdens at the state and local level. The result, of course, is that these local bodies are looking for any way they can to get revenue. Cable television has become the target.

All of this is happening just at the time we are approaching the era of franchise renewals. It is a dangerous mix with explosive consequences. CATA has made no bones about the fact that we totally oppose municipal ownership. At the just completed winter meeting of the Board of Directors of the Association the Board once again reaffirmed that CATA should take all steps necessary to fight against the concept and implementation of municipal ownership.

How do we plan to go about doing that? Well, to begin with we are working on Capitol Hill to promote the introduction of legislation that would protect the First Amendment from incursions by government. "Municipal Ownership", after all, is nothing more or less than socialism, or the nationalization of private industry. There is a vast difference between the government taking over and supplying utility services as opposed to services such as cable television. Cable is NOT a utility! Further, cable, as part of the media, should be the LAST thing that a government entity should consider expropriating. We see the move toward municipal ownership as an extremely dangerous trend.

Happily, we are not alone in the view that the government has no place owning the media. Newspaper and television groups are rallying around the issue as well. In recent weeks there was a proposal forwarded in one Iowa community to have that community take over the existing cable television system (during a renewal process) for less than

1/15 of the actual market price of the system. Of course the community was urged to run the system just as they do their power or sewer system. The city was not advised by its so-called "consultant" that there was any difference in the operation of these businesses! There was no consideration of the fact that while power or telephone or sewer hook-ups, as utilities, need little or no marketing, the same is not true of cable. There was no mention in the report to the city about the city becoming potentially involved in program selection, censorship, "equal time and fairness", possible editorializing, advertising sale, data transmission, and all the rest! In sum, the city did not really know anything about the significance of the decision it was being asked to make. In this case, however, the local cable operator knew how to rally his forces. He let the citizens know that the city was considering the take-over of yet another business (one comment at a subsequent hearing says it all — one lady got up and complained that the city couldn't even manage to pick up

the garbage efficiently, what made them think they could run a cable system!). The local newspapers also got involved with strong editorials and articles pointing out that cable is part of the media, and the government should have nothing to do with it. The local radio and television stations, and regional stations as well also got involved and suddenly the city found camera crews showing up at the meetings considering the take-over of the system. State media groups sent letters opposing the move, and finally the operator had his attorney present at the hearings to inform the city (not threaten) that there were serious antitrust questions involved as well.

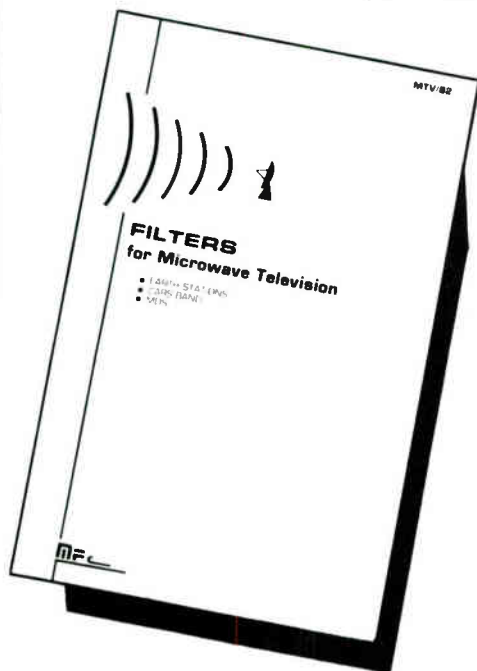
The verdict is not in yet, the city has not voted on the issue. All indications are, however, that the city is having serious second thoughts about the idea of municipal ownership, as well they should. We will keep you informed of developments in this case, and we would appreciate your notifying us immediately of any other potential municipal ownership situations that you hear about. The key, it appears, would be to organize, and

cooperate with other media as soon as there is any indication that local officials are considering a take-over of the media. They recognize that if the government can take over cable television then there is nothing to stop them from taking over the television and radio stations next! They are definitely our allies on this subject and close cooperation is called for.

Another step that should be taken by any operator who even suspects that he will become embroiled in a municipal ownership dispute is to get a good communications/antitrust lawyer to look at the situation immediately. Depending on the situation it is imperative that you know when and how to get into what Court. You will be a lot better off if you are prepared! (NOTE: CATA will be conducting a special seminar on this subject at CCOS-82 in Nashville — we hope to have both an antitrust attorney and someone from the National League of Cities to discuss the problems with us in an "Open Forum" — be sure to be there. See additional information on CCOS-82 elsewhere in this issue). □

EARTH STATION OWNERS & DEALERS:

You've got terrestrial interference... We've got filters!



The concrete under your new earth station isn't hard yet, but you've got trouble already—unwanted microwave signals are destroying your picture. Your customer is throwing tantrums, and you have two choices: Tear it down and eat the installation costs, or filter it.

We can help. Call us and we'll send you MTV/82, which tells how to eliminate terrestrial interference on earth stations and lists a complete line of filters designed and tested for this purpose. Created for effective use by novice and experienced earth station operators alike, MTV/82 explains each type of interference, describes the symptoms and recommends specific filters to solve your specific problems.

- Products include:
- microwave & IF bandpass filters
 - IF traps
 - waveguide adapters
 - power dividers
 - coax adapters
 - specials!

Call or write today and we'll also send you FG/82, "Earth Stations & Terrestrial Interference: A Filtering Guide for the Installing Dealer."

MFC
MICROWAVE FILTER COMPANY, INC.

6743 Kinne St., East Syracuse, NY 13057
Toll Free 1-800-448-1666 — TWX 710-541-0493
NY/IL/AK/Canada (Collect) 315-437-3953

The Texas Show



1) Ben Willie, CATA President, visiting with a Jerrold Representative.

2) Paul Eggert, VIDEO DATA SYSTEMS, making a presentation on information systems displaying news from news wire services.

3) At the Texas Show POLELINE CORPORATION received an order for 2000 units of a specially designed security box for Cable TV Puerto Rico. LtoR, Ray Clark, Chief Engineer for Cable TV Puerto Rico, Marc Schaeffer of Poleline Corp.

Poleline, John Cardenas, VP for Cable TV Puerto Rico, and John Coiro, Poleline.

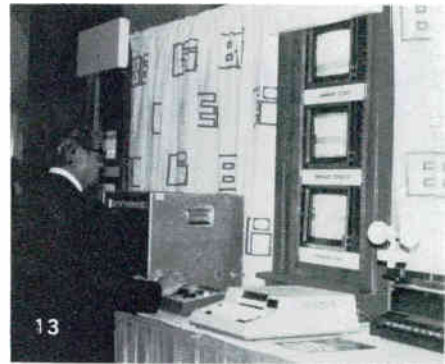
4) GROUP W with their Nashville Network and Disney Channel was a popular stop for cable operators to get their hats.

5) THE DROP SHOP and their red coveralls attracted a lot of attention.

6) UEC EQUIPMENT COMPANY - The Skyjacker.

7) BROADBAND ENGINEERING and LRC ELECTRONICS shared a focal point on the convention floor with Bill Ellis presiding.

Join us in reviewing this spectacular show set in beautiful San Antonio with the pictorial essay below.



- 8) CNN, CNN 2 and SUPER STATION WTBS represented Turner Broadcasting Systems.
- 9) Diane Flournoy, UNITED VIDEO INC., demonstrate their new EPG.
- 10) In the HUGHES MICROWAVE COMMUNICATIONS PRODUCTS, Hector Hernandez, and Gene Stanley discussing multichannel transmission with prospective clients.
- 11) Fred Kaiser, ALPHA TECHNOLOGIES, Burnaby, B.C. and their Representative, Bob O'Hara of West-Tech, Scottsdale, Az., demonstrating

- one of the Alph units.
- 12) Lynn Maas of KMP Computer Services was busy demonstrating his unit for cable TV billing.
- 13) Rod Herring of BEI getting his Character Generator set for demonstration.
- 14) BELDON CORPORATION represented by Tom Chivari, Sales Manager for CATV, displayed their DUOBOND Products.
- 15) WESTERN TOWER, San Angelo, TX., represented by Richard Killingsworth, displayed their periodical antenna.
- 16) WAVETEK featured their test equipment.

Associate Roster

Alpha Technologies, 1305 Fraser St. D-G, Bellingham, WA 98225 (M9, Standby Power Supplies) 206—671-7703
AMCOM, Inc., Bldg. E, Suite 200, 5775 Peachtree-Dunwoody Rd., N.E., Atlanta, GA 30342 (S9, Brokering & Consulting) 404—256-0228
Anixter-Pruzan, Inc., 4711 Golf Road, Skokie, IL 60076 (D1) 312—677-2600
The Associated Press, 50 Rockefeller Plaza, New York, NY 10020 (S9 Automated News SVC) 212—262-4014
Avantek, Inc., 481 Cottonwood Dr., Milpitas, CA 95035 (M8, 9 TVRO Components) 408—946-3080
B E I (Beston Electronics, Inc.), P.O. Box 937, Olathe, KS 66061 (M9 Character Generators) 913—764-1900
Belden Corp., Electronics Division, P.O. Box 1980, Richmond, IN 47374 (M3) 317—966-6661
Broadband Engineering, Inc., P.O. Box 1247, Jupiter, FL 33458 (D9, replacement parts) 1-800-327-6690
Broadcast Equipment Leasing, 7 Wood Street, Pittsburgh, PA 15222 (S3), 412—765-0690
Budco, Inc., 4910 East Admiral Place, Tulsa, OK 74115, (D9, Security & Identification Devices), 800-331-2246
CATEL-Division of United Scientific Corp., 1400-D Stierling Rd., Mountain View, CA 94043, 415—969-9400
C-COR Electronics, Inc., 60 Decibel Rd., State College, PA 16801 (M1, M4, M5, S1, S2, S8) 814—238-2461
CBS Cable, 1211 Avenue of the Americas, 2nd Floor, New York, NY 10019 (S4) 212—975-1766
CCS Hatfield/CATV Div., 5707 W. Buckeye Rd., Phoenix, AZ 85063 (M3) 201—272-3850
CRC Electronics, Inc., 2669 Killihau St., Honolulu, HI 96819 (M9 Videotape & Headend Automation Equipment) 808—836-0811
CWY Electronics, 405 N. Earl Ave., Lafayette, IN 74904 (M9, D1) 317—447-4617
CableBus Systems Corporation, 7869 S.W. Nimbus Avenue, Beaverton, OR 97005, (M1) 503—543-3329
Cable TV Supply Company, 5933 Bowcroft Street, Los Angeles, CA 90016 (D1, D2, D3, D4, D5, D6, D7, D8, M5, M6) 213—204-4440
Century III Electronics, Inc., 3880 E. Eagle Drive, Anaheim, CA 92807 (M1, M3, M4, M5, M7, M8, S1, S2, S8) 630-3714
Capscan, Inc., P.O. Box 36, Adelphia, NJ 07710, (M1, M3, M4, M5)
Channel Master, Div. of Avnet, Inc., Ellenville, NY 12428 (M2, 3, 4, 5, 6, 7) 914—647-5000
Collins Commercial Telecommunications, MP-402-101, Dallas, TX 75207 (M9, Microwave) 214—690-5954
Comm/Scope Company, Rt. 1, Box 199A, Catawba, NC 28609 (M3) 704—241-3142
Communications Equity Associates, 651 Lincoln Center, 5401 W. Kennedy Blvd., Tampa FL 33609 (S3) 813—877-8844
Communications Supply/Communications Construction, Inc., 319 J Westtown Rd., P.O. Box 1538, West Chester, PA 19380, (D1, 3, 4, 5, 6, 7, 8, 9, S1, 2, 8, 9) 800—345-8286
Computer Video Systems, Inc., 3678 W. 2105 S. Unit 2, Salt Lake City, UT 84120 (M9) 801—974-5380
ComSearch Inc., 7633 Leesburg Pike, Falls Creek, VA 22043 (S8, S9, Earth station placement frequency coordination) 703—356-9470
ComSonics, Inc., P.O. Box 1106, Harrisonburg, VA 22801 (M8, M9, S8, S9) 703—434-5965
DF Countryman Co., 1821 University Ave., St. Paul, MN 55104 (D1, S1, S8) 612—645-9153
Davco, Inc., P.O. Box 861, Batesville, AR 72501 (D1, S1, S2, S8) 501—793-3816
Ditch Witch, P.O. Box 66, Perry, OK 73077, (M9), 405—336-4402
The Drop Shop Ltd., Inc., Box 284, Roselle, NJ 07203 (M9, Plastics, D5, 6, 7) 201—241-9300
Durnell Engineering Inc., Hwy 4 So. Emmetsburg, IA 50536 (M9) 712—852-2611
Eagle Com-Tronics, Inc., 4562 Waterhouse Rd., Clay, NY 13041 (M9 Pay TV Delivery Systems & Products) 313—622-3402 and 800-448-7474
Eales Comm & Antenna Serv., 2904 N.W. 23rd, Oklahoma City, OK 73107 (D1, 2, 3, 4, 5, 6, 7, S1, 2, S7, 8) 405—946-3788
Eastern Microwave, Inc., 3 Northern Concourse, P.O. Box 4872, Syracuse, NY 13221 (S4) 315—455-5955
Electroline TV Equipment, Inc., 8750-8th Ave., St. Michel, Montreal, Canada H1Z 2W4 (M4, 5, 7, 9, D7, 9) 514—725-2471
Electron Consulting Associates, Box 2029, Grove, OK 74344, (M2, D1, S1, 8) 918—786-5349
Entertainment and Sports Programming Network, 319 Cooke St., Plainville, CN 06062 (S9) 203—747-6847
Ferguson Communications Corp., P.O. Drawer 1599, Henderson, TX 75652 (S1, 2, 7, 8, 9) 214—854-2405
Franey & Parr of Texas, Inc., (Formerly Doherty & Co.), One Turtle Creek Village, Suite 524, Dallas, TX (S9, Insurance) 214—528-4820
GTE Products Corp., Sylvania CATV Trans. Systems, 10841 Pellicano Dr., El Paso, TX 79935 (D7, M4, M5, M6, S4, S8) 800—351-2345
Gardiner Communications Corp., 1980 S. Post Oak Rd., Suite 2040, Houston, TX 77056 (M9 TVRO Packages, S1, S2, S8) 713—961-7348
General Cable Corp., 1 Woodbridge Center, P.O. Box 700 Woodbridge, NJ 07095 (M3) 201—636-5500
Gilbert Engineering Co., P.O. Box 23189, Phoenix, AZ 85063 (M7) 1-800-528-5567, TWX 910-951-1380
Harris Corporation-Satellite Communications Division, P.O. Box 1700, Melbourne, FL 32901 (M2, M9, S2) 305—724-3401
Heller-Oak Communications Finance Corp., 105 W. Adams St., Chicago, IL 60603 (S3) 312—621-7661
Hoarty & Raines Assoc., Inc., 8637 O'Neal Rd., Raleigh, NC 27612 (S7, S9 Consultants) 919—781-1734
Home Box Office, Inc. 7839 Churchill Way—Suite 133, Box 63, Dallas, TX 75251 (S4) 214—387-8557
Hughes Microwave Communications Products, 3060 W. Lomita Blvd., Torrance, CA 90505 (M9) 213—517-6233
Jerry Conn Associates, Inc., P.O. Box 444, Chambersburg, PA 17201 (D3, D4, D5, D6, D7, D8) 717—263-8258
KMP Computer Services, Inc., 555 Totavi, Los Alamos, NM 87544, (S4, 5) 505—662-5545
Karnath Corporation, 2001 Westridge, Plano, TX 75075 (S1, 2, 8, 9) 214—422-7981 or 7055
Katek, Inc., 134 Wood Ave., Middlesex, NJ 08846 201—356-8940
Klungness Electronic Supply, P.O. Box 547, 107 Kent Street, Iron Mountain, MI 49801 (D1, D8, S2, S8) 906—774-1755
LRC Electronics, Inc., 901 South Ave., Horseheads, NY 14845 (M7) 607—739-3844
Larson Electronics, 311 S. Locust St., Denton, TX 76201 (M9 Standby Power) 817—387-0002
Lemco Tool Corporation, Box 330A, Cogan Station, PA 17728 (M6, 9 Tools) 717—494-0620

Distributors	Manufacturers	Service Firms
D1—Full CATV equipment line	M1—Full CATV equipment line	S1—CATV contracting
D2—CATV antennas	M2—CATV antennas	S2—CATV construction
D3—CATV cable	M3—CATV cable	S3—CATV financing
D4—CATV amplifiers	M4—CATV amplifiers	S4—CATV software
D5—CATV passives	M5—CATV passives	S5—CATV billing services
D6—CATV hardware	M6—CATV hardware	S6—CATV publishing
D7—CATV connectors	M7—CATV connectors	S7—CATV drop installation
D8—CATV test equipment	M8—CATV test equipment	S8—CATV engineering
D9—Other	M9—Other	S9—Other

Lester Kamin & Company, 2020 North Loop West, Suite 111, Houston, TX 77018 (**S9 Brokers, Consultants**) 713—957-0310
Lindsay Specialty Products, Ltd., 50 Mary Street West, Lindsay, Ontario, Canada, K9V 4S7 (**M1, 2, 4, 5, 7, 9**) 705—324-2196
Magnavox CATV Division, 100 Fairgrounds Drive, Manlius, NY 13104 (**D4, 5, 7, M4, 5, 6, 7, S3, 8**) 315—682-9105
McCullough Satellite Systems, P.O. Box 57, Salem, AR 72576 (**M2, 9, D3, 4, 6, 7**) 501—895-3167
Microdyne Corporation, 471 Oak Road, Ocala, FL 32672 (**M9 Satellite TV Receivers**) 904—687-4633
Microwave Associates Communications Co., 777 S. Central Expwy., Suite 1G, Richardson, TX 75080 (**M9 Microwave Radio Systems**)
214—234-3522
Microwave Filter Co., 6743 Kinne St., Box 103, E. Syracuse, NY 10357 (**M5 Bandpass Filters**) 315—437-4529
Midwest Corp., CATV, Divn., P.O. Box 226, Clarksburg, W. VA. 26301 (**D1, 2, 3, 4, 5, 6, 7, 8**) 304—624-5459
Miralite Corp., 1012 Brioso, Suite 201, Costa Mesa, CA 92627 (**M2**) 714—851-9000
Modern Cable Programs, 5000 Park St. N., St. Petersburg, FL 33709 (**S4**)
National Com-Service, Inc., 2255-E Wyandotte Rd., Willow Grove, PA 19090 (**D1, 2, S8, 9 repair service**) 215—657-4690
National Screen Service Corp., 1600 Broadway, New York, NY 10019 (**M9**) 212—246-5700
North Supply Company, 10951 Lakeview Ave., Lenexa, KS 66219 (**D1, 2, 3, 4, 5, 6, 7, 8**) 913—888-9800
Oak Industries Inc/CATV Div., Crystal Lake, IL 60014 (**M1, M9 Converters, S3**) 815—459-5000
Octagon Scientific, Inc., 476 E. Brighton Ave., Syracuse, NY 13210 (**M9**) 315—476-0660
Power and Telephone Supply Company, Inc., 530 Interchange Drive N.W., Atlanta, GA 30336 (**D1**) 404—691-6813
Prodell, Inc., 1350 Duane Avenue, Santa Clara, CA 95050 (**M2, M3, M7, S2**) 408—244-4720
Pyramid Industries, Inc., P.O. Box 23169, Phoenix, AZ 85063 (**M7, 8**) 602—269-6431
Q-BIT Corporation, P.O. Box 2208, Melbourne, FL 32901 (**M4**) 305—727-1838
RMS CATV Division, 50 Antin Place, Bronx, NY 10462 (**M4, M5, M6, M7, M9**), 212-892-1000
Reuters, 1212 Avenue of the Americas, 16th Floor, New York, NY 10036 (**D9**) 212—730-2715
Rockwell International, Collins Transmission Systems Division, M.S. 402-101, Dallas, TX 75207 (**M9, Microwave/Satellite**) 214—996-5954
S.A.L. Communications, Inc., P.O. Box 794, Melville, NY 11747 (**D1**) 516—694-7110
Sadelco, Inc., 75 West Forest Ave., Englewood, NJ 07631 (**M8**) 201—569-3323
Scientific Atlanta Inc., 3845 Pleasantdale Rd., Atlanta, GA 30340 (**M1, M2, M4, M8, S1, S2, S3, S8**) 404—449-2000
Shafer Associates, Inc., 9501 Briar Glen Way, Gaithersburg, MD 20760 (**S9, consultant**) 301—869-4477
Showtime Entertainment Inc., 1633 Broadway, NY 10019 (**S4**) 212—708-1600
Southern Satellite Systems, Inc., P.O. Box 45684, Tulsa, OK 74145 (**S9**) 918—481-0881
Station Business Systems, 600 West Putnam, Greenwich, CT 06830 (**S4, 5, 9**) 203—622-2400
T.E.S.T., Inc., 16130 Stagg St., Van Nuys, CA 91409 (**M9 Encoders & Decoders**) 213—989-4535
TV Guide, Radnor, PA 19088 (**D9**) 215—293-8500
TeleCom Systems, Inc., P.O. Box 5214, Charlotte, NC (**S1, 2, 7, 8, 9**) 704—332-6064
Teledac, In., 1575 Taschereau Blvd., Longueuil, Quebec, Canada J4K 2X8 (**M9 Character Generators**) 514—651-3716
Tele-Wire Supply Corp., 122 Cutter Mill Rd., Great Neck, NY 11021 (**D1, 2, 3, 5, 6, 7, 8, 9**) 516—829-8484
Texscan Corp. 2446 N. Shadeland Ave., Indianapolis, IN 46219 (**M8 Bandpass Filters**) 317—357-8781
Theta-Com CATV, Division of Texscan Corporation, 2960 Grand Avenue, Phoenix, AZ 85061 (**M1, M4, M5, M7, M8**) 602—252-5021
Times Wire & Cable Co., 358 Hall Avenue, Wallingford, CT 06492 (**M3**) 203—265-2361
Tocom, Inc., P.O. Box 47066, Dallas, TX 75247 (**M1, M4, M5, Converters**) 214—438-7691
Tomco Communications, Inc., 1145 Tasmin Dr., Sunnyvale, CA 94086 (**M4, M5, M9**)
Toner Cable Equipment, Inc., 969 Horsham Rd., Horsham, PA 19044 (**D2, D3, D4, D5, D6, D7**) 800—523-5947, In Penna. 800—492-2512
Triple Crown Electronics Inc., 42 Racine Rd., Rexdale, Ontario, Canada, M9W 2Z3 (**M4, M8**) 416—743-1481
Turner Communications Corp. (WTBS-TV) 1050 Techwood Dr., Atlanta, GA 30318 404—898-8500
Tyton Corp., P.O. Box 23055, Milwaukee, WI 53223 (**M6, 7**) 414—355-1130
USA Network, 208 Harristown Rd., Glen Rock, NJ (**S4**) 201—445-8550
United Press International, 220 East 42nd St., New York, NY 10017 (**S9 Automated News Svc.**) 212—682-0400
United States Tower & Fab Co., P.O. Box 1438, Miami, OK 74354 (**M2, M9**) 918—257-4257
United Video, Inc., 5200 S. Harvard, Suite 4-D, Tulsa, OK 74135 (**S9**) 918—749-8811
VU-TV, Inc., 4201 N. 16th St. #250, Phoenix, AZ 85016 (**S4**) 602—277-8888
Van Ladder, Inc., P.O. Box 1557, Spencer, IA 51301 (**M9, Automated Ladder Equipment**) 712—262-5810
Video Data Systems, 40 Oser Avenue, Hauppauge, NY 11787 (**M9**) 516—231-4400
Viewstar, Inc., 705 Progress Ave., Unite 53, Scarborough, Ontario, Canada M1H 2X1 (**M9 Cable Converter**) 416—439-3170
Vitek Electronics, Inc., 4 Gladys Court, Edison, NJ 08817 201—287-3200
Warner Amex Satellite Entertainment Corporation, 1211 Avenue of the Americas, New York, NY 10036, (**S4**) 212—944-4250
Wavetek Indiana, 66 N. First Ave., Beech Grove, IN 46107 (**M8**) 317—783-3221
Weatherscan, Loop 132, Throckmorton Hwy., Olney, TX 76374 (**D9, Sony Equip. Dist., M9 Weather Channel Displays**) 817—564-5688
Western Communication Service, Box 347, San Angelo, TX 76901 (**M2, Towers**) 915—655-6262/653-3363
Winegard Company, 3000 Kirkwood Street, Burlington, IA 52601 (**M1, M2, M3, M4, M5, M7**) 319—753-0121

Note: Associates listed in bold are Charter Members.

classycats

Classy-Cat advertising is offered as a service by CATA for its membership. ANY member of CATA may advertise in the Classy-Cat section FREE of CHARGE (limit of 50 words per issue - 3 issues per year.)

- CATA offers three types of memberships:
- 1.) Systems - paying regular monthly dues based on number of system subscribers.
 - 2.) Associate Members - pay an annual fee.
 - 3.) Individual Members - pay an annual fee.

NON MEMBERS may also use the Classy-Cat section at the rate of 50 cents per word with a minimum charge of \$20.00. Add \$2.00 for blind-box. Non-members should include full payment with the ad insertion.

Deadlines for all Classy-Cats is the 1st of the month for the following month's issue.

Address all Classy-Cat material to: CATJ, Suite 106, 4209 NW. 23rd, Oklahoma City, Okla. 73107.

WANTED

Chief Tech for a new independent system on St. Croix, US Virgin Islands. 5 - 10 years experience, new build turn on, supervision, and all system responsibilities. AML experience helpful. Salary negotiable between 17,000 - 25,000 depending on qualifications.

CALL 612/589-4844
Jim Power

HELP WANTED!

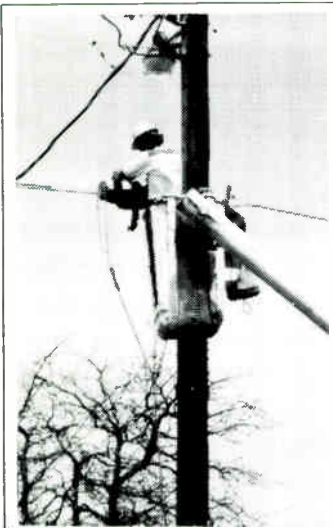
Articulate, experienced cable technician needed to advise customers (cable techs and engineers) on interference problems. Will work with and be trained by MFC's President and Chief Engineer, a recognized industry expert on filter design and application. Career position with opportunity to advance technically via company financed outside and in-house education. Call or write Glyn Bostick, (El Presidente), Microwave Filter Co. Inc., 6743 Kinne St., East Syracuse, NY, 13057; 1-800-448-1666, or collect 1-315-437-3953.

USED EQUIPMENT WANTED

Strips, Line and Extender Amps, Filters, Traps, Pre-Amps, Converters, Passives, Splitters, DC's for Line Use, Modulators (Tube OK), Hardware and Other Basics. Any condition. Reply to Allan Fern, Box 15013, Pikesville, MD 21208, or call (301) 484-2030.

Microwave Receivers For Sale

4 Receivers, Farinon SS6000 VC including waveguide and Two 6' dishes, 6226.9 MHz and 6286.2 MHz. Cablevision Systems, Inc., Box 1624, Seminole, Oklahoma 74868. (405) 382-2878.



ATTENTION! SYSTEM MANAGERS — TECHNICIANS NEEDED

Excellent opportunity for system managers and technicians for our systems in Colorado, Texas, and Oklahoma. Need qualified personnel for these Southwestern locations; good working conditions and opportunity for the right people who want to work and stay actively involved in the cable business. These systems have good equipment to work with and offer excellent situations to grow in the cable business. If interested, send resume to the box number indicated below.

Box 71080
c/o CATJ
4209 N.W. 23rd
Suite 106
Okla. City, OK 73107

All You Should Know About SLM's...

...is covered completely in the new NCTI 28-minute Video Cassette, **Signal Level Meters: Use, Care and Maintenance.** Train on the job about the purpose, design, use and care of SLM's. Write today for full information on this effective new educational tool.

**NATIONAL CABLE
TELEVISION INSTITUTE**

P.O. Box 27277
Denver, CO 80227
(303) 697-4967

IRS TAX TIP

On Tax Credits

Home Energy-Savings Credit—If you paid for insulation or other energy-saving devices, you may be able to claim a credit for these expenses.

Check your tax instructions for details.

A public service message from
the Internal Revenue Service

ADD UNLIMITED PAY CHANNELS TO YOUR SYSTEM WITHOUT LOSING YOUR INVESTMENT IN CONVERTERS.

Now, That's The Ticket!



If you're like most cable systems, you've spent almost \$225,000 on converters. Don't throw away that investment! With Eagle's Descrambler, you can add 15 tiers of service and unlimited channels to your system using your present converter.

Write Your Own Ticket!

Whether you're adding one pay channel, 15 pay channels, or 15 tiers of service with 120 channels, Eagle's Descrambler can handle it all. Select only what you need. In the future, channels can be added to the headend scrambler with our simple plug-in module. The headend unit integrates with all manufacturer's modulators and processors and is compatible with all Standard/HRC/ICC configurations.

The Best Show In Town

Eagle's Descrambler is compatible with all single channel output converters and is factory tuned for channel 2, 3, or 4. The descrambler

has no information on the audio making it ideal for AML transmission.

Private Audiences Only

There are no subscriber controls with Eagle's Descrambler and our unique sync suppression scrambling insures maximum security. In addition, we've developed a tamperproof identification matrix to eliminate concerns about theft of service.

Future Attraction

Addressability? It's coming. Eagle's Descrambler will be ready for addressability when you are . . . and the descrambler will be perfectly compatible with our addressable unit. Across the board, we're working to protect your investments.

Add pay channels . . . maximize your converter investment . . . prepare for addressability . . . Eagle's 15 Tier Descrambler. Now, That's The Ticket!



OFFICE ADDRESS: 4562 Waterhouse Road, Clay, N.Y. 13041 (315) 622-3402
 MAIL ADDRESS: P.O. Box 2457, Syracuse, N.Y. 13220
 IN CANADA: Deskin Sales • Montreal • Toronto • Vancouver (416) 495-1412
 77D Steelcase Road West, Markham, Ontario L3R2M4

CALL TOLL FREE TO ORDER 800-448-7474

WorldRadioHistory

