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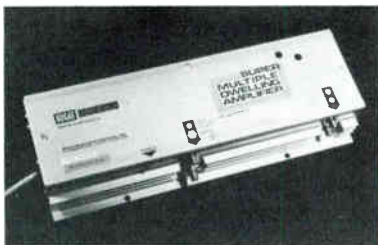
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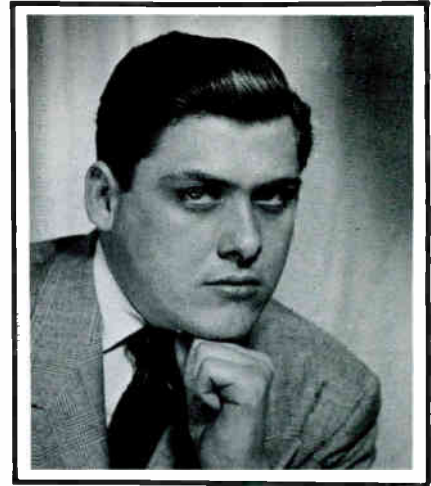
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### ABOUT THE COVER

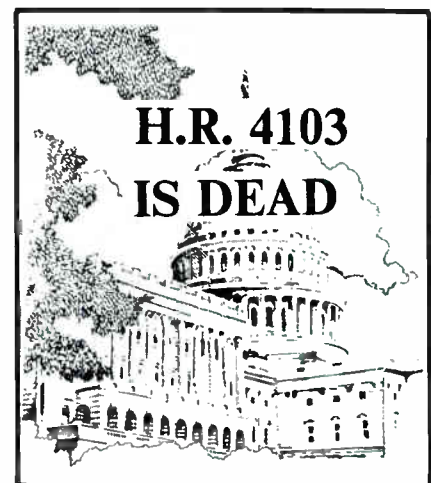
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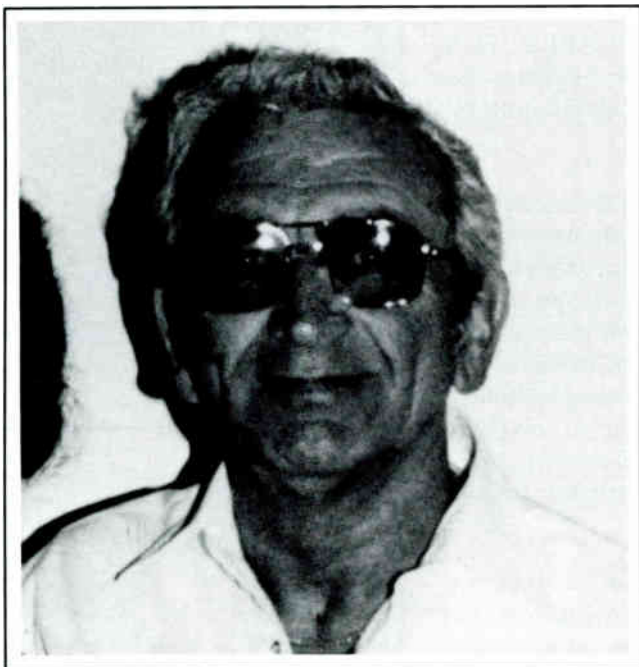
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*Carl Schmauder*  
**PRESIDENT OF CATA**

## CREDIBILITY

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**M**uch is being written these days about the so-called “credibility” of the cable industry. This comes in the wake of the slow demise of H.R. 4103 and the fact that the cable television industry, while working hard for legislative relief for many years, has now decided that the bill we were ultimately presented with was not sufficient to meet our needs. Thus the editorial writers and political pundits are saying that the industry’s decision to cease backing H.R. 4103 will seriously hurt our “credibility” on Capitol Hill and our ability in the future to work with Congress.

From CATA’s point of view that is nonsense. To begin with, let’s take a look at what “credibility” means. The dictionary defines “credible” as meaning “capable of being believed”. I do not think there is anyone on Capitol Hill who does not believe the industry means what it says when it comes to what we need in a deregulatory bill before we will back it! “Credibility” also is defined as meaning reliable, or trustworthy, and I think we fit both those definitions too. It may not be that folks like the decisions we have made, but, as an industry, we have made those decisions public, and publicly explained why we have made them. There can be no higher test of reliability in the political realm than to know exactly where one stands and then support that position. The cable industry has done that.

I am truly confused by those who seem to think that once a “compromise” is reached, come what may, one must stick with that compromise or lose “credibility”. This is simply not the case. If circumstances change, and the situation around which the negotiations centered no longer pertains, then it is foolish at best and more likely irresponsible to simply make believe everything has remained static and stick with a position that no longer makes any sense.

That is what happened in the case of H.R. 4103. The compromises that were made and agreed to were arrived at under a given set of existing conditions. As CATA has explained in the past, those factors included the knowledge that legislative relief was not as complete as that potentially offered by the FCC, but that the FCC had not formalized its position and that position was subject to court review. This, of course, related specifically to rate regulation relief.

So the reluctant decision was made to go along with a proposal that allowed for a continuation of rate regulation at the local level for four more years on a limited basis. Then two things happened. First, the FCC made its position as clear as it possibly could — a plus for the cable industry, but still not decisive, since that Commission action could still be challenged. And then, much to the surprise of just about everyone, the Supreme Court, in a 9 to 0 decision in essence affirmed everything the Commission was doing.

There can be no more graphic example of changed circumstances. The cable industry suddenly found itself with a stunning victory with regard to local rate regulation, and one that is unlikely to be overturned by the Courts. The “compromise” on H.R. 4103, which had been entered into reluctantly to begin with, meanwhile had been watered down even more in the process of Committee “mark-up”. That which was to be a limited

grant of authority to regulate rates for four more years suddenly became a sweeping grant of a right to regulate for four more years. We had never agreed to that in the first place, let alone would it make sense to agree to something like that following the FCC actions approved by the Supreme Court.

In this case, the only way the national cable trade associations, CATA and the NCTA, and their State and regional counterparts, would have lost "credibility" is if we had not acknowledged what was going on around us, had not, in fact, represented our members, and gone blindly ahead with a proposal that no longer made any sense. We didn't do that and, to our knowledge, there is no significant "backlash" on Capitol Hill. After all, Congressmen and Senators are the masters of negotiation. They understand better than most that in the process of forging a political compromise circumstances change almost constantly. The two ways that "credibility" CAN be lost, given the nature of the process are if the "representatives" who are negotiating do not actually represent the interests of their principals (that's what happened to the NLC when they had to simply renege on an agreement because their members wouldn't

buy the position the negotiators said they would) or if the representatives intentionally give misinformation to Congress in an effort to achieve their goals. The cable industry has done neither. We have been forthright, and very above-board with what we have been doing, and what has happened. When circumstances changed we said so and explained why. "Credibility" can never be lost when you simply tell the truth.

There is a motto by Mark Twain hanging in the CATA Washington Office. It is the guiding principle of our office, and I would suggest you adopt it too — it says: "If you tell the truth, you don't have to remember anything".

The cable industry has an important story to tell. About regulation and deregulation, about copyright and must-carry rules, about pole attachments and PUC regulation. They are complicated issues that we must deal with and we need the help of all operators to tell those stories to our local officials, as well as State and Federal regulators and legislators. But if you stick to "telling it like it is", from your own experience and your own perspective you will be heard — and you will never lose credibility. □

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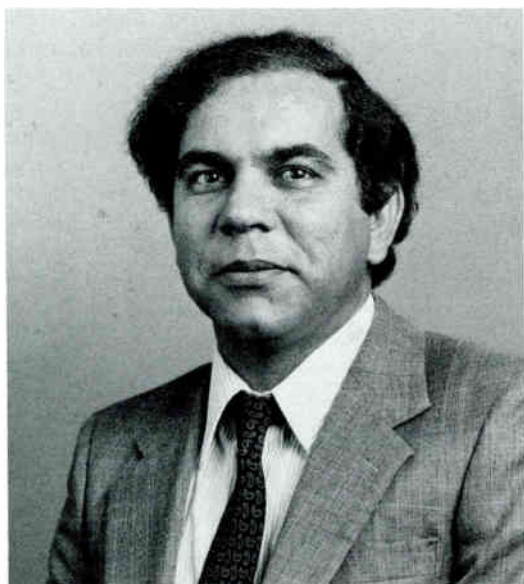
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# USE OF HYBRID CARS MICROWAVE/CABLE FOR MULTISITE LOCAL-AREA NETWORKING



JAMAL SARRAF

By: Jamal Sarraf and Irving Rabowsky, P.E.  
Hughes Microwave Communications Products  
Torrance, California

## ABSTRACT

In this paper, we first review the new role of CATV coaxial cable systems in supporting point-to-point voice/data networks and their inherent capacity to work as broadband local-area networks for distributed data communications. Then, the use of CATV-compatible AML microwave links to interconnect dispersed LAN systems is discussed.

## GENERAL

Coaxial cables have in the past played a major role in providing high-capacity point-to-point communication systems for the transmission of voice, using the frequency-division multiplexing (FDM) technique, all over the country. Subsequently, the use of coaxial-cable systems for the distribution of entertainment video in urban areas saw explosive growth which is still going on. While the application for FDM voice traffic was limited to the base-band method of transmission using only a small portion of the cable spectrum, the CATV industry makes full use of the cable potential of up to 500 MHz of the RF spectrum.

The more cost-effective microwave radio systems practically ended the non-CATV use of cable for the

*The above article was reprinted from the 1984 NCTA papers with the permission of the authors and the NCTA, as well as the article, "LNA FOR MULTI-CHANNEL MICROWAVE RECEIVERS, appearing in the August 1984 issue.*

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15 years of direct involvement with major national oil companies in the Middle East in the operation, maintenance, and engineering of telecommunication transmission systems (primarily terrestrial microwave systems) for message, data, and video distribution.

1982-1984

Senior Staff Engineer with Hughes Microwave Communications Products, Torrance, California, in charge of systems engineering activities for terrestrial microwave systems (AML, AML-FM) for video, message, and data, particularly in the development of the AML-LAN interconnect system.

past several years. However, with the explosion of distributed data processing, and advent of affordable workstations, the business world is forcing the communications industry to look into the coaxial-cable-based transmission techniques once again.

Although novel ideas are being introduced in the domain of radio communications technology, the limited available RF spectrum is putting a crunch on many radio users. On the other hand, the unsuitability of existing Telco subscriber loops for higher data transmission rates and the high cost of dedicated "TI" lines have prompted potential buyers to by-pass the local telephone companies.

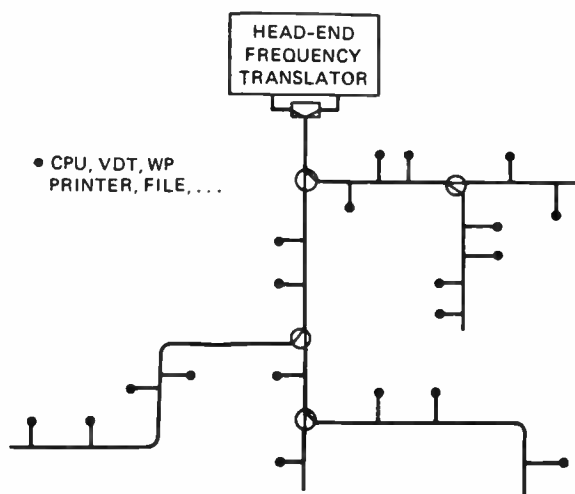
The advent of local-area network (LAN) technology to satisfy the growing need for more efficient data transmission networks is another factor that is opening the door to a more novel and challenging use of cable systems to support a large data user population in metropolitan areas.

These facts, plus the widespread proliferation of CATV cable systems in urban/metropolitan areas are actually the driving forces behind the emerging interest in cable systems as alternate communications media for non-video applications.

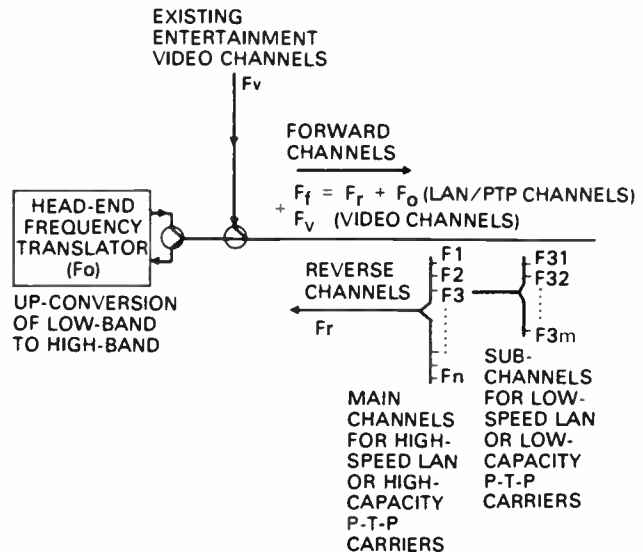
While the use of coaxial cables for dedicated point-to-point transmission systems is well defined and known to system designers, it is their unique application in a distributed LAN environment, in conjunction with microwave interconnect systems, that is the topic of this paper.

## REVIEW OF LAN TECHNOLOGY

There are two broad categories of local-area network systems presently developed to meet the ever increasing need for the transmission of data in a limited geographical area. These are the so called baseband and broadband LAN concepts. While many of the underlying principles of operation are very similar in nature, the



**Fig. 1: Broadband LAN Topology**



**Fig. 2: CATV Plus LAN/p-t-p Channeling Concept**

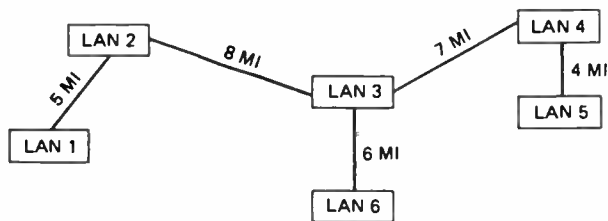
two concepts are distinctively different when it comes to their transmission techniques.

The baseband LAN routes the data signals around the network in a modified version of their basic digital form without using a "carrier" signal, thus the name baseband. The broadband LAN, on the other hand, will take the processed digital signals and modulate a "carrier" signal for transmission around the network in the form of an "RF" signal. While a detailed comparison of the two LAN categories is beyond the scope of this paper, it is the broadband version which is fully compatible with the CATV cable technology.

## BROADBAND LANs

Figure 1 shows a simplified overview of a broadband (BDB) local-area network. The topology is physically of the inverted-tree configuration which provides a logical bus structure. The system could be a single-cable or dual-cable based network. The single-cable version, being the closest to the majority of existing two-way CATV cable systems, uses a so called head-end frequency translator at the root of the "tree" which is the cable hub.

Figure 2 shows a general allocation concept of the frequency spectrum on a CATV cable system supporting LAN/p-t-p traffic. The BDB-LAN industry has basically opted for the existing CATV channeling plans and their various cable configurations such as sub-split, mid-split, etc. While each vendor allocates the cable spectrum for many services such as video, voice and alarm/security, their main concern is the provision of data communication channels. Depending on their system architecture, several 6 MHz channels in each direction are needed to support an entire Data Terminal Equipment (DTE) population of several thousand.



**Fig. 3: Integration of Dispersed Mini LANs Into One Network**

Based on the required data transmission rate, each 6 MHz channel is subdivided into many narrow-band channels (10-300 kHz for example). Several systems in the market use the 300 kHz basic channeling scheme; thus providing 20 RF data carriers in a 6 MHz (TV) channel. Each 300 kHz carrier is capable of carrying a minimum of 128 kbps of digital information using the simple FSK modulation technique. This basic capacity of each carrier could be shared among many lower speed (e.g. 9.6 kbps) DTEs on a virtual-connection basis. The maximum number of DTEs sharing a given RF carrier is basically determined by their traffic rates and patterns and the medium-access mechanism of the LAN system. The most popular CSMA/CD (Carrier Sense Multiple Access with Collision Detection) method can provide system throughputs as high as 96 percent of the total available capacity. A thorough data communication traffic study must be done to determine the optimum number of shared users on any given RF carrier in order to meet the required system response time and/or grade of service.

### INTEGRATION OF DISPERSED LANs

Many of the available broadband LAN systems on the market are specified to support as many as 65000 DTEs on 60 300 kHz wide RF carriers, occupying a total of 18 MHz of cable spectrum in each direction of transmission. Such an inherent huge capacity of BDB LANs is far beyond the normal need of any single organization, particularly if confined within a very limited geographical area that a "local" area network is designed to support. For this reason, BDB LAN's are generally highly under-utilized in private business applications.

One way to increase the utilization factor of a given LAN system is to integrate several dispersed "mini" LANs into a larger network. In real life, these could, for example, be the various buildings or plants of a large corporation scattered in a 20 mile radius as shown in

Figure 3. The problem is to expand the basic LAN tree to reach every facility in the network. In urban areas this becomes almost an impossible task if one had to run dedicated coaxial cables across town.

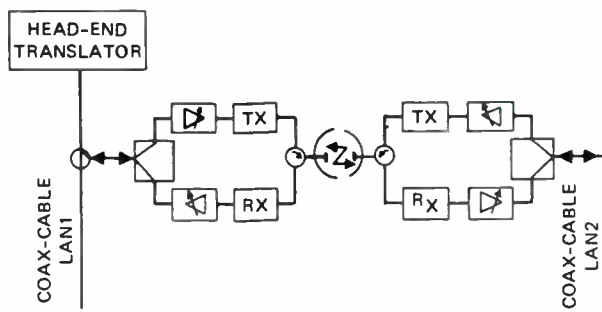
This is where the existing CATV cable systems prove their value. Being designed to serve a large community, the cable systems can easily function as a real LAN tree if many of the existing or new subscribers require data communications services. It also pays to interconnect large isolated users to the main cable tree through dedicated "branches".

### CARS-MICROWAVE INTERCONNECT SYSTEMS

The problem of integration of widely dispersed cable systems, or large customers not passed by cable, into a comprehensive LAN system can easily be achieved through dedicated CARS microwave radio links. Just as video channels have been distributed from a program origination point to several cable hub locations, the cable compatible Hughes AML<sup>®</sup> microwave concept can be used to extend or interconnect several "mini" LANs into one large network.

The AML concept that is so well known to the CATV industry is based on the heterodyning principle where any given VHF carrier, with whatever type of modulation, can be up or down-converted to another frequency when properly mixed with a locally-generated signal. This process is basically independent of the modulation content of the desired carrier; analog AM, FM or digital FSK, QPSK, etc.

While the use of AML in VSB-AM transmission of video signals is well defined, its new application in interconnecting cable systems supporting LAN networks, or point-to-point voice/data traffic, needs redefining. The standard 6 MHz VSB-AM channel carried by each AML transmitter is characterized by the video, color and audio carriers in a well defined relationship. The new LAN or p-t-p carriers are as yet not standardized in terms of bandwidth, modulation type, their sensitivity to systems non-linearities, frequency shifts, and a host of



**Fig. 4: AML-LAN Interconnect**



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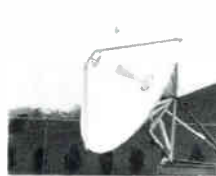
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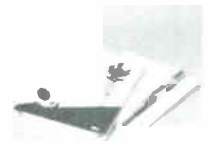
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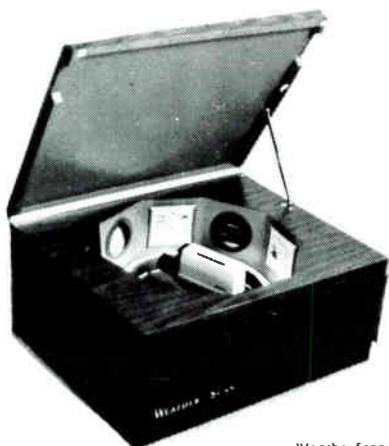
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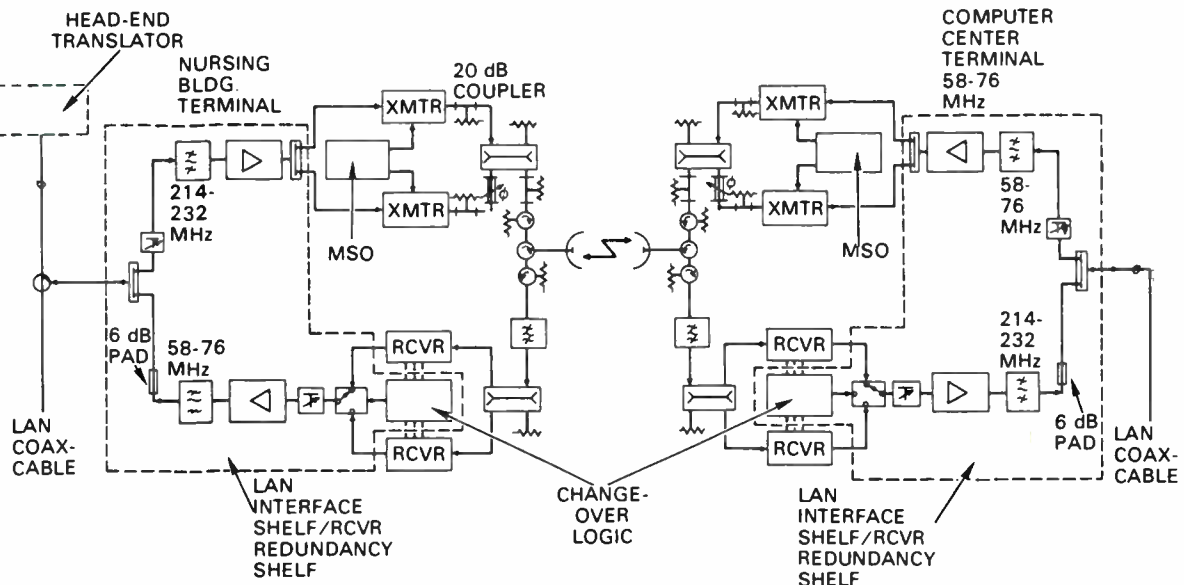
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**Fig. 5: Fully Protected AML-LAN Interconnect System Block Diagram**

other parameters. For example, the low-speed 300 kHz wide RF carriers of a CSMA/CD LAN network using FSK modulation can only tolerate a frequency shift of 10 kHz when going through any interconnect link. Their threshold response of  $10^{-6}$  BER requires certain minimum values of carrier-to-noise or carrier-to-intermod noise ratios. Their sensitivity against carrier level variations is another point that must be considered. The number of RF carriers and their relative levels in any given bandwidth also directly affects the system I.M. performance.

With LAN systems, even when we have perfect transmission channels, the actual transmission delay experienced by the carriers in going from the farthest user terminal to the head-end translator and back will affect the overall LAN system throughput. So, the location of the head-end translator and the maximum length of the LAN tree branches becomes critical in the context of the LAN performance constraints. It is interesting to note that the transmission delays introduced by the AML link is about one tenth that of a coaxial cable of comparable length.

With all the above in mind, every AML-LAN interconnect system must be carefully tailored to meet the performance requirements of a given LAN or p-t-p system if true transparency on the part of the AML equipment is to be achieved.

### TYPICAL APPLICATION

Figure 4 shows the simplified block diagram of a typical AML microwave LAN interconnect where two independent LANs are to be integrated into one system. In this example all the users on LAN 2 are to become part of the population of LAN 1.

To implement such an integration, the coax cable of LAN 1 is tapped through a standard directional tap at a convenient point closest to the location where the AML microwave equipment is to be housed. The choice of this location is dictated by the need to have line-of-sight transmission between the two sites of LAN 1 and LAN 2. At the other end, the AML radio equipment is directly interfaced with the LAN 2 coax cable at its head point.

With the connections so made, the coax cable of LAN 2 becomes a major "branch" of the system "tree" under LAN 1 and the two-way communications among the users of LAN 2 themselves and the other users on LAN 1 take place as if all the users were connected by a single network. The flow of signals to/from LAN 2 take place in the following manner.

The channel carriers within a given window, up to 20 MHz, transmitted by the cable modems of the users on LAN 2 will arrive at the AML equipment. They first pass through a diplexer filter which separates the "forward" and "reverse" frequency bands in order to be compatible with the single-cable mid-split system. The carriers then go to an amplifier where their level is adjusted to the optimum value required by the transmitter (TX) unit. The TX unit upconverts the carriers to the designated microwave band for onward transmission. At the other end, the microwave signals are picked up by the antenna and passed to the microwave receiver unit (RX) where they are downconverted to their original VHF frequencies. They will then pass through an amplifier that sets their levels to the optimum value for injection onto the LAN 1 coax cable.

The carriers, now being on LAN 1 cable, will be treated like the other in-house carriers. That is, they will be received by the LAN 1 headend translator, converted

to the forward frequencies, and injected back onto the cable to go to all users on LAN 1 cable. To go to LAN 2 users, the carriers will enter the AML radio equipment through the directional tap and undergo a similar process as they did in the return direction. In this manner, the LAN 2 system will be fully integrated into LAN 1.

The coverage range of the AML microwave radio system basically depends on the operating microwave frequency, the terrain and climatic conditions of the areas and, of course, the availability of line-of-sight propagation between the two LAN sites to be interconnected. However, for many applications such distances could range up to 20 miles.

Figure 5 shows the detailed block diagram of a fully protected AML-LAN interconnect system as implemented in a single-hop application in a university environment. Here, the two buildings are separated by about 2 miles in a very crowded part of Chicago, where laying of coaxial cable was impractical. The AML link interconnects 18 MHz of the cable spectrum that is supporting about 800 DTEs plus the entire central data processing equipment of the university.

#### CONCLUSION

Existing or new CATV cable systems are inherently capable of supporting other types of traffic besides traditional entertainment video. Through proper design

and allocation of the frequency spectrum they can be used to provide point-to-point transmission channels to the business community as "by-pass" links for their inter-office use. In a more universal role the cable system can be employed as a broadband local-area network supporting thousands of data terminal users.

In all cases, any cable system may have to be extended to cover distant clusters of users in order to be more viable as a LAN or a by-pass. In such cases, proven microwave transmission techniques are available to extend the branches of any cable system for this purpose.

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2. EDN Special Report "Local-Area Networks", February 17, 1982.
3. William Stallings, "Local Network Performance", IEEE Communication Magazine, February 1984.
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# DOES YOUR HEAD END GIVE YOU HEADACHES ?

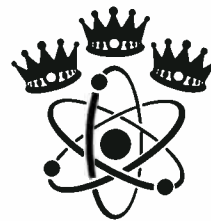
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# McMAHON

He became active in Jersey City politics at the age of sixteen, and was making political speeches before he was old enough to vote. At one time he aspired for public office but, at the insistence of his wife, he gave up the idea of a political career.

His musical training began when, as a young child, he was given a very valuable violin. The particular instrument had been purchased in a New York hock shop by his father's uncle for a small sum. Years later they learned that it was worth several thousand dollars! Through the years it was handed down through his family, from the uncle to his father, to Kerwin's older brother, to Kerwin. For years it was his most treasured possession. Today it belongs to Kerwin's nephew who plays and cherishes it.

It was because of the encouragement of his sister (who sang professionally under the name of Ronnie Mann) that he became a vocalist. By the time he was thirteen years old, he was performing professionally. His voice coach was also the coach of many famous Metropolitan Opera stars, and because of the excellent training, he won a five year scholarship to the Julliard School of Music. Like all Julliard students, he was required to develop skill and acquire knowledge about all musical instruments. He is accomplished on several, including the piano, accordion and organ. "I attempt a little bit on the guitar," he says. He developed an extensive dramatic baritone range of over two octaves. Prior to the growth of television, he performed on New York radio stations WJZ, WOR, WNJR, WHOM and others. At WJZ he was featured as "The Melody Hour." He entertained in the major showrooms in the top New York City hotels, and eventually expanded into national appearances in opera, operetta, light musicals and drama, and appeared with some of the top bands of the forties, including Guy Lombardo and Louie Prima.

In many of the roles he played, a few lines of added dialogue were used. Kerwin says, "Although I may have been playing a count or a gypsy leader, inevitably the count or the

gypsy leader ended up having a broken leg or the gout. We'd have some kind of lead in sentence for dialogue. Something to the effect, 'My God, what happened to you, Count?' 'Oh, my gout's been bothering me,' or 'I tripped in the



Year 1951 — Kerwin McMahon, theatrical publicity photo.

---

*From the beginnings of CATJ. Kerwin McMahon, representing RMS Electronics, has been one of our most loyal and staunch supporters. As CATA developed the Associates' program, Kerwin McMahon's recommendation was to support the association with RMS membership. The magazine and the association can both look with pride on this long and meaningful relationship with RMS, Don Edelman, and Kerwin McMahon, and can continue to rely on their advice, encouragement, and support.*

*CATJ is happy to salute RMS' Kerwin McMahon as a giant in the cable television industry — a man upon whom cable operators have depended for years and one who has dedicated himself to this industry. Kerwin McMahon stands out as a leader and innovator — representative of a continually growing and progressive company and a reflective example of its integrity. CATA and CATJ are proud to call Kerwin McMahon our friend — he is that to the entire cable industry as well.*

---

rose garden and broke my ankle.' "

His press reviews for both his singing and his dramatic acting appearances were impressive, and his manager was talking about an international tour at the time Kerwin decided to give up the stage.

Perhaps if he had not found a place in the cable television industry, he would still be working in some area of show business, possibly directing or writing scripts. He says, "I loved acting, even more than I did singing, and I realized the limitations as to the types of roles I could play. I knew I could never play the leading role on stage because of physical limitations and, although my stage reviews were excellent, I decided not to become frustrated."

He hints at another reason why he picked up the newspaper and started reading the help wanted ads. "I had to prove to myself that I could compete in the normal world, not just the world of stage fantasy. I had to prove to myself that I could compete in industry. ... Although I had made a very good income from the stage, I was willing to go to work for about one tenth of that to establish in my own mind that I could compete in the everyday world. ... God was very good to me, and apparently gave me multi-talents."

He answered an ad for a salesman with "technical electronics background."

Kerwin says, "When I applied for my first sales position with Viking Industries (later Vikoa) Arthur Baum, president, said, 'Not only are you physically lame, but you're mentally lacking or you can't read. I advertised for technical background and I get an actor who doesn't know an ohm from a watt!'"

Kerwin offered to work for nothing to show he could do it. After two days he was on the payroll, a year later he was sales manager, and he says, "I worked for Arthur Baum for approximately thirteen years!"

That was thirty-two years ago. Kerwin has been in both products and turnkey sales for all of his CATV career, and today is senior vice president and is on the Board of Directors of RMS Electronics, Inc.

and its subsidiaries.

Theater's loss was cable television's gain, but when one stops to think about it, some of the same personality traits that make a person successful in the theater are needed for success as a salesman. These include understanding human nature, compassion, being able to put oneself in another person's place, an easy use of the language, and being able to speak before an audience of thousands or of one.

During those early years Kerwin and Viking Industries, one of the pioneer manufacturers in the cable industry, played a major role in bringing cable television to America. Kerwin says, "So many of the cable operators were somewhat successful small town businessmen who basically had no background whatsoever, no knowledge of cable TV, and most of them didn't have that much financial support. They started on a shoe string. They would approach us and say, 'I have an area I want to build.' I would say, 'Fine, let's sit down and talk about it.' Many times I would go to Arthur Baum and say, 'Arthur, here's a case where somebody wants to build a system and he doesn't have the financials, but he has a good local foundation and a good business sense. What can we do for him?' "

An arrangement would be worked out under which Viking Industries supplied the equipment needed to build the system on open credit until the cash flow had developed and the operator could make payment.

"It was a handshake," says Kerwin, "with no financial guarantees. And it worked successfully. I don't recall that we ever got burned. ... This is how the industry grew. ... I'm sure it wasn't just (our company) that did it."

Recalling those early years and the state of the industry at that time, Kerwin says, "The nice thing ... was that ... we had faith in each other, the manufacturers and the cable operator. We had a strong loyalty to each other, a fraternal feeling. It was something that worked so well, and I think it's something the industry misses today. ... When this industry started ... ninety-five percent of them went into it on a shoe-

string, just on faith. We had no track record. ... This was an upstart industry ... a concept, an idea. They were local, small businessmen, no big money involved. You had no name people, no name companies. You had private individuals who were moderately successful in their small communities. ... Remember, we built the industry in the rural areas. The little ma/pa operator is, and was, the backbone of the industry. ... Much as I love the big MSOs, I (still) have a warm spot for the so called, at that time, small operators."



Year 1949 — Kerwin McMahon, in performance at the Plaza Hotel, New York City.

Twelve years ago Kerwin became a part of the RMS Electronics, Inc. team. This was a year after Don Edelman, who is now president of the company approached the top management of RMS about developing a cable television product line. Their first products were a hybrid splitter and a matching transformer. Today they offer a large inventory to the cable operator, and the cable television division of the company accounts for about 85% to 90% of their volume, according to Kerwin.

The company began business as

Radio Merchandising and Sales 40 years ago, and was primarily a manufacturer of radio cabinets and antennas. Today it has several subsidiaries including Poleline Corporation and Kenyon Magnetics.

One wonders, when talking to Kerwin, how he found the time for so many activities. "It's very difficult," he says, with his many responsibilities at RMS, including the international and domestic traveling. "You have to discipline yourself, ... make time and set priorities for those things that are most important. You make time and ... try to visualize and project what has to be done for the future. I believe it's primarily a case of discipline."

Kerwin's longevity in the industry says more than words can about the kind person he is. A compassionate man, he has strength, courage and determination, and is held in high regard by cable operators from coast to coast.

Frank Thompson who was in the cable television business for many years and has built many systems from Minnesota to Texas to California, is one of those. He says one of the reasons for the success of the cable industry is due to the competence and assistance of suppliers such as Kerwin. He said, "Kerwin's a very fine gentleman and always gave excellent service and good products. ... He was one of the pioneer suppliers and did a fine job. I'm glad you're giving him some recognition."

Sam Haddock (of Moscow Cable TV in Moscow, Idaho) who has known Kerwin since he was with Viking Industries, praised his honesty and integrity. "In all the years I dealt with Kerwin," he said, "he never led me astray. ... There've been a lot of supply people in and out of this industry, (and) unless they kept their noses clean and did what was right, they usually didn't stay very long."

Kerwin's long involvement with the industry, its associations, its suppliers and its operators, qualifies him to make a few observations about the growth and expansion of the industry, its history and its future.

When asked if a person could still become a part of the cable industry in much the same way he did, he answered, "Today the industry is much more technical and prior training is necessary if you expect to reach a high level of success and corporate position."

He says he would encourage young people to become a part of the industry if that was where their interests were. "Cable TV is the 'new kid on the block,' " he says, "and with existing technology, as well as technology in the works, the future is bright. We have yet to scratch the surface of cable TV's participation in worldwide telecommunications."

He believes that the new frontier for cable television is in Europe where there will be an explosion of growth within the next three or four years. He says that part of the world is now at the level of cable television that the United States was twenty or twenty-five years ago. There will be expanding opportunities for American companies and workers in the foreign market. He said, "Their ... knowledge of the technology is so far behind us that they are going to be looking for U.S. experience. ... A lot of the European countries are currently changing over to U.S. standards for cable television. I believe that within the next couple of years we will see a whole new (foreign) market opening up as far as employment for those people who have good technical knowledge and field experience in cable television here in the United States."

He added, "It is only a matter of time until cable television is a world wide industry. . . It would not surprise me in the least, at some year in the future, cable television systems here in the United States will pick up, via satellite, cablevision programming originating in Europe or some other part of the world. Through the satellite, cable television is going to become an international communicator of information."

Kerwin has been an important and appreciated supporter of CATA from the organization's beginnings when he suggested that RMS place a small ad in the newborn "CATA

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*A world traveler, Kerwin represented RMS on the CATA cruise and enjoyed the trip to the Bahamas!*

Newsletter” to help pay the cost of postage.

Since he had a front row seat in witnessing the industry, we asked him what he thought lay ahead for



*Kerwin McMahon works closely with RMS' Lee Heller, Marketing Coordinator, on the development of company promotional efforts, and at the various trade shows.*

independent operators and CATA.

“Unfortunately, I sincerely believe that the days of the independent operator are growing shorter,” he answered. “Most independent operators have been in the industry twenty years or longer. Some are retiring and selling out to larger MSO’s, others realize the tremendous cost involved to upgrade their existing systems to meet the expanded requirements for refranchising. They are oftentimes forced to sell out or reinvest their life savings to upgrade. The choice is difficult for them. I would regret seeing the independent operators becoming less in numbers because they were the backbone of the industry and we still need that local level and grass roots input to Washington D.C.”

He adds, “I firmly believe that if CATA is to function as a productive arm of cable TV, encouragement and a positive program must be initiated to bring all smaller and medium sized MSO’s into active participation of CATA. It is important that the industry maintain the invaluable local and regional communications with communities, political figures, etc., so that this contact can be used in Washington for favorable legislation on a national level.”

He says that CATA is the eyes and ears of the industry at local and

regional levels. “It is the sounding board for the small operator who otherwise would not be heard.” He believes that CATA’s biggest problem is the shrinking number of small or independent operators and the indifference of too many of those operators who refuse to play an active role “in this important organization.”

When asked what he thought the difference was between CATA and NCTA, he answered, “NCTA is like General Motors is to the auto industry. They are the clout and spokesman on the corporate and national level. CATA is in the mainstream of American life and acts as the pulse of the industry.”

In answer to the next question, in what ways are the two organizations similar, he said, “Both are primarily interested in creating favorable images of the industry, — one at the grass roots level, the other nationally. Both are active in protecting the industry against undesirable legislation.”

Kerwin says one of the industry’s biggest problems is “over promising for the purpose of obtaining franchises” and the “over cost” which results. Two other industry problems he mentioned are the shortage of experienced personnel and the lack of entertainment materials to program the large number of channels.

Life is not all cable television for Kerwin.

He and his wife, Patricia, were schoolmates at Holy Family Academy, Bayonne, New Jersey, and she knew him as a high school student and a theater performer. Kerwin says, “She thought I was somewhat of a playboy in those days,” and they went their separate ways.

Kerwin had a successful high school career, and upon graduation, was offered five scholastic scholarships. Taking advantage of one of these scholarships, he attended Seton Hall University in South Orange, New Jersey, being awarded a degree in Business Management after attending classes there during the day, finishing with night classes.

Years later, after Kerwin was in

the cable business, he and Pat met again. She had a successful career as executive secretary to the president of a major New York City consulting engineering company, but when she and Kerwin married, he says, "Pat decided to devote her whole attention to my well being," and that is what she has done for twenty-one years.

Together she and Kerwin enjoy going to the theater and attend performances both on and off Broadway as often as possible. They both like to travel, and have had the opportunity to travel extensively through Europe. They hope someday they will be able to travel the entire world, visiting places that are not on the normal tourist route such as China, Australia, New Zealand and Africa. Kerwin says, "We have seen most of the major cities of the world. ... Now we would like to get off the beaten path and go into those areas that the average tourist doesn't get to see."

Pat is a personable, outgoing woman, who makes friends quickly and easily. She has often gone to cable television trade shows with Kerwin and shares his warm feeling for people in the industry. Kerwin says, "She can't believe that in an industry that has such a big name in the industrial world, the people can be so easy going and unassuming and have that closeness that other industries don't experience."

A part of each summer and most weekends, weather permitting, Kerwin says, "We are found . . . basking in the sun and swimming in the waves of the Jersey shore." Swimming has always been one of Kerwin's favorite activities. As a young man in his twenties, he used to swim in Lake Hopagcong, a thirteen mile long lake in New Jersey. He says, "I used to swim from one end of the lake to the other and back, twenty-six miles. I didn't stop because once I took the brace off, I had no choice." Other activities that he enjoyed were scuba diving, bob sledding and horseback riding and jumping. He says, "I did everything, in general, (that) I was not supposed to do." He still enjoys power boating and both fresh water and deep sea

fishing. But his interests aren't all so strenuous. He says, "Because of my theatrical background I very much enjoy reading and have probably read the complete works of Shakespeare at least a dozen times. I try to read at least one day per week, work schedule permitting."

Like everyone in the cable industry, Kerwin has some memorable stories to tell. One of his favorites took place at the president's reception at an NCTA convention many years ago. He says, "Many of the ladies were dressed in beautiful formal gowns and the men in tuxedos. The party was very festive and proper, when in walked one of the very well known suppliers who had come directly from the hotel's swimming pool. Not an eyelash blinked, nor did a single head turn. The supplier made his grand entrance, picked up a cocktail, and mingled with the guests. This was all well and good, except that the supplier apparently had too many 'pool side cocktails' earlier. He was barefooted and soaking wet. His attire consisted of

a pair of boxer short underwear and a towel draped over his shoulders!" Kerwin says he wonders, in today's sophisticated industry, "what the reaction would be. How many eyes would blink? How many heads would turn?"

An observer of the human condition, Kerwin says someday he would like to commercially write short stories. These would be fictionalized accounts based on some of his own pleasant experiences in the theater and the cable industry. The stories he thinks about writing would "be of human interest, not necessarily trying to convey a social message, but more to depict human interest, how many things we should be thankful for rather than a negative attitude. I'd like to show something positive about life and how kind it can be to people if they'd only open their eyes and accept it."

We are looking forward to reading these stories which will surely reveal the real Kerwin F. McMahon and life the way he sees it and lives it. □

May, 1984

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By: Glyn Bostick  
Terry Owens  
MICROWAVE FILTER COMPANY, INC.



# PAY-TV TRAPS and CATV SIGNAL LEAKAGE

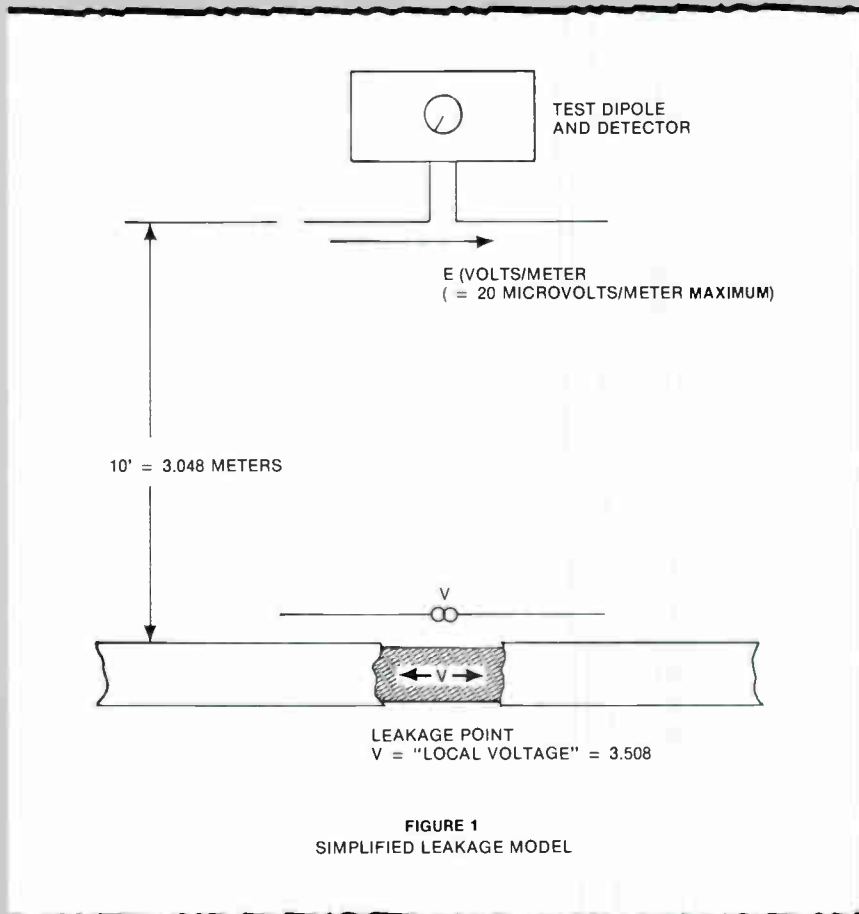
**SUMMARY**  
Leakage from PAY-TV traps is one of the many possible sources of RF leakage in a CATV system. Here, we translate FCC leakage limits into a proposed leakage standard for trap case integrity. This standard should be equally applicable to any other subscriber in-line device. A leakage test method suitable for factory or system use is also illustrated.

## RF LEAKAGE FROM THE CATV SYSTEM

FCC regulations<sup>1</sup> set a maximum permissible RF leakage from the CATV transmission line of 20 microvolts/meter, when measured 10 feet from the line.

The potential "RF Pollution" surrounding a CATV system is usually the aggregate of a large number discrete component leakages. One common contributor is inadequate cable shielding due to sparse metal in the braid, weather deterioration or mechanical injury. Other causes are imperfect contact between mating connectors or between connectors and their cases due to improper mechanical fit or corrosion. Leakage from minute openings in equipment cases can be another cause.

For the conscientious system operator, the FCC requirement translates into a sophisticated and costly measurement job to insure compliance. David E. Large of GILLCABLE has recently described a comprehensive and workable measurement and accounting system of this purpose<sup>2</sup>.



Frequency and extent of field testing for compliance could be reduced by the adoption of component leakage standards and corresponding factory tests.

Inadequate RF shielding of Pay-TV traps circuits can be a significant contributor to the overall leakage picture: many of them are used within the same system and their effects can be additive due to interconnections by the same system of "braid."

### DEVELOPING A "LOCAL VOLTAGE" STANDARD

We must translate the FCC requirement (20 microvolts/meter) into a equivalent leakage voltage at the "break" or point of component

leakage. We must then relate this "local voltage" to the average subscriber drop level. We have then established a component leakage standard in db relative to the signal level within the cable. Another section deals with measuring components to insure compliance with this standard.

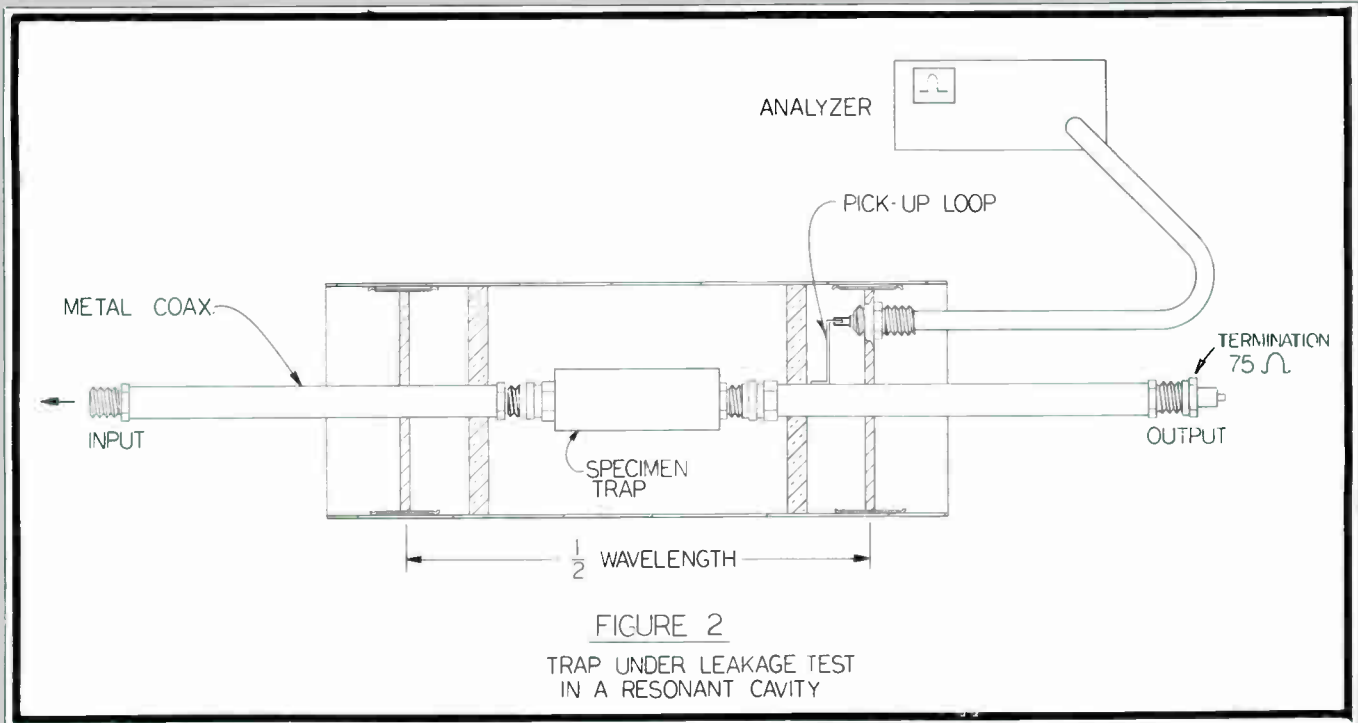
Figure 1 is a very simplified model of the typical leakage situation. The break, allowing the leakage to exit, is considered to be the terminals of a half-wave dipole with the usual impedance of approximately 65 ohms. Under these circumstances<sup>3</sup>:

$$V = 3.508 \times E$$

$$3.508 \times 20 \times 16^{-6}$$

$$= 70.16 \text{ microvolts.}$$

We should further derate V to



wash out any errors due to our simplification of the typical leakage situation and to take into account the fact that leakage from several traps will tend to be cumulative. A 30 db derating seems reasonable. Therefore, let's establish the allowable local leakage voltage as:

$$\begin{aligned}
 V &= .0316 \times 70.16 \times 10^{-6} \\
 &= 2.217 \times 10^{-6} \\
 &= .002217 \text{ Millivolts} \\
 &\text{or } -53 \text{ dBmv}
 \end{aligned}$$

Assuming an average drop level on the high side: +12 dBmv, our local leakage voltage (V) should be about -65 db relative to the drop level.

### TESTING COMPONENTS TO THE PROPOSED LEAKAGE STANDARD

Before proceeding further, we should look at this standard for "reasonableness": is it testable? A common "case RF integrity"

specification for military (and some commercial) equipments requires case leakages of less than -80 db. So we can assume that test equipment and methods exist for testing it.

Our problem is how to make a test of V at the actual leakage point. There's probably no reliable way of doing this, so let's adopt a reliable, indirect method.

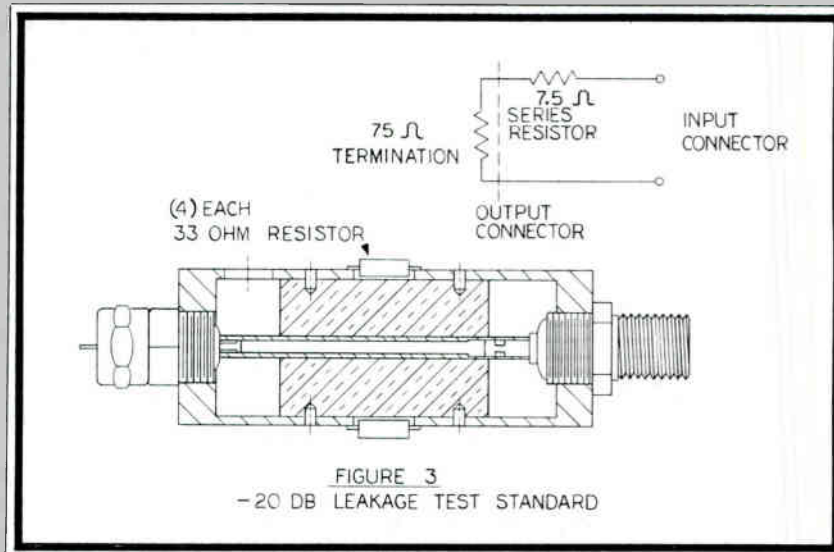
Figure 2 shows the trap in a resonant cavity. The leakage voltage (if any) excites the cavity to resonate at the leakage frequency and the detector loop feeds a signal to an external spectrum analyzer. In practice, we would make the cavity a half wavelength long at the test frequency and sweep the input frequency and observe a resonance on the analyzer. But, this is only a qualitative test: it would be hard to establish a direct relation between the leakage voltage V and the detected signal level. So, we circum-

vent this difficulty by also measuring a coaxial component with a known level of leakage. Then the difference in detected signal in the two cases is the difference in leakage level.

Figure 3 is a sketch of a possible leakage standard. Since the series resistance (across which we see V) is 10% of the line impedance, the leakage level (V) is -20 db relative to the level in the coaxial line.

Therefore, an orderly test procedure is:

- (1) Insert the test standard, resonate the cavity and observe the detected level on the analyzer.
- (2) Insert the trap to be tested, resonate and measure the detected level.
- (3) If the trap response is weaker, then its leakage is  $-(20 + D)$  db (relative to line signal level), where D is the absolute



difference (db) in readings (1) and (2).

**NEXT TIME**

We will show some actual leakage test equipment (with construction details) and results of testing samples of traps on the market. (Manufacturers, relax! We are going to use "Brand A", "Brand B", etc. not actual makers' names.)

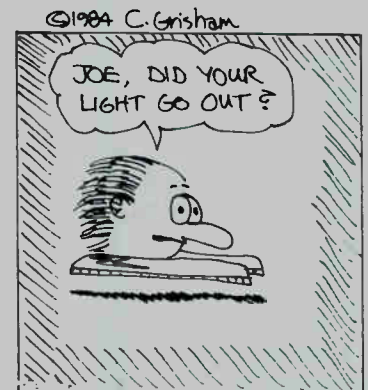
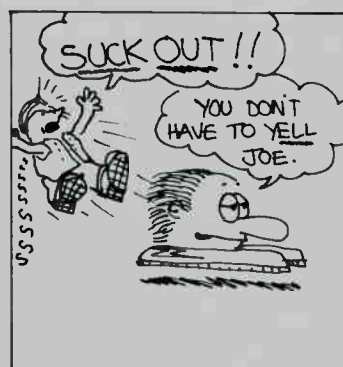
**ACKNOWLEDGEMENTS**

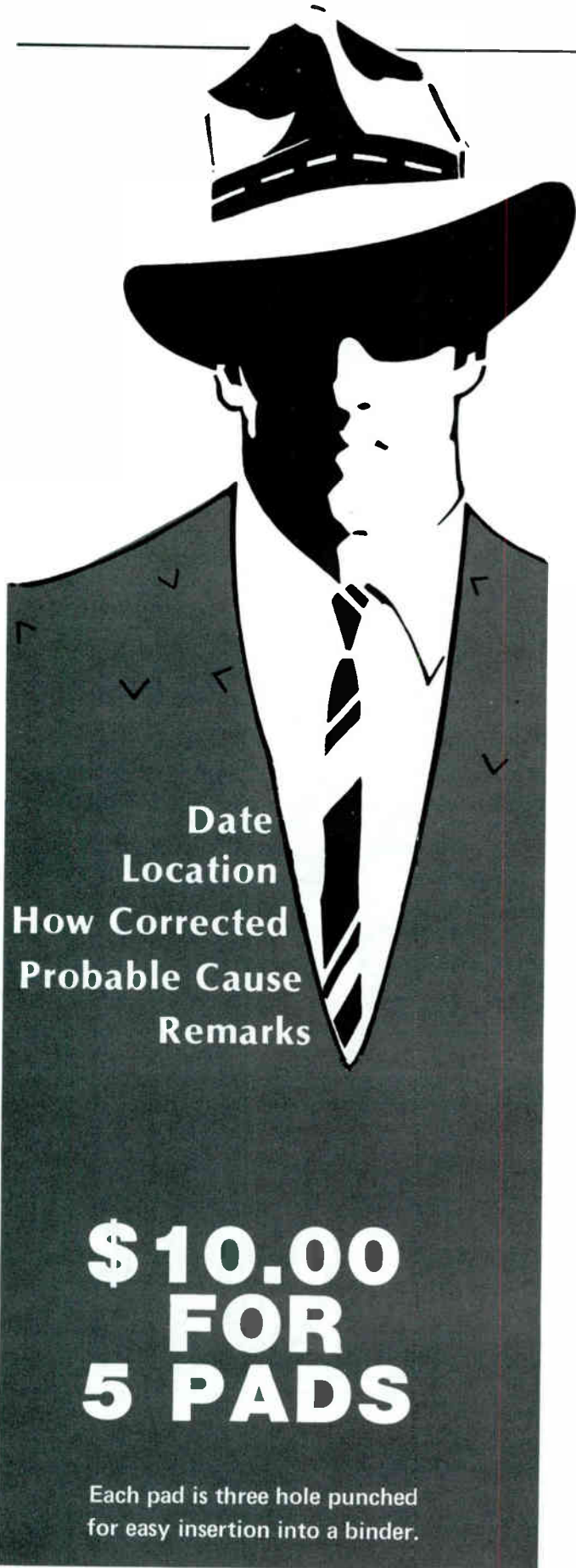
Thanks to Carol Ryan who operates the fastest word processor east of the Mississippi, Chris Bostick for the "Cook Book" sketch, Rich Green and Marian Allen for the line drawings and Dave Skeval and Steve McIntosh for photographic work.

**REFERENCES:**

- <sup>1</sup> FCC regulations part 76.605 for signals 54-216 MHz
- <sup>2</sup> David J. Large, **Signal Leakage - A Hands On View**, COMMUNICATIONS TECHNOLOGY, June 1984.
- <sup>3</sup> Reference Data for Radio Engineers, Sixth Edition, page 27-7, Howard W. Sams and Company. □

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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

I once received a call from a customer who explained to me that he owned a service business (office cleaning) and whenever one of his accounts wanted to terminate the service, he would go through every effort possible to save the account. He went on to say that he had disconnected from the cable service earlier that same day and he was very surprised to find that almost no effort was put forth to try and dissuade him from disconnecting. He was calling me as he was certain that management was unaware of this situation and as a fellow businessman he wanted to point it out.

He briefly summed up his experience with the cable company by saying that his problem had started as a billing error that he had repeatedly attempted to have corrected to no avail. As he was now receiving dunning messages and could see no end to the problem, he decided to have the cable disconnected until the cable company corrected the billing problem.

After making the decision to disconnect, his first phone call to the cable company was answered by a pleasant voice who immediately (without question) scheduled the requested disconnect for the following day. The customer waited until the disconnect order had been taken and then asked to speak to the CSR's (Customer Service Representative) supervisor. He intended to tell his story one more time to the supervisor. The supervisor came on the line (with a somewhat hurried voice) and wanted to know what the problem was. Before he could explain that he really wanted the billing problem corrected and not have the service disconnected, the supervisor interrupted by saying that his account was in arrears and if he had not called in for a disconnect, the system would have disconnected him anyway within the next week. The supervisor added that of course there would be an additional hook-up charge if the customer decided to reconnect.

After listening to the story, I attempted to save the customer by assuring him that any problem could be overcome if he would give me the opportunity, and I was sure that he would enjoy the service in the future. He chuckled and said that he was sure that I probably could rectify every-

thing just as he was sure that he was not interested in any more cable service. His closing comment was that the cable system had lost the opportunity.

"Thank you very much," he said, "end of conversation and end of customer."

After expending enormous marketing effort (and costs), installation trip (and costs), billing and support effort (and costs), it makes sense to give disconnects as a high a priority as these other efforts. Not only do disconnects represent lost revenue on an ongoing basis (like the unoccupied hotel room is revenue lost forever), but those customers who disconnect within the first thirty to ninety days represent a real cash loss wherein the operator would have been better off by never making the sale in the first place.



# DISCONNECTS

by  
Frank Gates

## CONTROLLING DISCONNECTS

The first step in controlling disconnects is to identify the disconnect reasons. Every disconnect can be broken down into two different basic groups.

1) **TERMINAL**; These are typically customers who are moving out of the area, or non-pays.

2) **SAVEABLE**; These are typically customers who are dissatisfied with some aspect of the cable service.

Both groups require more action than passively scheduling the disconnect. But only after clearly identifying the disconnect reason, can you make any intelligent move to save the customer.

### DISCONNECT REASONS;

Although most cable business computer systems have disconnect reason tables available that can provide up to

reasons can be enhanced by additional detail, but only if that data is accurate. Keep in mind that we are trying to keep active customers from becoming disconnect statistics in the first place.

The following six disconnect reasons, or slight variations, should be adequate to allow you to determine what action should be taken to prevent the disconnect;

Non-Pay; 30, 60 or 90 days delinquent in payment.

Moving; Moving out of the area.

Programming; Movie duplication, content.

Customer Service; Billing errors, phone problems.

Service; Poor picture quality, outages, etc.

Cost; Can't afford, rate increase, etc.

ment or person that can prevent the disconnect. Every disconnect request should be immediately identified as one of these six reasons (except non-pays which are identified by your accounting dept.) and the appropriate action taken.

### NON-PAYS;

This is the most difficult save of all and just as important as the others. It starts in accounting by determining when a customer becomes delinquent in payment. There are two different attitudes (and some laws and regulations) that make this determination. The financial posture of the system towards accounts receivable and bad debt holdings will be the key consideration and might outweigh the immediate goal of customer retention. However, customer retention is what we are looking at here.

First, some systems prefer a very short cut-off of 30 days. The logic behind this is that this short cut-off will prevent the customer from incurring an outstanding balance that exceeds their household budget and makes disconnecting the service preferable to paying the bill. Another aspect is that a short cut-off will indicate a no nonsense, aggressive approach which in turn provides customer incentive to pay in a timely manner.

Secondly, some systems establish a cut-off at 90 days. The logic being that overdue accounts will respond to the dunning process and not only save the account but do so without initiating a disconnect trip.

Whatever the determination for the cut-off cycle, once it has been reached, it is essential the actual disconnect be performed in a timely manner. (Addressable systems have additional opportunity to implement very real no-truck disconnects and greater flexibility towards saving these customers.) And the customer should at this point be well aware of this and be certain that the disconnect is imminent. If the last correspondence indicates that a disconnect will take place on the 15th of the month, it should happen then. This is especially important in smaller communities and urban multi-unit projects, as word of mouth will help get those pro-



one hundred (100) different codes (or reasons), most CSR's will group everything into ten or fewer different codes regardless of what is available. Too much detail can be as much of a problem as too little. Of course, a statistical analysis of the disconnect

It is essential that any incoming request for disconnect be treated with the same priority as a marketing request. Response time is critical in your effort to save the disconnect. The customer should not be forced to 'find their way' to the correct depart-

mote payment when there is a very real pending disconnect.

The installer performing the actual disconnect is the last chance to save these non-pay accounts. The installer should not only be trained on how to perform a 'hard' disconnect, but also on the correct procedures for attempting to save the account (or recover the converter). Just as salespersons receive commissions on sales, the installer who saves one of these accounts will be more effective if there is some sort of monetary inducement.

### MOVING;

If this is the disconnect reason given to the CSR, there are still a couple of things that can be done, not really to save the account but that will still be beneficial to the cable system.

First, the CSR should determine if the customer is moving into another part of the cable system, or another system operated by the same company. If so, the CSR can go ahead and make arrangements to start the customer on service at their new address.

Secondly, if the customer is moving out of the cable area, a high priority should be placed on scheduling the disconnect to the customers convenience or schedule to ensure recovery of the converter. This might become a special time appointment or even a same-day read-out order if necessary. Once the customer has moved, recovery of any equipment is remote.

A nice marketing approach on these types of disconnects is for the installer to leave a small tag on each of the outlets in the dwelling, informing the new resident that this is the cable and if they want it activated, call . . .

## Details Enclosed



Since one multiple dwelling enclosure looks pretty much like the next, you have to take a close look at the details. And when you do, you'll find that CWY has designed significant advantages into every apartment security box.

For example, CWY's all-welded enclosures are constructed of heavy 16-gauge aluminized steel—shown to outlast unpainted galvanized steel at *least five-to-one*.

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### PROGRAMMING;

When the CSR identifies programming as the disconnect reason, the customer should be immediately transferred into marketing. The salesperson will be better qualified to discuss different channel programming formats and recommend suitable changes in the service level that will keep the customer on the service. Even if the customer wants to downgrade the service level, that is far better than losing the account altogether. Of course, if the CSR is trained in this area of programming, there is no need to transfer the customer from one department to another.

If the customer is not saved at the time that the disconnect order is placed, marketing should perform an ongoing review of all of the scheduled disconnects for these potential saves and try to save them by telephone prior to the actual scheduled disconnect.

### BILLING;

When a billing problem has caused the customer to decide to disconnect the service, it is essential that every effort be made to correct the problem in a timely manner. It probably has not been corrected through normal channels or the disconnect request would not have been made. The CSR should take the information about the problem and if unable to correct the problem during the initial phone call, assure the customer that the matter will be straightened out and they will be called back with the results within the next thirty minutes. And then be sure to call back within thirty

minutes, whether or not the problem has been straightened out.

If the customer simply gets the sensation that the problem is receiving the needed attention, they will be satisfied to delay the disconnect and give the system a final chance to save the account.

### SERVICE

Missed appointments, poor picture quality, intermittent line problems or outages are certainly cause for a disconnect order. If the customer indicates that they want to disconnect due to service problems, the CSR should make every attempt to assure the customer that every problem can be corrected and try to schedule a service call. If the call is scheduled, the CSR should note on the call itself that this is a pending disconnect due to service problems so that the technician will understand the importance of the call.

If the customer does not want any more service calls, the CSR should have a supervisor from the service department call the customer back and again attempt to rectify the situation. Any effort spent will be well spent in this area.

### COST

Although this might seem as if it belongs in the billing classification, it should be treated as a marketing problem and transferred into the sales area. A salesperson is usually better qualified to discuss a sensitive topic like this with the customer. They can point out the different sales approaches and maybe change the service level to bring the cost more in line with the customer's budget.

Recent rate increases or city imposed cable taxes can be better explained or defended due to the salespersons training in these areas.

### NET GAINS

If a mature cable system experiences a ninety percent (90%) disconnect rate, it means that for every one hundred (100) new connects there are ninety (90) disconnects leaving a total of ten (10) net connects.

100 new connects  
 — 90 disconnects

10 net connects

A ten percent (10%) increase in net

connects will equal one (1) additional connect,

10 net connects x .1 (or 10%)	(net connects increase from 10 to 11, or 10%)
1 additional connect	

whereas in the same system a ten percent (10%) decrease in disconnects will yield,

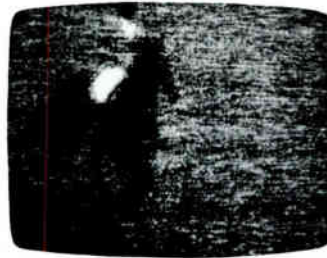
90 disconnects x .1 or (10%)	(net connects) increase from 10 to 19, or 90%)
9 fewer disconnects	

As you can see, even a slight decrease in the disconnect rate will greatly improve the net gains. And no matter how you look at it, net gains is what it's all about.

### OVERALL

By using common sense and genuinely letting the customer know that you care about the account and value the customer is the real bottom line to minimizing disconnects. □

## 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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## H.R. 4103 IS DEAD

### Cities refuse to negotiate

It's been a long and complicated month and we have delayed reporting awaiting a definitive answer to the question of whether cable deregulation legislation was going to be successful or not. The answer has finally come. H.R. 4103 is dead, and the cities killed it.

How did all this happen? A "final" compromise had just been reached in the continuing saga of S.66/H.R. 4103. That compromise cut the issues as absolutely close to the bone as possible while still retaining cable industry support. The CATA Board announced that it had "reluctantly" agreed to go along with the compromise pending the outcome of "mark-up" in the full Commerce Committee and that we would revisit the issue then.

At that point a truly remarkable thing happened. In a case in which CATA was involved in its preliminary stages, the Supreme Court came out with a sweeping nine to nothing decision which changed the entire regulatory landscape for cable television at the Federal level. The case itself (known as the "Crisp" case) had to do with an Oklahoma liquor advertising ban that the State was trying to apply to cable. The industry fought that ban on the grounds that the FCC preempted all regulation of signal carriage, and the Supreme Court unanimously agreed. The important thing about this decision, however, was that the Supreme Court went on to outline a

detailed jurisdictional basis for FCC regulation of cable television. That basis was NOT "ancillary to broadcasting" as had always been the case in the past! That meant that for the first time cable was recognized on the federal level as an independent entity over which the Commission had jurisdiction. One of the main features of all efforts to achieve federal legislation regarding cable television has been to get that recognition. Suddenly we got it — and without any compromises.

In addition, one of the main issues confronting the industry, and the one subject to a great of compromising in H.R. 4103, local rate regulation, was also dealt with by the Supreme Court. On four separate occasions in its decision the Court cited with favor the actions of the FCC regarding limiting local rate regulation. Now we all had known for some time that the Commission was announcing such limitations — the so-called "Nevada" decision of the FCC came out late last year saying that regulation of anything other than must-carry and access channels was preempted. The problem was that such decisions were appealable, and the industry had a chance of losing those advantages if a Court said the FCC did not have the jurisdiction to do what it had done. The Supreme Court decision changed all that. It is highly unlikely that any lower Court will overrule the FCC decisions

given that the Supreme Court in a unanimous decision has noted them favorably.

So the landscape changed underneath us. At the same time, the Commerce Committee, during its "mark-up" of the bill threw in some amendments that were totally at odds with what we were trying to accomplish. The CATA Board met and decided, therefore, to withdraw its support for H.R. 4103 unless some very specific things could be changed in the bill. At the head of the list was the incorporation of the FCC rate deregulation decisions into the legislation. The California Cable Television Association and the New England Cable Television Association came out essentially the same way. Then the NCTA Board met, and they, too, said the bill would have to be modified in order to get continuing support.

Now there has been a lot of yelling and screaming about the cable industry "going back on its word" regarding the compromise. The bottom line, however, is that the cable industry kept everyone very well informed of what was going on at all times throughout this process. We could not possibly have foreseen what the Supreme Court did, and like it or not that action changed the entire regulatory equation for cable television. We did what we had to do, and the politicians on Capitol Hill recognize that.

The story is not over, however. Both CATA and the NCTA made it clear that it was not our intention to "kill" the bill. We needed modifications to it to match the bill with existing reality, but we still felt federal legislation was a good idea and one we would work toward. The cable industry negotiators told that to the city folks. At mid-month we got a reply. The city negotiators were not even willing to sit down and talk to us about the key modifications regarding rate regulation! All of the key Congressmen had urged us to go back to the table and negotiate out our differences. The cities won't

even sit down. They say they are going to try to force the bill through the way it is. Needless to say, we oppose such a move, as does the entire cable industry and, we might add, the telephone industry as well. It is highly unlikely that the cities could accomplish such a feat in the face of such formidable opposition. But just to make sure, **CONTACT YOUR CONGRESSMAN IMMEDIATELY AND TELL HIM OR HER THAT YOU NO LONGER SUPPORT H.R. 4103!** We oppose the bill as currently written and we are seeking the support of the entire industry in assuring that the bill does not pass.

So much has been written and said about H.R. 4103 that we are not going to spend too much more time on it here. It is all part of the process of seeking legislation. In this case the final result is that we don't want the legislation that finally came out of the bill. Maybe next time.

### HOUSE COPYRIGHT BILL STILL GOING STRONG

While all the focus has been on H.R. 4103, CATA and a few others have quietly been working on achieving Copyright legislation as well. The outcome of those efforts is still open. The newest formulation of our efforts is H.R. 6164 introduced recently by Copyright Subcommittee Chairman Kastenmeier and Cong. Mike Synar, among others. The bill already has more than 25 co-sponsors and it will be going directly to the full Judiciary Committee. There is still a possibility that we could get favorable copyright legislation in this session of Congress. So **PLEASE!** Contact your Representative and seek his or her support for H.R. 6164. Be specific. Tell them you want them to cosponsor the bill! It is very similar to the cable section of the so-called "omnibus" copyright bill that was discussed in these pages a few months ago. H.R. 6164 incorporates the "Synar" Bill, (except that it would grant only two exemptions to the 3.75% rate for independent distant signals instead of three as originally

sought), it incorporates portions of the "Hall" Bill, in that the CRT has to consider the effect on copyright rates of the fact that some stations pay copyright holders directly for nationwide distribution, and it also would modify the make-up of the CRT to add more professional staff. The bill would also add some other instructions for the CRT as to how it makes its decisions, and on what basis. Further, the issue of "tiered" revenue would be satisfactorily resolved by the bill.

In sum, it is a good bill for the cable industry, and one that we should strongly support. Make no mistake about it, CATA intends to get copyright relief for the cable industry, and we will not stop until we get it. We know that time is short this year, but we will take our best shot at it anyway, and if we are unsuccessful, just consider it a very worthwhile "dry run" for a full-blown effort in the next session of Congress.

As the new Chairman of the Board of the NCTA, Ed Allen, assured his fellow CATA members at this year's convention, next year is definitely going to be the year for copyright! Let's not wait — let's get it done right now — support H.R. 6164.

### CHALLENGE TO CABLE'S USE OF MIDBAND CHANNELS E AND K REBUFFED — FOR NOW

The attempt by Ham radio operators to force cable operators to stop using midband channels E and K has been turned down by the

FCC. But the Commission has warned us, once again, that signal leakage is a major problem and that operators are going to face heavy penalties if their systems are tested and found to violate the rules. The FCC is putting lots more emphasis on the Field Operations Bureau and the test truck could roll into your town at any time — it is just smart business to spend the time and make sure your system is clean. It's good for your subscribers, and it's good for you. Do it now.

By the way, speaking of the FCC and fines for violation of their technical rules, we just thought you should know that in the past 2 1/2 years the Commission has imposed over \$300,000.00 in fines for violation of the aeronautical frequency clearance rules. You **MUST** get prior clearance of those frequencies for ANY use! Your CATA Briefing Book has a form for filing for clearance. Additionally, you should remember that clearance is based on a radius around your system at any given time, so that if you already got clearance but then significantly expanded your system geographically, then you must get clearance again! They are not fooling around about this, folks, and neither should you.

### "MUST CARRY" FOR MULTI-CHANNEL TV SOUND?

The hype is on about "stereo tv", better known in the industry as multichannel television sound (MTS) because it can be used not only for stereo, but also for other programming. The problem from

## PERSONAL SERVICE

When buying or selling a cable television system, you want to utilize the services of a broker who leaves no doubt that he is concentrating his efforts on your transaction and your needs, one who stays in close contact with you and keeps you fully apprised of his progress. You demand and deserve the kind of personal service, responsiveness, and intense effort that only comes with a company such as ours. We invite you to call for more information and look forward to hearing from you. **CHARLES GREENE ASSOCIATES, 5775 PEACHTREE-DUNWOODY, BLDG. E, SUITE 200, ATLANTA, GEORGIA 30342, (404) 256-0228**



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cable's point of view is that technically there are many systems which cannot pass multichannel sound without significant expenditures to change out existing equipment. Ironically this is particularly true of the newer systems using baseband converters. So far the FCC has decided against making MTS part of the "must carry" rules, but the broadcasters are pushing hard and it may not be long before you will have to modify your system to be able to pass MTS. The Commission is asking for further comments before it decides the issue and has not given a date for when those comments are due. But the industry is gathering technical and economic data now in preparation for the filings. If you have any information regarding the technical problems or prospects, or the costs of carrying MTS on your system please contact the CATA office (703) 691-8875 to coordinate the details.

### MORE ARGUMENTS ON THE "MUST CARRY" RULES

We have to be careful not to injure ourselves every time we sit down to read the arguments put forward by the FCC and the broadcasters for why the "must carry" rules should remain the law of the land. There are times when we are in danger of severe head damage from hitting against a wall, and other times we could get injured by either falling off the chair or losing our breath from laughing so hard. The

latest round of pleadings has now been filed in the "must carry" case now before the U.S. Court of Appeals in the D.C. CATA has filed in that case.

Suffice it to say that the same old warhorse arguments are being trotted out one more time. You know the ones, about local broadcasters being the lifeblood of the nation — that the local programming is so vital and is so eagerly awaited by the entire viewing public that the nation may collapse if cable television does not carry the third rerun of "I Love Lucy" that week!

Well, now we have another piece of evidence to point to in our debate over the incalculable value of local television programming. A new association of broadcasters has just formed to service the latest broadcasting craze — all music video broadcasters. You guessed it, they are going on the air around the country with MTV-like programming day in and day out — and we have to carry the stuff on our cable systems because the signals are technically "must carry"! Now if that isn't the craziest thing we have ever heard — here the Federal Government is telling us we have to give our channel capacity away for free to someone who is putting on programming that is identical to the programming we offer on the cable system as "narrowcast" programming! In fact, some communities even require that the MTV type programming be scrambled or put on a lock-out system, and the FCC is saying we must put this stuff on basic and

pump it into every home whether they want it or not! And just to add to the idiocy, when asked what they intend to do about their public service requirements under the FCC rules, these broadcasters simply smile and point out that they will schedule multihour public access programming on weekends — usually Saturday morning — early Saturday morning.

You might want to point all this out to your Senator or Representative while they are in the home district. The whole issue of "must carry" is going to blow up next year one way or the other. Either the Court is going to finally decide the issue or it is going to get melded into the entire Copyright fight, or the broadcaster's push to get separate "must carry" legislation will start moving. In any event, you can bet that it is going to come up and we must be prepared. The best way to do that is to have your members of Congress fully briefed on the issue. Please, start doing that now — they will understand the issue better if they get the "local" perspective of it from you — you can be sure that they are already getting the broadcaster's perspective on it!

### CABLE OPERATORS vs. PROGRAMMERS — THE TENSION INCREASES

The questions came hard and fast at a CCOS panel on increasing programming costs and we are going to mention a few of them here just to reiterate that CATA intends to look into all of these issues and report back to our members if anything can be done about them — either through negotiations, cooperative action, or as a last resort, legal action. Some of the top priorities are these:

# Can anything be done about the "bulk discount" prices being given to the largest MSO's by some programming services such as HBO? We have members with 20 and 30,000 subscribers who are paying over \$100,000 a year more for identical service given to an identical system owned by a big MSO — why? Of course this pricing policy

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affects all "smaller operators" — that is, anyone with less than 250,000 subscribers. There does not seem to be any good reason for the discrimination. Certainly we could work out any "administrative ease" problems — and hopefully we will. CATA is looking at this one very carefully.

# Why is ESPN imposing a \$100 per month minimum? This policy has extremely serious implications for the very small operators and it simply is unfair. We are going to be

talking to ESPN about possibly setting up a semi-annual or annual billing program for these very small systems so that any administrative problems can be eased, and the minimum can be eliminated.

# Can we get a change in the policy of TBS regarding carriage of all of their services on systems with a shortage of channel capacity? We don't know, but we sure are going to try. TBS has recognized the problem and is working closely with us on the "must carry" issue, which

causes most of the channel capacity problems in the first place. But until that is straightened out, what about a break guys?

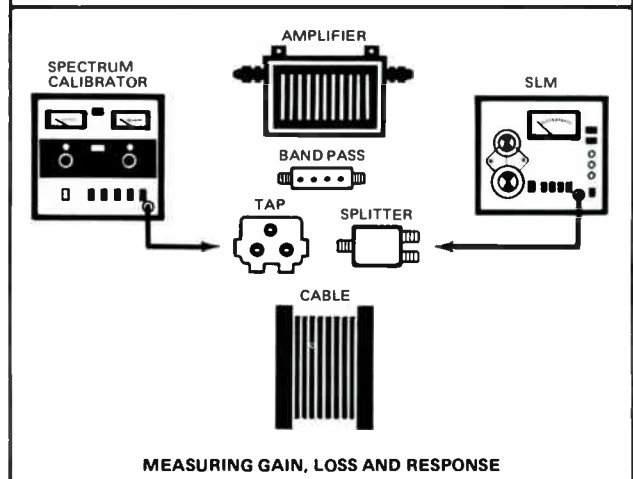
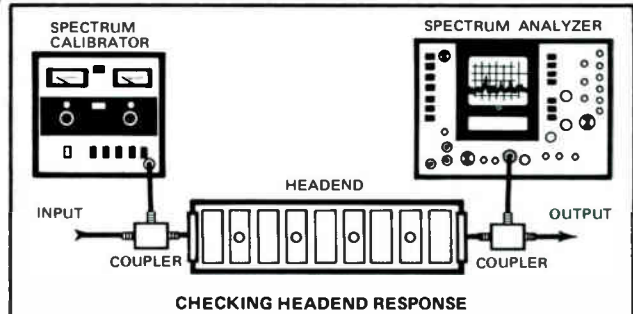
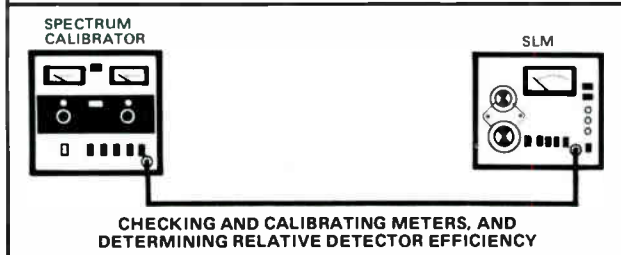
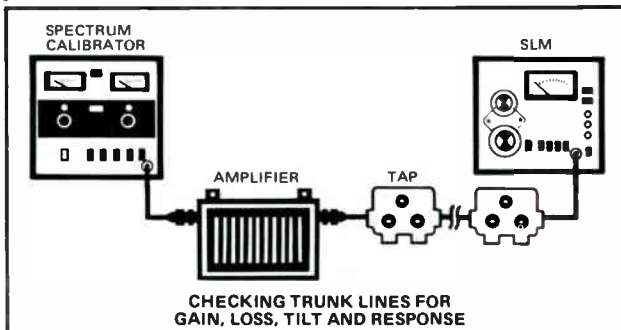
CATA is putting all programmers on notice that we intend to be very active in working for the benefit of the operators in these areas of tension. Of course, we hope that by acting as an intermediary we can ease those tensions. But lest there be any doubt, let's say it again here: CATA represents cable operators, and cable operators only. □



US PATENT #3731186

## Checking response flatness is easy with Sadelco's SC 450 Spectrum Calibrator

**1/4 dB ACCURACY**  
**4.5-450 MHz**  
**MHz Ratio: 100 to 1**



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 General representative for Europe: Catec AG Luzern/Switzerland, Habsburgerstr 22. Tel. 041-23-90-56 Telex: TELFI 78168

# Do Your Shopping From Your Easy Chair

*It Really Works*



By: Ralph Haimowitz  
CATA Director of Engineering

A brilliant and highly successful new idea for use of a leased channel on area cablevision systems is the brainchild of Lowell "Bud" Paxson, President of the Home Shopping Channel.

The original concept began, The Suncoast Bargainers Club, in 1975 on a small AM radio station located in Dunedin, Florida. In 1977 Paxson purchased the radio station, keeping the Suncoast Bargainers Club program, which provided listeners with the opportunity to buy merchandise items described on the program at a bargain price.

"It was apparent to me that television was the way to go where people could actually see what we had to offer and what they were paying their money for", said Paxson. "Cable television was a natural, but we had to wait until the cable system was well entrenched in the community area."

The waiting paid off and Home Shopping Channel became a reality in 1982. HSC now leases Channel 52 (Vision Cable in Clearwater and Pinellas Park, Florida) and Channel 12 (Group "W" cable system in Largo, Florida).

Home Shopping Channel, today, has to be considered a powerhouse player in the major retailer league. "The

amount of sales that we used to do over a whole month, we now do in one day", said Paxson. "Last year we did as much business as five K-Mart stores. Just two years ago, when we started, we had only 25 employees, and, today, we have more than 180."

The Home Shopping Channel will sell just about anything that their customers can drive away with, including clothing, appliances, knick-knacks and collectables, small furniture items, toys, and jewelry. Average sales come to about 4,000 items every two weeks from four warehouse locations.

In addition to the Home Shopping Channel retail sales, Paxson is involved in other, related business projects such as the Home Shopping Insurance, and independent insurance agency owned by HSC. "Insurance desks and agents are located in everyone of our HSC shoppers marts," said Paxson, "where we can provide the service to meet the needs of our policyholders at the best possible rates available." To become one of the some 6,000 Home Shopping Insurance policyholders, you must be a member of the Home Shopping Channel.



Another related business, with separate stockholders, is Home Shopping Medical Centers, which offer a health maintenance program called the Gold Plus Plan. The Medical Centers, also located at the HSC Shopping Marts, employ 11 doctors plus staff. Bud's wife, Barbara, is in charge of enrollment, and there are about 4,700 participants in this program at the present time. Unlike Home Shopping Insurance, patients do not have to hold membership in the Home Shopping Channel Club.

The most popular and entertaining thing about the Home Shopping Channel is that it is live television, 24 hours a day, and, because they are closed on Christmas, goes 364 days out of the year. The "on camera" personalities who perform for HSC are known to the viewers and home shoppers by their first names for a very informal and personalized relationship. Several of the eight "personalities" use nicknames that have come to be associated with their faces, such as J.R., Bubbling Bobbie, and Tommy Terrific. Even Bud Paxson, who sits in on occasion as a live, on-the-air programming host to stay in touch with his customers, is called "Uncle Fudd."

"What we do is real television," says Paxson. "Nobody is doing live television today, and people remember the fun — and some of the bloopers — that once happened in this type of broadcasting. Look at all of the network shows that people watch today on TV Bloopers and Blunders."

Another key to the success of HSC is the merchandise. Paxson knows that bargains are irresistible and that is just what he provides. "Everything we sell we buy from someone who took a loss on it," says Paxson. "We buy overruns, factory seconds, overstocked merchandise, salvage sales — anything that can give the customer a really great bargain."

Another aspect of the success of HSC, is impulse buying. "Most people do not plan to buy something from us on any given day," Paxson said. "This business is like going to a flea market; you go to look, not buy, but you never know what you will end up bringing back home with you." "Our business is a hundred percent impulse buying, and that means that we have a product that people see and want, as well as an entertaining method of presenting the product to encourage our customers to make a purchase."

The studio operation for the Home Shopping Channel is kept as simple and cost effective as possible. Automated cameras are used to reduce the number of technical personnel required. The customer sales operation is totally computerized, and each customer, called a club member, receives his own, personal membership number. When a member sees an item he wants, he calls in to the studio host, giving his membership number and the item he wants to buy. Member's orders are entered into the computer and the merchandise is ready for pickup twenty-four hours later at one of the shopping marts. Should the customer decide at the time of pickup of his merchandise that it is not exactly what he thought it was, then he is free to refuse to accept the item with no penalties. "It is this speed of operation and delivery, plus the option to accept or reject the item that make the Home Shopping Channel so much more desirable to our customers than a mail-order type of business operation," said Paxson, who estimates a return rate of about one out of 13 items.

When asked about the future plans he has for HSC, Paxson said he plans to open a few more operations in other locations such as Orlando or Miami/Fort Lauderdale. Bud has also given some thought toward a state or regional concept for the Home Shopping Channel, but feels that it would lose its' local flavor and uniqueness. "Besides", he said, "I don't know if we are anywhere close to being able to handle the enormity of such an operation." "We may have invented the wheel, but we haven't figured out what kind of tires to put on it yet." Plans could include a franchise type of operation to establish the Home Shopping Channel in major cable areas around the country.

Regardless of what the future may bring, and the possibilities are almost mind boggling, the Home Shopping Channel has brought a new, highly successful concept into cable television. □

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 M8—CATV test equipment  
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**Service Firms**

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# 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)

**The Associated Press,**  
 50 Rockefeller Plaza,  
 New York, NY 10020  
 212—621-1513  
 (S9 Automated News  
 SVC)

**Automation Techniques,**  
 1550 N. 105th E. Ave.  
 Tulsa, OK 74116  
 918—836-2584  
 (M9)

**Avantek, Inc.,**  
 481 Cottonwood Dr.,  
 Milpitas, CA 95035  
 408—946-3080  
 (M8, 9 TVRO  
 Components)

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

**BEI**  
 P.O. Box 937,  
 Olathe, KS 66061  
 800—255-6226  
 (M9 Character  
 Generators)

**Ben Hughes  
 Communications**  
 P.O. Box AS,  
 Old Saybrook, CT 06475  
 203—388-3559  
 (M6, 9)

**Blonder-Tongue Labs, Inc.,**  
 1 Jake Brown Rd.,  
 Old Bridge, NJ 08857  
 201—679-4000  
 (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)

**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)

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

**CCS Cable**  
 P.O. Box 14710,  
 Phoenix, AZ 85063  
 602—272-6855  
 (M3)

**CWY Electronics,**  
 405 N. Earl Ave.,  
 Lafayette, IN 47904  
 1-800-428-7596  
 (M9, D1)

**CableBus Systems,**  
 7869 S.W.  
 Nimbus Avenue,  
 Beaverton, OR 97005  
 503—543-3329  
 (M1)

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

**Cable-Text Instruments,**  
 Div. of Telpar, Inc.  
 P.O. Box 796  
 Addison, TX 75001  
 214—233-6631  
 (M9 Generators)

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

**Comprehensive Cable  
 Enterprises**  
 206 Westminster Ct.  
 Madison, WI 53714  
 608—249-3442  
 (S1, 2, 4, 5, 7, 8, 9)

**Computer Video  
 Systems, Inc.,**  
 3678 W. 2105 S. Unit 2,  
 Salt Lake City, UT 84120  
 1-800—453-8822  
 (M9)

**COMSEARCH INC.,**  
 11503 Sunrise Valley  
 Drive,  
 Reston, VA 22091  
 703—620-6300  
 (S8, S9, Earth station  
 placement frequency  
 coordination)

**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)

**DF Countryman Co.,**  
 1821 University Ave.,  
 St. Paul, MN 55104  
 612—645-9153  
 (D1, S1, 8)



# Associate Roster

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

**Elephant Industries,**  
P.O. Box 3626  
N. Ft. Myers, FL 33903  
813—995-7383  
(M9)

**Harris Corporation,**  
P.O. Box 1700,  
Melbourne, FL 32901  
305—724-3401  
(M2, 9, S2)

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

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

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

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

**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)

**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)

**Gardiner Communications  
Corp.,**  
3506 Security St.,  
Garland, TX 75042  
214—348-4747  
(M9 TVRO Packages, S1,  
2, 8)

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

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

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

**General Cable Corp.,**  
1 Woodbridge Center,  
P.O. Box 700  
Woodbridge, NJ 07095  
1-800—526-4385  
(M3)

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

**Lash-Ade Company,**  
P.O. Box 147,  
Guntersville, AL 35976  
205—582-6333  
(M9 Cable Protector,  
S9 Equipment Repair)

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

**Gilbert Engineering Co.,**  
P.O. Box 23189,  
Phoenix, AZ 85063  
1-800—528-5567 or  
602—245-1050

\* **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)

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

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

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

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

**Lifetime**  
1211 Avenue of the  
Americas  
4th Floor  
New York, NY 10036  
212—719-7230  
(SZ9, Programming)

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

**H & R Communications,**  
Rt. 3, Box 102G,  
Pocahontas, AR 72455  
1-800—643-0102  
(M2, D1, S2, 3, 8)

**Karnath Corporation,**  
2001 Westridge,  
Plano, TX 75075  
214—422-7981 or 7055  
(S1, 2, 8, 9)

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

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D2—CATV antennas	M2—CATV antennas	S2—CATV construction
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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

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**M/A Com Prodelin, Inc.,**  
P.O. Box 100  
Claremont, NC 28610  
704—464-4141  
(M2, 3, 7, S2)

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

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

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

**McCullough Satellite Equipment,**  
Route 5, Box 97,  
Salem, AR 72576  
501—895-3167  
(M2, 9, D3, 4, 6, 7)

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

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

**Vitek Electronics, Inc.,**  
4 Gladys Court,  
Edison, NJ 08817  
201—287-3200

**Microdyne Corporation,**  
471 Oak Road,  
Ocala, FL 32672  
904—687-4633  
(M9 Satellite TV Receivers)

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

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

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

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

**Superior Electronics Center,**  
2010 Pine Terr.,  
Sarasota, FL 33581  
813—922-1551  
(M4, S9)

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

**Warner Amex Satellite Entertainment Corporation,**  
1211 Avenue of the Americas,  
New York, NY 10036  
212—944-4250  
(S4)

**Octagon Scientific, Inc.,**  
4 Adler Drive,  
East Syracuse, NY 13057  
315—437-4405  
(M9)

**Teledac, Inc.,**  
1575 Taschereau Blvd.,  
Longueuil,  
Quebec, Canada J4K 2X8  
514—651-3716  
(M9 Character Generators)

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

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

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

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

**Tyton Corp.,**  
P.O. Box 23055,  
Milwaukee, WI 53223  
414—355-1130  
(M6, 7)

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

**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)

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

**Western Towers**  
Box 347,  
San Angelo, TX 76901  
915—655-6262/653-3363  
(M2, 9 Towers)

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

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

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

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

# Showcase

## NEW ADDRESSABLE EQUIPMENT DECODES TWO TYPES OF CABLE-PAY TV SCRAMBLING

New cable television decoding technology from Zenith Electronics Corporation will allow cable TV operators to decode simultaneously two types of pay TV scrambling in the same system.

"These new 'Dual-Decode' Z-TAC\* addressable units provide a simple and cost-effective solution to cable operators in the process of upgrading a system," said James L. Faust, president of Zenith's Cable Products Division. "And, with Dual Decode, you don't have to disrupt the existing subscriber base."

Dual-Decode Z-TAC decoders incorporate the tiering and addressable capabilities common to other Zenith addressable cable products, but bring another dimension to the decoding capabilities of Z-TAC, Faust said.

The new Dual-Decode Z-TAC decoding system was developed by Zenith research engineers for cable operators who use "RF" (radio frequency), but want to upgrade their systems to Z-TAC for its additional features and higher level of "baseband" program security.

"As more cable operators see the merits of a baseband addressable system — increased protection against pay-TV pirates, full remote control capabilities and adaptability for advanced future services — there's a growing need for an orderly way to rebuild a system," Faust said.

"The Dual-Decode system makes this possible," Faust said, "because rather than completely shutting down a system to upgrade to baseband, cable operators can continue RF service and phase in baseband scrambling."

With Dual-Decode Z-TAC, cable operators also can offer different tiers of service with differing levels of program security, he said.

Unlike other RF decoders, the suppression reference timing is generated internally to provide improved performance and reduced encoding errors.

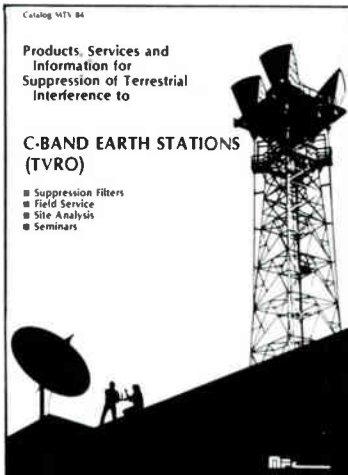
For more information, contact Zenith at (312) 391-8181, or 1000 Milwaukee Avenue, Glenview, Illinois 60025. ●

## BLONDER-TONGUE TECHNICAL SEMINAR

October 9, 10, 11, 1984: A Blonder-Tongue SMATV/MATV/CATV/TVRO Technical Seminar will be held at the Summit Hotel, Dallas, TX in conjunction with Spivey-LeBoeuf Associates.

Contact: Tom Spivey (713) 649-1221, Ralph LeBoeuf (214) 231-3190 or Sharon Leight (201) 679-4000.

## New MTV Catalog



A comprehensive catalog outlining products and services for the prevention of terrestrial interference in Microwave

Television has recently been released by Microwave Filter Co., Inc.

The catalog is patterned as a troubleshooting guide providing background information on causes of interference and approaches to avoid it.

Described are off-site analysis, field and the Fast Filter Rescue Service performed by a team of MFC experts. Information is given on the TI seminar, a one day educational training session, and ASTI, a staff written book on Avoidance and Suppression of TI.

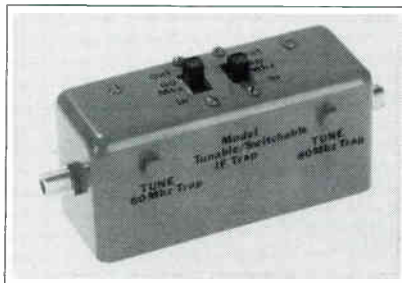
In addition IF and Microwave Traps, Microwave Bandpass Filters, accessories and CATV/SMATV products are featured among others.

Standard data on earth station transponders, determining interference levels, a guide to satellite aiming for SATCOM III, program listing, locating true north and a partial list of frequency coordinators are also mentioned.

To order a copy contact Emily Bostick, Microwave Filter Co., Inc., 6743 Kinne St., East Syracuse, NY 13057. Call 1-800-448-1666 or collect (NY/HI/AK/CAN) 315-437-3953. ●

## TVRO INTERFERENCE TRAPS ARE SWITCHABLE

IF Terrestrial Interference Trap 4616-60/80 incorporates a 60 MHz trap and 80 MHz trap both switchable in and out.

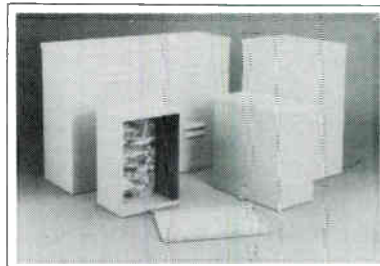


4616-60/80 may be used as a diagnostic tool during installation or as a receiver accessory to optimize reception channel by channel. Impedance is 75 ohms and connectors are type F. Notch loss is 20 db minimum and 3 db bandwidth is approximately 4 MHz. Each notch is frequency tunable  $\pm 5$  MHz to compensate for nominal downconversion error.

Price and delivery are \$145.00 and five days respectively. For more information contact Emily Bostick, Microwave Filter Company, Inc., 6743 Kinne St., East Syracuse, NY 13057. Call: U.S. toll free 1-800-448-1666 or collect (NY/HI/AK/CAN) 315-437-3953. ●

## CWY INTRODUCES APARTMENT SECURITY BOXES

A new line of apartment security boxes introduced by CWY Electronics, features aluminized steel construction, shown to outlast unpainted galvanized steel at least five-to-one. The all-welded construction box provides additional strength and security and a hingeless, secure lid removal system with security stops welded in the front cover serving as an additional entry deterrent. CWY

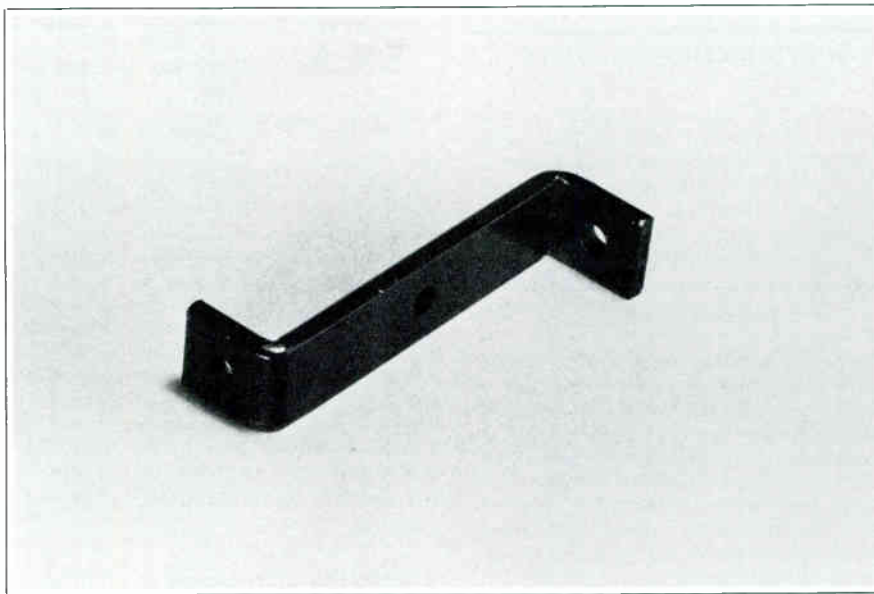


security boxes also feature fully replaceable 11-gauge hasps and multiple entry knockouts to suit specific installation requirements. Other standard features include full interior board backing, knockout for optional cam lock, and heavy baked enamel finish.

For more information on apartment security boxes, write: CWY Electronics, P.O. Box 4519, Lafayette, IN 47903, or call toll free: 1-800-428-7596, in Indiana 1-800-382-7526. ●

## CWY ELECTRONICS

The new Model ZB accessory mounting bracket from CWY Electronics allows mounting of many multiple dwelling enclosure accessories, including the CWY Omni-Rack™ system. The Omni-Rack system uses a panel-and-rail design to make multiple dwelling enclosures more orderly, secure and serviceable, allowing for quick, easy audits and subscriber status changes. The new mounting bracket retrofits existing enclosures. For more information on the Model ZB accessory mounting bracket and the Omni-Rack system, contact, CWY Electronics, P.O. Box 4519, Lafayette, IN 47903, or call toll-free: 800-428-7596. In Indiana: 800-382-7516.



## TERRESTRIAL INTERFERENCE SEMINARS

Seminars on terrestrial interference in TVRO systems will be sponsored by Microwave Filter Company, Inc., 6743 Kinne Street, East Syracuse, N.Y. on August 24, September 27, October 26, November 29 and December 14. Each seminar is from 8 a.m. to 4:30 p.m.

Cost is \$375 per person which includes a personal copy of ASTI, a handbook on avoidance and suppression of terrestrial interference. For information or reservations call Bill Bostick or Carol Ryan toll free 1-800-448-1666 or collect 315-437-3953 in NY/CAN/HI/AK.

## NEW C-COR CATALOG AVAILABLE

C-COR Electronics, Inc. has announced that the company's new cable television products catalog is now available.

The catalog, which covers C-COR's complete line of cable television electronic distribution equipment, includes information on a number of products and services not featured in the previous catalog. Donald A. Pisarcik, Vice President-Sales & Marketing, states, "This new catalog is much more comprehensive than our previous catalog. It contains descriptive information on feedforward and conventional trunk

amplifiers (with failsafe bypass), mini-trunk amplifiers, a remote bridger station, distribution and extender amplifiers including the new E-527 PHD (Power Hybrid Doubling) extender amplifier, the Status Monitor System and standby power supplies, all up to 450 MHz. In addition, the new loose-leaf format will provide for increased flexibility for the customer and facilitate updating."

For further information and a copy of the new catalog or sections thereof, contact the C-COR Sales Department in State College, Pennsylvania at 1-800-233-CCOR (in Pennsylvania call 814-238-2461).

## NEW TVRO SYSTEM RECEIVES C- OR KU-BAND SATELLITES WITH THE FLIP OF A SWITCH

MICRODYNE introduces a new video receiving system designed for Canadian Cable Television. The system consists of the 1100 BDC-12 Block Downconverter, the 1100 DCR-12C Canadian Satellite Receiver and a 3 or 3.66 meter Ku-band antenna.

The antennas are molded in a single piece for increased rigidity and superior surface tolerances.

The 1100 BDC-12 mounts directly to the antenna feed and downconverts the 11.7-12.2 GHz signals to the 270 - 770 MHz range.

The 1100 DCR-12C is the most technically advanced and reliable receiver available today. The receiver features a PROM controlled, frequency synthesized tuner programmed to receive the C-band (Anik D) as well as the Ku-band (Anik C-3) with the flip of a switch.



The receiver gives the operator access to both C- and Ku-band programming with one unit when used in conjunction with our C-band or Ku-band block downconverter.

Added flexibility results from the fact that the 1100 BDC-12 or the 1100 DCR-12C can be added to existing systems currently using the 270-770 MHz format such as Scientific Atlanta's series

361-6651 receiving system.

Microdyne's new system will be introduced at the Canadian Cable Television Association show at the Capital Congress Center, Ottawa, beginning June 11th. (Booth 40.)

For pricing and technical information, call (904) 678-4633 and ask for TV Marketing, or write to MICRODYNE, P.O. Box 7213, Ocala, Florida 32672. □

# Classified

## OPPORTUNITIES

### WANTED CHIEF ENGINEER

Small but growing sunbelt cable system is seeking experienced chief engineer knowledgeable in CARSBAND and trunk distribution including design. Salary and benefits negotiable. Send resume and references to: c/o CATJ, 4209 NW 23 #106, OKC, OK 73107, Box 73084.

### Service Technicians

NYT Cable TV is looking for several experienced cable service technicians. If you have a working knowledge of cable installation, splicing, trouble shooting, and the use of analytical equipment, we may have a career position for you. NYT Cable is pioneering in the use of feed forward and interactive cable installation, providing our techs with state-of-the-art hands on experience.

In addition to an excellent salary, NYT Cable offers benefits second to none in the industry such as major medical and dental, pension plan, supplemental savings and retirement, stock purchase, tuition reimbursement, and more.

If you want to explore a career opportunity with a well established and forward thinking team, write or call for a confidential interview: Personnel Director, NYT Cable TV, 1250 Haddonfield-Berlin Road, Cherry Hill, NJ 08034, (609) 354-1880.

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.

## TECHNICAL

Does your system do its own repair?  
If so, this will interest you.

Quality RF Services is a *quality* source for replacement components.

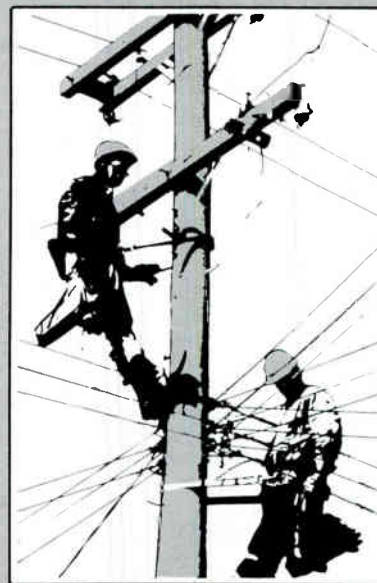
- Extensive, quality-controlled inspection procedures
- Huge inventory — same day shipping
- FREE Technical Assistance — 35 years CATV experience
- Our Own Repair Lab — keeps our parts and technicians honest
- Friendly Staff — individualized service

Looking to increase your channel capability?

Ask about our Hybrid P.C. Boards

Call: (800) 433-0107  
In FL (305) 747-4998

All the Quality you will ever need!  
Quality RF Services, Inc.  
825 Park Way, Suite #3  
Jupiter, FL 33458



### 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  
Oklahoma City, OK 73107

take  
advantage  
of me

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

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, Oklahoma 73107.

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Independent laboratory tested (documentation upon request).

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Same day shipments from three (3) warehouse locations: Bronx, N.Y., Hoboken, N.J., and Santa Ana, California.

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WESTERN OPERATIONS: 2901 W. Garry Avenue, Santa Ana, California, 92704 — Telephone (714) 662-1041  
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