

# From a Close Bond with Customers...



## Came the Closest Bond in Cable.

Developing a close bond requires understanding and cooperation. Understanding your needs and cooperating to develop effective solutions is our idea of Customer Service.

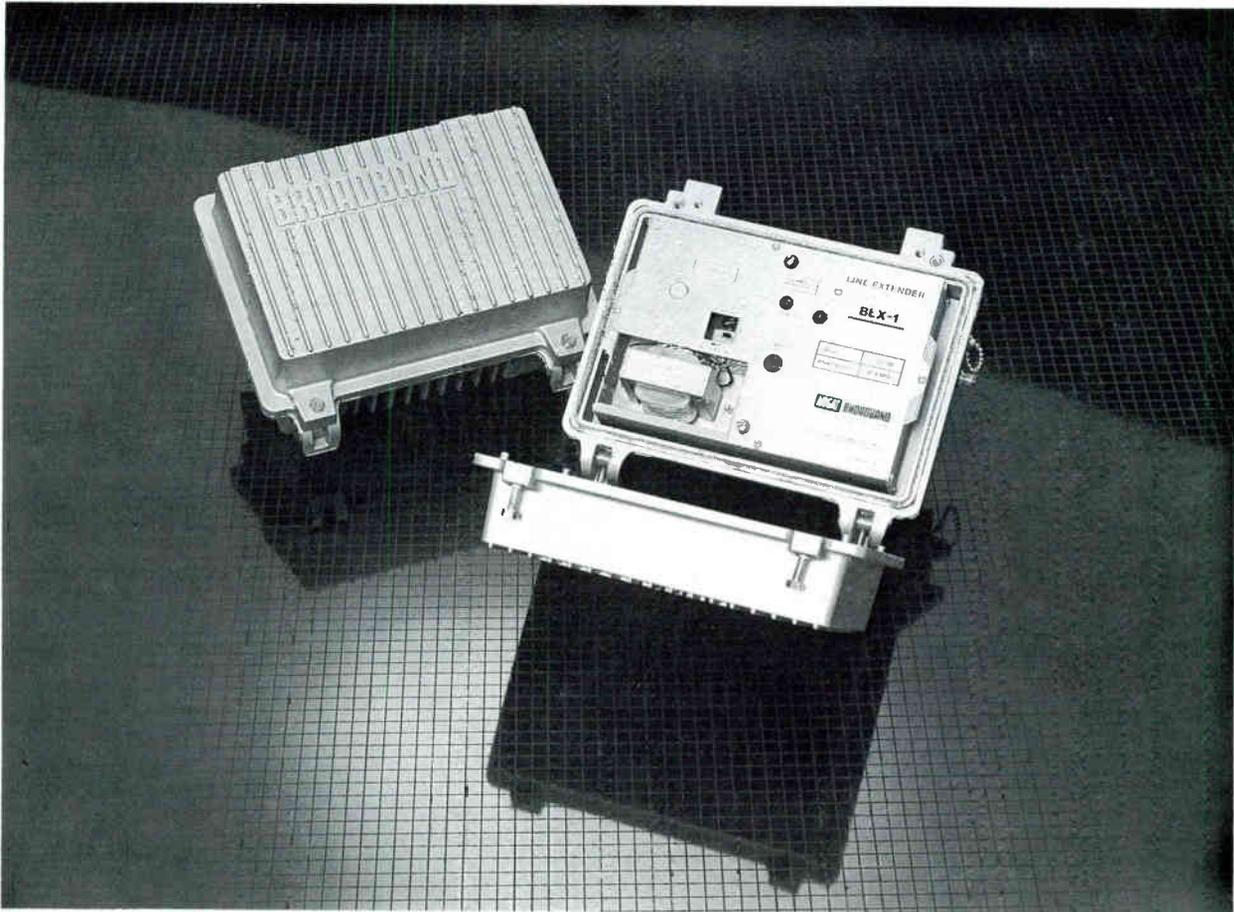
Typical of this approach is our T4 Plus™ coaxial cable. Building on T4 technology, T4 Plus addresses the needs expressed by our customers: improved handling characteristics, mechanical integrity, and resistance to environmental abuse. T4 Plus, 100% bonding (conductor to dielectric, dielectric to sheath, sheath to jacket) provides improved performance while utilizing standard connectors and coring tools.

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TIMES FIBER COMMUNICATIONS, INC.

CABLE TELEVISION DIVISION  
358 Hall Ave., P.O. Box 384, Wallingford, CT 06492



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- One- or two-way transmission.
- Standard hybrid circuitry (BLX) or Amperex power-doubler hybrids (BLX-PLUS).
- Convertible 30/60 volt cable powering.
- Aerial or pedestal mounting.
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- Compact, durable die-cast aluminum housing.

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**TONER** CABLE EQUIPMENT, INC.

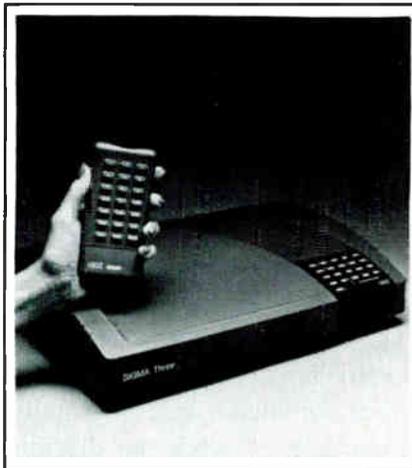
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**CALL TOLL-FREE**

**In Pennsylvania: 800-492-2512**

**All Other States: 800-523-5947**

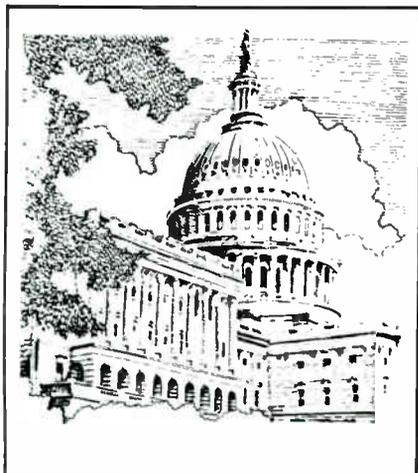
CATJ, The Official Journal for the Community Antenna Television Association is published as a service for Association Members and others providing services to the industry.



See page 24



See page 34



See page 36

### TABLE OF CONTENTS

- 4 CATA-TORIAL — *Carl Schmauder, CATA President, discusses what the new federal cable law really means. Don't miss "The Letter of the Law".*
- 6 THE CABLE TECH'S FILTER COOKBOOK #22 — EFFECT OF MOISTURE ON PAY-TV TRAPS — SOME TEST RESULTS by *Glyn Bostick and Terry Owens, Microwave Filter Company, Inc.*
- 12 CATV TRANSITION TO SATELLITE DELIVERED SIGNALS — by *Karl Poirier, Vice President-Engineering, Triple Crown Electronics, Inc.*
- 24 PRODUCT REVIEW — SIGMA THREE, An Addressable Baseband Converter/Decoder *A comprehensive review of Oak Communication's sophisticated units for converting and decoding cable television signals.*
- 30 MAGNAVOX CATV MOBILE TRAINING CENTER — *featuring the three-part course and the schedule of their seminars for 1985.*
- 34 WASHINGTON UPDATE — *CATA's Executive Director, Steve Effros, files Comments in the FCC for Effective Competition Rulemaking and discusses this in this issue, as well as his viewpoint on the recent Western Show, its program, and the new equipment.*
- 36 CATA '85 — The CATA Tradition *A look at CATA's annual Convention to be held in Nashville, Tennessee June 17 - 19.*
- 42 ASSOCIATES' SHOWCASE
- 46 ASSOCIATES' ROSTER
- 48 CLASSIFIED

### ABOUT THE COVER

Shown on this month's cover is Oak's SIGMA Three, An Addressable Baseband Converter/Decoder highlighting this product review on page 24.



Carl Schmauder  
PRESIDENT OF CATA

## THE LETTER OF THE LAW

As you have been reading in these pages in the last few months, it is going to be some time before we all know what the new federal cable law really means. This is a process the cable industry went through in 1972 when the FCC's major rules for cable television came out, and, again in 1976, when Congress wrote the new Copyright Law. So it is not a new experience. It will, however, in all likelihood, be just as frustrating.

You see, there is a vast difference, at times, between what people think they said, or meant, or agreed to, and what is actually put down on paper. This is especially true when it comes to things like legislation. The best examples come from the experiences we continue to have regarding the interpretation of the Copyright Law. The folks who are now reading the law so totally literally (when it comes to benefiting the copyright holders), and so totally based on their presumption of what the drafters meant (when it comes to ruling against the cable industry) are having a field day with the law — they are bending it to their notions of what should be done, regardless of what the intent was, so long as they can stretch the actual words of the statute to fit their desires. Thus we get interpretations such as the one that says; if a cable operator carries a signal for one day during a six-month pay period, he must pay for the carriage of that signal for six months, even if his subscribers are not able to see the copyrighted works for which he must pay! And we get original interpretations that say that “LPTV” stations are “distant” signals under the Copyright Law, despite the absurdity of such a position — in that case they were forced to back off because the literalism approach used was just so far out. But the point here is that they were able to make such an argument in the first place!

What has all this got to do with the new federal cable law? Well, from now on we are going to be treated to a whole bunch of different folks telling us what the law “really” means! It has already started. Two of the folks who were very deeply involved in drafting the bill on the House side are travelling all over the country to seminar after seminar, convention upon convention, telling us all what the bill “really” means. There is a major problem with this from CATA's point of view. They were not the only ones involved in writing the new law. We know of other drafters, both in the House and in the Senate,

who dispute what is now being declared as gospel! What's of even greater concern is that folks like Jim McKinney, of the FCC, who will be responsible in the first instance for interpreting some of these laws and implementing them, has said that he is meeting with, and being briefed by, some of these staffers on the Hill to get a clear picture of what "**Congress meant**" so that he can go about implementing that. Well, one thing we know for sure, Jim, is that your job is not to implement what some particular folks say "**Congress meant**", but implement the law as written. The "**what does Congress really mean**" game can go in lots of different directions, depending on whom you talk to! We recommend that everyone widen the circle of folks who are doing the interpreting about this new law — if we don't, there is going to be a very warped perception of what some of the provisions of the law are. We have been badly burned by the "**intention**" versus "**letter of the law**" game in the area of Copyright. In that arena the Copyright Office has used the "letter of the law" approach to make some very questionable rulings.

The Courts have sustained those rulings. Now we are faced with just the opposite. The "**letter of the law**" is pretty darn clear—and now we are hearing some of the drafters, who have hit the convention trail, suggest that the law be read based on "**intention**" rather than on the actual "**letter of the law**". It can't be both ways!

The ultimate decisions on lots of the ambiguities and questionable drafting in the law will fall to the Courts. But in the meantime, we think it is inappropriate for the industry, or the press, or especially the FCC to rely on the statements of any single group of "**drafters**" of the law to say what "**Congress**" meant. Congress, after all, is a lot more than just the folks in one office who participated in the drafting process. This, by the way, is not to say that those folks are saying anything "**wrong**" — they did one heck of a job, and deserve lots of credit — but their perception of what that bill now means is just that, their perception. Others have different perceptions. And once the ink dries everyone's opinion is equal until the Court speaks! □

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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.

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# EFFECT OF MOISTURE ON PAY-TV TRAPS

## SOME TEST RESULTS

By: Terry Owens  
Glyn Bostick

MICROWAVE FILTER  
COMPANY, INC.

### LAST TIME

Last time (CATJ January, 1985) we gave some test data showing the effect of temperature swings on Pay-TV trap notch attenuation.

### THIS TIME

We show the effect of moisture ingress into the trap on signal leakage from the trap case and on video notch attenuation.

### SUMMARY OF MOISTURE TESTS

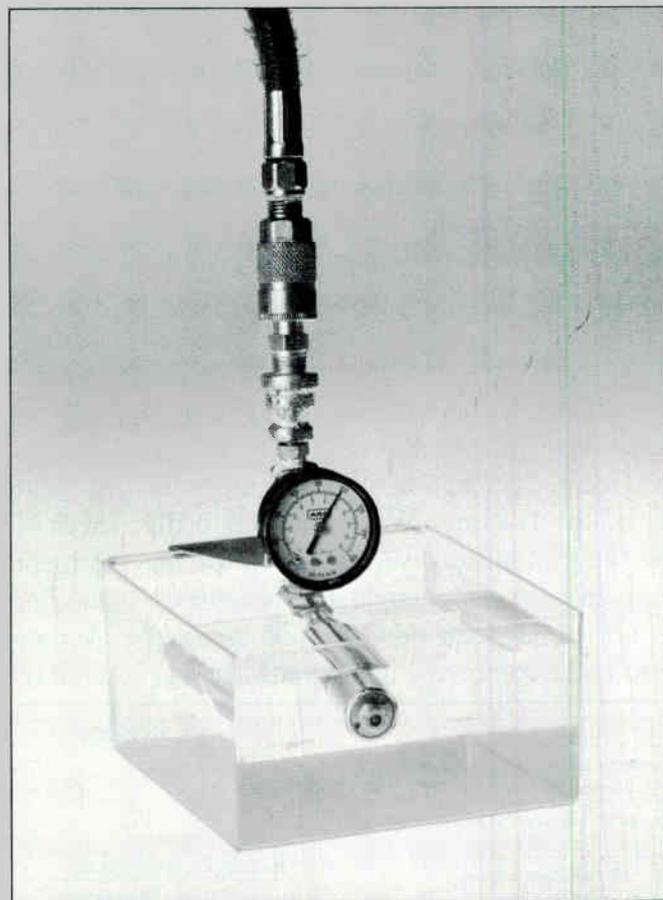
Moisture ingress into the trap tends to decrease video notch attenuation and to increase case leakage.

### TEST SPECIMEN AND PROCEDURE

Remember that this series of tests being reported are on the cylinder-form of Pay-TV traps which has become more or less the standard in the industry. For the moisture tests, we chose a channel 7 Pay-TV trap from three manufacturers. We chose specimen having measurable leakage so we could detect leakage changes as moisture was applied.

#### PROCEDURE WAS:

1. Measure the "dry" leakage level
2. Force air through the trap while immersed in water. The



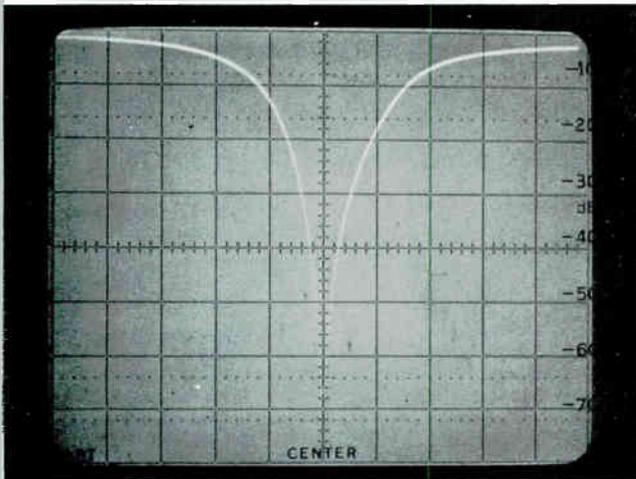
80PSIA air is forced into the trap while it is immersed. Allow 5 minutes for air captive in output connector to leak out. Thereafter, steady stream of bubbles predicts reduced notch and increased leakage under conditions of high humidity.



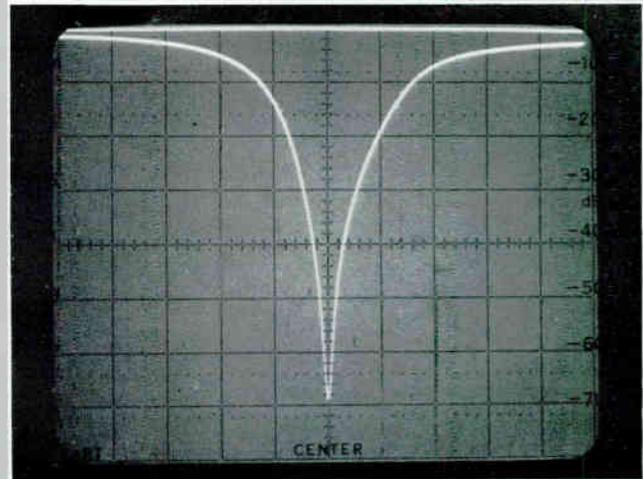
Tubular Pay-TV trap. This form is becoming the industry standard.

purpose of this test is to predict ingress of moisture under high humidity conditions. If continuous bubbles are detected, ingress is likely — in proportion to profusion of bubbles.

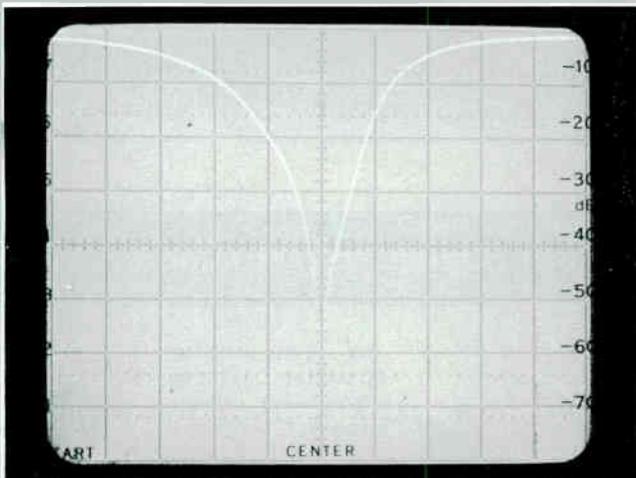
3. Traps were immersed in water for one hour after which notch loss and case leakage were remeasured.
4. Traps were immersed in water for 24 hours and notch loss and case leakage measured.



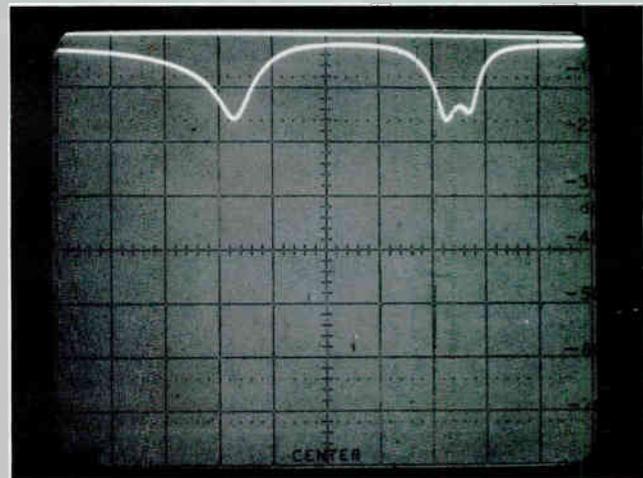
*Frequency Response of Sample A, dry*



*Frequency Response of Sample A, wet*



*Frequency Response of Sample E, dry*



*Frequency Response of Sample E, wet*

### SOME CONCLUSIONS

Only tentative conclusions can be drawn, due to the small number of samples available. We wanted to test the same **model** from each manufacturer. We also wanted to select a sample with **measurable** case leakage. Given these specifications, the number of qualifying samples were limited.

#### TENTATIVE CONCLUSIONS ARE:

1. Samples with detectable case leakage are susceptible to some degree of moisture ingress.
2. Samples exhibiting continuous bubble flow are susceptible to moisture ingress — in rough proportion to profusion of the bubbles.
3. Samples that exhibit no bubble flow probably will suffer little or no notch change and little case leakage.

### ADVISORY

If you want to make a simple test which will predict low case leakage and little notch deterioration under rain or conditions of high humidity, do the “under water” pressure test. No bubbles = relatively safe.

Note that case leakage increased when wet. This correlates with comments from the field that higher system leakage levels are logged during wet weather.

**TABLE I**

Mfr. Code	Dry		1 Hour Immersion		24 Hours Immersion		Forced Air Test
	Notch (Db)	Leakage *	Notch	Leakage	Notch	Leakage	
A	70	-59	69	-58	68	-58	No bubbles
E	65	-61	15	-56	2	-51	Heavy bubble flow
G	58	-64	20	-60	12	-49	Bubble Flow

\* A minimum case leakage standard of -65db was proposed  
(See CATJ December, 1984 and September, 1984)



Resonant chamber for testing case leakage of Pay-TV traps (see CATJ December 1984, and September 1984 for detailed description of this apparatus).

**NEXT TIME**

We'll run some tests which simulate shock (from dropping) and aging (temperature cycling to simulate several years of seasonal change).

**ACKNOWLEDGEMENTS**

Thanks to Carol Ryan for editing and "getting it all together." Chris Bostick for the sketch, Jack Gaffield for the water tests, and David Sherman for the multiple leakage and notch loss tests. □

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Date  
Location  
How Corrected  
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Remarks

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## Detection and Correction

# SIGNAL LEAKAGE LOG

This Signal Leakage Log satisfies the requirements of the FCC Rules and Regulations, Part 76, Subpart K, Paragraph 76.610(d). Although the log is intended for recording cable television signal leakages in the Aeronautical frequency bands (108-136 MHz and 225-400 MHz), it may be used by cable system operators to record all system signal leaks and insure an effective on-going signal leakage detection and correction program.

When using this log for recording signal leakage in the Aeronautical Frequency Bands, the log sheet must remain in the file for a minimum of two years.

NAME _____
ADDRESS _____ (cannot accept P.O. Box)
COMPANY _____
CITY _____
STATE _____ ZIP _____
QUANTITY (SETS OF 5) _____
AMOUNT ENCLOSED _____
* Check must be enclosed with order

**CATJ**

4209 N.W. 23rd, Suite 106  
Okla. City, Okla. 73107

# 1984 Record of Success for an Industry Leader

January, 1984

**SOLD**

**TELEVISION CABLE CO.**  
Serving Oiddings, La Grange, Weimar, Schulenburg and Hallettsville, Texas

The undersigned represented the seller in this transaction. This notice appears as a matter of record only.



**COMMUNICATIONS EQUITY ASSOCIATES**

851 Lincoln Center • 5401 W. Kennedy Blvd.  
Tampa, Florida 33609 • 813/877-8844

January, 1984

**\$12,000,000 Senior Secured Debt Due 1992**

Harbor Vue Cable TV, Inc. and Ripgal Communications, Inc.

The undersigned represented the borrowers in this transaction. This notice appears as a matter of record only.



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January, 1984

**FIRST CAROLINA COMMUNICATIONS, INC.** has acquired **SOUTH-WESTERN CABLE TV, INC.**

Serving over 31,000 basic and 38,000 pay subscribers in southwestern Illinois.

The undersigned represented the seller in this transaction. This notice appears as a matter of record only.



**COMMUNICATIONS EQUITY ASSOCIATES**

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February, 1984

**Sold**

**Clover Cable TV Inc.**

Serving the city of Clover, South Carolina

The undersigned represented the seller in this transaction. This notice appears as a matter of record only.



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February, 1984

**Sold**

**Oldham County Cable Television Company, Inc.**

Serving Oldham County and the communities of LeCrandon, Crestwood and Orchard Grass Hills, Kentucky

The undersigned represented the seller in this transaction. This notice appears as a matter of record only.



**COMMUNICATIONS EQUITY ASSOCIATES**

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February, 1984

**\$20,000,000 Senior Secured Debt**

**Comm Management Inc.**

Serving portions of Kansas, Nebraska, Missouri and Iowa.

The undersigned represented the borrower in this transaction. This notice appears as a matter of record only.



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February, 1984

**Sold**

**Jones Intercable of North Carolina**

Serving Red Springs, Elizabethtown, Fairmont, Pembroke, Raeford, and S. Pauls, North Carolina

The undersigned represented the buyer in this transaction. This notice appears as a matter of record only.



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March, 1984

**Sold**

**Southern Connecticut Cablevision**

Serving Bridgeport, Stratford, Woodbridge, Fairfield, Orange and Milford, Connecticut

The undersigned acted as an advisor to the Seller in this transaction. This notice appears as a matter of record only.



**COMMUNICATIONS EQUITY ASSOCIATES**

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851 W. Kennedy Blvd.  
Tampa, FL 33609 • 813/877-8844

March, 1984

**Montgomery Cablevision, Inc.**, an affiliated company of **Adelphia Communications Corp.** has acquired the assets of **Telecable of Montgomery County, Co.**

Serving over 5,000 basic and 3,300 pay subscribers in Anliston, Wigginsville, Whitson, Lower Oymead and Springfield Township, Pennsylvania

The undersigned represented the seller in this transaction. This notice appears as a matter of record only.



**COMMUNICATIONS EQUITY ASSOCIATES**

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Tampa, FL 33609 • 813/877-8844

March, 1984

A partnership affiliated with **Cableentertainment, Inc.** has acquired the assets of **Atlantic Coast T.V. Cable Corp.**

Serving over 22,000 basic and 6,000 pay subscribers in Atlantic City and Brigantine, N.J.

The undersigned represented the seller in this transaction. This notice appears as a matter of record only.



**COMMUNICATIONS EQUITY ASSOCIATES**

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Tampa, FL 33609 • 813/877-8844

April, 1984

**Sold**

**Louisiana Cablevision**

Serving DeQuincy, Elton, Lake Arthur, Kinder, Oberlin, Vinton, Welsh and Westlake, Louisiana

The undersigned represented the seller in this transaction. This notice appears as a matter of record only.



**COMMUNICATIONS EQUITY ASSOCIATES**

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May, 1984

**Sold**

**Bellaire Antenna Systems, Inc. and Neffs Cable Service Company, Inc.**

Serving Bellaire, Neffs and Olmsted, Ohio.

The undersigned represented the seller in this transaction. This notice appears as a matter of record only.



**COMMUNICATIONS EQUITY ASSOCIATES**

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May, 1984

**Clear Cable Television Corp.** has been acquired by **Clear Cable T.V. Associates** a limited partnership managed by **Adelphia Communications Corp.**

Serving over 57,000 basic and 38,000 pay t.v. subscribers in Toms River and 15 other contiguous communities in Ocean County, N.J.

The undersigned represented the seller in this transaction. This notice appears as a matter of record only.



**COMMUNICATIONS EQUITY ASSOCIATES**

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May, 1984

**Sold**

**Storer Cable T.V. of Radnor, Inc.**, a wholly owned subsidiary of **Storer Communications, Inc.**

Serving over 3,300 basic and 5,000 pay t.v. subscribers in Radnor, Pennsylvania

The undersigned represented the seller in this transaction. This notice appears as a matter of record only.



**COMMUNICATIONS EQUITY ASSOCIATES**

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May, 1984

**Sold**

**Deltona Cablevision**

Serving the community of Deltona in Volusia County, Florida

The undersigned represented the buyer in this transaction. This notice appears as a matter of record only.



**COMMUNICATIONS EQUITY ASSOCIATES**

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Tampa, FL 33609 • 813/877-8844

May, 1984

**Sold**

**Marlin Cable TV Co.**

Serving Marlin, Texas

The undersigned represented the seller in this transaction. This notice appears as a matter of record only.



**COMMUNICATIONS EQUITY ASSOCIATES**

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851 W. Kennedy Blvd.  
Tampa, FL 33609 • 813/877-8844

May, 1984

**\$45,000,000 Senior Secured Debt**

has been arranged for **Clear T.V. Cable Associates**

The undersigned acted as a financial consultant to the borrower. This notice appears as a matter of record only.



**COMMUNICATIONS EQUITY ASSOCIATES**

851 Lincoln Center  
851 W. Kennedy Blvd.  
Tampa, FL 33609 • 813/877-8844

June, 1984

**Sold**

**Television Cable Co.**

Serving New Straits and Burlington, Kansas

The undersigned represented the seller in this transaction. This notice appears as a matter of record only.



**COMMUNICATIONS EQUITY ASSOCIATES**

851 Lincoln Center  
851 W. Kennedy Blvd.  
Tampa, FL 33609 • 813/877-8844

July, 1984

**Sold**

**Certain assets of Warner Amex Cable Communications, Inc.**

Serving over 2,000 basic subscribers in the communities of Ironsides, Labadie, Pratt Labadie, Hendry County and Collier County, Florida.

The undersigned represented the seller in this transaction. This notice appears as a matter of record only.



**COMMUNICATIONS EQUITY ASSOCIATES**

851 Lincoln Center  
851 W. Kennedy Blvd.  
Tampa, FL 33609 • 813/877-8844

July, 1984

**Sold**

**Certain assets of Group W Cable**

Serving over 5,300 basic and 7,000 pay t.v. subscribers in Plantation, Florida

The undersigned represented the seller in this transaction. This notice appears as a matter of record only.



**COMMUNICATIONS EQUITY ASSOCIATES**

851 Lincoln Center  
851 W. Kennedy Blvd.  
Tampa, FL 33609 • 813/877-8844

July, 1984

**Sold**

**Bayou Cablevision, Inc.**

Serving over 4,000 basic subscribers in Mobile County, Alabama

The undersigned represented the seller in this transaction. This notice appears as a matter of record only.



**COMMUNICATIONS EQUITY ASSOCIATES**

851 Lincoln Center  
851 W. Kennedy Blvd.  
Tampa, FL 33609 • 813/877-8844

July, 1984

**Sold**

**Osceola Cable TV**

Serving over 1,300 basic subscribers in Reed City and Evart, Michigan

The undersigned represented the seller in this transaction. This notice appears as a matter of record only.



COMMUNICATIONS EQUITY ASSOCIATES

401 Lakeside Center  
540 W. Broadway Blvd.  
Tampa, FL 33604 813-477-8844

July, 1984

**\$3,500,000 Subordinated Debt and \$1,000,000 Partnership Capital**

has been arranged for  
**Greater Media Cablevision Inc.**  
an affiliated company of Greater Media, Inc.

The proceeds will be used to construct a cable television system passing 27,000 homes in Western Oakland County, Michigan

The undersigned represented Greater Media Cablevision Inc. in this transaction. This notice appears as a matter of record only.



COMMUNICATIONS EQUITY ASSOCIATES

401 Lakeside Center  
540 W. Broadway Blvd.  
Tampa, FL 33604 813-477-8844

August, 1984

**\$3,600,000 Senior Secured Debt**

has been arranged for  
**Midwest Cable, Inc.**

The undersigned acted as a financial consultant to the borrower. This notice appears as a matter of record only.



COMMUNICATIONS EQUITY ASSOCIATES

401 Lakeside Center  
540 W. Broadway Blvd.  
Tampa, FL 33604 813-477-8844

August, 1984

**Sold**

**Kentuckiana Cablevision, Inc. Franklin-Simpson Cablevision, Inc. Tennessee Videocable, Inc.**

Serving more than 4,000 basic and 4,900 pay TV subscribers in Franklin, Lexington, Calhoun, Lawrenceburg, Clarksville and Lawrenceville, Kentucky, White House, Tennessee, and Rockport, Indiana.

The undersigned represented the seller in this transaction. This notice appears as a matter of record only.



COMMUNICATIONS EQUITY ASSOCIATES

401 Lakeside Center  
540 W. Broadway Blvd.  
Tampa, FL 33604 813-477-8844

August, 1984

**Sold**

**Certain Assets of American Cablesystems Corporation of Virginia, Inc. and American Cablesystems Corporation of Tennessee, Inc.**

Serving over 5,300 basic and 1,800 pay TV subscribers in St. Paul, Lebanon and Horak, Virginia and Mountain City, Tennessee.

The undersigned represented the seller in this transaction. This notice appears as a matter of record only.



COMMUNICATIONS EQUITY ASSOCIATES

401 Lakeside Center  
540 W. Broadway Blvd.  
Tampa, FL 33604 813-477-8844

August, 1984

**Sold**

**Midwestern Company, Inc.**

Serving 1,800 basic subscribers in Comanche, Texas

The undersigned represented the seller in this transaction. This notice appears as a matter of record only.



COMMUNICATIONS EQUITY ASSOCIATES

401 Lakeside Center  
540 W. Broadway Blvd.  
Tampa, FL 33604 813-477-8844

September, 1984

**Sold**

**EMCO CATV, Inc. and Granville Cablevision, Inc.**

Serving over 7,600 basic and 2,577 pay TV subscribers in and around Manchester, Vermont.

The undersigned represented the seller in this transaction. This notice appears as a matter of record only.



COMMUNICATIONS EQUITY ASSOCIATES

401 Lakeside Center  
540 W. Broadway Blvd.  
Tampa, FL 33604 813-477-8844

September, 1984

**Sold**

**Television Cable Co.**

Serving De Queen, Arkansas and Wirths City, Oklahoma.

The undersigned represented the seller in this transaction. This notice appears as a matter of record only.



COMMUNICATIONS EQUITY ASSOCIATES

401 Lakeside Center  
540 W. Broadway Blvd.  
Tampa, FL 33604 813-477-8844

October, 1984

**Morgan County Cablevision, Inc. has been sold to a Partnership formed by Paradigm Communications, Inc.**

Serving over 2,800 basic and 1,250 pay TV subscribers in Wartburg, Oakdale and Morgan County, Tennessee.

The undersigned represented the seller in this transaction. This notice appears as a matter of record only.



COMMUNICATIONS EQUITY ASSOCIATES

401 Lakeside Center  
540 W. Broadway Blvd.  
Tampa, FL 33604 813-477-8844

October, 1984

**Sold**

**First Indiana Cablevision Corp.**

Serving subscribers in Jasonville, Indiana

The undersigned represented the seller in this transaction. This notice appears as a matter of record only.



COMMUNICATIONS EQUITY ASSOCIATES

401 Lakeside Center  
540 W. Broadway Blvd.  
Tampa, FL 33604 813-477-8844

November, 1984

**\$3,000,000 Preferred Class A Stock**

**Gulfstream Cablevision of Pinellas County, Inc.**

The proceeds will be used for the acquisition and capital improvements for certain systems serving communities in Pinellas County, Florida

The undersigned represented Gulfstream Cablevision of Pinellas County, Inc. in this transaction. This notice appears as a matter of record only.



COMMUNICATIONS EQUITY ASSOCIATES

401 Lakeside Center  
540 W. Broadway Blvd.  
Tampa, FL 33604 813-477-8844

November, 1984

**Sold**

**Times Mirror Cable T.V. of Riverside County, Inc.**

Serving 3,220 basic and 1,190 pay TV subscribers in Perris, Murietta, Hot Springs, Sunnymead, Minero and surrounding unincorporated areas of Riverside County, California

The undersigned represented the seller in this transaction. This notice appears as a matter of record only.



COMMUNICATIONS EQUITY ASSOCIATES

401 Lakeside Center  
540 W. Broadway Blvd.  
Tampa, FL 33604 813-477-8844

November, 1984

**Sold**

**Certain assets of Group W Cable**

Serving 4,450 basic and 3,600 pay subscribers in New Port Richey and Safety Harbor, Florida

The undersigned represented the buyer in this transaction. This notice appears as a matter of record only.



COMMUNICATIONS EQUITY ASSOCIATES

401 Lakeside Center  
540 W. Broadway Blvd.  
Tampa, FL 33604 813-477-8844

November, 1984

**Sold**

**Highland Beach Cable TV**

Serving the city of Highland Beach, Florida

The undersigned represented the seller in this transaction. This notice appears as a matter of record only.



COMMUNICATIONS EQUITY ASSOCIATES

401 Lakeside Center  
540 W. Broadway Blvd.  
Tampa, FL 33604 813-477-8844

November, 1984

**Sold**

**Certain assets of Cablertainment of West Virginia**

Serving 17,427 basic and 5,884 pay subscribers in Ripley, Ravenswood, Madison, River Pleasant, Mount Hope, Alderson and Wharfe Sulphur Springs, West Virginia and Prestonburg, Kentucky

The undersigned represented the seller in this transaction. This notice appears as a matter of record only.



COMMUNICATIONS EQUITY ASSOCIATES

401 Lakeside Center  
540 W. Broadway Blvd.  
Tampa, FL 33604 813-477-8844

November, 1984

**Sold**

**Certain assets of Group W Cable**

Serving 27,789 basic and 8,140 pay subscribers in the communities of Escanaba, Iron Mountain, Ironwood, Calumet and Sault Ste. Marie, Michigan

The undersigned represented the seller in this transaction. This notice appears as a matter of record only.



COMMUNICATIONS EQUITY ASSOCIATES

401 Lakeside Center  
540 W. Broadway Blvd.  
Tampa, FL 33604 813-477-8844

November, 1984

**\$3,000,000 Senior Secured Debt**

**Gulfstream Cablevision of Pinellas County, Inc.**

Acquisition of New Port Richey and Safety Harbor, Florida serving 4,450 basic and 3,600 pay subscribers

The undersigned represented the buyer in this transaction. This notice appears as a matter of record only.



COMMUNICATIONS EQUITY ASSOCIATES

401 Lakeside Center  
540 W. Broadway Blvd.  
Tampa, FL 33604 813-477-8844

November, 1984

**Sold**

**B. E. Cablevision, Inc.**

Serving 1,525 basic subscribers in Blue Earth and Elmore, Minnesota

The undersigned represented the buyer in this transaction. This notice appears as a matter of record only.



COMMUNICATIONS EQUITY ASSOCIATES

401 Lakeside Center  
540 W. Broadway Blvd.  
Tampa, FL 33604 813-477-8844

December, 1984

**Sold**

**Certain assets of Florida Clearview, Inc.**

Serving cable TV subscribers in Trenton and Archer, Florida

The undersigned represented the seller in this transaction. This notice appears as a matter of record only.



COMMUNICATIONS EQUITY ASSOCIATES

401 Lakeside Center  
540 W. Broadway Blvd.  
Tampa, FL 33604 813-477-8844

December, 1984

**Sold**

**Times Mirror Cablevision of San Bernardino County, Inc.**

Serving 8,500 basic and 3,800 pay subscribers in Victorville and George Au Force Base, California

The undersigned represented the seller in this transaction. This notice appears as a matter of record only.



COMMUNICATIONS EQUITY ASSOCIATES

401 Lakeside Center  
540 W. Broadway Blvd.  
Tampa, FL 33604 813-477-8844

December, 1984

**\$6,000,000 Senior Secured Debt**

has been arranged for  
**Terrestrial Systems, Inc.**

Serving communities throughout Central California

The undersigned represented the borrower in this transaction. This notice appears as a matter of record only.



COMMUNICATIONS EQUITY ASSOCIATES

401 Lakeside Center  
540 W. Broadway Blvd.  
Tampa, FL 33604 813-477-8844

December, 1984

**Sold**

**Nantahala Cablevision Corp.**

Serving Bryson City and Robbinsville, North Carolina

The undersigned represented the seller in this transaction. This notice appears as a matter of record only.



COMMUNICATIONS EQUITY ASSOCIATES

401 Lakeside Center  
540 W. Broadway Blvd.  
Tampa, FL 33604 813-477-8844

December, 1984

**Sold**

**Murfreesboro TV Cable Co.**

Serving Murfreesboro, Arkansas

The undersigned represented the seller in this transaction. This notice appears as a matter of record only.



COMMUNICATIONS EQUITY ASSOCIATES

401 Lakeside Center  
540 W. Broadway Blvd.  
Tampa, FL 33604 813-477-8844

December, 1984

**Sold**

**Certain assets of American Communications and Television, Inc.**

Serving 4,800 basic and 1,500 pay subscribers in Alachua, High Springs, Branford, Cross City, Chiefland, McArthur, McIntosh, Redick and Marion County, Florida

The undersigned represented the seller in this transaction. This notice appears as a matter of record only.



COMMUNICATIONS EQUITY ASSOCIATES

401 Lakeside Center  
540 W. Broadway Blvd.  
Tampa, FL 33604 813-477-8844

## INTRODUCTION

As Europe enters the Satellite Cable television age on a large scale, a completely new set of challenges are presented to the cable operator. It is an unfortunate fact that, while the sciences of cable television and satellite transmission are quite well understood, they are, for the most part, understood by two distinctly different groups of people. It will fall on the CATV engineer to fight through the maze of unfamiliar interface problems. These problems will typically present themselves in two forms: "NEW TECHNOLOGY" and "NEW HARDWARE". Both forms of these problems will require new understandings, techniques, and equipment in order to be properly addressed.

As we pursue an examination of the potential interface difficulties, it is perhaps useful to separate them into two categories of SIGNAL RECEPTION, and SIGNAL PROCESSING. As it is also impossible to adequately cover all potential interface difficulties in anything less than a multi volume library, only the more commonly encountered areas are addressed herein.

# CATV TRANSITION TO SATELLITE DELIVERED SIGNALS

By

Karl Poirier

Vice-President-Engineering  
Triple Crown Electronics Inc.  
Mississauga, Ontario, Canada

## SIGNAL RECEPTION

### PART I

Under the heading of Signal Reception, we find that the most common problems will concern the understanding of

- a) Level Dynamics
- b) Antenna Pointing Error
- c) Interference and Noise
- d) RF Distribution

### INTERFACE PROBLEM (A) LEVEL DYNAMICS

The problem of "Level Dynamics" is an example of the "NEW TECHNOLOGY" aspect of cable via satellite. In most cases, the reception of television signals has been by VHF or UHF antennas, of AM modulated carriers. Level variation in received signals at these antennas often involved tremendous variation from day to day with **linear, predictable**

results to the receive noise performance. Thus a technician, observing a dramatic variation in performance, could usually, on testing, locate a dramatic, corresponding variation in receive signal level (Fig.1.) In satellite television, the effect of FM improvement causes a much different relationship between receive carrier level and end performance, particularly as we approach threshold levels.

First: an examination of FM threshold: FM threshold is normally defined as the point on the received level curve where the C/N vs recovered S/N depart from linear coincidence. This definition of **static** threshold is normally displayed as a graph (Fig.2) showing a point at which a reduc-

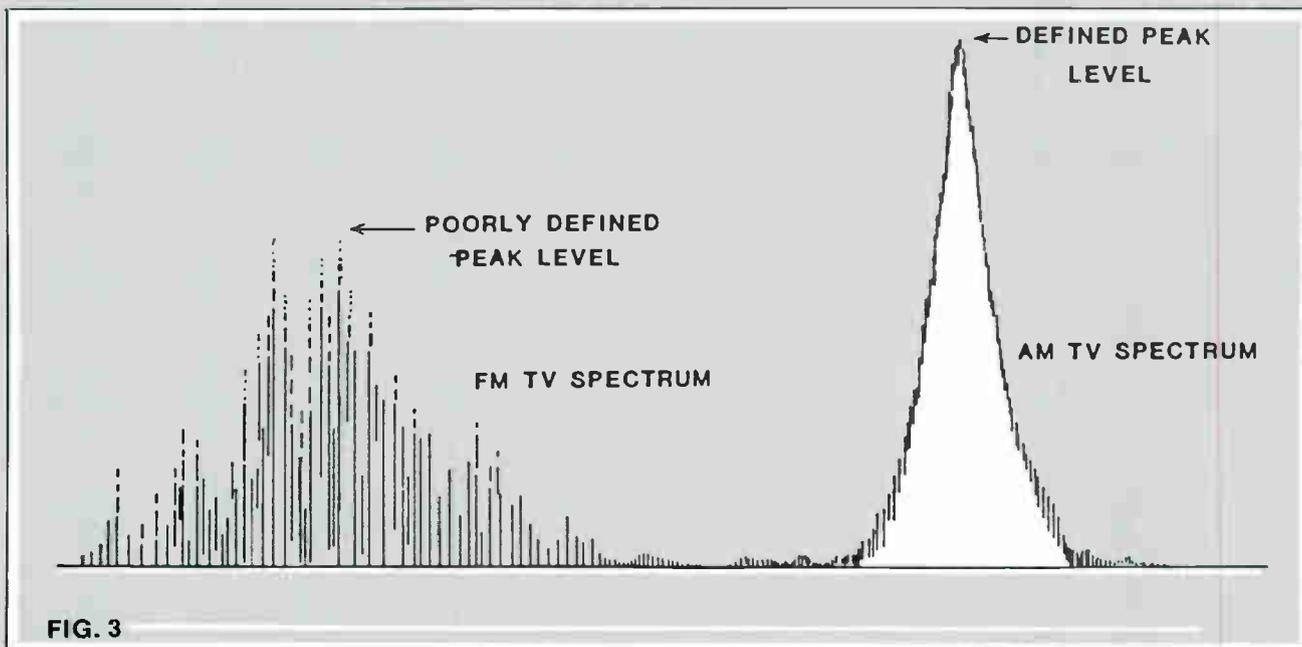


FIG. 3

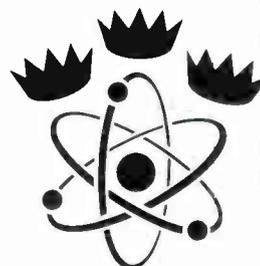
To further complicate matters, the Satellite antenna requires careful orientation in two planes

(elevation and azimuth) at a satellite which, although geostationary, is not necessarily stationary.

A satellite in Geostationary orbit is not stationary, but rather tends to wander due to imperfections in

# NOW THE ODDS ARE THREE TO ONE IN YOUR FAVOUR!

In this high stakes field of cable and low power television, you can bet on us - the odds are three to one we have the equipment you need. The combined Cable Power, DBC and Triple Crown product lines cover almost every aspect of CATV and LPTV. Whether your system is big or small, the Triple Crown group will pay off with dependable performance - our track record proves it! Choosing our products isn't a gamble, odds are you'll become a Triple Crown winner!



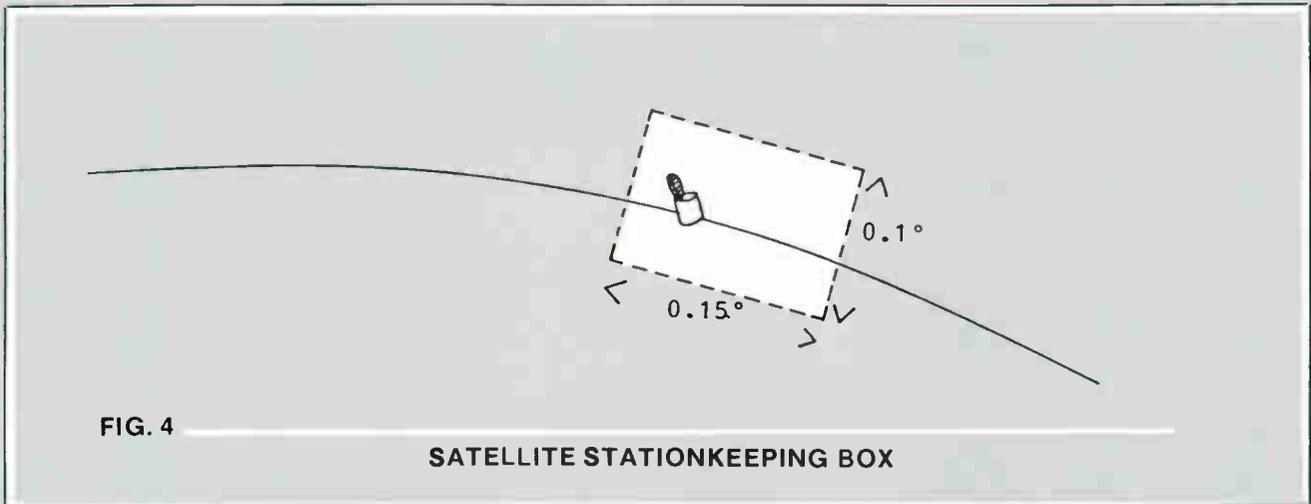


FIG. 4

SATELLITE STATIONKEEPING BOX

the orbit. The satellite operator controls the position so as to keep the satellite within an allowable window or "box". An example of typical stationkeeping is the

Telesat Canada ANIK C satellite which is maintained within a "box" of approximately  $0.15^\circ$  azimuth and  $0.1^\circ$  elevation. (Fig.4) While the satellite is always within this

box, the Cable operator normally has no way of knowing if it is centered, or at an extreme limit at the time of TVRO installation. ▶

- ADDRESSABLE SYSTEM PRODUCTS
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REXDALE, ONTARIO — (416) 241-2651

# DBC

- CATV STANDBY POWER SUPPLIES IN 2, 3 or 4 BATTERY MODELS
- NON-STANDBY POWER SUPPLIES

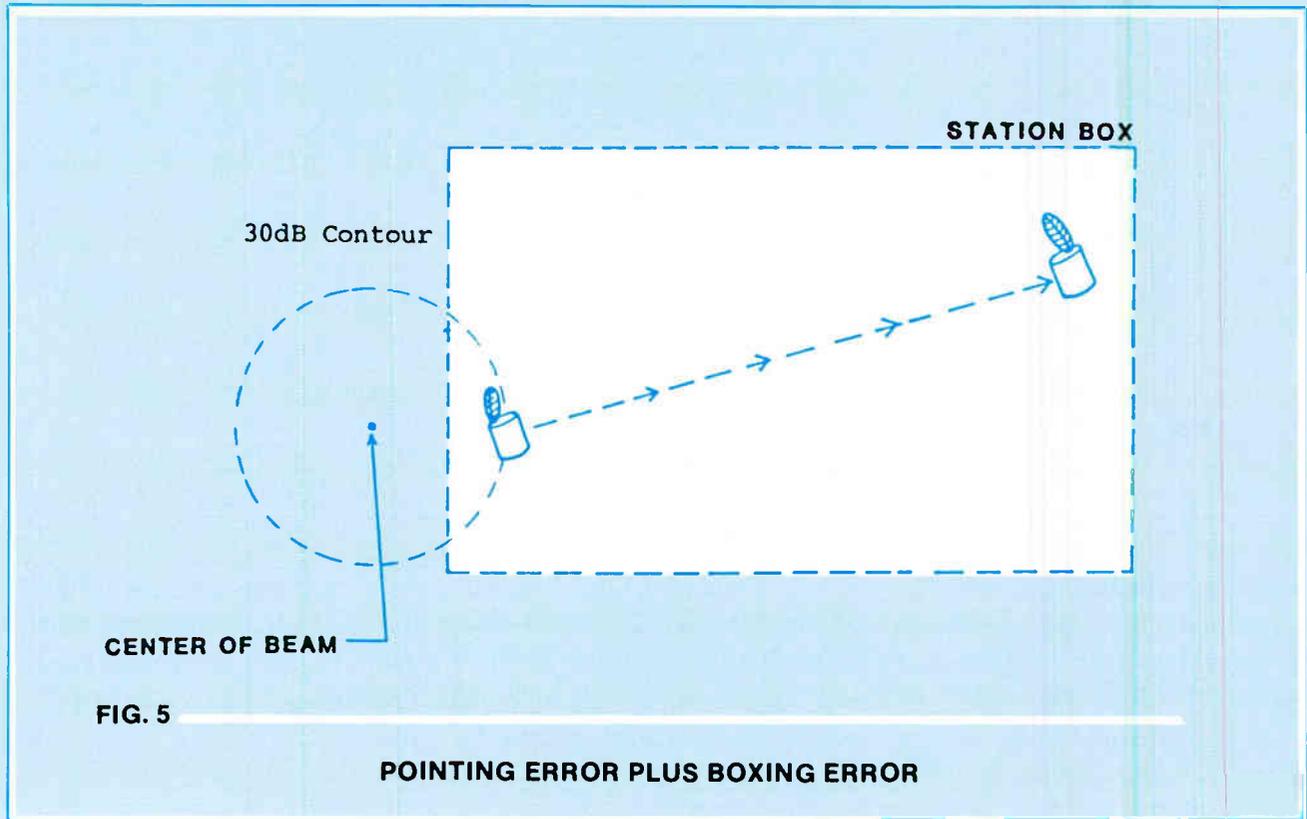
REDMOND, WASHINGTON - (206) 882-2304

# Cable Power

- PREPACKAGED CATV HEAD ENDS
- SATELLITE TELEVISION RECEIVERS
- TV & FM HEAD END COMPONENTS
- LINE & APARTMENT AMPLIFIERS

MISSISSAUGA, ONT. — (416) 629-1111  
DEERFIELD BEACH, FLA. — (305) 429-0870

# TRIPLE CROWN



### SATELLITE STATIONKEEPING BOX

If we apply some numbers, we can more easily observe this phenomenon. A 4.5m TVRO operating at 12GHz within a footprint of 42dBW should have a carrier to noise ratio of approximately 21dB C/N or approximately 55dB Video S/N.

This is assuming clear skies, and the antenna beam centered on the satellite. We will assume, (Fig.5) that the above mentioned TVRO 4.5m antenna has been improperly aligned at  $0.4^\circ$  east of the satellite, and is delivering a quite acceptable 52dB S/N.

If, at this time, the satellite was near the extreme easterly edge of the box, as happens several times

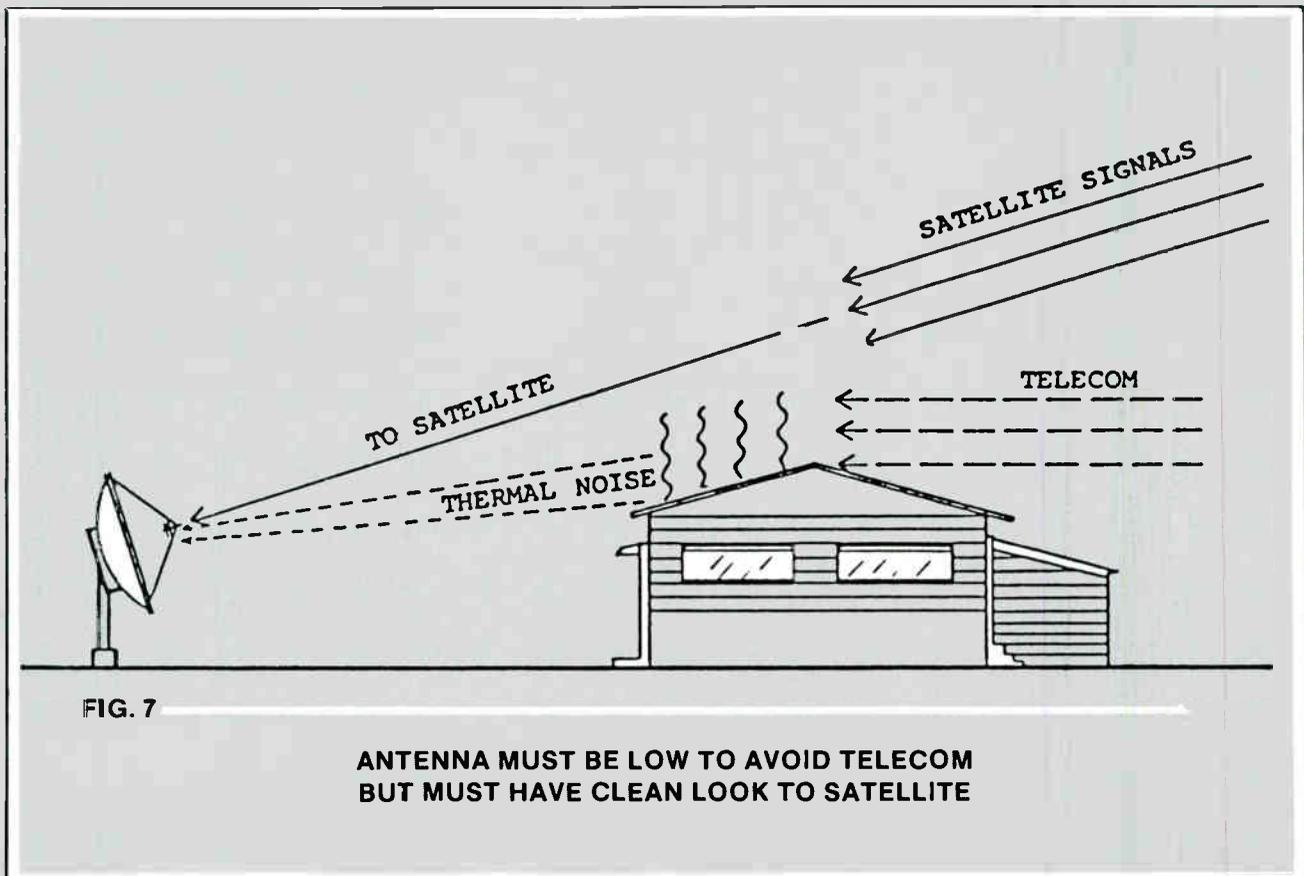
a year, and the stationkeeping engineering applies orbit correction, the satellite will begin to drift westward. Some time later, as much as two weeks, the satellite will have moved as much as  $0.18^\circ$ . Recalling that the 4.5m beamwidth is  $0.4^\circ$  (3dB) and  $0.75^\circ$  (10dB,) the system may now suffer as much as 6.5dB reduction in input signal. This reduction will cause, at best, a S/N reduction to 45.5dB. This effect can be made more serious by normal day to day fluctuations in downlink power (typically  $\pm 1$ dB) and other unaccounted variations. Depending on the available C/N ratio, and the dynamic loading effects on receiver threshold, this drift could cause threshold noise or even total loss of signal!

### POINTING ERROR PLUS BOXING ERROR

The circumstances which lead to clear sky fading are common to all satellite transmission systems, however, they are much more apparent in KU transmission. There is, in fact, only one cure for this problem.

The cure:

1. The antenna mounting must be solid enough to maintain stability within  $0.2^\circ$  over expected environmental conditions.
2. The operator must acquire, from the satellite operator, the information as to when, exactly, the satellite is in "center Box".
3. The antenna must be precisely peaked on the



mized or avoided.

In the battle against unwanted noise and interference, the primary weapons include;

Hardware selection

Antenna design & construction

Antenna installation location

Hardware selection for noise performance involves the low noise amplifier/converter, and the antenna-gain. It should be noted, however, that while the low noise amplifier affects noise only, the antenna gain will affect both noise and interference performance. It is therefore always better to invest in antenna size rather than LNA temperature.

The most significant parameter

affecting interference is the antenna sidelobe performance. Although the basic sidelobe performance is a fixed function of antenna diameter, it is comprised primarily by the type of feed system employed. The ratio of the feed blockage area to the dish area, and the symmetry of the blocked area, contribute to increases and deviations in sidelobe performance. The ultimate in sidelobe performance is the horn antenna which has no feed blockage. Prime focus antennas with single feed are the most efficient of the front feed designs. More complex feed arrangements such as cassegrain or multibeam feeds have pro-

gressively poorer sidelobe performance and should be avoided if possible.

The antenna location can be designed to employ, (rather than suffer from) nearby structures as part of the overall noise and interference protection. The natural tendency by CATV engineers to put antennas on high structures should be avoided, and antennas should be placed as low as possible. Nearby structures can provide shielding (Fig.7) provided that they do not, themselves generate noise by placing heated areas into the beam path. With the exception of those areas requiring very low look angles, most antenna installa-

tions can be optimized for both antenna noise and interference protection.

### INTERFACE PROBLEM (D) RF DISTRIBUTION

As most satellite reception in Europe will be KU band, the problems of high frequency distribution within the head end are not so critical as with 4GHz distribution. Most distribution will probably be in the 950-175MHz region, with some lower frequency (270-770MHz) usage. The most likely encountered problems involve signal loss, power dividing, and interference reception. Unlike the reception problems, RF distribution difficulties are usually totally controllable. Of primary concern is cable and hardware quality, and installation technique, both under the control of the engineer. The distribution of signals in the 270-1750MHz region involves hardware only recently available. In most cases, this frequency band is too low for microwave technique, and the hardware consists of lower frequency technology which has been pushed up in frequency. In this approach, we lose the natural high pass characteristic of the stripline technology, and are more prone to low frequency interference. Typical power dividers for 1700 MHz may pass signals as low as 10MHz. This provides a clear path for receiver local oscillators which are typically below the low frequency limit of downconverted signal band.

The distribution of such a wide band of signals at a relatively low

**FOR UNDERGROUND HOUSE DROPS**

**L-1**

**CABLE LINE LAYER**

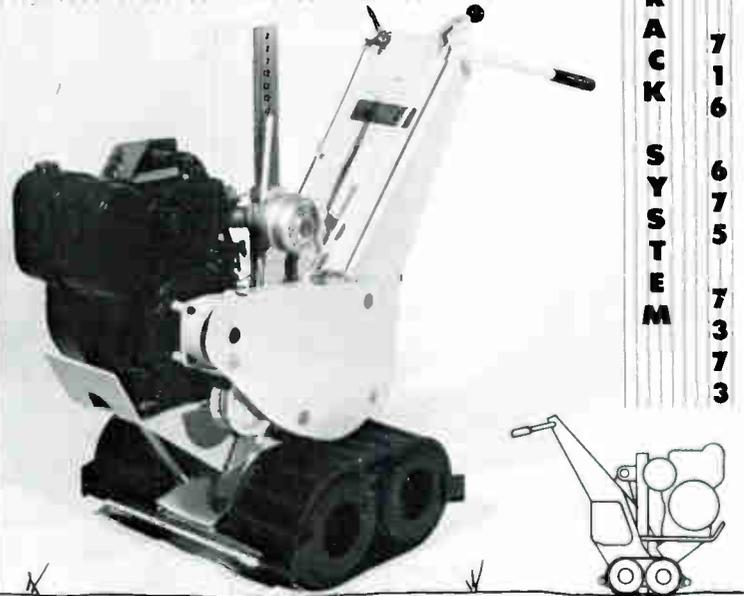
**LINE WARD CORP.**

**10 YRS PROVEN**

**PHONE TRACK SYSTEM 716 675 7373**

**PROVES BIG IS NOT BETTER FOR PHONE CABLE TV**

**800 LBS. WIDTH 24 1/2"**



**NO LAWN RESTORATION**

**157 SENECA CREEK RD., BUFFALO, N.Y. 14224**

**Sold**

## COLDWATER CABLEVISION INCORPORATED

Cable Television System Serving over 5,000 Subscribers in Coldwater, Bronson, Quincy and the Townships of Batavia, Bethel, Bronson, Coldwater, Girard, Kinderhook, Quincy and Ovid, Michigan

The seller was represented by the undersigned



**CHARLES GREENE ASSOCIATES**

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

This notice appears as a matter of record only. December, 1984.

frequency, can lead to slope level problems. In carrying the 950-1750 band on cable from down-converters to receiver, we find that the slope ratio is in excess of 0.7:1. This means that the band will acquire 3dB of slope for every 10dB of cable employed. It becomes quite a simple matter to present a receiver with a level difference of 12dB between highest and lowest channel.

When use of downconverter frequencies below the 950-1750 band are considered, we must be aware of the potential for interference from terrestrial sources such as UHF television broadcast. As seen earlier in the examination of level distribution, these sources can be much higher in level than the satellite signals at the receiver.

## PART II SIGNAL PROCESSING

The recovery and processing of satellite transmissions involves a "NEW TECHNOLOGY" problem. For the most part, cable television engineers are unfamiliar with wide band frequency modulation, and also in the handling of very low level signals. An example of this is the fact that all received signals normally employed by a head end can, **without processing**, be applied directly to a television receiver or monitor, and be observed. In other words, the CATV technician can normally connect this television directly to the receive antenna to test received quality. With satellite signals both the **level** and the **format** are unsuitable for observation.

## INTERFACE PROBLEM #1 SIGNAL & NOISE LEVELS

For the most part, the parameters of carrier to noise and eventually signal to noise, are controlled at the system design stage. Once antenna diameter and LNA temperature are established, noise performance can not be improved without significant trade-offs. It can, however, be degraded through mishandling of antenna pointing or location as examined earlier. To properly examine this function, we must take one step back from carrier to noise, and examine the function of gain over temperature (G/T), for it is this parameter which defines the overall performance capabilities of the system.

It is defined as:

Gain of antenna  
over  
noises accumulated in the  
reception process.

The gain portion of the equation is comprised of "G" which is defined as: Theoretical Gain of the antenna, multiplied by the Actual efficiency of the feed system (%), minus signal losses (such as feedhorn waveguide losses, feedhorn match to LNA etc.) (Typically 1dB). An example of "G" for a 4.5m antenna at KU band would be:

Theoretical maximum gain 55dB  
60% efficiency = 52.7dB  
misc. losses (1dB) = 51.7dB  
(nominal 52dB)

The temperature portion of the equation is comprised of "T" which is defined as  $10\text{LOG}_{10}(\text{TSYS})$ .

TSYS - system temperature is comprised of: noise figure of first amplifier plus noise temperature of antenna (a function of diameter and elevation) plus miscellaneous noises (feedhorn, waveguide, etc.)  
 $\text{TLNA} + \text{TANT} + \text{TMISC}$

An example of "T" for a 4.5 antenna in Toronto aimed at ANIK C, with a low noise converter of 3dB noise figure (289°) would be:

3dB LNA	TLNA 289°K
4.5m @ elev. 27°	TANT 24°K
Misc. noises	TMISC 20°K
	333°K

"T" =  $10\text{LOG}_{10}(333) = 25.2\text{dB}$   
G/T =  $52 - 25.2 = 26.8$

The resultant value for G/T establishes the maximum performance capability of the system. Although the calculations are elaborate, the net result can be stated as:

$\text{S/N} = \text{G/T} + \text{EIRP} + \text{BN} + \text{FMI} + \text{PL} - \text{K}$

Where S/N is THE VIDEO SIGNAL TO NOISE RATIO

BN is THE IF BANDWIDTH

FMI is THE FM IMPROVEMENT + WEIGHTING

PL is THE PATH LOSS

K is BOLTZMANS CONSTANT

( - 2 2 8 . 6 D B W / °K/HZ)

It should be noted that the only item in the equation which can be altered is the noise bandwidth. Unfortunately, BN also appears in the FMI equation in an inverse

manner. (ie reducing if bandwidth doesn't help a poor G/T situation)

For most applications, the formula can be reduced to:

$$S/N=G/T+EIRP-F$$

where F=approximately 5dB for

10.75MHz deviation  
@ C band.

=approximately 20dB for  
8.5 Mhz deviation @ KU  
band.

thus; for most 12GHz TV  
applications,

Video  $S/N=G/T+EIRP-20$   
(approximately)

If the S/N result of this equation is not adequate, nothing less than *improving G/T* will improve the situation significantly. (no allowance has been included for rain fade tolerance in this clear sky calculation.)

### INTERFACE PROBLEM #2 RECOVERY AND DEMODULATION

Assuming that through good planning, and proper installation, we have provided a signal of sufficient carrier noise ratio, we must now recover the video and audio information from the signal. certainly the demodulation of wide-band FM will be new to most CATV engineers, for it contains elements not encountered in normal terrestrial FM transmission. The first item encountered is very wide deviation, in the order of 7-11MHz peak. This results in a modulation bandwidth in the area of 26-30MHz, and necessitates a wide recovery bandwidth. The modulation is also complex, in

that it may comprise video as well as many individual FM subcarriers. The overall system poses a paradox, in that a wide bandwidth is required for recovery of high frequency sidebands, while a narrow bandwidth is most desirable for noise performance. Noise performance can, in fact, be artificially improved, at the expense of high frequency performance. This is often done in low grade, or DBS applications, but is not suitable for cable television, where further system degradations are to be introduced. If we examine the classic S/N vs C/N equations, we can see that, unlike other param-

eters, receive bandwidth is applied in both the "S" and the "N" portions of the calculations; as signal in the S/N equation, and as noise in the C/N equation. The most difficult problem associated with recovery of these types of signals is in maintaining the linearity of a discriminator over this very wide bandwidth. Many of the systems designed for satellite reception are aimed at the DBS or limited reprocessing application, wherein significant non-linearity can be tolerated. These forms of processing, designed primarily for low G/T applications, perform their function quite well, but the

## Sold

### DBL CORPORATION

d/b/a

### SHOWCASE CABLEVISION SYSTEMS

Serving

Buffalo Gap, Merkel, Roscoe, Tuscola,  
Nolan County and Taylor County, Texas

The seller was represented by the undersigned



**CHARLES GREENE ASSOCIATES**

A Division of AMCOM, Inc.

Building E Suite 200

5775 Peachtree-Dunwoody Road, N.E.

Atlanta, Georgia 30342

(404) 256-0228

This notice appears as a matter of record only. December, 1984.

recovered video performance often falls short of CATV requirements. No amount of "Threshold extension" will compensate for an initial lack of acceptable G/T performance, or poor wide band linearity. This holds true more significantly when the extra deviation of high level subcarriers or energy dispersal signals are added. The equations for S/N performance, while adaptable by bandwidth variations, do not normally address the high frequency linearity problem, which is much more significant when the transmission of video is involved. The first step is, however, the development of an acceptable S/N performance, from which a satisfactory linearity performance can be obtained.

In this observation, we have been dealing with static threshold, which is an interpretation of the FM effect under single FM modulated carrier (IE VIDEO) conditions. A more subtle effect which comes into play is that of dynamic threshold reduction. This effect of

loading of the system by auxiliary subcarriers can artificially degrade the receiver threshold point by 1-4dB. Thus, a receive system with a static threshold of 8dB may appear to be thresholding at 9-12dB C/N under several high level additional subcarriers. This problem is a high frequency deviation effect, and its cure involves a combination of increased receiver C/N as well as increased IF bandwidth; two items which normally have been traded off against each other in the S/N calculation. The only solid solution is to select an antenna LNB combination which will deliver a C/N well above the dynamic threshold point.

#### OBSERVATION

As mentioned earlier, a paper of this length can only highlight the most common area of potential difficulties. We can, however, from these few examples, derive some guidelines which will minimize the possibility for problems.

1. Select the largest practical antenna: This will provide a

head start on the G/T and interference problems.

2. Precise Antenna Alignment; Remember that the larger antenna has more potential for pointing error or change.
3. Maximize Antenna Installation; This can provide interference relief as well as ease the RF distribution problem.
4. Select high Performance Receive electronics. "DBS" type stretched performance equipment will not suit CATV.
5. Study the techniques and theories of microwave and FM transmission; This is the key to successful transition to satellite delivered signals.

#### ACKNOWLEDGMENTS:

—NOISE CONSIDERATIONS IN THE ANIK C SATELLITE PAY TV DISTRIBUTION NETWORK. Fred Smart, Telesat Canada.

—DESIGN CONSIDERATIONS FOR EARTH STATIONS TO OPERATE WITH ANIK C3 SATELLITE. Telesat Canada. □



## PROGRAMMING NOTES:

**E**ven if you don't understand the rating vernacular on television reports of viewers participation, it will be easy to grasp that Turner Broadcasting's cable superstation WTBS drew the largest prime-time audience of its history with its presentation on Jan. 13 of "THREADS", the grim and very realistic British-produced film on nuclear holocaust. According to the reporting services, WTBS drew 2.7 million television homes for an 8.3 rating (percentage of television households) with an eleven share (percentage of sets in use) in the 33.1 million homes receiving WTBS. There had been extensive publicity announcing this presentation and obviously the cable audience responded. An extra-

ordinary production!

Sport fans will be happy to hear of ESPN's plans for covering sports events this year — it has been reported that college baseball games will be shown, as well as 15 tennis events. The tennis coverage will include the extensive Davis Cup tournament, beginning March 8, and originating from Kyoto, Japan.

As a result of a promotional free preview weekend late in the fall, HBO and Cinemax reported adding 138,000 new subscriptions, which served as an encouraging factor to this pay cable giant. A similar free weekend promotion was held last spring, but the fall promotion attracted 44 percent more new subscribers than the fall pitch.

**THE NASHVILLE NETWORK**, 22-month old cable TV service, is now reaching 24 percent of U.S. television homes, and reporting a larger rating during prime time than during the last reporting period, another positive figure!

**SHOWTIME/THE MOVIE CHANNEL** is finalizing plans to assume the distribution of 269,980 QUBE subscribers, currently operated by Warner Amex Cable Communications. QUBE subscribers order movies available up to six months before their pay-cable release, and SHOWTIME/THE MOVIE CHANNEL could soon start delivering movies to these QUBE systems via satellite replacing the present videocassette delivery method now used by Warner. □

## FCC'S NEW AERONAUTICAL FREQUENCY AND SIGNAL LEAKAGE RULES

**C**able television engineers and technicians are, or should be, familiarizing themselves with the FCC's amendment of its rules governing cable system use of aeronautical frequencies (108-136 and 225-400 MHz) and signal leakage prevention. The new rules require standard frequency offsets, and address threshold power levels, leakage performance tests, monitoring and logging, basic signal leakage criteria, and grandfathering

(FCC Second Report and Order in Docket No. 21006). If you use, or intend to use these frequency bands, you'll eventually have to comply with the new rules which may require headend modification and quarterly signal leakage monitoring. No one knows when the new rules will take effect but the FCC will be putting out a Public Notice on the matter next month. Petitions for reconsideration have been filed with the FCC. FCC. □

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---

Any pay (scrambled) channels, such as HBO and MTV, have been broadcasting stereo from their satellites for several years.

Thus, expected market penetration of stereo TVs and the popularity of standard and pay channel broadcasts in stereo will inevitably prompt subscribers to request stereo capabilities from operators. This means operators will have to offer MCS decoding, or at least the capability to pass stereo audio through a converter/decoder.

### **MCS BENEFITS**

In essence, multichannel sound is the delivery of off-air stereo audio as well as second audio programming throughout the cable system. An important feature of the new MCS is this secondary audio programming (SAP), which can be transmitted simultaneously with stereo audio.

Oak's SIGMA Three takes stereo one step further by offering *digital* stereo audio for pay channels. This is made possible by Oak's proprietary signal security technology, *Sound-In-Sync* digitized audio encryption.

Stereo can be accommodated in one of two ways: through a stereo TV's baseband input or by connecting a SIGMA Three converter/decoder to a stereo system amplifier in homes where the television receiver is monophonic. This second approach is attractive since most subscribers own home stereo systems. This encourages subscribers to request a SIGMA Three unit rather than purchasing an expensive stereo TV.

In addition, SIGMA Three's bilingual capability enables either

of two independent audio tracks (user selected) to be fed to the baseband or RF outputs. For MCS, the same user-selectable controls will cause SAP to be fed to the outputs. SAP will be an important feature for operators who service customers whose primary language is not English. In these cases, SAP will enlarge subscriber base and provide excellent revenue opportunities because programming, and especially commercials, can be offered in another language.

### **ACCOMMODATING MCS AT THE HEADEND**

Accommodating MCS at an operator's headend will require modifying equipment for each channel offered, so that the channel can transmit the MCS signal. Presently, this necessary technique averages about \$1,000 per modulator. These prices may drop as "do-it-yourself" kits are offered, so implementation costs are expected to drop even further.

These costs assume that the MCS signal is encoded at the programmer's end. If the cable operator directly receives an MCS signal via satellite, it is likely that the signal won't be MCS encoded. And thus, encoding the signal could cost more. A less expensive alternative would be for an operator to pick up a channel that already has been encoded by a local broadcast station.

### **MCS MEANS NEW OPPORTUNITIES FOR CABLE OPERATORS**

Accommodating MCS can mean potentially greater profitability for a cable system through the use of a

newer, more sophisticated converter/decoder boxes and by enlarging subscriber bases through the SAP option. Modifying a headend to fit MCS specifications means only a minor investment when one considers how these changes could effect overall revenue generating possibilities. Clearly, the opportunities MCS can present to operators should not be overlooked.

For more information contact Douglas E. Howe, marketing director, Oak Communications Inc., 16516 Via Esprillo, Rancho Bernardo, Calif. 92127. (619) 451-1500.

### **WESTERN SHOW NEWS RELEASE**

In offering both stereo and secondary audio programming (SAP) resulting from its multichannel sound (MCS) decoding capability, SIGMA Three, as part of the SIGMA System family, incorporated Oak's Sound-In-Sync, a digitized encrypted audio security technique. This technique makes it the most secure product available in the industry, according to Marketing Director Doug Howe.

"SIGMA Three fulfills the need for subscriber equipment that must handle the growing multichannel sound requirements of stereo and SAP," Howe said.

"The new product facilitates delivery of multichannel sound programming in-channel. Plus, with baseband audio outputs, the unit allows cable subscribers to take advantage of the multichannel sound capabilities of new model stereo TV sets," he said.

The MCS feature in SIGMA Three processes two audio ►

channels to provide bilingual or stereo sound options to subscribers.

"The SAP gives MSOs the option to transmit an additional audio track, such as another language such as Spanish or Chinese, at the same time the original stereo audio signal is sent," Howe said.

Subscribers can conveniently select the desired language track through the set-top keypad or with SIGMA's remote control handset.

For televisions with monaural sound, SIGMA Three acts as an adapter by feeding left and right baseband audio channels directly into the subscriber's stereo system.

## SIGMA THREE

### PRODUCT BACKGROUND

#### INTRODUCTION

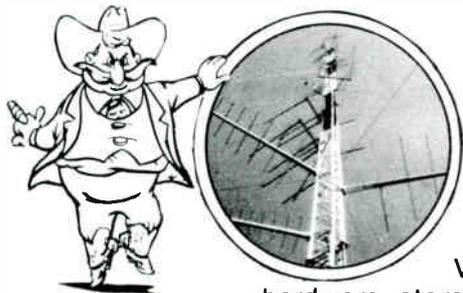
The addressable SIGMA Three unit features digital stereo audio and multichannel sound (MCS) capability for receiving stereo broadcasts from pay services and general broadcast stations. These features make SIGMA Three the most sophisticated of Oak Communications' home terminal units for converting and decoding cable television signals.

#### STEREO TELEVISION MARKETPLACE

Accommodating stereo is becoming a purchase specification in new systems because of the penetration of premium audio broadcasts. While many pay television broadcasts have been transmitted in stereo, television sets with stereo capability remain highly priced. Now that the major networks and the Public Broadcasting System (PBS) are adapting to stereo broadcasts, the consumer demand for stereo televisions will increase.

The Federal Communications Commission (FCC) is investigating the transmission and receiving technologies required for stereo in cable. Even if the FCC does not rule in favor of "must-carry", cable systems will be under increasing pressure to provide subscriber access to stereo and MCS signals.

# NOT ONE TOWER FAILURE



Virtually anyone with a hardware store welding set and a bunch of pipe can "claim" to be a tower manufacturer. When you specify your CATV tower, you should consider the long-term reputation of the supplier, the number of towers he has standing, and how long he has been providing service. WESTERN TOWERS has supplied hundreds of CATV towers from coast-to-coast; up to 600 feet in height. WESTERN TOWERS has been in the communications-supply business for 36 years. We guarantee all materials and workmanship.

WESTERN TOWERS is one of the largest suppliers of CATV logs in the nation. There are WESTERN logs on CATV towers today providing quality service today that were installed over 15 years ago! Our log-line-up is complete and the prices are difficult, if not downright impossible to beat.

Before you specify a new CATV tower or CATV antennas, check around. We feel certain our knowhow, reputation, and experience...and our prices...will make you a WESTERN customer for life!

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Two stylized, lattice-structured tower icons are positioned on either side of the company name. Each tower has a lightning bolt striking its top.

MCS-based home terminal equipment such as SIGMA Three will be required.

While stereo televisions have been recently introduced and will comprise the high end of the consumer television market, prices are expected to drop within the next two years, making stereo television readily available to the typical consumer. Without a converter/decoder with MCS capability, many cable subscribers will not be able to take advantage of stereo.

### STEREO ADAPTER

To prepare for the expected rise in stereo broadcast popularity and to accommodate the television viewers demanding stereo reception, SIGMA Three offers MCS decoding technology. SIGMA Three also conveniently connects to a subscriber's home stereo system amplifier, providing viewers with monaural televisions with stereo program audio. This means that stereo capability to subscribers can be offered with monaural television sound simply by installing SIGMA Three.

This option is attractive to subscribers who are not in need of a newer, more expensive television set. And, because it is addressable, SIGMA Three's stereo output capability can be controlled from the headend, providing more flexibility (and potentially more revenue) for the system operator.

### SOUND-IN-SYNC™ DIGITIZED AUDIO ENCRYPTION

Additionally, SIGMA Three incorporates Oak's advanced Sound-In-Sync™ digitized audio encryption technique, making it

one of the most secure systems available in the industry.

SIGMA Three enables cable television system operators to provide stereo sound for all channels while protecting pay television channels with Sound-In-Sync.

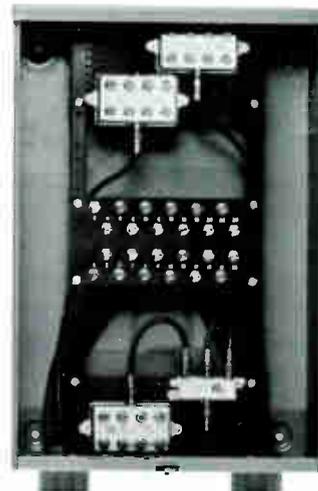
### MCS DECODING

SIGMA Three provides stereo in two ways. After demodulation,

decoded audio tracks are output at baseband. The viewer who tunes to a SIGMA scrambled channel with stereo audio receives a digital audio stereo output. Viewers of clear channels, such as those offered by the major networks, receive the decoded MCS in the television industry standard adopted by the FCC in the spring of 1984.



**Messed Up.**



**Dressed Up.**

CWY created a way to make tangled, inefficient multiple dwelling enclosures orderly, secure and easy to service...the revolutionary new Omni-Rack™ system.

The Omni-Rack system's unique panel and rail design means quick and easy auditing and subscriber status changes. Leads are fixed and labeled permanently—no dangling leads or missing labels. Service personnel save time, so you save money.

The Omni-Rack is just one example of how CWY has been serving the cable industry with unique, cost-effective solutions for more than 25 years. CWY carries a complete line of products from the industry's top manufacturers...and goes other suppliers one better by continually developing new products to increase your efficiency and productivity.

Plus, our customers know they can call our toll-free numbers and get in touch with some of the industry's top designers and application experts: professionals who can solve your problems, no matter how large or small.

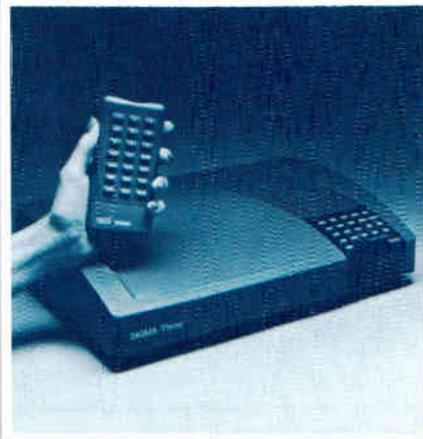
Application assistance. Product innovation. Plus a complete line of equipment and supplies. For further information, call or write today.

**Not just supplies. Solutions.**



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In addition to the system's stereo capability, SIGMA Three provides a secondary audio program (SAP) channel. With SAP, a program can be received from the headend in two languages. The subscriber controls the language output through a button on the set top converter/decoder or through the SIGMA remote control unit.



### SUBSCRIBER FEATURES

SIGMA Three's subscriber features are compatible with Oak's SIGMA One converter/decoder. These features include:

- Remote control handset operation from 30 feet or more
- Electronic parental control feature, which allows parents to prevent viewing of unsuitable channels

- Favorite channel memory
- Last-channel recall
- Variable-rate scanning between television channels
- Remote volume control

The remote control features can be downloaded from the headend, which enables the cable operator to provide them as revenue-generating options.

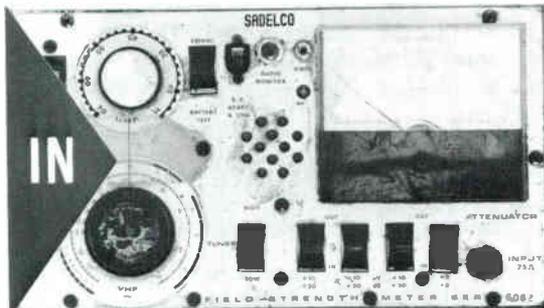
Because SIGMA is addressable, changes in service can be made at the headend, eliminating the need to send service personnel for each change. This provides the customer with more efficient and convenient service, in addition to being less costly for the cable operator.

Each of Oak's SIGMA units are tested extensively, from quality inspection during manufacture to high-temperature testing of the finished product, to ensure hardware reliability.

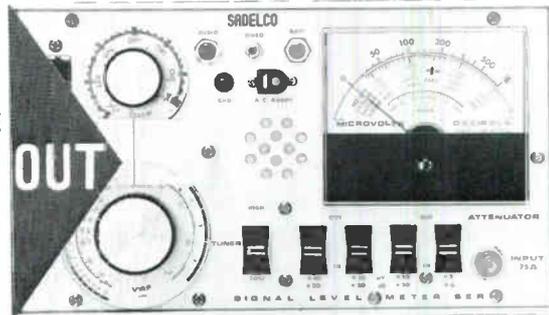
SIGMA Three is fully compatible with SIGMA One. Therefore, SIGMA Three can be offered to subscribers who desire stereo or bilingual programming, while providing SIGMA One to those subscribers who are not interested in stereo. □

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# CATJ Congratulates Glyn Bostick

CATJ is proud to announce that **Glyn Bostick**, president of Microwave Filter Company, Inc., has been named second vice president of the newly formed Hudson Valley Chapter of the Society of Cable Television Engineers.

He was installed into office and was also guest speaker at the first meeting, October 16, at the Holiday Inn, Fishkill. Mr. Bostick spoke about Cable Networks for Generating Outside Sales.

As officer, he will help organize the chapter and will assist any interference problems faced by members of the organization.

Mr. Bostick, founder of MFC and regular technical author in CATJ, has been designing filters for the suppression of interference in cable television systems, industrial and defense communications equipment and satellite earth stations since 1967. He has authored many technical articles, holds several patents and is a senior member of the Society of International Electronic and Electrical Engineers.

CATJ is pleased that this outstanding engineer has been given leadership and acknowledgement among his peers and extends our wishes for a successful term of office.

Even though the following relates to an amateur radio buff but certainly not a stranger to the cable television business, operator, one Senator Barry Goldwater, CATJ felt this was an interesting story and certainly one that pointed up the credibility that Glyn Bostick holds within the electronic industry.



CATJ reports his letter and the follow-up as it was given to us:  
November 9, 1984

Gentlemen:

Having received your catalog on inline coaxial relays, I'm going to have to turn to you for some help and advice.

I have two antenna systems, one a beam and the other a vertical. I use the vertical with one transceiver and two different receivers, all controlled antenna-wise by a hand switch. My other rig is a Kenwood 930S, which I run into my beams. What I would like to do is to be able to run the 930S into the vertical or the transceiver and receivers now on the vertical into the beams. I cannot quite figure out from your schematics how I would do that. I know that some place in that catalog there is something that will do this, but I haven't figured it out, so I'm asking your help. Naturally, I would like it remote controlled and I would not want to put any part of the switching assortment outside on any of the antennas. I would like to control it all from inside.

I'm enclosing a little sketch of what I've been talking about.

Sincerely,  
Barry Goldwater

Senator Barry Goldwater, an amateur radio enthusiast, recently sought the advice of Microwave Filter Company Inc., on a question he had about his two antenna systems.

The case was his vertical and beam antennas were connected to separate equipment and he wanted to interchange between setups by remote control rather than manual switching.

MFC, among other specialties, produces inline coaxial relays for radio-antenna interconnection. With the help of an applications engineer, a diagram was drawn and proper equipment selected to meet the objective.

"I've known about MFC for many years. It's a very well known company among many people in the communications industry. It's one of the most outstanding companies I know of in this field," said Senator Goldwater.

"I know people who have used MFC equipment and have also read about it in trade journals. When I sent for the catalog, I liked what I saw," he said.

Senator Goldwater found he needed the equipment when he decided to refurbish his amateur station that was used as a Military Affiliate Radio System for 18 years.

"I operated a MARS station for the Air Force. During that time over 300,000 telephone patches were made with the troops in Southeast Asia," he said.

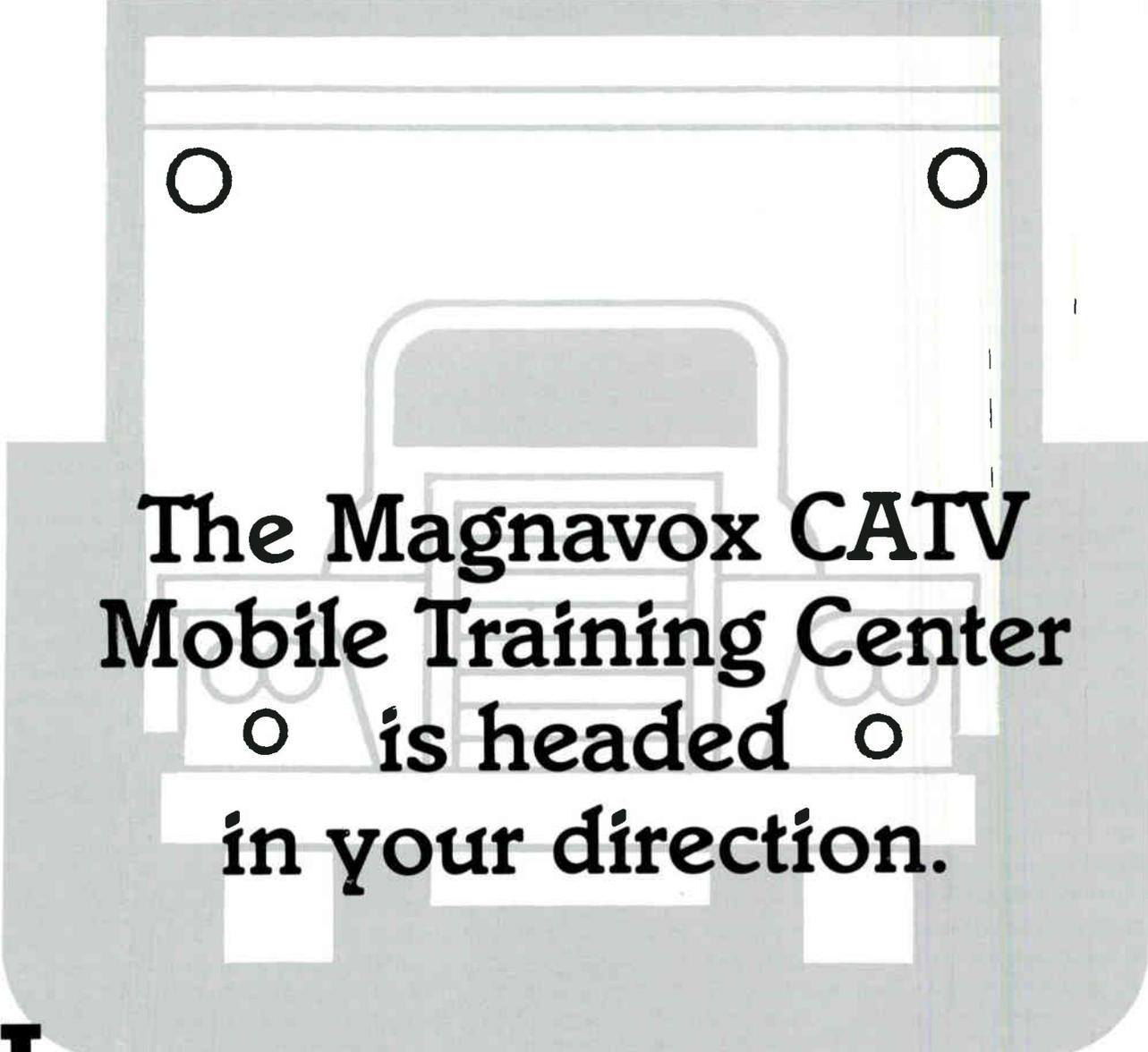
"I had two large antenna systems that needed constant switching. Members of the organization that operated the station made their own equipment."

"The station went out of business when the troops went home. Whatever equipment the Air Force needed it took back and surplus was donated to schools. I was left with my beam and vertical antenna," said Senator Goldwater.

"I put in hand switches to use both antennas, but I wanted them remote controlled," he said.

Senator Goldwater, who is chairman of the Senate Communications Committee, has been a Ham Radio operator since the age of 13.

MFC custom produces filters for processing signals in the cable, microwave and broadcast television markets. It offers a range of antennas and accessories for Ham radio. Consultation and seminars on suppressing and avoiding interfering signals in the microwave television industry are also among MFC services. □



**The Magnavox CATV  
Mobile Training Center  
is headed  
in your direction.**

**T**he CATV industry is experiencing inordinate growth with rebuilds, upgrades, ever-expanding bandwidths and constantly advancing technology. And while this growth is welcomed, at most cable systems there frequently isn't enough time—or personnel—available to train new employees, especially field technicians.

Because Magnavox CATV is committed to the CATV industry, we felt there was a pressing need to train and upgrade job skills for

cable personnel. That led to the Magnavox CATV Mobile Training Center which is headed in your direction in 1985.

Since our first Training Seminar in 1981, thousands of CATV operators, technicians and other staff members have completed our three day program. And they're more capable and more proficient because of their training. They're better, more productive employees who can trouble-shoot and solve technical problems faster and more

efficiently. (To keep your signals clear and your subscribers content.)

For non-technicians, our Seminars are an excellent way to develop a better understanding of the hows and whys of the technical side of your cable system.

**WE BRING OUR TRAINING  
CENTER TO YOU**

We're the CATV industry's only mobile Training Center, which means that we can cover the

country with many Training Seminars. This is beneficial to you because we bring our training expertise and state-of-the-art equipment to a location near you so you'll save the time and expense involved with traveling.

At each location, we use a proven combination of classroom/"hands-on" learning methods. In our 45 foot trailer, small groups will work with equipment typical of your CATV system, with instructors who are cable veterans.

**YOU'LL ENJOY  
"HANDS-ON" EXPERIENCE  
IN OUR FULLY-EQUIPPED  
TRAILER**

Magnavox's custom 45 foot trailer is filled with equipment that simulates your CATV system. You'll find a 36 channel headend, two 8-amplifier cascades, bench and field sweep equipment, field strength meter, spectrum analyzer and more.

Students have "hands-on" experience at solving problems that

arise in a cascade. Participants work with visual displays of distortions for both test equipment and television sets. A student creates a distortion, then varies the levels. This enables the student to see exactly what happened, why it happened, and how it can be prevented or solved. The cascades duplicate an actual cable system in operation.

Students analyze problems the instructors have created, make adjustments, and resolve the problem—all without disrupting subscriber service. Because there are never more than 15 students working in the trailer at one time, each participant receives personal attention.

**INFORMAL CLASSROOM  
SESSIONS ROUND OUT  
THE TRAINING**

The classroom training is an informal setting where students are encouraged to participate. Working with the course syllabus, students will study CATV theory. The instructors use their years of field experience to expand this theory with actual problems and solutions. A more complete description of the classroom program is found below. Please refer to it for additional information.

**OUR EXPERIENCED STAFF  
IS ALWAYS AVAILABLE.  
AFTER HOURS, TOO**

In addition to the time our Seminar staff spends teaching students, our instructors stay at the Seminar site and are always available for personal discussion ▶

**OUR THREE PART COURSE . . .**

Part I: Basic Theory

System Overview  
Ohm's Law  
dB and dBm V  
Spectrum Allocation  
Headend Equipment  
Transmission Line  
Connectors  
Cable Parameters  
Amplifier Operation  
Splitters  
Distribution Devices  
Distortion Paramaters

Part II: Practical Application

System Design (How and Why)  
Return (Set-Up)  
System Maintenance  
Sweeping Cable Systems  
System Measurements/Spectrum Analyzer  
System Records  
System Sweeping/Picture Documentation  
Bench Set-Ups  
Bench Testing  
Connector Installations

Part III: "Hands-on" Training

The class will be divided into small groups which spend time learning more by using actual equipment, typical of your cable system, in our 45 foot trailer. Sweep equipment, the field strength meter, and capabilities of the spectrum analyzer will all be used. Students work on two 8 amp cascades and learn more about diagnosing and trouble-shooting problems without disrupting subscriber service.

**MOBILE TRAINING CENTER SEMINARS FOR 1985**

FEBRUARY	SAN JOSE, CA	(2/6-8)(2/11-13)
MARCH	WASHINGTON, DC "SCTE SHOW"	(3/4-6)
	SAN ANTONIO, TX "SEMINAR"	(3/13-15)(3/18-20)
APRIL	DENVER, CO	(4/10-12)(4/16-18)
MAY	ST. PAUL, MN	(5/1-3)(5/6-8)
JUNE	NCTA-LAS VEGAS, NV	(6/2-5)
JULY	DETROIT, MI	(7/10-12)(1/15-17)
AUGUST	SYRACUSE, NY	(8/7-9)(8/12-14)
SEPTEMBER	WORCHESTER, MA	(9/11-13)(9/16-18)
OCTOBER	ATLANTIC CITY, NJ	(10/2-4)(11/11-13)
NOVEMBER	GREENSBORO, JC	(11/6-8)(11/11-13)
DECEMBER	WESTERN SHOW	(12/4-6)

during coffee breaks, lunches and after hours.

The professionals who run the Training Seminar are veterans who have spent many hours in the field trouble-shooting and solving technical problems. The instructors work with the course syllabus and draw on their rich and very interesting field experience to create situations the student must correct. Participants are taught—and encouraged to develop—creative problem-solving skills. More advanced students benefit from high technology information.

### **STUDENTS SHOULD COME PREPARED TO EXPAND THEIR CATV KNOWLEDGE**

With “hands-on” participation and training by experienced professional technicians, students are challenged to work to the best of their abilities. Because the equipment we use is typical of your CATV system, your technicians develop familiarity and expertise that comes in handy for trouble-shooting.

The Magnavox CATV Training Seminar is truly a learning ex-

perience. (It is not a product presentation disguised as a training program.)

### **SEMINAR PARTICIPANTS ENJOY THEIR LEARNING EXPERIENCE**

The unique format that our Seminar uses is challenging, exciting and interesting. The informal atmosphere is comfortable and encourages student participation.

While the typical Magnavox CATV Training Seminar participant is usually a field technician with six months to two years of experience, operators, marketing personnel and other staff members of your cable system benefit from our “hands-on” training.

### **WE LOOK FORWARD TO YOUR RESERVATION**

We anticipate the opportunity to meet you and to help you—and your staff—develop the skills and competence your CATV system requires. We are sure you will find the Magnavox CATV Training Seminar a good investment for your cable system.

### **HOW TO PARTICIPATE**

Because each Seminar is limited to a maximum of 30 students, you are encouraged to register as quickly as possible. Registration will be closed for each session once the maximum of 30 participants have registered.

Tuition for the 3-day Magnavox CATV Training Seminar is \$300 per student. Your fee includes classroom and “hands-on” training, the course syllabus, lunches and coffee breaks. While hotel reservations at each location have been reserved, you are responsible for your own accommodations.

### **HOW TO ENROLL IN THE TRAINING SEMINAR**

Please complete the registration form and mail it, with your check, to the address printed on the form. If several people from your cable system will be attending, please photocopy the application form and have each individual complete his or her copy.

You will receive all the information you require after we have processed your registration(s). We look forward to working with you at the Magnavox CATV Training Seminar.

Complete your registration form today and mail it, along with your check or money order (payable to Magnavox CATV) to:

Laurie A. Mancini  
Mobile Training Center  
Magnavox CATV Systems, Inc.  
100 Fairgrounds Drive  
Manlius, N.Y. 13104 □

I'm looking forward to “hands-on” Training at the Magnavox CATV Training Seminar. I've enclosed my check for \$300 (per person) which includes my tuition, syllabus, lunches and coffee breaks.

\_\_\_\_\_  
Location of Seminar you'll attend

\_\_\_\_\_  
Date of Seminar

\_\_\_\_\_  
Your name

\_\_\_\_\_  
Title

\_\_\_\_\_  
Your company

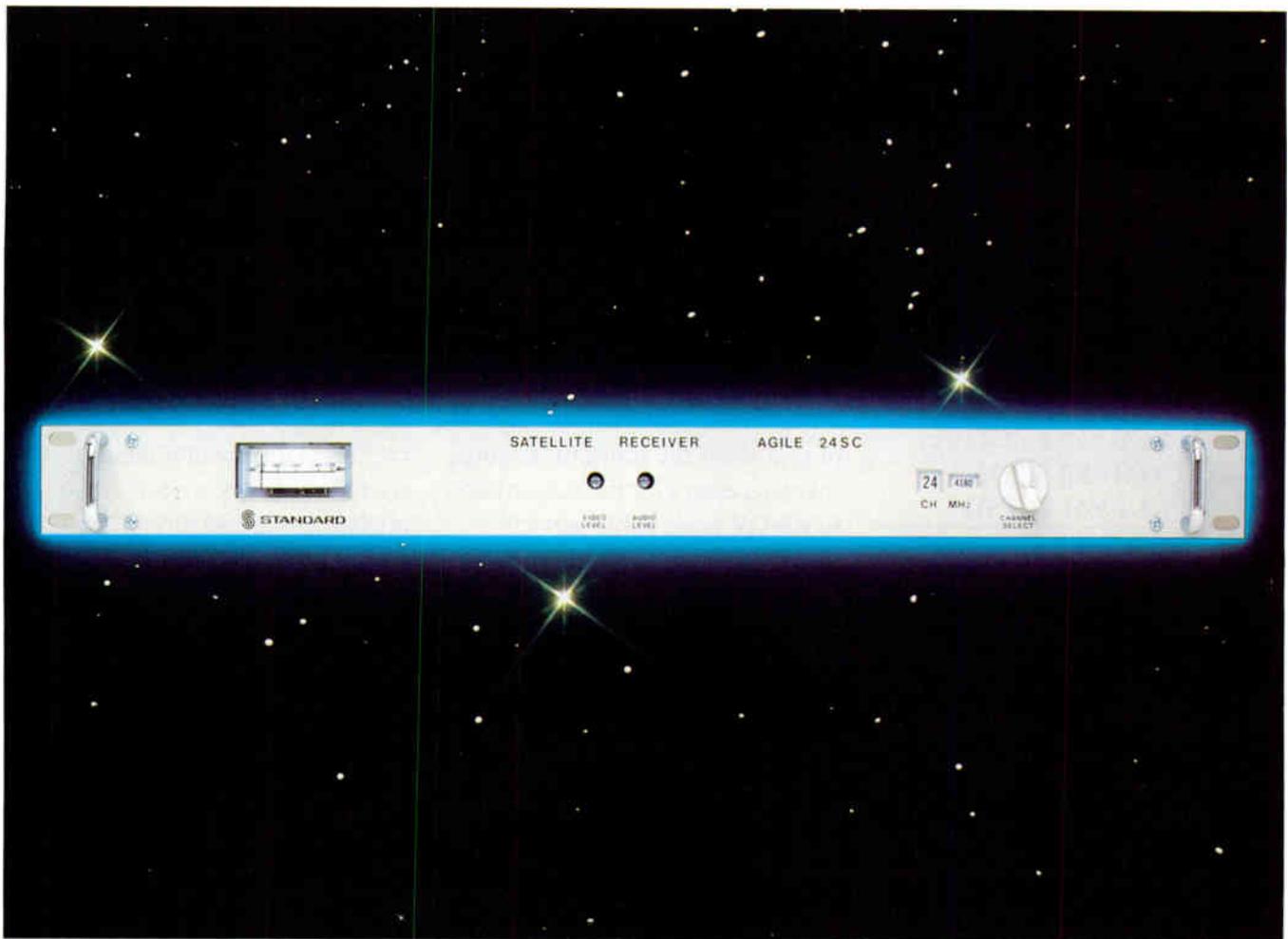
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# We Didn't Lower Our Standards, We Just Lowered The Price

## INTRODUCING THE AGILE 24SC

The cost of broadcast quality premium programming just went down, thanks to Standard Communications' new Agile 24SC satellite receiver. Descended directly from the performance-proven Agile 24S, the SC is a rock solid, frequency synthesized receiver designed to work with our LNBC 24-A low noise amplifier/block down converter, which minimizes UHF interference and eliminates the need for long runs of expensive cable.

### Other features include:

- Composite and baseband video output

- An unclamped switch for decoder input
- Simple adjustment
- An internal tracking filter pot and fine tuning control for each transponder to insure peak performance and minimize terrestrial interference
- An easily accessible I.F. circuit for simple installation of microwave terrestrial filters
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## CATA FILES COMMENTS IN FCC "EFFECTIVE COMPETITION" RULEMAKING

**T**he FCC has started the process of trying to figure out what the new cable law means. CATA is filing comments in the proceeding to try to help them out, although we have our doubts! There are lots of problems with what the Commission is trying to do, not the least of which is that there is so little time to do it in. To begin with, the FCC has been given a deadline of 180 days to determine where there is and where there is not "effective competition" for video services. This, in turn, will determine where local authorities will retain or lose their ability to regulate the rates of cable television systems in their community. The way it works is this: the new law says that any local regulation of rates that was written into a franchise prior to December 29th, 1984, can stay in effect for the next two years, so long as the only thing that is regulated is rates for "basic service" is defined as "...any tier which includes the retransmission of local television broadcast signals". The rate regulation provision of S.66 makes it clear that this includes any tiers that might also include the carriage of local broadcast signals—so those folks selling "packages" as oppos-

ed to "tiers" who agreed that the city could regulate the rate of the entire "package", are stuck for the next two years. In any event, the law goes on to say that the only other rate that may continue to be regulated, if it is already written in the franchise, is the rate for the initial installation or rental of one set of the minimum equipment necessary for the subscriber's receipt of basic cable service.

All of this is well and good—the bottom line is that you are deregulated in two years if you are in a situation where your franchise already regulates the things mentioned above, and you are deregulated now for anything else that might be in the franchise regarding rate regulation. There is one hooker, however; the law also says that rate regulation will be permissible in the future at least to the degree of regulating "basic cable service" if the FCC determines that the cable system is not subject to "effective competition". What the heck is "effective competition"? That's what the Commission is trying to determine in the current rulemaking, along with a lot of other stuff which we will get into in a minute.

You have to get some historical perspective on all this to understand where the FCC is heading, and how it may affect you. First, however, let's make it clear that none of these rules, whatever they wind up to be, REQUIRE rate regulation—they will only define those communities where rate regulation will be allowed in the future (under new franchise agreements) or will be allowed to continue under existing franchise

agreements. Also, the Commission is empowered under the law to set rules and regulations for how the rates may be regulated—we will discuss that in more detail later too.

Regulation of rates in the cable industry has had a long and checkered history. There was very little rate regulation when the industry started out. As systems moved into the more metropolitan areas, and as the hype regarding cable television grew in the late 60's and early 70's, regulation of all types increased exponentially—cable was the new game in town. When the FCC got into the act in 1972 it created a set of franchise regulations that included rate regulation. The Commission focused on those areas where cable was the only source of video programming, and the market power such cable operators had to justify the rules. In the mid '70's, however, the Commission eliminated the mandatory rate regulation rules saying that the intervening years had convinced them that such regulations were not needed, and indeed there was even some suggestion of banning rate regulation. FCC decisions made it clear that from their point of view, in most instances, rate regulation was not necessary and that cable operators had not been shown to be abusing their market position.

Then along came S.66. In its Senate version there was a clear statement of deregulation of rates, but not in areas that had less than four broadcast signals, including the three networks. That provision was found to be unacceptable in the House, when H.R. 4103 was

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drafted, and it was changed to say that the only place regulation would be allowed to continue is in those areas where “**effective competition**” did not exist, as determined by the FCC. The House Report on the legislation makes clear that simply relying on the number of broadcast signals in the area may not be sufficient—that such questions as other video competition, and penetration rates may also play a part. The Report also says that the Commission may change the definition of “basic cable service” if it thinks that is necessary to accomplish the goal of protecting those who would otherwise be unprotected from the voracious cable industry in those areas where there is no “**effective competition**”.

So here we are—the Commission is trying to define what “**effective competition**” is in order to determine where rate regulation of cable television will be allowed. At the same time they are trying to determine what that rate regulation will entail.

Unfortunately, the Commission, in CATA’s view, got off on the wrong foot right from the start. They suggested that the appropriate test might be whether there are four signals in the area, including the three networks. Leaving aside the questions of whether they are talking about “**Grade B**”, or “**Must Carry**” or “**significant viewing**” as the standard to determine whether a signal is in the area at all, it seems to us ironic that they would start with a measurement that was explicitly thrown out by Congress in its deliberations. After all, the Senate accepted the House

conclusion that the “**4-signal, 3-network**” equation was not necessarily the right one to use; otherwise S.66 would have contained that measurement. It does not. So why did the FCC start there, and propose that standard? We won’t speculate. We will just point out why it is absolutely the wrong standard. Who is the FCC, or any governmental entity, for that matter, to suggest that “**competition**” does not exist unless the three “**national networks**” are viewable? Is the FCC now in the employ of the three networks? (Some would suggest that has been the case for a long time—we don’t think so, we think it is just an old, hard-to-shake, habit). What if, for instance, a viewer can get ABC, CBS, a Metromedia Station, owned by Group W, and another from PBS? Is there really a serious suggestion that there is no “**effective competition**”. What that does, in essence, is guarantee the perpetuation of an oligarchy. It assures, through continued and varied rules by the government, that a special few get special, favored treatment. It’s a bad idea.

CATA maintains that if there is to be any standard of “**effective competition**” that includes a number of broadcast signals available, then there should be no reference to the type of ownership of the program source. To do otherwise leads to serious First Amendment questions. What if the commission decided that the only places having “**effective competition**” are those where a particular religious broadcaster is available over the air. After all, considering the competition on

cable television for channels by religious programmers some could make such an argument. And what about the reverse of the argument—that is that the Commission should not have granted broadcast licenses to anyone other than network affiliates in areas where all three are not available so as to assure the public of receiving the three networks. Can you imagine the indignant howls that would be heard if the Commission adopted that type of rule! Yet here they are proposing a measurement based on the same premise. It’s a bad premise, and we are opposing it.

So far as CATA is concerned, if there are ANY broadcast stations viewable in the area, then there is “**effective competition**”. After all, we are required to carry such signals on the premise that we are competition to them, so why not view the same competition in reverse? One available signal, particularly with the added availability of anyone who wants it to buy a satellite earth terminal, or a video tape recorder or MDS, DBS and the like, should be sufficient to allow cable to take its rightful place in the free marketplace. If the Commission, for what it perceives to be social policy reasons, wants to assure particular types of programming to all people in the United States, then it can do so by more selective granting of the broadcast spectrum under its charge. Not by warping the marketplace for cable television.

The other key part of the “**effective competition**” portion of the rulemaking has to do with

*(continued on page 38)* ▶

# The CATA Tradition

The Community Antenna Television Association has a tradition of friendly and informative annual conventions in family-oriented facilities with entertainment, recreation and historic American culture.

The tradition continues when CATA'85 hosts the Association's members and guests at the Opryland Hotel in Nashville, June 17-19.

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Those are important traditions to CATA, so a full array of family-oriented programs will be available during the 1985 annual meeting. Tours and shopping excursions, personal development courses, exercise classes and visits to historic locations in the vicinity will be available. Programs for fun and education are planned for the CATA'85 kids. *Opryland*, America's only musical showpark, the *Grand Ole Opry*, stars and excitement are parts of CATA'85.

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(continued from page 35)

what the rules should be in those areas where rate regulation is allowed to continue. Two parts of the rule are already known, since they are part of S.66. First, no matter whether you are in an area without “**effective competition**” or not, you may automatically raise your rates by up to 5% per year. We have gone over that in earlier issues. Second, if you submit a rate request and it is not acted upon within 180 days, you can automatically assume it is granted. Now, where do we go from there? Well, the FCC and Congress have recognized now that cable is not, and should not be regulated as a common carrier. Thus, “**rate of return**” type regulation is out. The Commission has suggested some form of “**comparability**” test. They are saying, for instance, that if you can find three similarly situated systems (with regard to size, channel capacity, etc.) and you determine the average of their basic cable rate, then the community can regulate your rate. CATA thinks the FCC is on the right track there, but we would make it even simpler.

First of all, determining “**comparable**” systems may be a real problem. We could see some cities fighting over that for months. Why not do it the opposite way—use a statistical norm that includes as many systems as possible. That is, the average rate for 12 channel systems, nationwide, 20 channel systems, 35, and so on. The inclusion of a large number of systems in the statistical group would guarantee that such variables as the age of the system, the demographic area, the penetration, and so on

would all be evened out. Further, one set of numbers could be established periodically, either by an outside body or by the FCC itself and the issue would be done with. Also, we disagree with the “plus or minus 10%” concept. Every city official, given the opportunity (assuming there is a dispute over the proposed rate of the operator in the first place) will automatically go for the minus 10% position. If there is an average nationwide rate, then let us have it—and there should be no “**maximum**”—that is a question for the city and the cable operator to decide—the purpose of the limitation is to assure that the franchising authority does not abuse the rate regulatory power by using it as a lever for other things. That is accomplished by imposing a lower end—the national average — it has nothing to do with an “**upper end**”. This entire exercise is one in assuring that the cable subscriber has some protection against the use of rate regulation as a political tool by the city. The proposal we are making to the Commission accomplishes both objectives with a minimum of fuss and ease in administration. Of course we think disputes would go to the FCC for resolution, but we doubt, given the simplicity of the system, that many disputes would arise.

It seems clear to us that if the regulations are properly drawn, the fact that rate regulation will remain in effect, or at least potentially available to those city officials who think they need it, will not adversely affect cable operators—so long as those rules are properly drawn. CATA is working to make

sure they will be.

If that were the only problem we had to deal with right now at the FCC, it would be a reasonable task. Unfortunately, the Commission decided to throw a whole lot of other questions into the pot at the same time. Now in reality, a lot of these questions simply do not have to be answered right away, but the Commission has decided to deal with them all at once. In essence they have asked in what other ways does the new law impact on the FCC and its rules, and what other rules must be changed to meet the definitions of the new law?

For instance, there is a difference between the FCC definition of a cable television system and the S.66 definition. Hence, according to the proposal in the rulemaking, from now on, if you are a signal distribution entity that only distributes broadcast signals and nothing else, you will no longer be considered a “**cable system**” and will not fall under the jurisdiction of the FCC. This is somewhat ironic since when all this started the Commission said it had jurisdiction **BECAUSE** you were carrying broadcast signals—but never mind that, now if all you carry are broadcast signals, you will get out from under the jurisdiction of the FCC and S.66. Some think that is good, others point to the renewal provisions, the rate provisions and so on and say they are fearful that the cities will try to over regulate those folks. The Commission estimates that there are about 600 systems that fall into that category. We don’t think their numbers are right, but it doesn’t really matter

since the choice is up to you. If you are one of those systems and you want to maintain the "protections" you perceive under the law, all you have to do is add a signal, any signal, that is not a broadcast signal—bingo, the loophole is closed. We would rather have the option on our side than on theirs!

Another rule change they are talking about is one that appears to be almost mandatory under the new law, and it could be a really bad one. The cross-ownership waivers that have been required in rural areas for cable system/telephone company operations have been nearly automatic over the past several years EXCEPT in those areas where the telco wants to get into an area where an independent cable operator already exists. That exception is about to go by the boards. Now the real danger here is with the telephone co-ops and the municipally owned telcos. They have an exemption from the pole attachment regulations, and this new change could give them an absolute free hand to take access to the poles away from local cable operators and then get into the business themselves with no recourse on our part at the FCC. Of course if anyone tries such a stunt, you can be sure there will be an instant antitrust action against them, and we will be on Capitol Hill in one minute flat to get the law changes! So keep a close eye on that situation, and if you see any instances of abuse, or even potential anticompetitive behavior on the part of a telco that looks like it might want to get into the cable business, let CATA know

immediately! We are going to be monitoring this very closely, and we intend to keep the Commission and Congress informed of everything that takes place.

There are lots of other questions raised by the rulemaking, and we will go over more of them next month, along with indications of where the Commission might be going. But as with everything else involved with this new law, the ultimate answers will have to wait for a while as the lawyers, the courts, and everyone else sorts out what all this means. Stay tuned.

#### **SOME NEW IDEAS FROM THE WEST**

The Western Show this year had more than a little to recommend it. It was the first major show following the passage of S.66, and therefore there was lots and lots of analysis of the new bill (tempered with the understanding that no matter who was talking and how closely they were associated with the creation of the bill, NO ONE knows what the Courts are going to read into, or not read into the law once it is actually tested). It also was a time to open the discussion on what, exactly, the cable industry wants to do in the coming year regarding Copyright.

CATA's Steve Effros moderated a fascinating panel that laid out all the possible alternatives and then discussed them in detail. It was a good opportunity to air the issue thoroughly and see whether there was yet any consensus in the cable industry as to what to do. The not terribly surprising answer at this point was; no. That is, we still

don't exactly know where we want to go. There is a certain shift in the perception that the entire law must be re-written, that was perceived as not politically viable. But after that there was little consensus. John Malone of TCI, and the head of the NCTA Copyright Committee suggested that there would be little to stop the CRT from increasing the "3.75%" signals to 5% this year. But he urged the industry not to give up fighting the copyright fight—he didn't have to aim that comment at CATA members! CATA Board member Dick Gessner was also on the panel and he made that clear! Len Tow, of Century Communications, and the fellow most vocally against S.66, made clear his concern that any legislation would result in a new bill that we may like less than the one we have now. Len tends to be very gun-shy of any legislative solution to anything suggesting that as soon as you get into Congress you are likely to get a "runaway" bill. Carolyn Chambers, of Chambers Communications, on the other hand, suggested that now may be the right time for a Copyright effort because she believes that the broadcasters may now be ready to "deal" with cable. We won't hold our breath on that one!

In any event, at another panel, where House Copyright Subcommittee Chairman Kastenmeier was asked whether it would be possible to get a bill dealing only with the "inequities" in the copyright law through Congress without it becoming a "runaway", he said yes—it was "doable".

Another open forum type of ►

panel on the copyright issue is scheduled for the Texas Show, and both CATA and the NCTA have top level meetings by mid-February to formalize positions at least on the direction we want to start heading in the coming year. Whatever happens, it should be interesting.

Speaking of interesting, there were several new things on the display floor at the Western Show that caught our attention. One new programmer was on hand, The Discovery Channel—and for our money we sure hope they work out. The channel is proposed to be advertiser supported, and it will run exclusively nature and science type programming—you know, the type of thing you see occasionally on PBS such as “The

Nature of Things” and “Nova”. Well, it seems that two enterprising young guys have gone primarily to Canada and Australia (both known for their excellent production of these types of shows) and gotten the rights to lots of programming. They now hope to put it up on satellite for all of us to deliver to subscribers. It looks very interesting—the type of programming, like C-SPAN, that the industry can be proud to deliver into our subscribers’ homes—this is the type of stuff that can sell those folks who haven’t been sold on cable yet! Watch for it.

Another thing that caught our eye, and should be a “must see” for everyone at CATA ‘85, is a new character generator package using, of all things, the Atari 800

(you can get one at K-Mart for under \$100)! The folks at Cable Graphic Sciences have come up with a program of graphics in four regions per page with 16 color options! It’s got a crawl and can insert time and day automatically if you want. It is so simple to use even CATA’s very non-technical staff could figure out how to program the thing, and the screen presentation looked absolutely excellent—especially for the price. We will have a detailed article on this device soon by Ray Miller, a CATA member who has been actively involved from the operator’s end in using this device. But if you can’t wait (Ray is not the fastest writer in the world) contact John Giarmarco at Cable Graphic Sciences, (209) 292-0246. He’ll



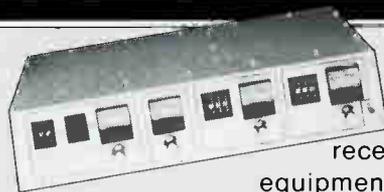
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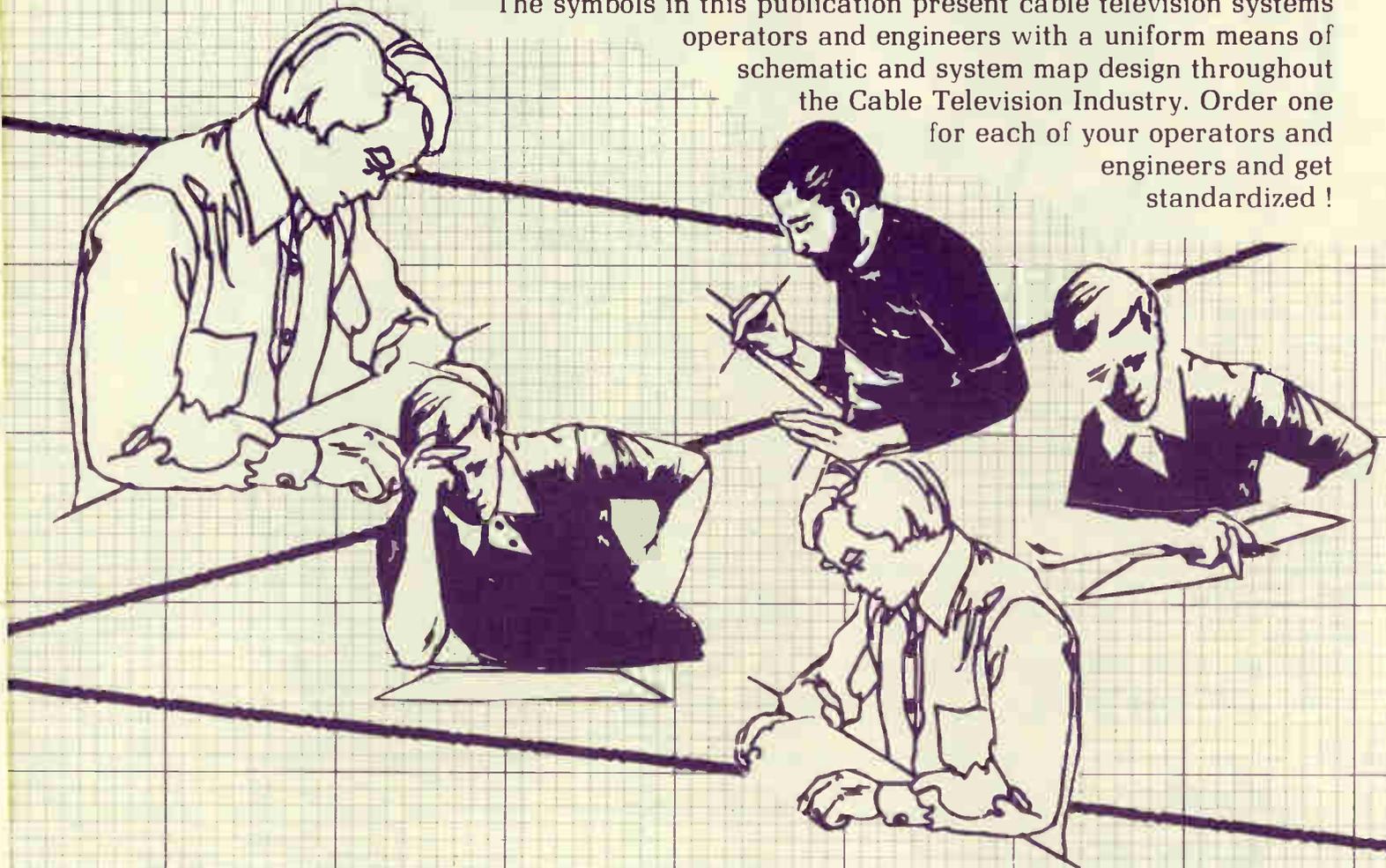
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## CBIC

### CITIZENS BAND INTERFERENCE COMMITTEE DIAGNOSTIC WALL CHART

#### Diagnostic Wall Chart Instructions

This Diagnostic Wall Chart prepared by the Citizens Band Interference Committee is a wall chart to aid you in recognizing and diagnosing Citizens Band Interference (CBIC) problems. It is designed to be used in conjunction with the Diagnostic Wall Chart for FM Video Transmission Problems.

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Inverted Video

#### FM VIDEO TRANSMISSION WALL CHART

This chart gives you a basic introduction to FM transmission, helping you to recognize particular distortions or set up problems, whether observed with a waveform monitor or a video monitor.

#### Possible Transmission Distortions

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Lots of High Frequency Response (Barnyard Quill)  
Fast of Slow Oscillator Phase Lock

#### FCC COMPLIANCE TESTS SUBJECTIVE EVALUATION SYSTEM WALL CHART

#### HEAD END SIGNAL QUALITY EVALUATION COMPARISON CHART

#### FM VIDEO TRANSMISSION WALL CHART —

This chart gives you a basic introduction to FM transmission, helping you to recognize particular distortions or set up problems, whether observed with a waveform monitor or a video monitor.

#### HEADEND/INTERFERENCE WALL CHART —

has more than 20 off-the-screen photos of typical (and not so typical) off-air headend type problems. Each is identified, and with this chart you can zero in on headend problems in one big hurry. Explains what headend interference looks like and leads you to solutions to eliminate it.

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- B — CBIC — Citizens Band Interference Committee Diagnostic Chart
- C — FCC Compliance Tests Subjective Evaluation System Chart
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tell you about it—just tell him that you heard about it from CATA. Now we're not saying there aren't a lot of other excellent character generators on the market. There are. But for the small operator just getting into ad sales, for instance, this price can't (or hasn't yet to our knowledge) be beat!

A third "honorable mention" for exhibitors at the Western Show has to go to Zenith. Those folks understand consumers, and that's who our subscribers are!. They have come out with two new neat devices for their baseband addressable system (the Z-Tac) which make the system a lot more "user friendly", to steal a computer phrase, for those folks who own video tape recorders. As we have mentioned in these pages before, we think that VCRs are not really a threat to cable, but an opportunity. The folks who tape programs for later viewing (time shifting) want as much variety to choose from as we can deliver. And, as we have also suggested before, the promotional cry of this industry should be: "WE DELIVER"! Why should folks have to go to a store, pick up a tape, bring it home, watch it on a particular night, then get it back to the store the next day when they have the opportunity to simply tape the show that we deliver to them and view it any time and as many times as they want for no additional cost! Well, one problem has been that the converter is not a friendly device when it comes to VCRs. You can't (or couldn't) tape one show while watching another—you couldn't program your machine to tape different shows on different channels while you were away because the con-

verter didn't switch channels too! Well, Zenith has worked out both problems. A new little box between the converter and the VCR allows you to tape one channel and watch another (just not two scrambled channels at the same time). And the smartest solution to the "programmable" problem we have seen is also the simplest—they are coming out with a remote

control unit that has a timer right in it. So you can program the converter for the same days and channels you program the VCR for! Very clever, Zenith—hats off to you. We understand other manufacturers will soon announce similar add-ons, and we applaud them all for helping cable help our subscribers. That, after all, is the name of the game. □

## TERRESTRIAL INTERFERENCE.



ASTI is the first complete professional handbook on the avoidance, diagnosis and suppression of microwave *terrestrial interference* (TI) at TVRO earth stations. This 250 page comprehensive volume was compiled by an engineering team headed by Glyn Bostick, President of Microwave Filter Company, with valuable input from many

industry leaders such as California Amplifier and Scientific Atlanta. The result of their effort is an in-depth exploration of such topics as equipment selection for minimizing TI susceptibility, use of natural and artificial shielding, system filtering, and many other cost effective techniques! Send this coupon now to receive our free brochure on ASTI, and get TI out of the picture!



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# Showcase

## TFC INTRODUCES NEW RADIATING TRANSMISSION LINE

A new radiating cable that functions as a transmission line and also as an antenna for receiving and transmitting signals has recently been introduced by **Times Fiber Communications, Inc.** This cable, called TRC-500R, allows a small amount of signal to radiate out to the surrounding environment as it transmits the signal to other areas of an office building, subway tunnel, or parking garage. This radiated signal can be received by pagers and walkie-talkies. The cable can also be used as a receiving antenna, picking up signals from small transmitters in remote shielded areas of a building or other structure.

TRC-500R offers low and stable attenuation of the transmitted signal. Most radiating cables are extremely sensitive to the environment and their transmission loss increases tremendously if located in a conductive area such as water, conductive soil or steel reinforced concrete. The patented approach used in TRC-500R results in a cable that can be buried in conductive soil or even laid through water and still have the same downline attenuation as when mounted in the air on poles. The attenuation loss of TRC-500R is about the same as a fully-shielded coaxial cable of equal size.

TRC-500R is available in both 50 ohm and 75 ohm impedances and is supplied with a flame retardant jacket. A version is also available for installation in plenum areas, a very important feature as no cable will radiate signals if installed in conduit. Female N type connectors are also available.

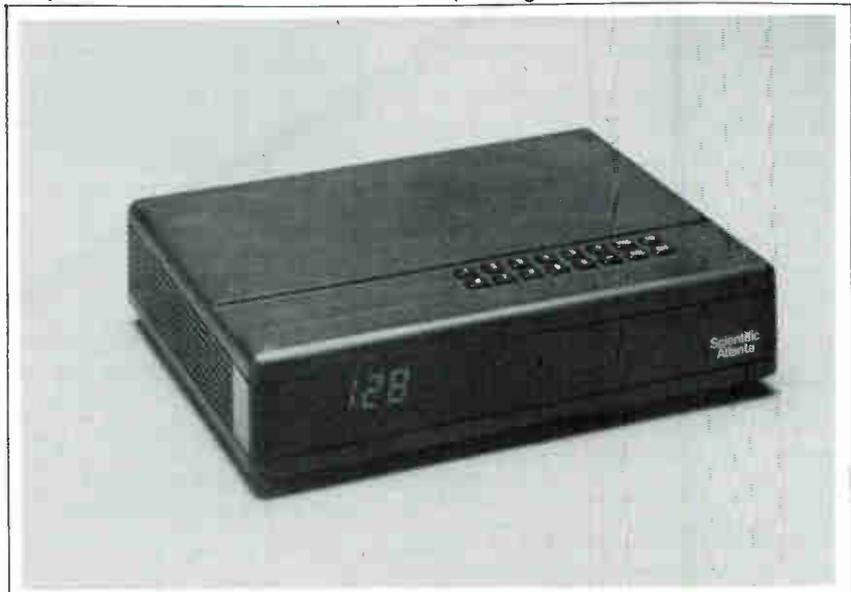
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## SCIENTIFIC-ATLANTA INTRODUCES ADVANCED ADDRESSABLE SET-TOP

**Scientific-Atlanta, Inc.**, has introduced its new Model 8550 addressable set-top terminal, designed to maximize the benefits of addressability by providing exceptional security and downloading flexibility. The high-performance Model 8550 and its related control equipment offer user-friendly and efficient software, large capacity for premium programming and pay-per-view events, remote diagnostic capabilities, subscriber conveniences, business management interface and extensive security features.

All authorizations and frequency allocations are downloaded into the terminal's non-volatile memory from the headend. Dynamic switched sync suppression further enhances the security of the Model 8550. Additional security features include a refresh timer signal, default frequencies, a legal terminal test and remote enable/disable of remote control units from the headend.

Remote diagnostic capabilities can indicate the presence or absence of the data carrier, purposeful deactivation of the unit, tampering with the descrambler,



"We feel that in order to make addressability viable, we, as a manufacturer, must provide a combination of reliability and ease of integration," says Stephen K. Necessary, marketing manager Subscriber Products. "We have focused on maintaining reliability while making the 8550 easier to integrate by removing the PROM and providing self-diagnostics."

The advanced design of the Model 8550 set-top terminal has eliminated the need for a PROM.

phase lock loop or non-volatile memory and other status information.

Scientific-Atlanta, Inc. (NYSE), is a worldwide manufacturer of communications products, defense systems and test instruments for industrial, telecommunications and government applications.

For additional information contact: J. Larry Bradner, General Manager, Distribution, Data and Subscriber Products Division (404) 925-5536. •

**SCIENTIFIC-ATLANTA  
PUBLISHES 1984/1985  
CABLEMART CATALOG**

Scientific-Atlanta, Inc., has published its expanded 1984/1985 Cablemart catalog. The 80-page catalog describes the complete line of new and remanufactured cable television equipment available from Cablemart, Scientific-Atlanta's regional retail cable equipment outlets. Included are headend electronics, receivers, distribution products, earth stations, coaxial cable and product accessories.

New products featured in the catalog include bonded drop cable, in a wide range of configurations, and a complete line of Gilbert connectors. The new catalog is available by writing to Scientific-Atlanta, Inc., Box 105027, Dept. A/R, Atlanta, GA 30348.

Cablemart facilities have also been expanded. The Atlanta location has moved to a larger facility at 1650 International Boulevard, Norcross, GA 30093. Cablemart facilities in Dallas, Texas, and San Francisco, California, are tied together by computerized inventory and order entry systems.

Cablemart, a service of Scientific-Atlanta, Inc., provides quick response to orders for CATV equipment. Customers may place orders by phone using Cablemart's toll-free customer service lines. Orders are shipped within 24 hours, based on approved credit and items in stock.

For additional information contact: H. Michael Smith/General Manager, Cablemart 404-925-5696. •

**BUDCO OFFERING  
LEMCO TOOLS**

**Budco, Inc.**, a major supplier of taplocks and tags to the cable TV industry, now offers LEMCO TOOLS for splicing and installation to compliment their taplock line. Although Budco is a full line distributor of Lemco Tools, they have in inventory, immediately available, a complete line of Lemco splicing and installation tools.

For more information and a free catalog, write or call:

**Budco, Inc.**  
4910 E. Admiral Place  
Tulsa, OK 77115  
1-800-331-2246 (toll free)  
1-918-836-3111  
(collect-Oklahoma) •

**FIBER OPTIC/CATV  
SPLICE & CONNECTOR GEL  
AVAILABLE FROM CWY**

An improved alternative to silicon grease is available in gel and convenient aerosol forms exclusively for the cable television industries from CWY Electronics, Lafayette, IN.

The new product, manufactured by Synco® Chemical Corp., is fiber optic/CATV splice and connector gel, and is designed to protect splices, connectors, terminations and closures from moisture, mild acids, dust and dirt. Splice and connector gel is totally water proof and will not harden, drip, melt or separate. Splice and connector gel is a fully dielectric compound which meets or exceeds the requirements of MIL-S-8660B, Amend. 3. Non-toxic and dermatologically safe, splice and connector gel is available in 3-oz.



tubes.

Also available from CWY is a fortified version of splice and connector gel called Barrier Cote, a convenient aerosol form. Barrier Cote sprayed directly on the equipment prevents oxidation and corrosion and may be used to protect any kind of outside

electronics or pedestal interior splices.

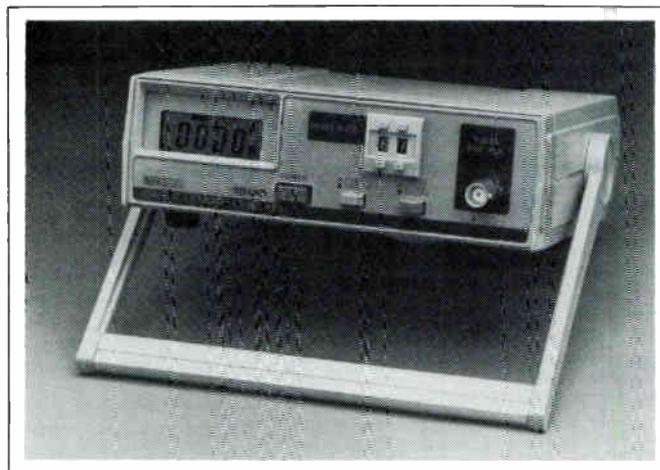
For further information about these and other Synco Chemical Corp. products, contact CWY Electronics, P.O. Box 489, Lafayette, IN 47903, or call toll-free 1-800-428-7596. (In Indiana, call 1-800-382-7526.) •

## CABLE LENGTH CHECKER FROM CWY

An inexpensive, easy-to-use, accurate cable length checker is now available to the cable television industries exclusively from CWY Electronics, Lafayette, Indiana.

The Model 1500 cable length checker (time domain reflectometer) can be used to locate opens and shorts in any cable with a constant velocity of propagation including 50 ohm, 75 ohm, and 93 ohm cable and paired cable. Unlike traditional time domain reflectometers, the Model 1500 is easy to use and requires no special training.

The Model 1500 features a four-digit display for the length of coaxial cable from 5m (15') to 2,000m (6,500') which indicates whether the cable termination is open or



short. A conversion switch on the front panel of the Model 1500 allows the user to select readout in feet or meters.

Also, two digital switches on the front panel allow easy operation of the cable nominal velocity propagation setting from 0.01 to 0.99

The Model 1500 also features

rechargeable Ni-cad batteries, AC adaptor, and can be powered by a 12 volt DC car battery.

The Model 1500 is available at a cost of \$495 from CWY Electronics. For further information, contact CWY Electronics, P.O. Box 55191, Lafayette, IN 47903, or call toll-free 1-800-428-7596. (In Indiana, call 1-800-382-7626.) •

## CWY EXCLUSIVE DISTRIBUTOR

**CWY Electronics** has been appointed the exclusive CATV and MATV/SMATV distributor for the Model 1500 cable length checker from North American Soar Corporation. The Model 1500 cable length checker (time domain reflectometer) can be used to locate opens and shorts in any cable with a constant velocity of propagation and requires no special training to use.

For further information, contact:

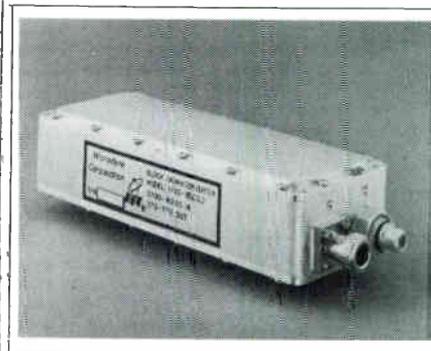
**CWY Electronics**  
P.O. Box 4519  
Lafayette, Indiana 47903  
1-800-428-5796 (toll free)  
1-800-382-7526 (in Indiana)

## MICRODYNE'S BLOCK DOWNCONVERTER NOW AVAILABLE FOR USE WITH MOST LNA'S

**Microdyne's** C- and Ku-band block downconverters are now available without an attached low-noise amplifier (LNA). They can be used with almost any LNA now on the market.

The 1100 BDC-L downconverts the 3.7-4.2 GHz or 10.95-12.7 GHz downlink signal to the 270-770 MHz range. The signal is then sent to an 1100 DCR-1272-channel receiver. The BDC-L is also compatible with Scientific-Atlanta's 6650 series receivers.

Microdyne's cable-powered BDC-L downconverter is completely weatherproof, and can be antenna-mounted with the LNA,



or mounted separately in close proximity to the antenna. The BDC-L uses a temperature compensated SAW resonator for ultimate frequency stability in any environment, from -40° to +70° C.

For more information on the BDC-L or any of Microdyne's satellite communications equipment, call the Sales Department at (904) 687-4633. •

**DATA SHEET DESCRIBES  
KU-BAND SATELLITE  
ANTENNAS FROM  
1.2 TO 5 METERS**

A two-color, two-page data sheet on Ku-band satellite antennas from 1.2 to 5 meters is now available from Microdyne.

The data sheet contains descriptions, photos and detailed specifications of these commercial-grade antennas, along with information on their respective installation times and options.

Microdyne's Ku-band antennas provide broadcast-quality transmission for many applications, from teleconferencing and private communications to TV and radio broadcasting.

For a copy of the data sheet and information on other Microdyne satellite equipment, call the Sales Department, (904) 687-4633.

Microdyne Corporation is a leading producer of satellite communications equipment for the radio and television broadcasting, cable television, teleconferencing and private communications markets.

## KU-BAND SATELLITE ANTENNAS

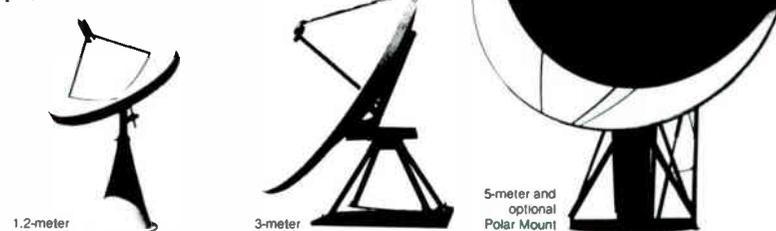
### Commercial-grade Antennas for Transmission and Reception of Voice, Video or Data at Ku-band Frequencies

Microdyne's Ku-band satellite antennas provide broadcast quality transmission and reception of voice, video and data at the 10.95-12.7 GHz Ku-band downlink and 14-14.56 uplink frequencies.

Available in sizes of 1.2, 1.8, 2.4, 3, 3.66, and 5 meters, there is a field-proven Microdyne antenna to suit any satellite communications application—from corporate communications and teleconferencing to radio and TV broadcasting and cable television.

Our new 1.2, 1.8, and 2.4 meter parabolic reflectors are designed for teleconferencing and data communications, as well as DBS video. With gains of 42, 46, and 48.5 dB respectively at 14.25 GHz, and 41.5, 45.2, and 47.5 dB at 12.7 GHz, these antennas provide professional performance at a competitive price.

Microdyne's well-known 3, 3.66, and 5 meter antennas with precise surface tolerances provide high gains and long service life. Our prime focus feed system gives superior side lobe performance and reduces maintenance problems by eliminating the need for pressurization. Their elevation over azimuth pedestals, made of rugged galvanized steel, have a full 360° azimuth range, while elevation can be set anywhere between 10° and 65°. Easily assembled on site by Microdyne personnel, these antennas can be purchased with optional hand-cranked or motorized polar mounts.



#### FEATURES

- High Gains
- Precision-molded Surface
- Superior Side Lobe Performance
- Prime Focus Feed
- Fiberglass Construction



**MICRODYNE'S NEW COMMERCIAL-GRADE 1.2 AND 1.8 METER ANTENNAS FOR C- AND KU-BAND APPLICATIONS**

Microdyne's new 1.2 and 1.8 meter antennas for C- or Ku-band provide high-quality transmission and reception of Single Channel Per Carrier (SCPC) broadcasts, low-density data, and teleconferencing.

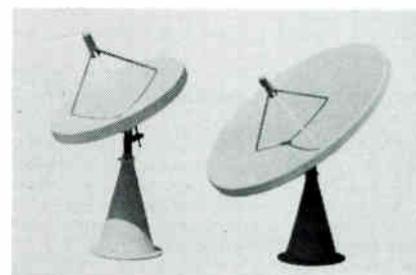
The 1.2 and 1.8 meter antennas have Ku-band transmit gains of 42 and 46 dB respectively, and receive gains of 41.5 and 45.2 dB.

For C-band, the 1.2 and 1.8 meter antennas have transmit gains of 35.2 and 38.5 dB respec-

tively, and receive gains of 31.5 and 35 dB.

These single-piece antennas are molded from the same material as Microdyne's well-known 5 and 7 meter antennas. Their small size makes them extremely rigid, resulting in superior gains, and they can be easily assembled on site in 1 man-hour.

Microdyne Corporation is a leading producer of satellite communications equipment for the radio and television broadcasting, cable television, teleconferencing and private communications markets.



Microdyne's commercial-grade 1.2 (left) and 1.8 meter antennas (right) for C- or Ku-band provide high-quality transmission of Single Channel Per Carrier (SCPC) broadcasts, low-density data, and teleconferencing.

For more information, contact Microdyne at P.O. Box 7213, Ocala, FL 32672 or call (904) 687-4633. □

# Associate Roster

Note: Associates listed with \* are Charter Members.

**Alpha Technologies**  
1305 Fraser St. D-G,  
Bellingham, WA 98225  
206-671-7703  
(M9, Standby Power  
Supplies)

**AMCOM, Inc.,**  
Bldg. E, Suite 200,  
5775 Peachtree-  
Dunwoody Rd., N.E.,  
Atlanta, GA 30342  
404-256-0228  
(S9, Brokering &  
Consulting)

\* **Anixter Communications,**  
4711 Golf Road,  
Skokie, IL 60076  
312-677-2600  
(D1)

**Arts & Entertainment  
Network**  
555 Fifth Avenue  
New York, NY 10017  
212-661-4500  
(S9)

**Av-Tek, Inc., Inc.,**  
Box 188,  
Aurora, NE 68818  
402-694-5201  
(M8)

**Blonder-Tongue Labs, Inc.,**  
1 Jake Brown Rd.,  
Old Bridge, NJ 08857  
201-697-4000  
(M1, 2, 4, 5)

**Broadband Engineering,  
Inc.**  
P.O. Box 1247,  
Jupiter, FL 33458  
1-800-327-6690  
(D9, M4, S9)

**Budco, Inc.,**  
4910 East Admiral Place,  
Tulsa, OK 74115  
1-800-331-2246  
(D9, Security &  
Identification Devices)

**Cable Constructors, Inc.,**  
Iron Mountain, MI 49801

**CATEL,**  
4800 Patrick Henry Dr.,  
Santa Clara, CA 95054  
408-988-7722

**Capscan, Inc.**  
P.O. Box 36,  
Adelphia, NJ 07710  
1-800-CABLETV or  
222-5388  
(M1, 3, 4, 5)

**CBN Cable Network,**  
CBN Center  
Virginia Beach, VA 23463  
804-424-7777  
(S9)

\* **C-Cor Electronics, Inc.,**  
60 Decibel Rd.,  
State College, PA 16801  
814-238-2461  
(M1, 4, 5, S1, 2, 8)

**CWY Electronics**  
405 N. Earl Ave.,  
Lafayette, IN 74904  
1-800-428-7596  
(M9, D1)

**Cable Graphic Sciences**  
7095 N. Clovis Ave.  
Clovis, CA 93612  
209-297-0508  
(M9 Character  
Generators)

**Communications Equity  
Associates,**  
851 Lincoln Center,  
5401 W. Kennedy Blvd.,  
Tampa, FL 33609  
813-877-8844  
(S3)

**ComSonics, Inc.,**  
P.O. Box 1106,  
Harrisonburg, VA 22801  
1-800-336-9681  
(M8, 9, S8, 9)

**Electron Consulting  
Associates,**  
Box 2029,  
Grove, OK 74344  
918-786-5349  
(M2, D1, S1, 8)

**The Disney Channel**  
500 S. Buena Vista  
Burbank, CA 91521  
213-840-5080  
(S4)

**Ditch Witch,**  
P.O. Box 66,  
Perry, OK 73077  
1-800-654-6481  
(M9)

**The Drop Shop Ltd., Inc.,**  
Box 284,  
Roselle, NJ 07203  
1-800-526-4100 or  
1-800-227-0700 (West)  
(D3, 4, 5, 6, 7, 8, 9,  
M5, 6, 7, 8, 9 Plastics)

**Durnell Engineering Inc.,**  
Hwy 4 So.  
Emmetsburg, IA 50536  
712-852-2611  
(M9)

**Eagle Com-Tronics, Inc.,**  
4562 Waterhouse Rd.,  
Clay, NY 13041  
1-800-448-7474  
(M9, Pay TV Delivery  
Systems & Products)

**Eastern Microwave, Inc.,**  
3 Northern Concourse,  
P.O. Box 4872,  
Syracuse, NY 13221  
315-455-5955  
(S4)

**Electroline TV  
Equipment, Inc.,**  
8750-8th Ave.,  
St. Michel,  
Montreal, Canada  
H1Z 2W4  
514-725-2471  
(M4, 5, 7, 9, D7, 9)

**ESPN,**  
ESPN Plaza,  
Bristol, CT 06010  
203-584-8477  
(S9)

**Group W Satellite  
Communications**  
41 Harbor Plaza Dr.,  
P.O. Box 10210,  
Stamford, CT 06904  
203-965-6219  
(S4)

**Harmon & Company**  
5660 S. Syracuse Circle  
Greenwood Plaza,  
Englewood, CO 80111  
303-773-3821  
(S3)

**Heller-Oak  
Communications**  
105 W. Adams St.,  
Chicago, IL 60603  
1-800-621-2139 \* 7600  
(S3)

**Home Box Office, Inc.,**  
12750 Merit Dr.  
Dallas, TX 75251  
214-387-8557  
(S4)

**Ind. Co. Cable TV, Inc.,**  
P.O. Box 3799  
Hwy. 167 N,  
Batesville, AR 72501  
501-793-4174  
(D1)

\* **Jerry Conn Associates,  
Inc.,**  
P.O. Box 444,  
Chambersburg, PA 17201  
1-800-233-7600  
1-800-692-7370 (PA)  
(D3, 4, 5, 6, 7, 8)

**KMP Computer  
Services, Inc.,**  
135 Longview Dr.,  
Los Alamos, NM 87544  
505-662-5545  
(S4, 5)

**Katek, Inc.,**  
215 Wood Ave.,  
Middlesex, NJ 08846  
201-356-8940

**Klungness Electronic  
Supply,**  
P.O. Box 547,  
107 Kent Street,  
Iron Mountain, MI 49801  
1-800-338-9292  
1-800-682-7140 (Mich)  
(D1, 8, S2, 8)

Note: Associates listed with \* are Charter Members.

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

**LRC Electronics, Inc.,**  
901 South Ave.,  
Horseheads, NY 14845  
607-739-3844  
(M7)

**Larson Electronics, Inc.,**  
311 S. Locust St.,  
Denton, TX 76201  
817-387-0002  
(M9 Standby Power)

**Lifetime**  
1211 Avenue of the  
Americas  
4th Floor  
New York, NY 10036  
212-719-7230  
(S9, Programming)

**Lindsay America, Inc.**  
P.O. Box 15775  
1202 B West 19th St.  
Panama City, FL 32405  
904-769-2321

**MA/COM Cable Home  
Group**  
P.O. Box 1729  
Hickory, NC 28603  
1-800-438-3331  
(M2, 3, 7, S2)

**Magnavox CATV Systems,  
Inc.**  
100 Fairgrounds Dr.,  
Manlius, NY 13104  
315-682-9105  
(M2, 3, 7, S2)

\* **Microwave Filter Co.,**  
6743 Kinne St., Box 103,  
E. Syracuse, NY 10357  
1-800-448-1666  
(M9 Bandpass Filter)

**Oak Communications, Inc.**  
16516 Via Esprillo  
Rancho Bernardo, CA 92127  
619-451-1500

**Panasonic Industrial, Co.,**  
One Panasonic Way  
Secaucus, NJ 07094  
201-392-4109

**Power and Telephone  
Supply Company, Inc.**  
530 Interchange Drive  
N.W.,  
Atlanta, GA 30336  
1-800-241-9996  
(D1)

**Quality RF Services, Inc.**  
825 Park Way, Suite 3,  
Jupiter, FL 33458  
305-747-4998  
1-800-327-9767  
1-800-433-0107 (In  
Florida)  
(M4, S9)

**Regency Cable Products,**  
P.O. Box 379  
Bernhards Bay, NY 13028

**RMS Electronics**  
50 Antin Place  
Bronx, NY 10462  
1-800-223-8312  
1-800-221-8857 (Poleline)  
(M4, 5, 6, 7, 9)

**Sadelco, Inc.,**  
75 West Forest Ave.,  
Englewood, NJ 07631  
201-569-3323  
(M8)

**Satellite Syndicated  
Systems, Inc.,**  
P.O. Box 470684  
Tulsa, OK 74147  
918-481-0881  
(S9)

**Scientific Atlanta,**  
P.O. Box 105600  
Atlanta, GA 30348  
404-441-4000

**Showtime/The Movie  
Channel, Inc.**  
1633 Broadway,  
New York, NY 10019  
212-708-1600  
(S4)

**Telstar Marketing &  
Consulting**  
C.T.H."F" 2930  
Blue Mounds, WI 53517  
608-437-5460  
(S9)

**Tele-Wire Supply Corp.,**  
7 Michael Ave.,  
East Farmingdale,  
NY 11735  
516-293-7788  
(D1, 2, 3, 5, 6, 7, 8, 9)

\* **Texscan Corp.,**  
3102 N. 29th Ave.,  
Phoenix, AZ 85017  
602-252-5021  
(M9 Bandpass Filters)

\* **Times Fiber  
Communications,**  
358 Hall Avenue,  
Wallingford, CT 06492  
1-800-243-6904  
(M3)

**Tocom, Inc.,**  
P.O. Box 47066,  
Dallas, TX 75247  
214-438-7691  
(M1, 4, 9 Converters)

\* **Toner Cable  
Equipment, Inc.,**  
969 Horsham Rd.,  
Horsham, PA 19044  
1-800-523-5947  
In PA 1-800-523-492-2512  
also 1-800-523-5947 (PA)  
(D2, 3, 4, 5, 6, 7)

**Triple Crown  
Electronics, Inc.,**  
4560 Fieldgate Dr.,  
Mississauga, Ontario,  
Canada L4W 3W6  
416-629-1111  
Telex 06-960-456  
(M4, 8)

**Turner Broadcasting  
System,**  
1050 Techwood Dr.,  
Atlanta, GA 30318  
404-898-8500

**TV Watch, Inc.,**  
1819 Peachtree Rd. N.E.  
Atlanta, GA 30309  
1-800-554-1155  
(S9)

**United Press International**  
220 East 42nd St.,  
New York, NY 10017  
212-682-0400  
(S9 Automated News  
SVC)

**United Video, Inc.,**  
3801 South Sheridan Rd.,  
Tulsa, OK 74145  
1-800-331-4806  
(S9)

**USA Network**  
303 East Ohio Street  
Time & Life Bldg. Suite 2701  
Chicago, IL 60611  
312-644-5413  
(S9)

**Viewstar, Inc.,**  
705 Progress Ave.,  
Unit 53,  
Scarborough, Ontario,  
Canada M1H 2X1  
416-439-3170  
(M9 Cable Converter)

**Vitek Electronics**  
710 Narragansett Park Dr.  
Pawtucket, RI 02861  
401-724-4400

**Walsh, Walsh, Sweeney  
& Whitney, S.C.**  
P.O. Box 1269,  
Madison, WI 53701  
608-257-1491  
(S9)

\* **Wavetek Indiana**  
5808 Churchman,  
Beech Grove, IN 46107  
1-800-428-4424  
TWIX 810-341-3226  
(M8)

**Weatherscan,**  
Loop 132,  
Throckmorton Hwy.,  
Olney, TX 76374  
817-564-5688  
(D9, Sony Equip. Dist.,  
M9 Weather Channel  
Displays)

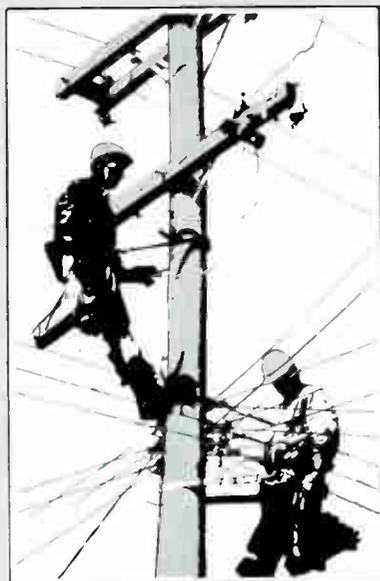
**Western Towers**  
Box 2040  
San Angelo, TX 76902  
915-658-6539/653-5291  
(M2, 9 Towers)

**Zenith Radio Corp.,**  
1000 N. Milwaukee Ave.  
Glenview, IL 60025  
312-391-8195  
(M1, 6)

□

# Classified

## OPPORTUNITIES



### 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

CATJ Classified advertising is offered as a service by CATA for its membership.

Any member of CATA may advertise in the CATJ classified section FREE of CHARGE (limit of 50 words per issue - 3 issues per year.)

NON MEMBERS may also use the Classified Section at the rate of 50 cents per word with a minimum charge of \$20.00. Non-members should include full payment with ad insertion.

*take  
advantage  
of me*

**CATJ**  
4209 N.W. 23rd, Suite 106  
Okla. City, Okla. 73127

NEW  
VARIABLE RATE BONDS  
MAKE IT  
SMART TO **Take  
stock  
in America.**

**Ad  
Council** A Public Service of This Publication

Director of Sales  
Department of the Treasury  
U. S. Savings Bonds Division  
Washington, D. C. 20226

Yes, please send me Free information about the Payroll Savings Plan.

Name \_\_\_\_\_  
Position \_\_\_\_\_  
Company \_\_\_\_\_  
Address \_\_\_\_\_  
City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

CATJ classified advertising is offered as a service by CATA for its membership.

ANY member of CATA may advertise in the CATJ classified 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 Classified 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 Classified Advertising is the 1st of the month for the following month's issue.

Address all Classified material to: CATJ, Suite 106, 4209 N.W. 23rd, Oklahoma City, Okla. 73107.

# RMS 450 MHz WORKS where others fail.



## The *unitop* 450 MHz Series

**RMS** CATV DIVISION

TELEPHONE OR WRITE  
FOR IMMEDIATE DELIVERY

RMS ELECTRONICS, INC./CATV DIVISION  
50 ANTIN PLACE, BRONX, N.Y. 10462

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