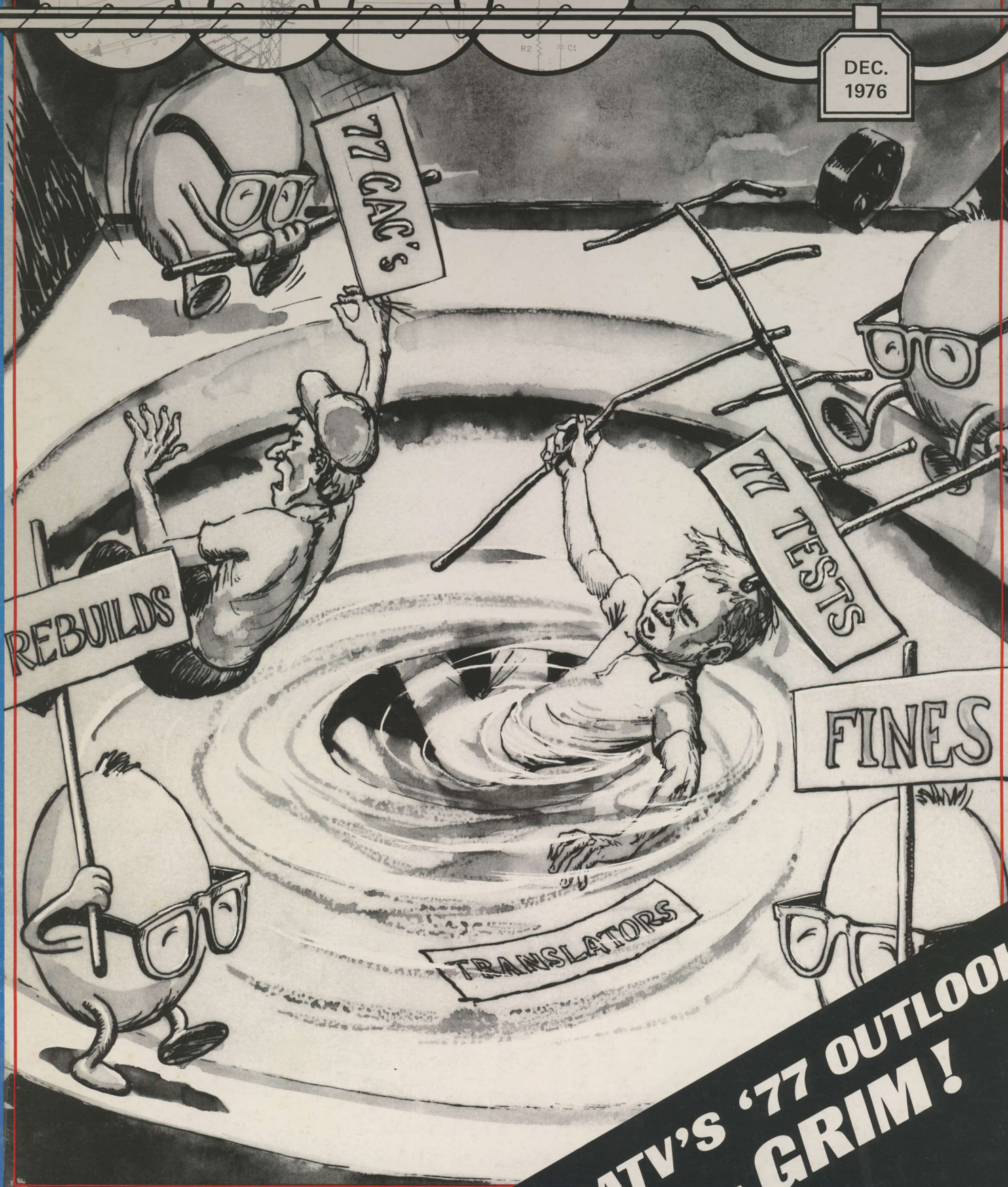


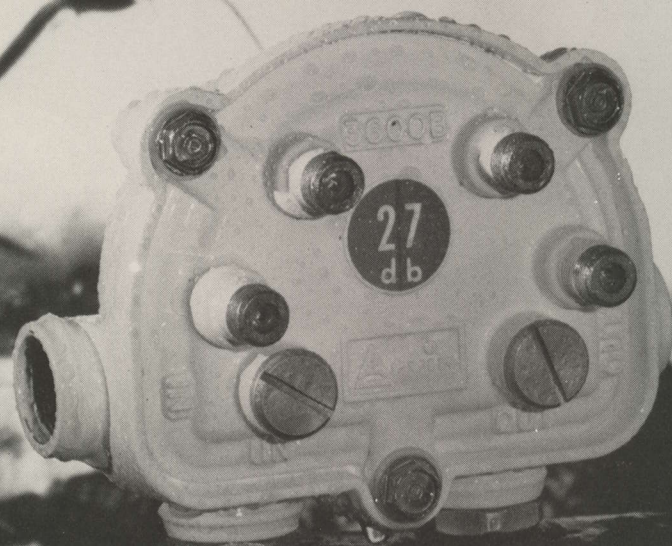
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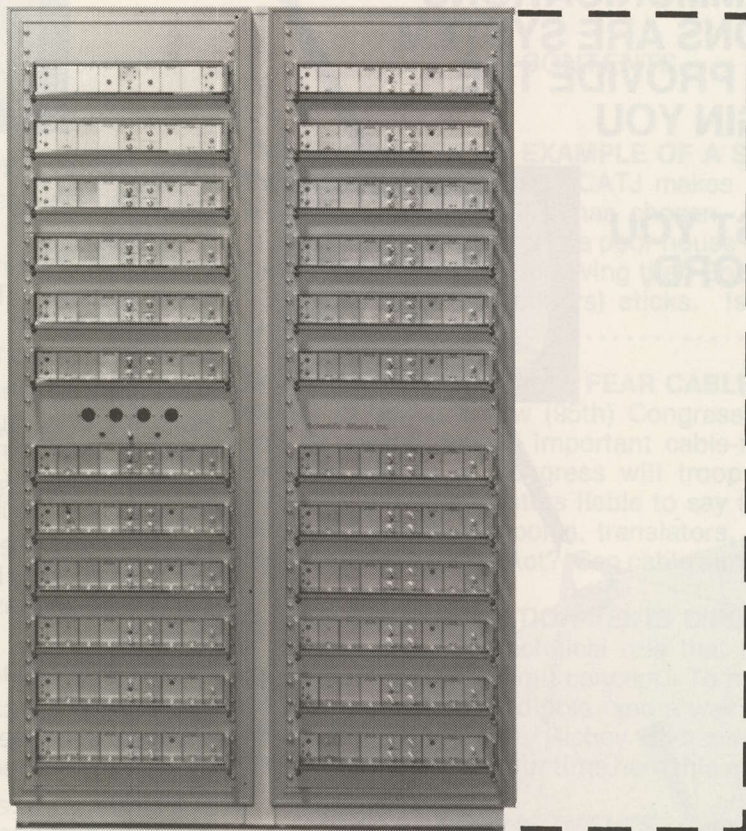
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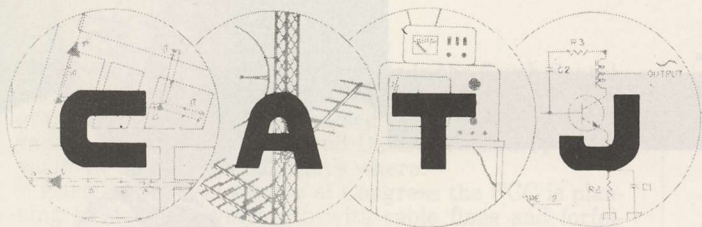


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PUBLISHED MONTHLY, AS ITS OFFICIAL JOURNAL, BY THE COMMUNITY ANTENNA TELEVISION ASSOCIATION, INC. OKLAHOMA CITY, OKLAHOMA AS A SERVICE TO ITS MEMBERS AND OTHERS PROVIDING CATV/MATV SERVICE TO THE TELEVISION VIEWING PUBLIC LOCATED THROUGHOUT THE WORLD.

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Celeste Rule, Managing Editor
Richard Montgomery, Production Director
Peggy Jones, Editorial Asst.
S.K. Richey, Contributing Editor

OFFICES

CATA/CATJ
4209 NW 23rd, Suite 106
Oklahoma City, Oklahoma 73107
(405) 947-7664

CATJ subscription rates \$12.00 per year for non-CATA members, \$8.00 per year for CATA member-systems; \$9.00 per year for industry employed personnel for at-home delivery. In Canada, \$13.00 per year for CATV systems, \$10.00 per year for system employees. Foreign rates upon request.

Third class postage rates paid in Oklahoma City, Oklahoma, U.S.A.

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

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— CONTENTS —

THE FCC MAKES AN EXAMPLE OF A SMALL SYSTEM —

Which is alright, because CATJ makes an example of the example the Commission has chosen. Howard and Olive Cushman are headed for the poor house or jail, or both, if a recent Initial Decision involving their South Sausalito Cable TV system (465 subscribers) sticks. Is this really in the public interest?10

WHY DO BROADCASTERS FEAR CABLE? — The cable industry is facing a new (95th) Congress. Into the hopper will be tossed several important cable-related bills. And into the offices of Congress will troop the broadcasters. What are the broadcasters liable to say to Congress, about fines and forfeitures, poles, translators, and the re-write of the Communications Act? Can cable survive?26

A NEW BREW RADIATION TESTS DIPOLE/AMPLIFIER —

If there is one FCC technical rule that makes sense, it is the system radiation limit concept. To make radiation tests you need a calibrated dipole, and a way to make calibrated measurements. Steve Richey addresses both for under \$13.00 plus some of your time here this month.40

DEPARTMENTS

CATA-torial (Kyle Moore on Preparing For The Worst)4

Coop's Cable Column44

TECHNICAL TOPICS (Correspondence, Briefs)47

Klystron Shortage Re-Visited
Answer To CB Interference
How's That Again?
NOAA Weather Update (again)
Finding Rhombic Supplies

ASSOCIATE'S ROSTER48

OUR COVER

Some may find this a 'repulsive' cover. 'Flushing out' the truth is often a 'dirty' chore. CATJ is sorry ... but we cannot agree with others who believe '77 will be a great year for cable'. Rather, we see it as a transitional year ... one filled with 'make or break' issues, a few of which are identified by our 'toilet-seat' cover. 'Sitting out' the battles ahead is not the answer ... you may awaken in 1978 to find out you have been 'wiped out' by the momentum of 'change'. 'Earthy' reading begins on page 10 here this month.

CATA "TORIAL

KYLE D. MOORE, President of CATA, Inc.



PREPARING FOR THE WORST

The cable industry is headed for a show down. The forces against our service and our existence have been building for years. Recounting here all of the battles fought, and largely lost, through the past ten to fifteen years would serve no useful purpose. The bottom line is what counts. **It is time to fish or cut bait.**

The forces of evil are clearly defined at the FCC. Even those systems supplying simple "master antenna type community wide service" are headed for legal battles and further encroachments on their free-enterprise rights in the year ahead. If you don't understand what this means, read with great care the detailed report put together by CATJ starting on page 10 this month. A true "Mom and Pop" cable system, circa 1976, is facing going out of business if a recent Initial Decision issued by an FCC Administrative Law Judge holds. At issue is the cable systems refusal to carry, voluntarily, a Spanish language television station; a signal which people do not want, are unwilling to pay "extra" for, and which this small 465 subscriber system operator cannot afford to put on the cable simply because an FCC Judge says he must.

CATA and CATJ feel this system's legal problems are but the tip of an iceberg, the forerunner of a whole series of new attacks on the rights of the American cable subscribers and the operators of cable systems. Howard and Olive Cushman's problem is your problem. If you still don't think so after reading this detailed report, then you just may have your head screwed on backwards.

Coming up in early 1977 is not only a showdown on the Certification of all "grandfathered" systems, but the first round of what promises to be a long and protracted battle to create a whole new "Communications Act" for this nation. The 1977 Certification process is an immediate problem, one which the FCC has skirted around and dodged almost to the very last minute. As someone says

elsewhere in this issue "Government bureaucrats are zealots. They're sure they are always right and the public is wrong." There is only one sensible answer to the March 31, 1977 certification process. **Everybody should ignore the requirement.** No, not everyone will. A small percentage of all systems have already complied. They felt compelled to do so because ... well, who knows what their reasons are. Maybe they are broadcaster-owned systems (some 35% are now) and as broadcasters they didn't want "bad marks" with the FCC on their other FCC related matters. But for those independent systems who have not yet complied ... the dangers of complying, of opening up your franchise, and making your business liable for further federal encroachments ... surely in most situations these dangers far outweigh the implied dangers of an FCC bent on forcing you to comply or else.

The **or else** brings us to the next show down. This year a portion of this industry (I like to think the sensible portion) rallied forces and worked together to defeat the "zealous bureaucrats" who would make you liable for monetary fines and forfeitures when you do not agree to go along with all of their zealously created "rules." Take the instant example of Howard Cushman's South Sausalito Cable TV situation reported here starting on page 10. Had the Commission the power to issue fines against Howard Cushman, there would have been no Cease and Desist proceedings. Cushman would have been slapped with a fine, and that would be that. If he refused to pay the fine, the Federal Marshals would be in Sausalito to collect the fine or collect Howard. Chairman Wiley keeps calling the Cease and Desist proceedings cumbersome. After reading our report here, we think you will agree with the good Chairman. They are cumbersome. But that burden is not just on the Commission, it is on Howard Cushman as well. For whatever burden there may

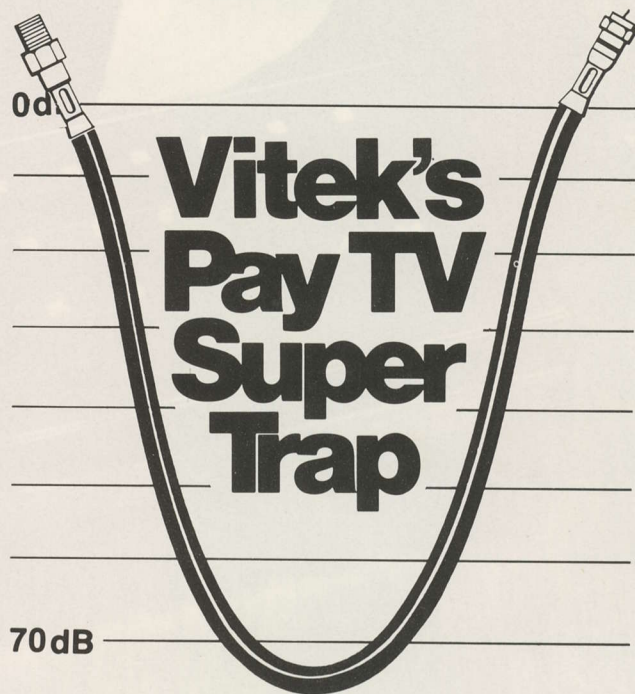
have been on the Commission to date in the South Sausalito case, the burden on Howard Cushman has been several times as great. Put yourself in Howard Cushman's shoes. Without the Cease and Desist procedure, where would he be now? In jail, that's where.

Early in the next session of Congress the FCC is planning to start all over again with cable fines and forfeitures. If you can see the wisdom of hundreds of Howard Cushmans being in jail, you are some kind of strange animal. Yet that is exactly what it all boils down to ... doing it the way the "zealous bureaucrats" demand, or paying the price. The price is a fine, or jail. Your choice.

Which brings us to the second lengthy feature report in this issue. The re-write of the present (1934) Communications Act is headed our way in the 95th session of Congress. All powers the FCC has or claims draws from that act. The best way to cut the "zealous bureaucrats" down to size is to present Congress with sufficient evidence of "bureaucratic abuse" to result in there being a new and significantly altered Communications Act. This will be a tough job, for not only will the well entrenched (and appointed, not elected) "zealous bureaucrats" be lobbying against major changes, but others who would like to see cable squelched will also be working against our viewer's interests. Foremost in the latter category are the broadcasters; those who continue to perpetuate the myth that "broadcasting is free" and "they have a right to continued existence" simply because "they were there first." In this issue we begin a several part series designed to explore the broadcaster's mentality. What is it broadcasters fear most about cable? Why do they so often oppose cable and where might there be common meeting grounds? The purpose of this new editorial series is to create a "dialogue" between broadcasters and cable operators. It is a tough assignment, and not everything you see here will make you happy. But if we slant the truth, or leave out facts we have uncovered, we may serve our own narrow aims temporarily, but ultimately our industry must face the facts. If we don't do it here, "privately" as it were, we will be doing it before various Subcommittees and full committees of Congress in the coming months. Better we be forewarned of the broadcaster's fears ... because to be forewarned is always to be forearmed.



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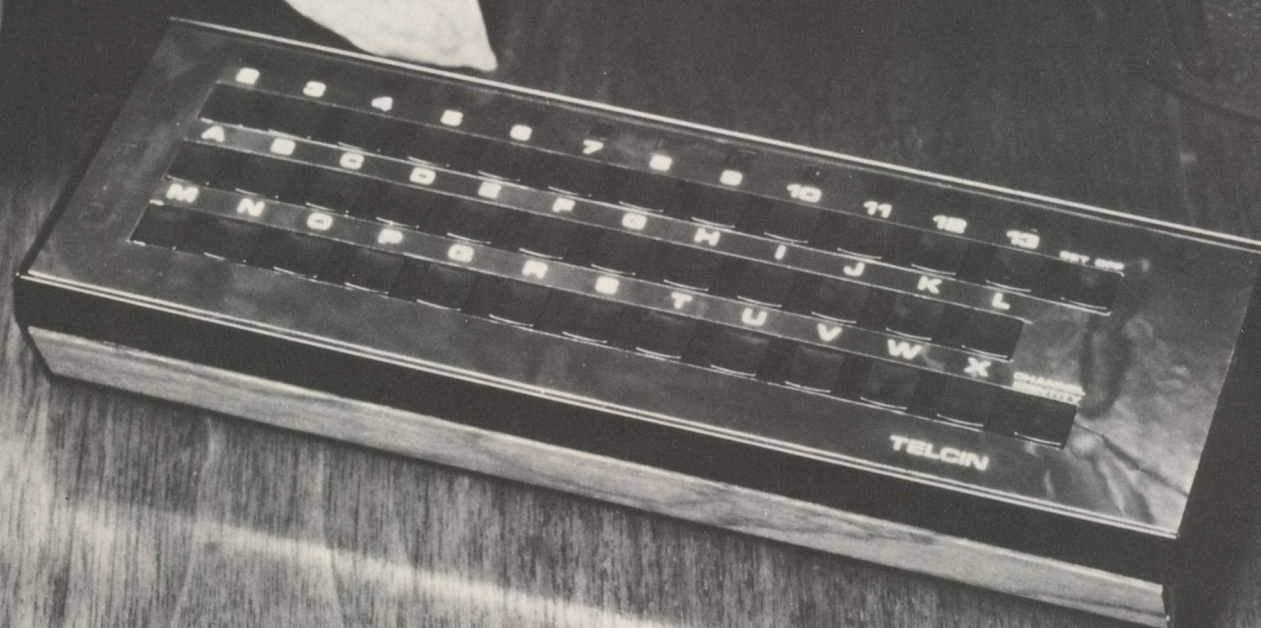
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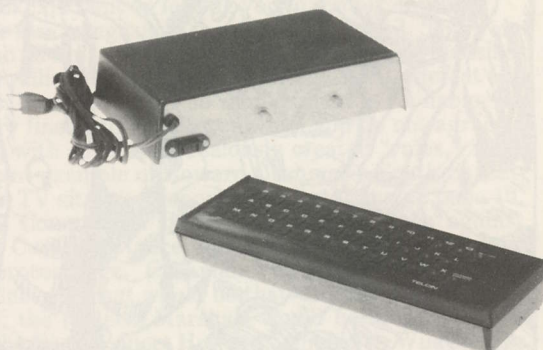
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"I'LL SHUT DOWN BEFORE COMPLYING"

A Small California Operator Fights For Life Under Pressure From FCC To Re-Build

Prologue

In December of 1973, Howard and Olive Cushman zeroed in on the purchase of a community antenna television system. The Cushman's were experienced CATV people, and Howard had served his time as engineer and consultant in the San Diego area and in Hawaii, designing and constructing CATV systems for other people. Once before in the 60's, the Cushmans had taken over an old, faltering and extremely small CATV system in Hebo, Oregon. There, with the combined assets of himself, his wife Olive and their four children, Howard Cushman had attempted to create a living for himself and his family by combining the very small cable operation of Hebo (52 subscribers at the time) with running a 160 acre farm that mainly produced dairy products.

As the children grew up "on the farm" and it became apparent that all four would head for college, partners Olive and Howard decided that between the uncertain future of a small dairy farm and the low growth possible in Hebo, Oregon for a cable system, that they would have to locate someplace else that offered more income for the family. And so they went to southern California just in time to find themselves in the famous San Diego CATV case. Howard served as the general manager of the San Diego system for several months, just prior to the time that the present owners (Cox Cable Communications) took over. From there Howard signed on with a Hawaiian group planning to cable a wide area. The first of the four Cushman children was now entering college and neither Olive nor Howard felt all that comfortable about the prospects for having the ready cash to see that each of the four would be able to fulfill their educational aspirations, so they began a search for a "small, mom and pop CATV system". One small enough for them to afford, and compact enough for the family to operate, but large enough to produce the income the family would require for the years ahead.

It is the dream of virtually every CATV system employee "to have my own, small system, where I can 'retire' and do what I know best and do best".

The system finally located, after nearly a year of searching, turned up in the San Francisco Bay Area, and more precisely in Sausalito (California). Sausalito is located just north of San Francisco, "the first highway 101 exit north of the Golden Gate Bridge", in Marin county. The area is well known for its (1) natural beauty, (2) its companion rugged terrain (rising mountainous peaks pulling abruptly out of the bay and sea with virtually no flat habitable land), (3) its 'artistic' natives (Glenn Yarborough sang about Sausalito and the Kingston Trio owned an artsy-craftsy night spot here for years) and, (4) Ms. Sally Stanford. Sausalito is actually two communities in one, a southern-most portion built on the northern side of a steep hill (which puts San Francisco television stations **over** the hill) where most of the stable natives live, and a more northern section surrounding a flat point that protrudes into the San Francisco Bay where tourists gather to inspect local art and where pleasure crafts (primarily sail) fill a wall-to-wall harbor. The total population of Sausalito is purported to be 6,150 souls. Around 30% of these live in the southern most (older) portion of the community.

The community antenna television system the Cushmans found for sale was located in the southern most portion of the



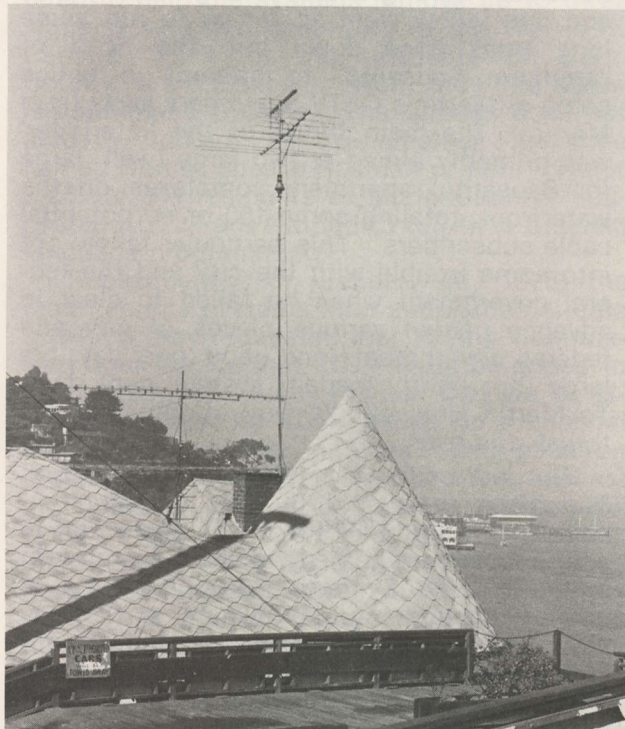
The South Sausalito setting is perfect for cable's basic master antenna function. The steep hill on the southside of the community blocks direct reception of San Francisco signals. Some signal escapes around and over the hilltop, but the pictures are severely degraded with multi-path ghosting.

town. It had been constructed a piece and a foot at a time, starting around 1958 by a Dutch immigrated gent named Martin Houweling. Houweling started out like many others before him did, and as many did after him. He lived where television reception was poor. The San Francisco transmitters were but 7-10 miles south of him, but the rugged terrain between his Sausalito and San Francisco's television towers prevented blemish free reception. So Houweling climbed the tall hill south of town, and under several towering eucalyptus trees he constructed a small tower and hung some antennas. Then he obtained "rights of way" from private land owners between his chosen off-air site and his home down near the waterfront and he buried around 2,000 feet of RG-11 cable to get the television signals down to his home. It worked.

It worked so much better than the ghost riddled reception his neighbors received that ... you guessed it ... his neighbors wanted to hook up to his "antenna". And so "Martin's Community Antenna System" was born. Martin Houweling charged his neighbors \$200.00 initially to "hook on" to his family antenna, and several dollars a month for "line maintenance". Martin, being more stubborn than the average man, had initially determined that if he was going to be "free" from unreasonable demands from the local utility companies, he would best stay off of their poles. And so he continued, as the system expanded to first one home and then another home, to bury his RG-11. Fortunately for Martin Houweling at the time, Sausalito's "native section" was just beginning to discover the "glory" of paved streets and there were virtually no sidewalks in town. Martin went along with a young man carrying a well-sharpened set of hand digging tools planting his RG-11 behind curbs, inside natural cracks in the roadway, across yards and through gullies. Martin buried everything, the cable, his directional taps, his splitters. Fortunately for the Cushmans, some 18 years later, Martin was one hell of a splice maker and water proofer. For, as Howard Cushman notes, **"Not many people could have dug slit trenches only a few inches deep and stuck RG-11 into the slit and covered it up, and still have the copper braid look as shiny and new 18 years later"**. Martin Houweling did.

Martin's approach to cabling Sausalito was something less than planned. He started out on the immediate north side of the headend hill, serving those who lived around him. Then someone several thousand feet away wanted service, and Houweling not sure where his cable would go next, simply ran (oops ... buried!) a line down the curbs and across the street cracks and up the fence lines until he arrived at the new home. Through the years, Martin probably wired and re-wired, criss-crossing his own lines again and again, several Sausalito's. In a nutshell, this was no Jerrold turn-key plant!

The original headend site required that Martin haul his test equipment up the side of a 45 degree slope for about a quarter of a mile. There wasn't (and still is not) a road to the site. As Martin Houweling aged, he decided the headend site needed to be moved down the hill a ways. And so the present headend site, located on the back veranda of a home built just down the hill a short ways, was constructed. During the interim the San Francisco television transmitters moved to higher ground and taller towers, so even with the Sausalito headend site coming down the hill to a point a couple of hundred feet lower, the off-air signals remained strong and clean. Inside of the garage of the home Martin installed his equipment rack. He arranged to exchange 4% of his system's gross receipts with the owner of the home for headend site rights, which comes to around \$1435.00 per year.



This non-subscriber uses a deep fringe VHF-UHF antenna (with rotor) for the 7-12 mile distant San Francisco signals. The deep fringe fixed array below is actually half of a two-stack array fixed on Sacramento VHF channels approximately 50 miles east.

Houweling had an early "permit" to operate his CATV system, but in 1966 there swept California a series of City Manager sponsored conferences on cable television, and from that series of conferences came something called "The Uniform California Cable Television Franchise". Sausalito subscribed to the new "model franchise" instrument and on February 9, 1966 the earlier Martin permit was rescinded and replaced with the new "model" instrument. It gave Martin the 15 year termed-right to operate in "all of" Sausalito. Now Houweling was a man who wanted only to be comfortable, and to be left alone. Before his master antenna was installed for his own enjoy-

ment, he had operated a small "mom and pop" grocery store just a block from his home. And he had a background of "electronic tinkering", when local notable Sally Stanford brought outside entertainment into her famous "Valhalla" it was Martin who came to Sally's rescue with sound and visual effects equipment for the Valhalla stage shows. Martin Houweling, like Sally Stanford, was a "local fixture". All of which is by the way of saying that Martin Houweling was primarily interested in providing himself with television, and to be sure when he reached the CATV system growth point where the system income net was more than he was netting from the grocery store he closed the grocery store. But, Martin Houweling had no grand designs for cabling all of Marin County, in fact he was not really interested in cabling all of Sausalito.

Well, others were. Several nonexclusive franchises were granted through the years, and one fellow went so far as to run some long trunk lines down into the heart of "southern Sausalito" to attempt to entice some of Martin's CATV customers away from Martin. The main thrust of the 'interloper' was primarily aimed at two large (well, large for Sausalito) apartment complexes on the waterfront, totaling some 150 or so potential cable subscribers. This particular fellow got into some trouble with the city and the federal government when he failed to clear in advance use of various pieces of city and federal government land, and one day his large (but lightly loaded) system went dark. To Martin Houweling's way of thinking, the threat was over.

But not quite yet. The wayward second franchisee then sold out his "paper franchise" and the handful of on-again, off-again subscribers he had watching pictures to MSO Tele-Vue Systems, Inc. Tele-Vue is one of the larger group owners in the Bay Area, and has a good portion of Marin County under (or over) cable. In the immediate-freeway-vicinity of Sausalito Tele-Vue operates in Bel Marin Keys, Belvedere, Corte Madera, Fairfax, Larkspur, Mill Valley, Ross, San Anselmo, San Geronimo Valley, Tiburon, Strawberry, surrounding county areas and ... now in Sausalito. Tele-Vue has more than 40,000 subscribers in the area. Under the terms of the "franchise-exchange" approved by the Sausalito city council, Tele-Vue received the nonexclusive right to cable all of Sausalito, provided the new plant, like the existing Martin Houweling plant in the southern side of the community, was placed underground.

So Much For Background

Into this situation came the Cushmans. Martin Houweling had offered his system to Tele-Vue, and the "world", through the good listing services of Bill Daniels in Denver. Howard Cushman the engineer that he is, and the experienced cable system operator that he was going in, spent several weeks

prying around Sausalito, talking with people on the cable and off the cable, and sounding out the city council. And then he stepped (or perhaps plunged is more apt) into the situation, arranging to purchase the 465 subscriber system from Martin Houweling for \$106,000. The City Council approved the transfer on January 15, 1974 and on January 16, 1974 the Cushmans were in the cable business again. Martin Houweling went out and purchased a projection screen television system for his home and he remains in Sausalito to this day.

One of the first things Howard Cushman did as the new owner of the cable system was to sit down and compose a letter to the Federal Communications Commission. Howard had been exposed to sufficient trade publications to know that his system had been grandfathered by the March 31, 1972 rules, and to know that sometime prior to March 31, 1977 he was going to have to obtain a "Certificate Of Compliance". But he, like so many others, did not know exactly what a "CAC" was, so in his own hand-writing he set out the facts as he knew them and made the request.

SOUTH SAUSALITO CABLE TV CHANNELS

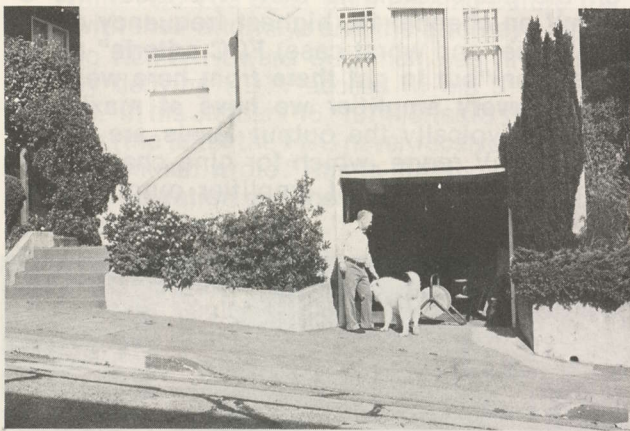
Cable Channel	Station	Network	Off-Air Channel
2	KTVU	Indie	2
3	KEMO	Indie	20
4	KRON	NBC	4
5	KPIX	CBS	5
6	KBHK	Indie	44
7	KGO	ABC	7
9	KQED	PBS	9
11	KNTV	ABC	11
13	KGSC	Indie	36

"I hereby apply for a certificate of compliance for the nine TV stations now carried on our cable system" Howard wrote. **"These stations have been on the cable since its inception, or have been put on within 60 to 90 days of the start of telecasting by the stations. I am also requesting a certificate of compliance for the Sacramento stations listed here, these stations are carried by all of the other cable systems around the bay and our customers have been asking why they can't have them..."**

Well, the Commission cannot find Howard Cushman's letter. To be sure, the letter was not, in the Commission's eyes, a "formal CAC application". It lacked the proper number of copies, and attachments, and form, but it **was** written and it **was** sent. Courtesy, seemingly, would require an answer.

Because the hand written letter was never received or properly pigeon-holed at the Commission, the legal status of the system remained as it had been on April 1, 1972, a grandfathered system required to "come into compliance" on or before March 31, 1977.

Olive Cushman often asked her husband **"Don't you think you should follow up that**



"Our cable system has no vehicles and no office. We use our own cars to service customers and the garage doubles as our spare parts and cable storage, and a small workshop for Howard."



letter again? It has been a year now." Howard replied that "no" he didn't think that was necessary. He still carried the fresh memory of the 18 month drawn out period when his most recent employer in Hawaii had waited out a CAC, **"even with a battery of attorneys doing the work, it took 18 months to get the CAC, sooner or later they will get around to us"** replied Howard.

On August 13, 1975 a new television station took to the airwaves in San Francisco. Not quite twelve airline miles away, KDTV began operation on channel 60 with 1550 kW visual power and an all-Spanish language format. The station is owned by Bahia de San Francisco Television Co., a locally operated station with close ties to the Spanish International Network (SIN) out of Los Angeles and elsewhere. KDTV, citing 76.61 (a) (1) of the rules, noted to all CATV systems within its "specified zone" that it was requesting and expecting "mandatory full time carriage" of the channel 60 Spanish language programs. Howard Cushman received the same letter as the other systems in Marin County.

The largest operator in the county, Tele-Vue, joined Marin Cable Television, Inc. (the 'other' franchisee in Sausalito, eventually bought out by Tele-Vue), filed petitions for special relief requesting a waiver of 76.61 (a) (1) of the Commission's Rules. These systems pointed out that they were 12 channel

systems, were grandfathered operations, and already had 12 off-air broadcast signals on their cable systems. They also pointed out that to add KDTV would require either (1) increasing the channel capacity to more than 12 channels, or, (2) dropping one of their present grandfathered signals. Additionally, the systems noted that KDTV's Spanish language format would have minimal appeal if any at all to the cable audience and, that already carried KEMO-TV (channel 20 off-air) was programming from 40 to 50% of its broadcast day with Spanish language programs.

Howard Cushman was not part of this hearing procedure, but the outcome here is instructive to what has subsequently happened to Cushman.

In its oppositions, KDTV responded that the Marin systems were carrying three "non-mandatory" signals (i.e. KDTV graciously offered to help the systems remove up to three signals), and that according to the 1970 U.S. Census "7.2% of the residents of Marin County" are "Spanish". **Well, they had Spanish surnames anyhow.** The Census does not actually inquire as to whether someone named Gomez speaks Spanish or not. "These 7.2% of the residents of Marin County" suggested KDTV "are entitled to full-time Spanish language programming".

Subsequently, on January 16, 1976, the Marin county systems filed supplemental data in which they requested that **"if the Commission does decide that KDTV must be added to the system, we hereby request that we be allowed to carry the KDTV signal on a channel that is shut off for network nonduplication protection"**, noting that 25% of the broadcast day (and 50% of the KDTV broadcast day) the systems had such temporarily-clear channels on which to place KDTV. The systems also noted they intended during 1976 to voluntarily delete one of the "non-mandatory" carriage off-air signals to provide a local access channel and **"to delete yet another grandfathered signal would put the systems at a disadvantage with signals that are regularly available to homes with rooftop antennas"**.

The Commission was unimpressed by the arguments or the "deal" offered. Accordingly, on March 9, 1976 the Commission ruled in favor of KDTV. The channel 60 station would have to be carried "full time", and if the affected cable systems had to drop a "grandfathered signal" to accomplish this — tough luck. **"But"** the Commission noted **"the systems may continue to carry the grandfathered signal they select to drop, during that portion of the day when KDTV is not telecasting"**. The Commission proves again it is all ... well almost all ... heart. KDTV currently does not commence broadcasting until 3:30 PM.

As noted, Howard Cushman's system was not brought into the lawyer fray between other Marin County operators and KDTV. But Howard did see the handwriting on the wall, for he too had received letters and notices and demands of carriage from KDTV.

Now seemingly, Tele-Vue's problem was not Howard Cushman's problem. Tele-Vue had a fully loaded 12 channel grandfathered system. To add KDTV required dropping an existing grandfathered signal, or, at Tele-Vue's option, re-building for a more-than-12 channel system. Tele-Vue, with hundreds and hundreds of miles of plant and 40,000 plus subscribers was not about to select the latter choice, at least not solely so they could add a Spanish language station that at best would have something of interest for 7.2% of their customers.

Cushman had 9 operating channels on a 12 channel system. Seemingly, to drop in channel 60 was at most a problem involving adding some new gear at the headend.

Cushman knew differently. First of all, he carried off-air signals on cable channels 2,3,4, 5,6,7,9,11 and 13. He skipped, on purpose, channels 8, 10 and 12. His headend consists, as many smaller systems do, of on-channel strip amplifiers, preceded where necessary by UHF to VHF converters. His channel selection is shown separately here. When Martin Houweling put the system together over the 15 or so years between 1958 and 1973, recall that he buried RG-11 (and later, to be completely fair, **some** 412) when new homes wanted service. Some streets, by Howard's calculations, have four of five paralleled sections of buried cable, and only the last 15-20% of the 7 mile long plant has been placed in conduit. The balance is directly buried RG-11, and much of that is now under concrete sidewalks and paved (asphalt or concrete) roadways that were at the time of installation merely patches of rocky Marin county dirt. To this day, inspite of serious attempts to the contrary, there are many homes on the plant that receive signal **somehow**, from **some** direction, and **someway**, but Howard is not too sure **how** they get it, or for that matter, **from where!** Like we said, this was not exactly a Jerrold turn key installation.

Howard knows there are **approximately** 27 solid state line amplifiers in the plant. He spent the first few months trying to plot where they were and how they got their signal. Most are MATV type split-band amplifiers designed for apartment house operation, and they get their AC power from some obliging customer or through their own AC drop. Just this fall he found a couple of more previously "unknown" amplifiers, one was stashed in a closet inside of a customer's home and another was nailed underneath a wooden bridge crossing a ravine. The plant is in the worst case "four trunks" plus a bridger plus two line extenders "deep". In other sections of town, there are two trunks to the headend, plus three bridgers (bridging off of a bridger that bridges off of a bridger, as it were) plus perhaps a line extender or two.

Inspite of Martin Houweling's great skill at waterproofing, even 18 year old RG-11 kept in a vacuum is going to age some. And so levels are an on-going problem. The bottom line

on the plant levels is that **"We meet the 0 dBmV on channel 13 (highest frequency channel carrier and worst case) FCC criteria"** notes Cushman **"but to get there from here we have to run every amplifier we have at maximum gain"**. Typically the output levels are in the +47 dBmV range, which for nine channels is at the ragged edge of amplifier output capability.



RG-11 cable, splitters and pressure taps are buried all over the community, hidden in bushes and under fences.

What does all of this mean? It means simply that because amplifiers are rated at maximum output capabilities per-channel, that **when you add another channel** to the system, you have to **derate the output levels per channel** to compensate for the new carrier(s) present. And in Sausalito, to add a tenth channel to the system, Howard Cushman is going to have to back off the typical amplifier by from 1.2 to 1.5 dB of output level, a problem that compounds itself by the number of amplifiers in cascade. If everything now runs wide open to get the proper signal to noise ratio at the input to the last-in-cascade amplifiers, by dropping all of the preceding amplifiers by say 1.2 dB of output level, the **input** to the seventh unit will now be 7×1.2 dB or 8.4 dB **low**. If a tenth channel was added to the system, and all FCC requirements for minimum signal levels were retained, most if not all of Cushman's existing 27 amplifiers (plus perhaps some more than have yet to be located) would have to be replaced. It is not unlike the 13th channel problem faced by Tele-Vue. But we are getting ahead of ourselves.

While Tele-Vue et al were battling before the FCC with their attorneys and the attorneys representing KDTV, Howard Cushman was firmly but politely denying KDTV access to his 9 channel system. In his January 16, 1974 letter to the Commission (the letter the FCC never received or can't find), Cushman wrote **"This is strictly a husband and wife operation and there isn't any extra money to pay for legal help..."**. This was a posture which non-attorney Cushman would stick with through all that was to follow.

Cushman denied KDTV coverage for a number of reasons. First of all, he had gone to his 465 subscribers in early 1976 and circulated to each one of them a survey sheet. In that sheet, Cushman blindly asked his subscribers which additional channels they would like to have on his system. He has three blank VHF channels (out of 12), and while the system can accommodate no additional channels right now, and will not be able to until he rebuilds the system with at least new line amplifiers, he had been **promised Sausalito city permission to raise his present \$6.50 per month rates to \$8.00 when he added three new channels to the system.**

The results of that survey would figure ultimately in his own "day in court". The survey indicated that of 325 respondents to the survey (which Cushman noted was a phenomenal return in and of itself considering the people had to provide their own envelopes and stamps to return the survey sheet), **no-one asked for KDTV.** Most wanted one or more of the Sacramento channels, which are as Cushman reminds you constantly, **"already available on virtually all other systems in the county, including the Tele-Vue system serving the northern portion of Sausalito."**

Cushman also tried to build a case for the costs involved in adding the KDTV signal. He made a case, as we shall see, for both the costs of adding the new channel at the headend, and, the costs for rebuilding the plant for the amplifier degradation.

And Cushman questioned the "KDTV transmission quality", sort of scurrilously perhaps. In between the exchanges between KDTV and Cushman, and between the FCC and Cushman and the FCC and KDTV, the question of KDTV transmission quality caught the eye of someone at the Commission. And so, on May 24, 1976 the FCC's Field Office Bureau Acting Engineer in Charge Philip M. Kane and a full blown FCC FOB van showed up at 512 Main Street in Sausalito to have a look at KDTV's off-air signal at the Cushman headend site.

In the course of the measurements and observations, the FOB van also took the "opportunity" to check on the quality of the off-air signals picked up by Cushman and delivered to his subscribers.

The Commission found, significantly, that channel 60's signal had "ghosting/noise" even though they "measured" a 53 dB signal to noise ratio over the 12 mile path. The Commission's FOB van utilized a Jerrold PXB-48 antenna, a Dynair RX-4B demodulator and a Tektronix R560 color monitor to make their "TASO" gradings of the signals seen. A table comparing the headend site observations on the FCC's gear versus the end-of-

FCC FOB VAN INSPECTION OF SIGNALS

On May 24, 1976, as part of the "exercise" of preparing evidence for Howard Cushman's "day in court", the FCC FOB van compared (using TASO grading system) the "appearance" of FOB van/antenna signals at the headend site with cable system pictures present near the end of the cable line at Cushman's home/office.

Channel	On Cable	Off-Air
2	TASO 2 (ghosting)	TASO 2 (ghosting, hum)
20/3	TASO 3 (noise, beats)	TASO 3 (ghosting, smearing)
4	TASO 2 (ghosting)	TASO 2 (ghosting)
5	TASO 1	TASO 2 (ghosting)
44/6	TASO 1	TASO 1
7	TASO 2 (ghosting)	TASO 2 (ghosting)
9	TASO 1	TASO 2 (ghosting)
11	TASO 2 (ghosting, noise)	TASO 3 (ghosting, noise)

line observations at the Cushman's office/home at 512 Main Street appears here. The report filed with the "Chief of the Enforcement Division" of the FCC in Washington, by Acting Engineer in Charge Philip Kane noted **"Based upon the observations, there does not appear to be any question that there is sufficient signal for excellent reception of KDTV, channel 60, at the South Sausalito Cable headend site"**. The previous day, May 23rd, the FCC had conducted off-air measurements of KDTV from a site near Alameda, California, some 11 airline miles from the KDTV transmitter site, across the all-water San Francisco Bay path. In that off-air session, KDTV was found to have **out-of-compliance** operations as follows:

- (1) "Color subcarrier was excessive at 240% of the H sync pulse amplitude (Tolerance is 100% plus or minus 10%);"
- (2) "Horizontal blanking interval was excessive at 12.5 microseconds (maximum is 12.0 microseconds);"
- (3) "Vertical blanking intervals was excessive at 23 lines for field one, 22½ lines for field two (maximum is 21 lines);"
- (4) "A spurious signal was present 4.5 MHz below the visual carrier signal, down by some 48 dB. This was apparently an intermod product created in the KDTV transmitter and the spec for such products is 60 dB down."
- (5) "A signal was present on line 21 of field 2, the signal appeared to be a grey flag VIT and VIT signals are not allowed on line 21."

As a result of the Cushman induced allegations, KDTV received a violation notice for items 1, 2 and 3. Item 4 was subject to some interpretation since the FCC broadcast rules (73.678 (i) (1) regarding spurious signals state that measurements relative to intermod products are relative to signals **"...as measured at the output terminals of the transmitter"** and the observations were made 11 miles away. Item five had a similar "loop hole" for the KDTV chief engineer.

The next day, or May 25, the FCC FOB van visited KDTV **directly**. In that inspection, the FCC field people found **additional** reasons to prepare an "Advisory Notice" to Bahia de San Francisco Television Company. In a May 28th notice to the station, the FCC found:

- (6) "The tower paint (on the KDTV tower) is starting to peel and chip; re-painting of the tower should be scheduled in the near future."
- (7) "Quarterly tower light inspections entered in the maintenance log should be clearly identified as such."
- (8) "EBS tests should be entered in the operating log rather than the maintenance log."
- (9) "Visual and aural reflectometer power calibrations should show the actual power levels in kilowatts obtained from the dummy load wattmeter."
- (10) "A spurious signal was observed at 742.75 MHz (4.5 MHz below the visual carrier frequency). The spurious signal was 48 dB below the level of the visual carrier."

All in all, the station ended up with eight rule-section citations and stern warnings in several other areas. Among other things, the FCC FOB people determined that KDTV had operated for extensive periods (including January 14, 1976 through the end-of-May inspection date) **without** a valid program test authorization. The station was operating under a construction permit, which had from time to time (or for short periods) between August 16, 1974 and the end of May 1976 been augmented by "temporary program test authority" grants.

So while Tele-Vue and the others in Marin County were facing the KDTV attorneys before the Commission, requesting waiver of this rule and stay of that order, non-attorney Cushman was innocently creating a scenario that ultimately resulted in FCC citations for channel 60. **People who live in glass houses shouldn't throw stones.**

The Commission was going along with this "poor boy" stance of Cushman largely because it was "building a record" for the day that was sure to come, Cushman's day in court.

That day came on June 17th of this year. FCC Administrative Law Judge Chester F. Naumowicz (Jr.), and Mark S. Haynes, Steven M. Saferin, and Gary Hansen (two of the latter three are out of the Cable Television Bureau and are all attorneys) traveled the big-trip from Washington to San Francisco to "hold court". The FCC sent the three Washington based personnel west to San Francisco not so much as for its junket nature as to "oblige" Howard Cushman who had maintained from the opening gun that he was not able to afford an attorney nor the expense of the hearing. The question was simply **"Should the FCC issue a Cease and Desist Order against Howard Cushman for his failure to voluntarily comply with the request of KDTV for mandatory full-time signal carriage?"** This was not the first trip west for the Commission on this case, an earlier trip by a pair of Washington staffers "collected evidence" preparatory to the June 17th "conference/hearing". So at the opening gun the Commission had five round-trips from Washington to San Francisco invested in the matter, plus three full days of the San Francisco FOB van (staffed with two men). Conservatively, at this juncture the Commission had in excess of \$2,500 invested in the case in direct expenses, plus who knows how much office time.

Howard Cushman, with his wife and working partner Olive, represented themselves. KDTV, apparently to strike a proper balance between Cushman's non-attorney stance and their own "big time broadcaster" image, opted to **also appear without counsel**, Reynold Anselmo (President and Treasurer of KDTV, and 44.444% stock owner) chose to represent his station, with the assistance of the station's chief engineer.

Cushman set the tone in the opening remarks by requesting that the Judge instruct the court reporter to provide him with a "gratis" copy of the transcript. The Judge responded with the statement that Cushman would have to establish a basis for being entitled to a free transcript. Cushman responded with the notation that in the past two years **"We have made less than \$7,000. from the system and the system has not paid any salaries in that time either"**. The Cable Bureau did not object to the "gratis" copy of the transcript/record, and noted that on a preliminary investigation prior to the hearing that Cushman had **voluntarily** turned over to the Commission copies of his 1974 and 1975 federal tax forms as proof of his "pauper" position.

It would be well at this juncture to recall the two primary arguments of Howard Cushman for his side of the case, or, not providing KDTV with the system carriage they requested.

Number one: Cushman maintained, based upon a survey of his subscribers, that out of 325 subscribers who responded to a survey in early 1976, not one requested KDTV programs.

Number two: That if forced to carry the new signal, he was without funds to make the extensive additions of new equipment to the headend and the extensive revisions to the CATV plant.

Howard Cushman had asked some of his system subscribers to come to the hearing, to testify as to their likes and dis-likes, with cable service. Two ultimately did drop in at various points during the hearing, **both had to take time off from their jobs** to do so and their appearance was entirely voluntary. The testimony of one of these two Cushman "witnesses" is instructive:

Question from Cushman: "What is your name, sir?"

Answer: "My name is John Roe."

Question: "And what is your address please ...?"

Answer: "18A Alexander, in Sausalito..."

Question: "Are you at present one of our customers on the cable TV system?"

Answer: "A very satisfied customer..."

Question: "Did we send you a letter at the first of the year, along with your payment book, with questions about your preference for future stations?"

Answer: "You did..."

Question: "Did you return it to us, sir?"

Answer: "I did..."

Question: "And what was your preference or desire as far as channel 60 was concerned?"

At which point the FCC's Cable Bureau Attorney Gary Hansen Objected on "grounds of relevancy" of the question.

Judge Naumowicz: "I'll overrule you on relevancy, sir. You may answer the question Mr. Roe."

Answer: My own personal preference is that there are a number of other programming selections that I would prefer."

Question: "Are you one of the Spanish speaking families in Marin County?"

Answer: "I am not."

Question: "Are you willing to pay extra for this channel, which would be required if we put it on the cable?"

Answer: "I am not..."

Question: "Thank you sir ... if you want to make any additional comments yourself, why feel free, sir."

Answer: "I would like to say very simply that I think Mr. Cushman has gone to a great deal of time and expense to establish what viewer preferences are in his community, and I for one, as I said before, think there are a number of other channels which are much preferable to channel 60, which I do not feel is worth paying extra for at all."

At this point the Cable Bureau's Steven Saferin cross-examined the witness, cable subscriber John Roe.

Saferin question: Mr. Roe, are you familiar with the rules and regulations of the Federal Communications Commission?"

Answer: "Unfortunately, I'm not."

Question: "Do you know there are rules governing the signals that may be carried by a cable television system located in Sausalito, California?"

Answer: "No..."

Question: "When you state you would rather see other programming carried on this cable system in Sausalito, that is strictly without any knowledge of the rules and regulations of what could be carried, is that correct?"

Answer: "I have no knowledge of the rules of what can be carried, that's right."

And where Saferin banged away at the relevancy of testimony from **a mere member of the public**, who did not profess to know what the rules were but only to being present to state his personal opinion of having a Spanish language station on the cable (at an increased cost to himself), another Cushman subscriber-witness said it more plainly.

Subscriber Ben Miller: "If I am going to pay for a new channel, I'd prefer to pay for a channel I'd look at versus a channel which I would not watch."

The Cushman viewer survey listed a wide range of additional on-air channels which the Sausalito system might now be carrying. This included a new religiously programmed channel in San Francisco, a set of three Sacramento network signals, and a non-network (i.e. indie) station out of Sacramento (channel 40). The system subscribers realized that at most Howard had additional room for three channels, and that if he was "free" to add the channels they wished, it would be on the basis of "majority vote." That is, the channels receiving the maximum number of votes would, all other things (such as signal carriage provisions of the rules) being equal, be the chan-

nels he would eventually add to fill out the 12 dial positions.

The "vote" turned out as follows:

(1) Channel 38 (religious station) - 323 No, 2 yes

(2) Channel 60 (Spanish station) - 325 no, 0 yes

(3) Channel 40 (Sacramento Indie) - 163 yes, 83 no

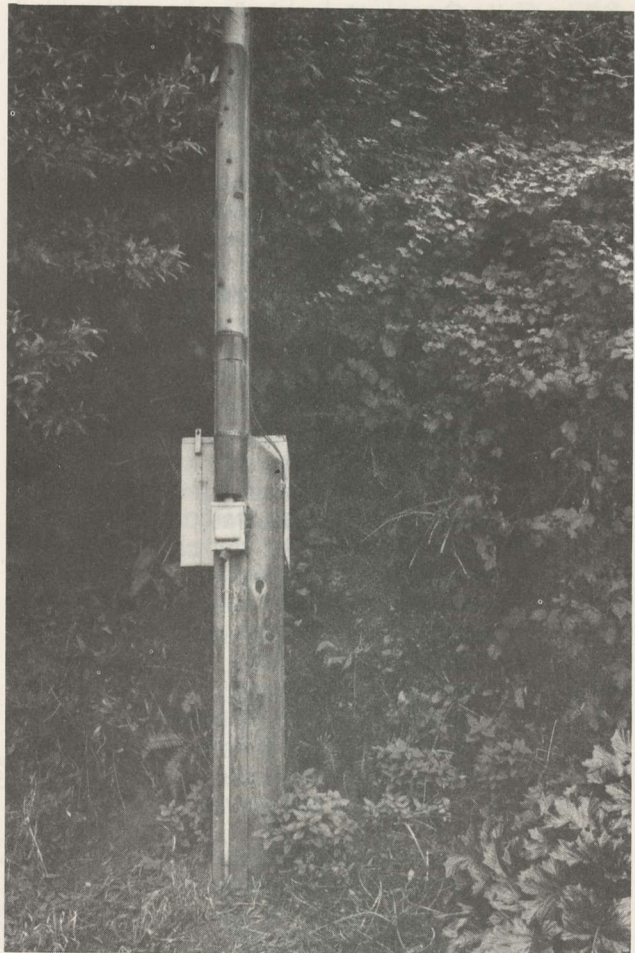
(4) Channel 3 (Sacramento NBC) - 181 yes, 66 no

(5) Channel 10 (Sacramento CBS) - 173 yes, 70 no

(6) Channel 13 (Sacramento ABC) - 142 yes, 82 no

(7) Channel 6 (Sacramento PBS) - 128 yes, 129 no

Cushman: "I had no axe to grind with the letter. If everyone wanted to have only channel 60, and they didn't want the rest on, and they were willing to pay for channel 60, I'd take the rest off the cable."



Cushman is slowly getting all amplifiers re-mounted in outdoor housings on posts where they can be serviced. "It is not always convenient to get into a customer's bedroom to service an amplifier in a closet" notes Olive Cushman.

The question of additional channels for Howard Cushman was **not** provoked by the channel 60 problem, it loomed far in the background of Cushman's mind at the time. When he purchased the system from Martin Houweling, the system had a monthly rate of \$5.00. Cushman insisted on an increase to \$6.50, and got it, with a further rate approval of \$8.00 per month (the same rate as is charged in most of the county now for 12 chan-

nels of cable). But the next step, to \$8.00 per month, is **entirely predicated upon Cushman filling out the remaining three channels on the dial.** In plain economic terms, he has another \$1.50 per month dangling out there in front of him per home, **when** he adds three new channels that the people in Sausalito **are willing to pay extra money for.** Channel 60 is clearly **not** one of those "extra channels for extra money" stations.

And because adding any channel involves more than simply adding some new equipment at the headend (i.e. it involves changing out the plant amplifiers with an underground plant, especially this underground plant, you don't simply back-up amplifiers on the cable to balance the lowered outputs), Howard Cushman understands well that he needs the **full \$8.00 per home per month** to make the additional investment work out. It is more than offsetting the additional \$2,500/\$3,500 per channel in new headend gear, it is a complete rebuilding of the plant proper for all 27 (or however many there really are) line amplifiers as well. On a system running on a tight budget, every penny counts.

Cushman feels very strongly about the public in this situation. It may be a convenient mantle to drape himself with, but it rings true none the less.

"Our case simply is that we would request a waiver so as to not carry channel 60 because we have shown there is no public desire to carry this station. This is supposed to be a government of the people, by the people and for the people. I don't object to channel 60 operating, but I certainly object to their telling me and my subscribers that we have to spend our own private funds to cover a town only 12 miles from their high power transmitter when they have done such poor engineering that they don't reach the community directly. And I especially object to this station and the FCC telling us that we must carry this signal when the public has demonstrated 325 to 0 that they don't want the signal on our cable system if it means they will lose the option of having another station they are entitled to and want."

Cable Bureau attorney Hansen had difficulty with Howard Cushman's survey. He seemed particularly irritated that Cushman took the survey, had somehow managed to have it entered into the record, and then kept using it as a strong point in his anti-KDTV carriage argument. He cross-examined Cushman about the survey.

Gary Hansen: "Mr. Cushman, are you aware which of the signals you listed on your survey to your customers are consistent with the Commission's Rules?"

Cushman: "Well, as far as being consistent with the Commission's rules, I may or may not agree with whether the rules are correct. I am stating the fact that the Supreme Court has said there shall be no discrimination, and 75% of the town of Sausalito already has Sacramento signals on their cable system (the Tele-View service), and virtually all of the Bay Area cable systems also have the Sacramento signals on their cables."

Hansen: "When you distributed this questionnaire, did you make available to your subscribers the information as to which sig-

nals were and were not consistent with the rules?"

Cushman: "I didn't explain the rules to the people. I don't even understand them myself. I just looked at the channels the surrounding cable systems offer, and the signals available at my headend, and made up the list. The signals listed are consistently offered to cable subscribers all around me and are consistently available at my headend site. That is the extent of my consistency."

Cushman later offered **"I believe the cable industry has been too quick to accept the basic premise of the FCC's rules. For example, suppose someone came along with a regulation that said I had to trade at the nearest grocery store, buy all of my gasoline at the closest gasoline station, and marry the girl next door. This country would come unglued and march on Washington in a minute if such rules or regulations were announced. Yet that is exactly what happens with the FCC telling me that perhaps I cannot carry non-local television signals. The rules are made to protect narrow private interests. Take the San Diego situation. The FCC has limited signal carriage there to some magic number less than the full number of off-air signals available. Yet just outside of the San Diego 35 mile circle, there are CATV communities with 6 to 8 additional off-air signals. This is a very unusual form of discrimination...."**

Howard Cushman has a big soapbox, and he doesn't mind carrying it around to stand on.

If the question of Sausalito cable customers not wanting KDTV's Spanish language programming (if it was going to cost them more money, and be in place of a channel they wanted) was **not** adequately resolved in the June 17th hearing/conference, the matter of **how much it would cost** Howard Cushman to add the new signal was even less accurately defined. The Cable Television Bureau attorneys were on unfamiliar ground. Attorney Hansen tried to draw out of Cushman what it would cost to do the job. He had been preconditioned before the hearing (perhaps back in Washington by the Cable Bureau engineering staff) to narrow his look towards **only** the headend gear required. To Hansen, if a television set had 12 VHF dial positions, and the cable had only 9 channels in use, that **automatically** meant that the cable company had three more channels to use **at no additional investment.** Unfortunately, in spite of Cushman's attempts to show this was not the case, it went badly for Cushman.

Cushman attempted to explain his off-air ghosting problem, and why he needed more of an antenna than a simple dipole for the 12 mile path. No one really understood. Cushman tried to explain what happens when a UHF to VHF converter is saturated with strong off-air signals on channels 14, 20, 26, 31, 38, 40, 44, 54 and 60. He was trying to justify to the court the need for a UHF bandpass filter. It took several pages of testimony and cross examination, **and it also fell on deaf ears.**

Cushman tried to show that because the system was strapped for cash, and he was paying off the system debt, the "court" should not automatically assume that as an owner-operator he

CUSHMAN SUGGESTED "PROPER" METHOD
OF ADDING CH. 60

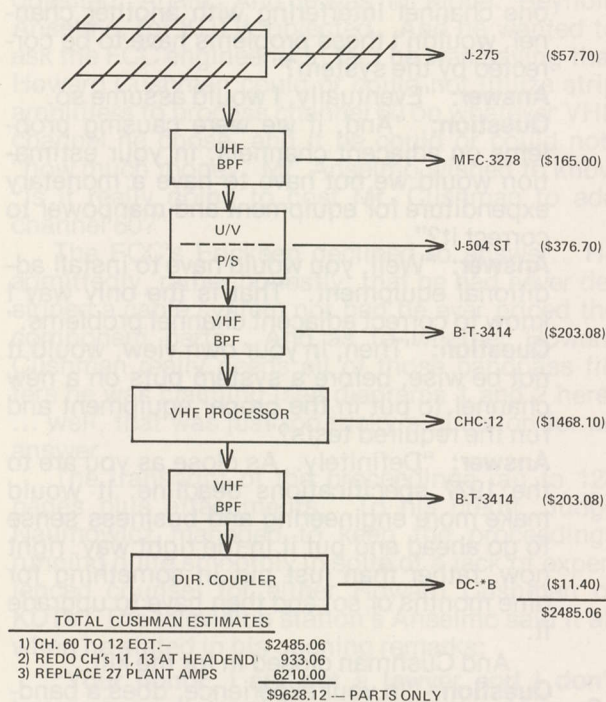


DIAGRAM 1

KDTV SUGGESTED "CHEAP" METHOD OF ADDING CH. 60

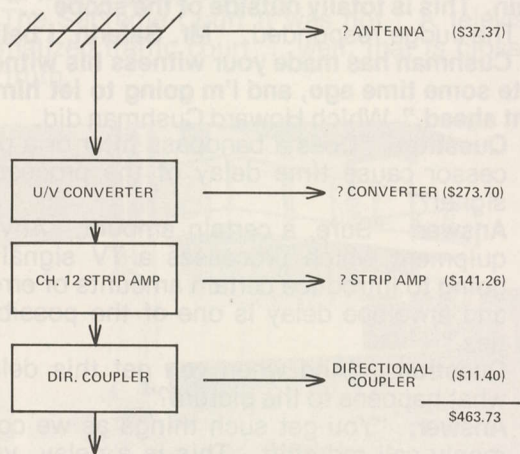
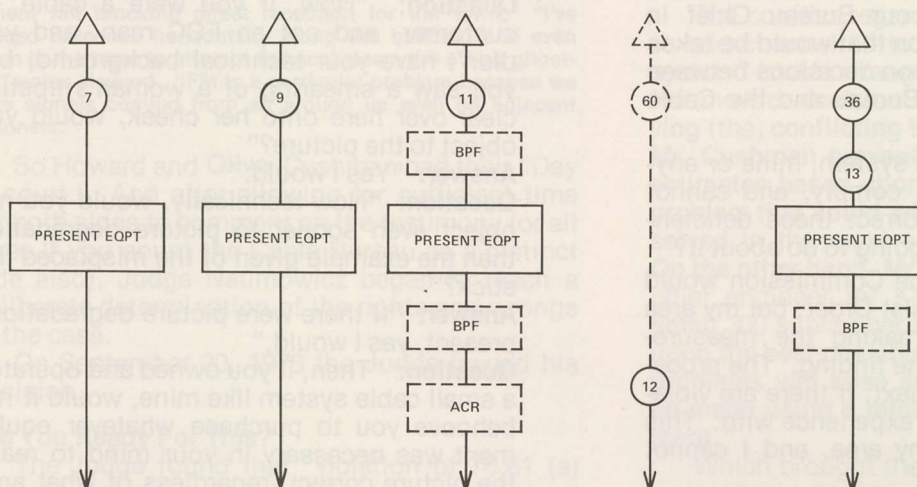


DIAGRAM 2

ADDITIONAL EQUIPMENT REQUIRED TO EXISTING HEADEND (DOTTED EQUIPMENT)



NET COST TO ADD CH. 60
TO EXISTING HEADEND.
COST OF CH. 60 GEAR
PLUS \$933.06 IN CH.
11, 13 GEAR.

DIAGRAM 3

should "work for free". He was trying to justify a reasonable wage for the 80 hours of time he estimated it would take to add the channel 60 equipment to the headend. **The trend of that session was that Cushman should work for free on his own system and not expect to be paid for his own time.**

Later Cushman would remark "I just do not understand how they can send a Judge out here to rule on such technical matters when the Judge is so obviously unqualified to weigh evidence of such a technical nature."

Cushman had some unexpected help from a Commission employee. Where Cable Bureau Attorney Hansen kept tripping all over himself trying to separate in his own mind the difference between a headend strip amplifier and a plant split-band amplifier, Dane Ericksen, an engineer for the FCC out of San Francisco was more understanding.

Mr. Ericksen established that he had been an employee of the Commission for six years and held a degree in electrical engineering. **The FCC brought Ericksen on the stand** primarily because Howard Cushman kept making reference to "time delay limitations" of inexpensive bandpass filters. Cushman had read that the Commission was about to impose regulations in this area, and he was reluctant to accept other estimates offered for the type of bandpass filters and strip amplifiers he actually needed at the headend to process the channel 60 signal, for fear that the pass band delay would be excessive and the system would be out of spec. Engineer Ericksen told the hearing that no such rules **currently** exist.

Howard Cushman seized on the opportunity to cross examine the witness. Ericksen had been part of the FOB field team that had investigated his headend some weeks prior. Between the non-engineering mind of Attorneys for the Cable Bureau, and the non-technical Judge, Reynold Anselmo representing channel 60 had brought in his own chief engineer to dispute Cushman's claim that the addition of equipment at his headend to add channel 60 to the system would be an expensive proposition. The channel 60 engineer, who claimed to also own a small 300 subscriber CATV system "on the side" represented that **he could do the job** for someplace between \$495 and \$900. On

cross examination of the channel 60 witness, the dialogue got so technical that the judge was obviously lost. To Cushman, the opportunity to bring the FCC's engineer into that discussion was unmistakable.

Cushman question: "Will you explain, since the gentleman from channel 60 said he could put channel 60 on my system without any bandpass filters and they would not have any difficulties with adjacent channels, how this might be true?"

Ericksen response: "There might be problems with adjacent channels. I would say that we would have to make measurements to find out."

Question: "And, if you find any degradation or problems in the adjacent channels, if you were the system owner, like me, it would behoove you to take steps to correct these problems?"

Answer: "Yes, if there were problems there."

Question: "And, if you were the FCC man, would you not insist that these corrective steps be taken?"

Answer: "That is incorrect."

Question: "How can that be? Are there not rules for the signal levels of adjacent sound carriers to picture carriers?"

Answer: "For your cable system, which is a grandfather cable system, there are no technical specifications except that you must not have cable radiation. The new technical rules do not go into effect until March 31, 1977. After that date you would be expected to comply with all of the technical provisions of Part 76."

Question: "Then I now have nine months to comply with all of the technical regulations the FCC has thought up, right?"

Answer: "That is correct."

Question: "And then if in nine months my system does not comply technically, then what happens to my system?"

Answer: "Well, first you would be subject to more technical measurements. Then, based upon our present procedures, we would issue you a letter advising you of the non-compliance, and asking for a reply within ten days to advise us what steps you will take to correct the violation. And then we forward the whole matter to our Bureau Chief in Washington. The action that would be taken from there depends upon decisions between the Field Operations Bureau and the Cable Television Bureau."

Question: "But, if the system, mine or anybody else's, does not comply, and cannot comply and cannot correct these deficiencies, what is the FCC going to do about it?"

Answer: "I assume the Commission would issue a Cease and Desist Order, but my area of responsibility is making the measurements and reporting the finding. The procedures on what to do next, if there are violations, I have no direct experience with. This is really outside of my area, and I cannot speak knowledgeably."

Question: "Well, if the Cease and Desist Order were issued, or if you issued a warning saying that there were problems such as one channel interfering with another channel, wouldn't these problems have to be corrected by the system?"

Answer: "Eventually, I would assume so."

Question: "And, if we were causing problems on adjacent channels, in your estimation would we not have to have a monetary expenditure for equipment and manpower to correct it?"

Answer: "Well, you would have to install additional equipment. That is the only way I know to correct adjacent channel problems."

Question: "Then, in your own view, would it not be wise, before a system puts on a new channel, to put in the proper equipment and run the required tests?"

Answer: "Definitely. As close as you are to the 1977 specifications deadline, it would make more engineering and business sense to go ahead and put it in the right way, right now, rather than just put in something for nine months or so, and then have to upgrade it."

And Cushman closed in for the kill.

Question: "In your experience, does a bandpass filter cause delay"

Attorney Saferin bolted up. "Your honor, we would like to renew our objection at this time, again. This is totally outside of the scope ..."

The Judge responded. "Mr. Saferin, I believe Mr. Cushman has made your witness his witness, quite some time ago, and I'm going to let him go right ahead." Which Howard Cushman did.

Question: "Does a bandpass filter or a processor cause time delay of the processed signal?"

Answer: "Sure, a certain amount. Any equipment which processes a TV signal is going to introduce certain amounts of errors and envelope delay is one of the possibilities."

Question: "And when you get this delay, what happens to the picture?"

Answer: "You get such things as we commonly call red shift. This is a delay, your color fades, or the color can shift and there is signal degradation. It is much more objectionable on color than on black and white."

Question: "Now, if you were a cable TV customer, and not an FCC man, and you didn't have your technical background, but you saw a smearing of a woman's lipstick clear over here onto her cheek, would you object to the picture?"

Answer: "Yes I would."

Question: "Now technically, would you not object even sooner to picture degradation than the example given of the misplaced lipstick?"

Answer: "If there were picture degradations present, yes I would."

Question: "Then, if you owned and operated a small cable system like mine, would it not behoove you to purchase whatever equipment was necessary in your mind to make the picture correct, regardless of what any-

body else said, correct?"

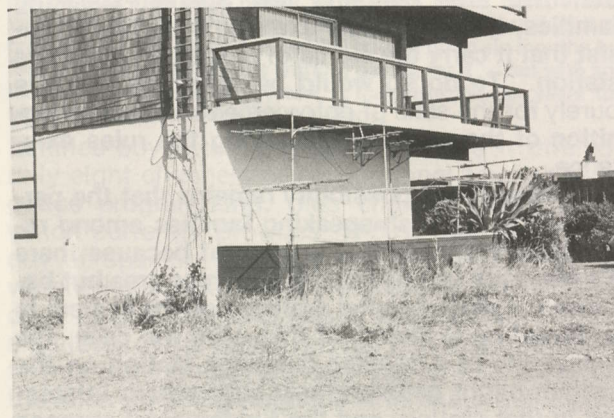
Mr. Saferin could take it no longer. And he objected. Again. And he was not alone. Reynold Anselmo, for KDTV, objected. And he wanted to ask the FCC engineer if in fact he was saying that Howard Cushman could or could not utilize strip amplifiers to process channel 60 on whatever VHF channel he chose, and if he could or could not, "how much money" Mr. Anselmo wished to know "is it really going to cost Mr. Cushman to add channel 60?"

The FCC's Ericksen declined to answer. He admittedly, rather honestly, that he had never designed a cable system nor had he ever priced the component parts. And as to whether Howard Cushman really needs all of those bandpass filters he was claiming (see diagrams 1 and 2 here) ... well, that was just too tricky a question for an answer.

The transcript of the proceedings ran to 128 pages plus attachments. To his credit, Judge Naumowicz managed to keep the proceedings running quite smoothly in spite of a lack of experienced counsel for either Howard Cushman or KDTV. The television station's Anselmo said it all when he stated in his opening remarks:

"Your honor, I am not a lawyer and I don't know what a direct case or an indirect case is. So maybe we could just wing it along, and I'll ask permission to intervene if I get a little uptight about what's going on here."

The Supreme Court it was not. A television dramatized traffic court ... well, that is closer to the truth.



The headend site is on the south side of a home atop the prominent hill blocking direct reception for the town. "I've spaced antennas horizontally along the building and even down in the trees to attempt to knock down the off-air ghosting" notes Howard. "FM is a particular problem because we have signals coming from all around us even on adjacent channels."

So Howard and Olive Cushman had their "Day in court." And after allowing for sufficient time for both sides to comment on the testimony (or all three if you count the Cable Bureau as a distinct side also), Judge Naumowicz began to reach a deliberate determination of the rights and wrongs of the case.

On September 20, 1976 the Judge issued his decision.

Are You Ready For This?

The Judge found that "violation of 76.61 (a) was simple and undisputed." And he determined

that the case really boiled down to whether South Sausalito Cable TV should be granted a waiver of the rules.

The Judge found the South Sausalito case boiled down to two arguments presented by Howard Cushman. Number one - there was a nearly unanimous lack of interest on the part of the system's subscribers in the programs of KDTV, and, number two - the system has attempted to demonstrate its lack of financial ability to add the KDTV signal. The Judge felt that South Sausalito "had advanced each argument with sincerity." The Judge found the Cushman survey "far from scientific" but noted the results "are not unimpressive." The Judge determined that the results from the survey suggested that "the percentage of Spanish-speaking families subscribing to the South Sausalito system is probably considerably less than the percentage of such families residing in Marin County."

Then the Judge went on a fishing expedition in a leaky boat.

"However," he wrote, "two reasonable explanations for this fact suggest themselves, that the percentage of Spanish-speaking families in the area is lower than the county as a whole, or that the programming available on the system is not appealing to Spanish-speaking families."

The good Judge continued. **"The first situation would support the requested waiver, while the second would not. Unfortunately, the record furnishes no hint as to which, if either, is the proper explanation"**

During the course of the proceedings in June, KDTV and the Cable Bureau presented "evidence" taken from the 1970 U.S. Census, which depicted 7.2% of all families living in Marin County (of which South Sausalito is but a small portion) which had **Spanish surnames**. The U.S. Census does **not** determine whether such families (1) speak Spanish, (2) speak it fluently and as the "language of the home", or, (3) are in fact Spanish and not Portuguese, or Italian. The good Judge slips out of his docking slip and ventures into uncharted waters when he turns the 1970 U.S. Census report of 7.2% of the county families with Spanish (**sounding**) surnames into 7.2% of the residents of South Sausalito who speak Spanish as the primary language in their homes, to the point where English speaking television stations **"are not attractive to them."**

The conflict regarding "how much will it cost to add channel 60 to the South Sausalito CATV system" took a strange turn in the September 20th Naumowicz decision. The Judge wrote, **"In resolving (the) conflicting testimony, it was found that Mr. Cushman presented the worst possible cost estimates based upon the assumption that every problem that could arise would arise and must be solved in the most expensive manner possible. On the other hand, Mr. Porter's estimate (he is the chief engineer for KDTV and the operator of a small 300 subscriber system of his own) is based upon the best possible case, and assumes that no problems will arise and that the installation can be made using a minimum of inexpensive equipment."**

Which brought the Judge to his "bottom line" on equipment costs. **"The most dependable esti-**



View from the top—looking down into the cabled area from the balcony of the headend site location.

mate of what would probably be involved is that of Mr. Ericksen (the FCC FOB engineer assigned to San Francisco), and it is adopted. While the Ericksen estimate does not permit a precise finding as to the cost of adding the signal of KDTV to the system, it does permit a finding that such costs would probably range between one and three thousand dollars."

A careful review of the transcript does not reveal that FCC engineer Ericksen even came close to providing sufficient testimony for the Judge to "permit a finding that such costs would probably range between one and three thousand dollars." In fact, on page 122 of the hearing transcript, Engineer Ericksen stated "I really don't have the expertise to (provide hard cost estimates). I'm just in the process of measuring cable systems I've never gone out and priced equipment or designed a system as such."

So where does the Judge's learned finding of a probable cost of \$1,000 to \$3,000 come from? We suspect ... but could never prove, that when he returned to Washington after his San Francisco junket that he dug down into the engineering arms of the Commission for some "expert" translation of the testimony he had gathered. In effect, if this was the case, "testimony" taken by the Judge after the hearing from other Commission employees, **not a party to the public proceeding**, helped sway his decision. That is a strong charge ... **and we recognize it as such.** But there is little other opportunity for the Judge to arrive at those

precise number ranges in the testimony itself, lacking as he does an engineering background. We quarrel not with the finding, as much as the technique he apparently utilized to arrive at that finding.

And so to the decision.

"Respondent's first contention is that there is little or no interest in its service area in viewing the signal of KDTV. If its proof on this point were strong, waiver of the rule might well be appropriate. Central to the Commission's basic CATV policy is the desire to insure maximum viewability of all television stations within their natural markets. If carriage of the KDTV signal on the South Sausalito system would not further this objective, there would be no purpose to be served by enforcing Rule 76.61 (a) (1) in this instance, and waiver of the rule might be appropriate.

"However, respondent's proof on this point is not strong. Its survey establishes with reasonable certainty that the percentage of Spanish-speaking families among its subscribers is considerably less than among the population of the county as a whole. It also established that there is little or no interest among its subscribers in having the KDTV signal available. However, standing alone these two points are not enough.

"The fact that the percentage of Spanish-speaking families among respondent's subscribers is lower than among the population of the county as a whole implies, but fails to prove, that the percentage of Spanish-speaking families in its franchise area is lower than in the county as a whole. That is to say, the final, decisionally significant fact remains unproven. If respondent's franchise area contains few Spanish-speaking families, it would be an exercise in futility to insist that it carry the signal of a Spanish language station. To do so would be enforcing the rule purely for the sake of enforcement without recognition of the purpose underlying the rules existence.

However, the possibility remains that the percentage of Spanish-speaking families among respondent's subscribers is low not because there are few such families in the franchise area but because the programming available on the system is unappealing to them. If this were the case, the availability of a Spanish language station on the system might generate new subscribers interested in that station, and the fundamental purpose of the rule would be served by its enforcement. It was up to the respondent to carry this burden of proof, one way or the other, and this it failed to do. Having failed, it has established no basis for the waiver of the rule."

Keep in mind that Howard Cushman defended his system without benefit of counsel. He, like most anyone else, believed that if he proved his present subscribers did not want the service, and had no interest in it, he was establishing sufficient grounds for the waiver. He did not realize that in the Judge's mind his obligation was not only to **his present subscribers**, but his potential subscribers as well; those additional 100-150 homes in Sausalito who do not subscribe to the cable. Little did Howard Cushman realize that out there in those non-subscribing homes there were legions of Spanish-surnamed/Spanish-speaking



"Through the years Martin put in so much cable in so many places that even after nearly three years here I don't know where all of it is. We have a local ordinance that makes it a crime with a maximum fine of \$500 and/or up to six months in jail for taking cable service without paying for it ... but with so many wires running everywhere, it may take me ten years to search out all of the non-paying drops."

families boycotting the cable because it offered only eight channels of conventional English language programming, plus channel 20's KEMO which currently provides 40-50% per broadcast day of Spanish language programming (a point which the Judge completely overlooked)! The case for a Cease and Desist Order rests on the shoulders of the Cable Television Bureau. It is up to this Bureau to prove **only that** one or more of the rules **are being violated**. After that, their job is done. The case for a waiver of the rules, the guilt of violation having been established, rests squarely on the shoulders of the "wrong-doer". The contestee must prove that a waiver "is in the public interest". And in the Judge's mind, as long as Howard Cushman did not prove that the non-subscribing families in South Sausalito were below the county's 7.2 percentile for Spanish surnamed families, he had failed to prove his case for a waiver of the rules!

Before going on with the remainder of the Judge's decision, as it relates to Cushman's "financial ability to add KDTV", let's engage in a small amount of elementary mathematics.

If in fact 7.2% of the residents are Spanish surnamed and do in fact speak Spanish and that is in fact the primary language of their homes, **just what does that entitle them to?**

First of all 7.2 percent is very nearly 1/14th of

100 percent. Or to put it another way, if you have 12 television channels on your cable system **and the law says** that you **must** provide a programming balance on your cable system that equates programs carried versus ethnic groups, you would provide 1/12th of your total program capacity or 1 channel in 12 to say Spanish speaking folks **if in fact** 1/12th or 8.333% of your folks spoke Spanish.

There is no such rule, even for broadcasters. But this is what the Judge is driving at. Now 1/14th (or 7.1%) is the equal of **85.7% of one full channel**. That might be conveniently rounded off to 1 full channel, but that would **not** mathematically exact. Now in South Sausalito, the system **already carries** KEMO (channel 20), which from week to week averages 40-50% Spanish language programming. Let's assume it runs 40% on the long average, so we now have **40% of one channel** in 12 (12 assumes a fully loaded 12 channel system) or 46.68% of our mythical 85.7% already programmed in Spanish. If Howard Cushman added the full-time Spanish of KDTV, he would have 100% of one channel and 40% of a second channel, or 140% of a channel now programming Spanish. Based upon a 7.2% penetration of Spanish speaking families who held Spanish to be the preferential language, the addition of KDTV would result in 140% minus 85.7% or **54.3% too much channel time** devoted to the 7.2% Spanish speaking families that don't really exist in South Sausalito anyhow.

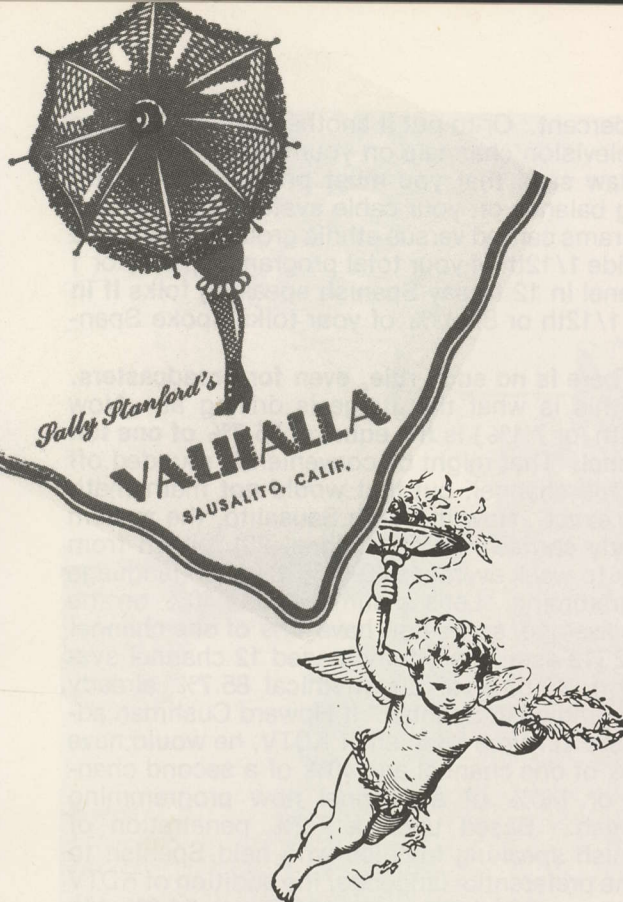
The Judge is saying that the Spanish speaking families **have the right** to be entertained and informed in their 'native' tongue and Cushman has the obligation to provide it for them, if it is available. Conversely, the 92.9% of non-Spanish-speaking families have the equal right **not to lose** 54.3% of one channel to the Spanish speaking minority when that minority is utilizing 54.3% of a channel's time that does not rightfully credit to their minority interests.

It is a funny game. Judge Naumowicz plays it well. But as we noted earlier, he has gone off on a fishing expedition in a leaky boat.

The Question Of Costs

"Respondent's second contention is that the rule should be waived because it would financially be difficult or impossible to comply with the rule. Here, too, the respondent's proof falls far short of its allegations. By attempting to overprove its claim, respondent winds up in the position of submitting cost estimates upon which little reliance can be placed. The actual costs which it has been found that respondent is likely to face are between one and three thousand dollars. Such costs are not, on their face, excessive nor do they appear to be out of reach relative to what respondent paid for the system, its revenues, its profits or its cash reserves.

"In sum, it is concluded that respondent has failed to offer reasonable proof in support of its claim that the rule should be waived. It is to be emphasized that, in reaching this conclusion, the presiding Judge is not concluding that the (FCC's signal) carriage rule should never be waived if it is shown that the costs of carrying a given signal would be excessive. These points are never



*As the result of the water shortage,
water will be served only
on request*

When Cushman purchased the South Sausalito system in 1974, the broker forecast twenty new homes per year would be constructed on the remaining hillsides. Alas, an acute water shortage has forced the City to void all building permits and in the nearly three year interim, less than ten new homes have been built. "We are growing at a zero rate" laments Cushman.

reached in this Initial Decision which is based solely on the conclusion that the respondent, having been proven to be in violation of the rule, failed to adduce that quantum of proof which would establish the factual basis of its claim for waiver of the rule."

And so, Judge Chester F. Naumowicz ordered, on September 20, 1976, that South Sausalito Cable TV shall Cease and Desist from further violation of 76.61 (a) of the Commission's rules. In other words, Howard Cushman was ordered to put KDTV on his cable system.

Appeal Possible

Under the FCC's Rules (1.276) exceptions to the Initial Decision were to be filed within 30 days of the public release date of the decision. The release date was September 23, 1976. Howard Cushman first received copies of the release **nearly three weeks** after September 23, which left him less than two weeks to prepare and submit his response and request for review by the Review Board. Cushman was extremely upset by the decision; in his view "If I am forced to add this channel, the additional costs at the headend and in the

plant will surely break this operation. Not only will our 'retirement with dignity' plans abort, but every free enterprise principal we believe in will have been abridged".

Accordingly Cushman, obviously a 'fighter', did not give up with the Initial Decision. First, without counsel, he prepared a lengthy request for the extension of the 30 day period for response to the Initial Decision. The odds were against him ... the Commission seldom grants such extensions, unless they are short term for say ten days to cover extended mail delivery periods. But wonder of wonders, the Commission **did grant** Howard Cushman an extended delay of 45 days.

"I'm not at all sure how we will use that extra time" notes Cushman. "Apparently to reverse the Initial Decision of Judge Naumowicz we have to do two things. First of all, somehow with our own resources of two pair of hands, we need to canvass every home within our service area, those who do and who do not subscribe to the cable, and we have to determine how many Spanish surnamed families live here. If it turns out to be as low as the percentage of people who are presently on the cable, then we may have a chance. I am less optimistic about our chances of proving that we cannot afford the complete plant re-build for a single channel nobody wants. It's not that we have the money or can get it ... we don't and can't. However, this is such a technical argument that I fail to see how in the world we can get the average legal layman to understand what it is we are saying."

And if he loses at the Review Board level?

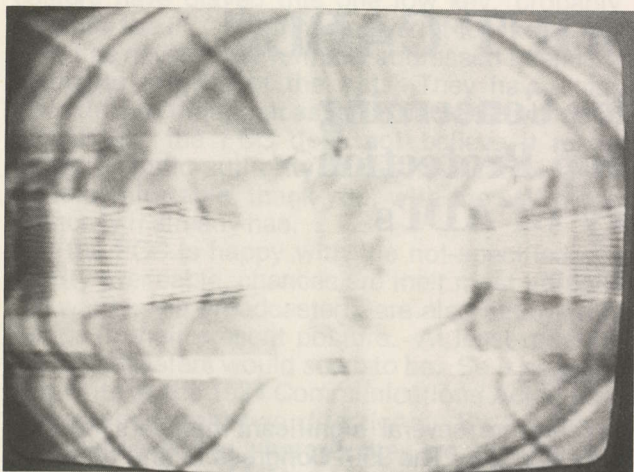
"Well, I understand we can then appeal to the full Commission. And if that doesn't work either, there is always the Federal Court in Washington."

Will Cushman continue to handle the case on his own, without legal assistance? No doubt the lack of legal expertise has hurt the Cushmans to date. In his September 20th decision, Judge Naumowicz wrote "...the evidence in support (of the Cushman contentions) is deficient in matters of substance which cannot be overlooked as simply attributable to the cable system's owners inexperience in legal matters". The Judge was keenly aware of the Cushman's lack of legal expertise throughout the hearing, and in fairness to His Honor the hearing transcript is resplendent with deviations from the 'legal norm'.

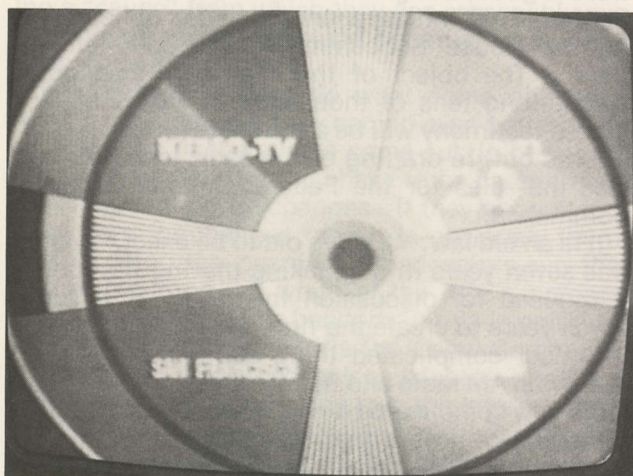
"I have been hopeful that at some point in this proceeding we would be able to find some legal-aid representation" notes Cushman. "But so far, in spite of our looking at several levels for some free legal assistance, we have come up empty handed".

"I don't want anyone to get the idea I have given in to the FCC or the system they have established to prosecute the compliance with their rules" notes Cushman. "I am just as firmly opposed to the Commission creating rules with the effect of law, rules which deprive my cable subscribers of their Constitutional rights to view programs their neighbors view, as ever. I think the whole system is rotten..."

Cushman carries around with him a faded copy of an article appearing in PAY DIRT magazine, dated October 27, 1976. He takes it out and



Typical off-air and on-cable reception comparison. Channel 20 (KEMO) is seen on set-top antenna in Cushman Office/home and then on Channel 3 on the cable system.



reads it **"at least once every day"** because **"I hope somehow the same approach may eventually be taken to the FCC's enactment of rules and the enforcement of those rules"**. The article reports that the U.S. Department of Interior tried to force a small one-man miner off of his claim near Sedona, Arizona because the DOI believed the man's claim was **"not profitable and there is no need for the operation"**. The miner had appealed the decision to a DOI Administrative Law Judge (the same equivalent of Judge Naumowicz) who in turn agreed with the earlier decision of the DOI lower echelon people. The miner then appealed the case to the DOI Board of Land Appeals (again, the equivalent of the FCC's Review Board) where once again the miner was told to shut down his mine. The miner obtained some assistance from an attorney and together they took the case to the U.S. District Court.

"Look at what the court said" notes Cushman with an obvious air of enthusiasm.

The U.S. District Court found that the DOI had insufficient evidence to support the ruling and granted the miner's request for a summary judgment. The case was remanded back to the DOI for review. The miner's attorney put it all in perspective, and this is the part Cushman particularly likes.


"First the department used one of their own administrative law judges to decide the case. There was no fair and impartial judiciary—just a Judge who depended upon the department for his own salary. And he ruled against us. This is an important decision for the (small miner). It means that the basic separation of powers, which is important to a democracy, is still intact. What the Department of Interior was trying to do is make the law and act as Judge at the same time. Government bureaucrats are zealots. They're always sure they are right and the public is wrong" notes the miner's attorney.

"Boy, I'd like to find an attorney like that" sighs Cushman.

The Irony Of It All

On October 18, 1976, just days before the Cushman response was due in Washington to the September 20th decision, George Colon, General Manager for KDTV addressed a letter to Olive Cushman. The station manager took note of the Judge Naumowicz decision and then said **"While we believe that this decision requires that you commence carriage of KDTV at the earliest practical date, in view of the particular circumstances pertaining in this case, we are not requesting enforcement of this order until such time as any additional signal is added to your system. In such case, we would insist that the signal of KDTV be the first added to your system"**.

Did that private-release from KDTV make Howard Cushman feel any better? **"Yes and no. It was helpful to see that our evidence and facts as presented in the hearing and subsequently finally found somebody that was understanding. But the basic premise of having only three channels left to fill, and our needing all three of those channels for stations our subscribers want ... or we cannot get our city approved rate increase to \$8.00 stands. If we have to add KDTV as one of the three new channels, and nobody wants it, then the best we can hope for is a \$7.50 rate (at \$0.50 per channel). This is such a small business that the extra 50 cents a subscriber a month of \$2,790. per year would be enough to make the difference between this system living or going under by default. Faced with that decision, I'd much rather die all at once than a little bit at a time over several years."**



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BROADCASTERS SPEAK OUT ABOUT CABLE

A Look At Attitudes Concerning CATV Fines, Non-Dup Protection, And The Mystery Of ADI's

Numbers

Broadcasting is a numbers game. How many people are inside of the "Coverage umbrella" of a station? How many of those people regularly tune in the station? How many of those people are females between 18 and 49? And on and on.

Cable is a numbers game. How many potential subscribers are inside of the franchised or operating area? How many will subscribe to the service? How much a month are they willing to pay?

Numbers. They go on forever. Everyone has their own numbers. No two agree precisely. Everyone uses numbers to "prove" their own point or argument. Many create a bottom line, and then locate numbers to re-enforce that bottom line. Which is another way of saying numbers are often tools for manipulation.

Congress runs on numbers. A majority vote of members present. A majority vote of all members, present or not. A $\frac{2}{3}$ vote. Or unanimous (100% vote of those present). Laws get passed and laws get created by numbers.

Numbers hide facts. HR 15273 sounds innocent enough. It could have been a bill to authorize public urinals in federal parks. But it was not.

An advertising sheet issued by a television sheet uses numbers for impact. "Oklahoma's 3rd TV Market" reads the headline. "Serving 180,700 TV homes" reads the sub-head. Third is obviously better than fourth, although it is not as good as second. It's a one-two-three world. No one ever got a medal at the Olympics for being fourth. 180,700 TV homes sounds like a lot of TV homes.

The broadcasters not only play the numbers game but they are very efficient at the exercise. Broadcasters don't count people, they count television receivers. Or more precisely, television equipped homes. Broadcast income rises and falls by the numbers. The top 100 markets ... that's where the magic is. The FCC says 85% or more of U.S. homes are located in the top 100 markets. Many buyers of advertising stop buying advertising after the 100th market. It is a nice, convenient, round sounding number. Stopping at 98 or 107 makes just as much sense. But it isn't as easy to accept. People who get 98 on a test aren't perfect. People who get 100 are. It all started back in the first grade. 100 is a good number. A "perfect number."

Cable's problem with broadcasters is numbers. Cable's numbers are getting too big for broadcasters. And broadcasters fear big numbers ... unless they are their own big numbers. Which is the object of this CATJ report.

Dialogue

There are several significant numbers on cable's horizon. The 95th Congress is one of these numbers. HR ????, a bill to re-write the 1934 Communications Act (again, another number) will be another significant number. Coming up, if his word is good, Congressman Lionel Van Deerlin of California will initiate a lengthy series of hearings for his House Subcommittee on Communications. The object of that series of hearings, studies and tens of thousands of pages of expected testimony will be a complete (or partial, as it turns out) re-drafting of the basic law that creates the rules for the Federal Communications Commission.

It is an old law. 42 years old to be exact. And it was seven years in the making (having first been introduced for discussion in 1927). If it took seven years to create the first law in an era when the most complicated thing about communications was AM radio and hams, one can only speculate how complicated a new law is liable to be in the midst of an era that includes satellite communications, Bell-breaking common carriers and Citizens Band Radio. By comparison, the recently enacted revision of the 1909 Copyright Law pales when compared to the complexity and side issues faced by a re-write of the 1934 Communications Act. It took 15 years, more or less, for the Copyright Law to be passed. In the next 15 years, with the present format of the 1934 Communications Act, and the well entrenched position of the primary beneficiaries of that act (the FCC and the nation's broadcasters), the present Communications structure may not stay stable long enough for lawmakers to write a lawful revision that even properly keeps up with the fast paced changes.

But ... Congress will try.

Cable as an industry would probably welcome wholesale revisions of the present law. We aren't mentioned in the 1934 act. And any authority the Commission claims over cable comes largely from a handful of "weak" court decisions. The "weakness" of the court decisions has not prevented the Commission from moving ahead however. And FCC actions in technical standards, or local program origination, or signal carriage, or pay cable and on and on and on always seem to violate somebody's sense of fair play. So there are plenty of proponents out there in cable land looking for relief. It may be a long wait.

But ... Congress will try.

Not so crystalized is the broadcaster-view of

the probability of some re-write of the act. Broadcasters have played this one low key, probably because the FCC itself has played it low key. The FCC has never really formally addressed itself to a **complete** re-write of the Act. They have said, from time to time, that as far as cable television is concerned, the FCC does **not** believe it **really** **needs** specific authority to regulate cable. It is quite comfortable, thank you, with the self-made authority it already has.

If the FCC is happy with the not-specified authority over cable, chances are their most influential wards, the broadcasters, are also happy with things in their present posture. At least most of the broadcasters would seem to be. So it appears a re-write of the 1934 Communications Act is getting pushed from two directions. By the have-nots (whoever and wherever they are, and that includes cable), and by the people within the Congressional sphere who simply feel that a 42 year old law is due for change. The latter group might be accused of being make-workers, of establishing a "cause" from which they can reasonably expect direct employment and benefits for say the next ten or fifteen years.

Maybe broadcasters **do** want **some** changes. Maybe they feel that they can do even better than they now do, if there were some subtle or not so subtle changes. But they have to be careful how they approach these changes. If they get out and push hard for changes, and it is obviously them that is doing the pushing, broadcasters run the risk of incurring the wrath of the FCC's present policy makers and rule benders. If this is going to be a long, protracted battle for a new Communications act, the broadcasters have to consider today as much as tomorrow. In the interim, they have to continue to "get along nicely" with the FCC. For if they don't, in the intervening years between introduction of probable changes and the enactment of a final form bill, the FCC could easily change their easy-going ways towards broadcasters. That could cause more than a few of them trouble ... trouble that might ultimately put a few of them out of business (perish the thought!) before the new law gets into the books.

So it is a delicate tightrope the broadcasters walk. The whole concept may well abort before there is a new law. There may end up being a series of amendments to the present law, amendments which serve various special problems such as cable, or satellites, or CB. But which overall leave the present law more or less intact.

In either case ... Congress will try, and because Congress will be trying, there will be cable people in there pushing for changes of this nature or that nature. But nothing will happen soon. At least nothing very permanent.

For every attempt cable makes, there will be study and debate within the broadcast ranks about the wisdom of each offering. And then the broadcasters can reasonably be expected to return to the halls of Congress with their own "suggestions" for acceptance or modification or dismissal of the cable suggestion. And that is what this exercise is all about. To attempt to pin down, through extensive talks and meetings **CATJ** is now carrying on with broadcasters exactly what it is they most fear about cable, and how, therefore,

we can expect them to react as we float our own trial balloons. There will be so many trial balloons, so many suggestions, so many battles ahead that we venture the guess that long before it is all over, the present generation of cable people will have largely passed on to that great cable retirement village on the outskirts of San Diego. And that the industry, as a whole, will have forgotten why this whole mess got started in the first place. Fifteen year-long battles (and that is our guesstimate) have a way of doing that to people. This is also our way of saying cable must be careful not to "peak too early," for, like Gerald Ford, the industry may find it walked away from a victory largely because it tired of the battle just when it was on the verge of winning.

The Ground Rules

Most broadcasters don't want to talk openly and frankly with cable people. At least not for the record. Some broadcasters wear two hats. That is, they are broadcasters and they are also cable people. Other broadcasters are plain and simple (or not so simple) broadcasters, first, last and always.

In setting out on our own trek across this nation to discuss with broadcasters their fears and concerns, we have attempted to draw the broadcasters of both categories into dialogue which we hope will eventually extend far beyond the basic premise here; which is to convey to cable people just exactly how broadcasters will react to a Congressionally mandated national cable policy. A policy which Congress will conceive, weigh, and pass on to the FCC for implementation.

To date, only one broadcaster has been willing to "talk on the record," and then he, understandably, had as much to say "off the record" as he did "for the record." Broadcasters have their own "peer problem," they are not anxious to alienate their fellow broadcasters, and telling things too straight or too honestly to the obvious "opposition" is guaranteed to create problems for a broadcaster with his fellow broadcasters. This means that we end up with thousands of feet of cassette tape "for background" purposes. Tapes we can listen to, but not quote. Tapes which help us understand what it is the broadcaster believes and thinks about cable, but not tapes which we can directly quote and assign a source for quotation. Richard Nixon would have loved this problem.

Our reports will reflect this situation. We will place into quotes many statements given to **CATJ**, but we will not be able to identify the exact source of the quotation. In other cases, we have partial or limited permission to assign sources and where we can, we will reveal the source.

Before we get all down, in perhaps the February or March issue of **CATJ**, we will cover the ballpark from copyright to fines, translators to non-duplication protection, market-extension to market fragmentation.

Basic Number One

Because broadcaster fortunes rise and fall by the numbers, one of the first elements in our report is an attempt to clarify just how the number

games work. As one broadcaster said to us: "Look, I have been trying to grasp the significance of TSA Cumes, ADI, Grade A, Grade B and so on for over twenty years. And I admit that even though I study it closely and am forced to use these measurement techniques every single work day, I still do not completely understand exactly how all of them relate to our station's income. So don't feel badly if after a half day of study you are still uncertain of some of the ramifications."

The basic premise is that broadcasters count TV equipped homes. Their advertising income directly relates to homes that **do** watch (or **could** watch) their programs. The actual counting of TV equipped homes is done precisely once every ten years, when we have a national census. In between these decade-apart measurement points, various intra-broadcast-industry groups attempt to project the changes that take place daily. The ten year count periods were far too far apart in the 40's and 50's when television was exploding. But now that television equipped homes are approaching 100% of all homes (somewheres around 98% at the present time), the dramatic growth era is over. So the year to year "adjustments" made intra-industry are not nearly as important as they were in say 1953 and 1954. What we have now is a jockeying of position, between individual stations and/or individual markets as we shall see here.

Broadcasters count homes two primary ways, and then when the going gets very sophisticated, they count them several more ways. Primarily, broadcasters count homes in their Grade B contours and they count homes that are inside of their "market regions." The two are never the same.

Broadcasters refer to their Grade B contour as the "big circle." This B contour region is largely an engineering factor, an area which can be identified by engineering techniques as **capable of receiving** the station's signal at 90% of the locations no less than 90% of the total time. When you pick up a copy of **TV FACTBOOK** (station edition) for example, and turn to say WSVB, channel 3, in Harrisonburg, Virginia, you find the station has 191,100 households within its Grade B contour. These 191,100 homes are the "big circle" homes for WSVB. WSVB would **like** to sell advertisers on reaching 191,100 homes. Unfor-

tunately for WSVB, and virtually all other stations, something less than 90% of the homes do receive this predicted Grade B contour signal at least 90% of the time. So WSVB's actual tuned-in audience is something less than 191,100 homes.

Broadcasters "predict" service contours largely based upon something known as "terrain averaging", which means that their engineers take a hard look at the terrain nearby (following FCC predicted contour guidelines), and then project the total service "big circle." There is virtually no allowance for terrain abnormalities beyond the "nearby" terrain features, so if a mountain range crops up say smack dab in the middle of the Grade B contour area, the "predicted contour" ignores the terrain abnormality and predicts coverage beyond (or on the far side of) the mountain range, just as if it were not there.

In some sections of the country (such as Iowa) this works out alright. In other sections of the country (such as western Virginia) the terrain abnormalities create gapping holes or fingers or zones inside of the Grade B contour where nothing like 90% of the people experience reception 90% of the time from station. The people who pay the bills for the broadcasters, or the advertisers, are sufficiently sophisticated to recognize that "big circles" do not necessarily accurately measure the true number of homes reached. So they demand from the broadcasting industry better "proof of service" than a simple "predicted Grade B contour" map provides.

Which brings us to the audience measurement services. Audience measurement services function as an inter-industry arm, bridging the gap, as it were, between broadcasters who want their audiences to be as large as possible (in reality and on paper), and, advertisers who want to be sure they are getting what they are paying for. The exact reason there are audience measurement services is unclear, unless one assumes that under competitive pressures stations themselves cannot be expected to accurately portray their own true audience-reach "numbers."

Let us refer back to diagram 1 again (WSVB-TV in Harrisonburg, Virginia). The station has a "big circle" coverage of 191,100 homes. That number is fairly simply computed if you have the raw U.S. Census data to work from; it is the simple arithmetic sum of all TV equipped homes inside of the "big circle." But, as noted, for terrain reasons and other reasons, not all of these 191,100 homes actually do receive WSVB's signal. The advertisers want to know which of these homes (if not specifically which, the how-many which) do indeed receive WSVB. Enter the audience measuring service. Of the 191,100 homes, how many "regularly tune into WSVB?"

According to the TV FACTBOOK data, of the 191,100 homes, 49.97% or 95,500 homes **regularly tune in WSVB three times per week or more**. The three is "a number", arrived at rather arbitrarily perhaps, but a number none the less. If that number were seven (i.e. larger), WSVB would probably have a "Net Weekly Circulation" even smaller than 49.97% of its "big circle contour." Or, if the "number" were smaller, such as 1 (for "regularly tune in of WSVB at least once per week"), the "Net Weekly Circulation" would be higher.

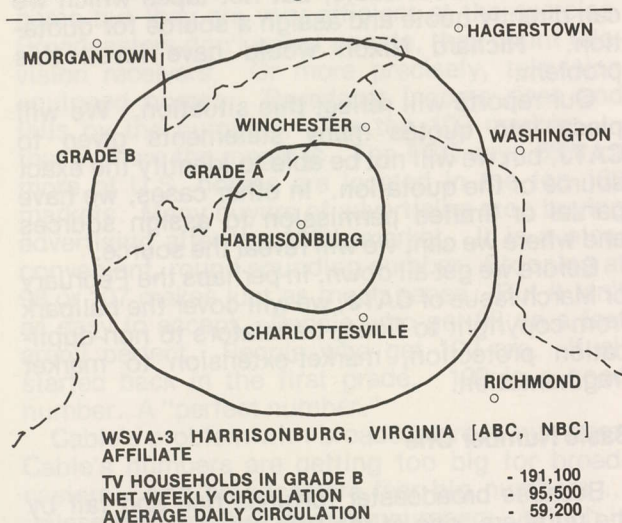


DIAGRAM 1

The key to "Net Weekly Circulation," then, is that the homes being measured in the survey "Regularly tune in the station in question at least three times per week." Now one of the best and most respected audience measuring companies, Arbitron, conducts three major measurement "sweeps" or sessions per year. The individual measurement periods last for approximately 30 days, or four weeks each. We'll look at how that works shortly. Note for now that for WSVa to receive "regular tune in credit" in a measured home, the home must have three or more WSVa tune-ins per week for the full four week measurement period, at least during the three "major" measurement periods each year.

How does the measurement service count tune-ins towards the three times per week minimum criteria for "Net Weekly Circulation?" The survey home must watch sufficient WSVa programming, at three different times during the week, to log in their survey diary WSVa's program, to be counted. That does not mean three back-to-back programs. That means tuning in (and out and back in) WSVa three different times during the week. And mechanically, it also means watching sufficient of the tuned-in program to record the program in the written diary participating homes keep.

Now back to diagram 1 again. If the "big circle" for WSVa is 191,100 homes, but the Net Weekly Circulation is 95,500 homes, how many homes tune in the station at least "once each day?" The answer, according to TV FACTBOOK, is 59,200 homes, or 30.98% of the total homes in the "big circle." Again, the surveyed home must tune to WSVa at least once per day, and stay there long enough to watch a program and record that program in the written diary they keep for the survey company.

Now we are getting closer to the kind of numbers advertising buyers understand and have at least some respect for. As we can see here, and shall see in other examples to be given here, the "big circle" of homes "reached" is a long ways from the homes which actually tune in a station weekly or daily. The station would like to "sell" the "big circle" home-count to the advertisers, but the advertisers are too smart, and too close with their money to fall for that one. At least on the national level.

Which brings us to the ADI or Area of Dominant Influence measurement. Now if a station commands a high percentage of the total viewer's attention, that viewer is given special status with that station. He becomes a viewer of special value, because of his great (over 50%) loyalty, and the station is rewarded for this viewer loyalty by getting special consideration from the advertisers. Here is how that works.

Reference is made to diagram 2. Note that we still have the WSVa "big circle" shown. But we also have a shaded area shown, a region which in the case of WSVa represents four counties (Grant, Hardy, Pendleton and Rockingham). This is the WSVa ADI—or, the region where according to audience measurements WSVa commands more than 50% of the total diary-logged viewing time in the homes measured by the audience rating service. Yes, other stations are undoubtedly

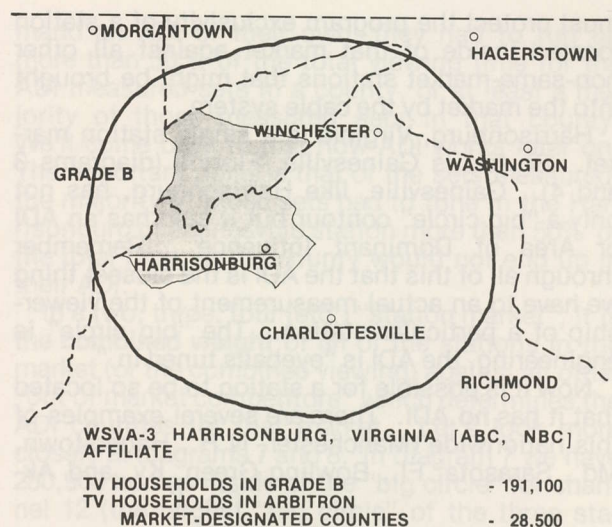


DIAGRAM 2

viewed in these four counties. But none of the other stations viewed here account for more than 50% of the audience (total) in these four counties. WSVa does, and therefore the 28,500 TV equipped homes in these four counties are assigned to the Harrisonburg "ADI", or "Area of Dominant Influence."

This is useful information to an advertising time buyer in far-off New York or Chicago. If the advertiser wishes to reach people in these four counties, either alone or as a part of a regional or national advertising package, the advertising buyer knows from this data that the best chance

he has of making "viewer impressions" in this area is through WSVa-TV.

Recapping what we have covered so far in "basics", the "big circle" coverage is a handy and convenient way for a station to show the extent of its predicted signal contours. But advertising buyers (and networks too, as we shall see) are too sophisticated to rely on these large, often misleading circles. So they fall back on inter-industry measurement techniques, such as the ADI format of Arbitron Television.

The Making Of A Market

The cable television industry is frequently called on the carpet before the FCC because it is said that cable service imports signals out of one "market" and into another "market." Section 76.51 of the Commissions rules set forth the "Top 100 Markets," while rule sections 76.57, 76.59, 76.61 and 76.63 set forth the quantity and type of signals a cable television system may carry, as a function of where in (or out of) a market it may be located. Now what is a market?

Rule section 76.5 (g) and (i) state that a market is a specified zone of a commercial television station, while 76.5 (f) states that a specified zone is a radius of 35 miles around a central point located in the city of the market for top 100 markets and a radius of 55 miles around a central point located in the city of a market beyond the 100th market.

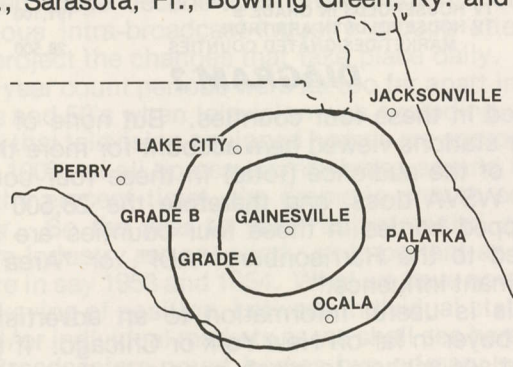
In plain English, for FCC cable television rules, a market is an area inside of which a cable system

must protect the program exclusivity of a station located inside of that market against all other non-same-market stations that might be brought into the market by the cable system.

Harrisonburg, Virginia is a single station market. So too is Gainesville, Florida (diagrams 3 and 4). Gainesville, like Harrisonburg, has not only a "big circle" contour but it also has an ADI or Area of Dominant Influence. Remember through all of this that the ADI is the closest thing we have to an actual measurement of the viewership of a particular station. The "big circle" is engineering, the ADI is "eyeballs tuned in."

Now it is possible for a station to be so located that it has **no** ADI. There are several examples of this nationwide (Manchester, N.H., Hagerstown, Md., Sarasota, Fl., Bowling Green, Ky. and Ak-

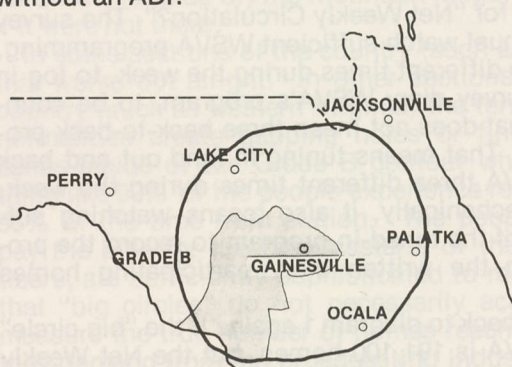
ron, Ohio are among these); and one, Akron, Ohio is instructive. Notice in diagram 5 that the Akron, Ohio "big circle" contour for ABC affiliate WAKR-23 there takes in 929,400 homes equipped with television receivers. Notice also that the Akron Net Weekly Circulation is but 197,700 (21.27%) of the total homes "under the umbrella" and that the Net Daily Circulation is but 66,400 homes or 7.14% of the total homes in the "big circle." There are 180,700 television receivers in its home county (Summit), but even throughout its **total** "big circle" contour area it only manages to gather 66,400 "daily tune ins." Clearly WAKR does not dominate the viewing in any county and thus (diagram 6) it has "no ADI." A man without a country is in better shape than a television station without an ADI!



WCJB-20 GAINESVILLE, FLORIDA [ABC AFFILIATE]

TV HOUSEHOLDS IN GRADE B	- 129,600
NET WEEKLY CIRCULATION	- 43,800
AVERAGE DAILY CIRCULATION	- 25,200

DIAGRAM 3



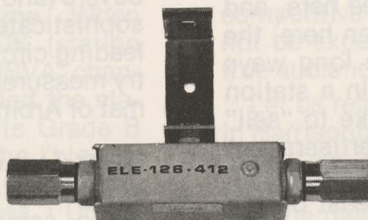
WCJB-20 GAINESVILLE, FLORIDA [ABC AFFILIATE]

TV HOUSEHOLDS IN GRADE B	- 129,600
TV HOUSEHOLDS IN ARBITRON	- 44,700
MARKET-DESIGNATED COUNTIES	- 44,700

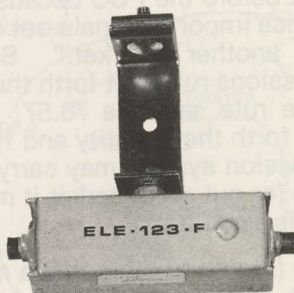
DIAGRAM 4

LOW COST CUSTOMER ADDERS BY ELECTROLINE

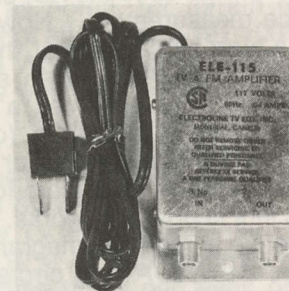
ELE-126-412 (F) — a 50-300 MHz tilted response in-line amplifier cable powered by 18-30 VAC or 30-60 VAC. Output power blocked; current load 15 mA. 12 dB gain at 216-300 MHz, 7 dB gain at channel 2. Output capable +34 dBmV for —57 dB cross mod (12 channels). 10 dB noise figure, 15 dB match, and hum-mod down 60 dB. Just insert in the (line-powered) feeder line and it operates! Priced as low as \$13.00 for .412 (with connectors) and \$11.00 for "F".



ELECTROLINE solid-state CATV amplifiers have proven themselves in hundreds of CATV systems throughout North America in all types of weather and environments. If there is truly an "install and forget it" low-cost customer-adder amplifier line, any place in the world, ELECTROLINE is it! Available through three U.S. representatives and factory-direct in Canada.



ELE-115 — a 40-300 MHz apartment/house drop/multi output situation amplifier powered by 117 VAC. 12 dB gain, 8 dB noise figure. Output capable +34 dBmV for —57 dB (12 channel) cross mod. Draws 1 watt of AC power! Priced as low as \$11.50.



IN CANADA — CALL COLLECT

ELECTROLINE (Television Equipment Company)
8762-8th Avenue, St. Michel, Montreal, Quebec H1Z 2W4
(514/721-7162)

Available in USA from: Jerry Conn & Associates (717/263-8258); B.E. Duval Co. (213/833-0951); Rich Richmond (415/593-8886)

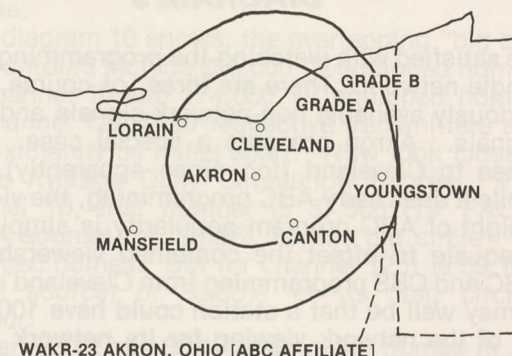
So as far as the television stations are concerned, this "market" business is a whole lot more complicated than the FCC's cable television rules make it.

So far we have looked solely at cities or communities with a single commercial television station, Akron, Gainesville and Harrisonburg. Now let's look at a community with three television stations, Erie, Pennsylvania. As diagram 7 shows, we have three network affiliates operating from Erie, WICU on channel 12 (NBC), WJET on channel 24 (ABC) and WSEE operating on channel 35 (CBS). As one might expect, their service contours (the "big circle") are not identical. Therefore, how does the market get put together, when there are unequal contours?

First of all, back in Harrisonburg and Gainesville, for these one-station-market outlets to com-

mand an ADI of their own, they had to run up more than 50% of the total viewing time for the ADI measured sets in a county, or at least a majority of those measured sets in that county. We'll come back to just how ADI works later on. The important point is that of the sets measured, the majority of those sets had to tune in the Harrisonburg or Gainesville station more than 50% of the total time, or the county would not end up in their ADI.

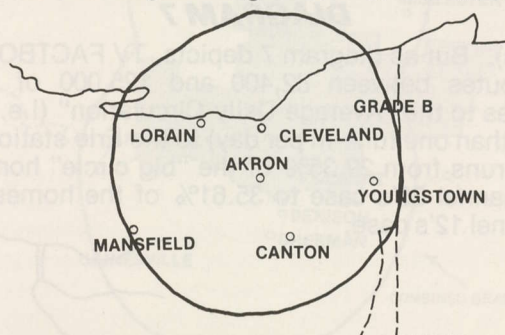
In a two, three, four (etc.) "station market", it is the **combined weight** of all of the stations in the market (or the combined viewing) against all other "out of market competitors" which determines the ADI counties for that market. Let's look more closely at diagrams 7 and 8. In diagram 7 we have 280,900 homes inside of the "big circle" for channel 12 (the largest "big circle" of the three sta-



WAKR-23 AKRON, OHIO [ABC AFFILIATE]

TV HOUSEHOLDS IN GRADE B	- 929,400
NET WEEKLY CIRCULATION	- 197,700
AVERAGE DAILY CIRCULATION	- 66,400

DIAGRAM 5



WAKR-23 AKRON, OHIO [ABC AFFILIATE]

TV HOUSEHOLDS IN GRADE B	- 929,400
TV HOUSEHOLDS IN ARBITRON	- 000
MARKET-DESIGNATED COUNTIES	- 000

DIAGRAM 6

**IDEAL FOR FSM
CALIBRATION**

**EASIEST
CALIBRATOR
TO USE**

Totally eliminates
cumbersome tuning required
by competitive calibrators

**Sadelco, Inc.
Sadelco, Inc.
Sadelco, Inc.**

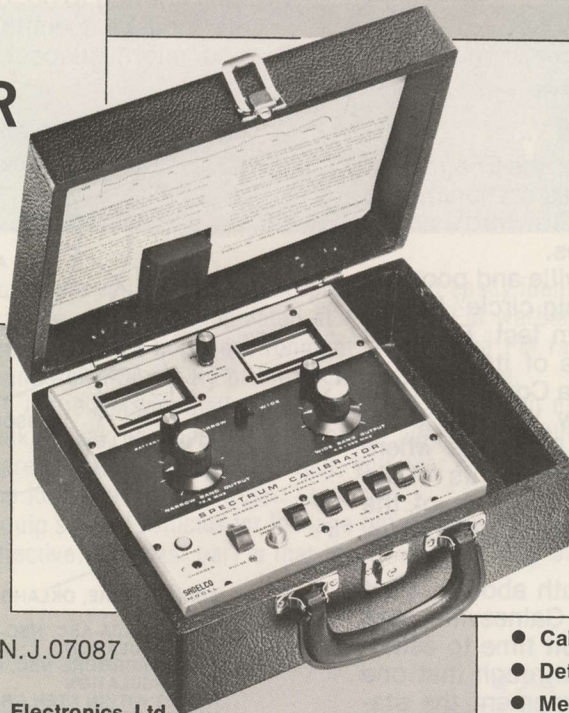
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Tel. 201-866-0912

Available in Canada - **Comm-Plex Electronics Ltd.**
General representative for Europe:

CATEC AG, Luzern, Switzerland, Habsburgerstr. 22

**1/4 dB ACCURACY
4.5-300 MHz**



**SPECTRUM
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MODEL
260-B**

SPECIAL FEATURES:

- Extremely Flat White Noise generator
- 73.5 MHz CW Reference Generator
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- Ni-Cad Battery Powered

- Calibrate field strength meters
- Determine peak reading errors
- Measure gain, loss, and response
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Available at major CATV Distributors

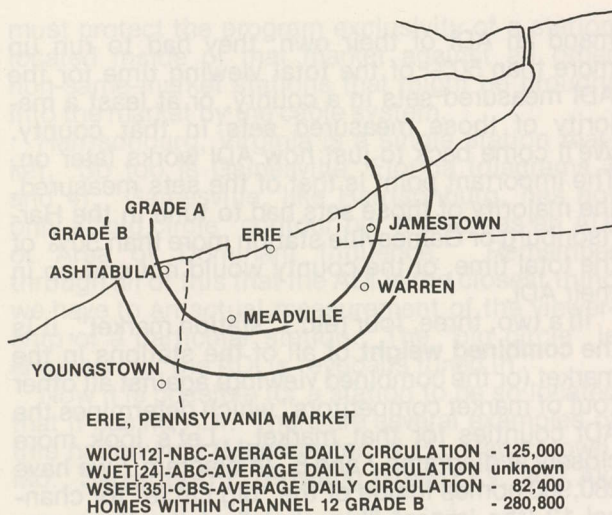


DIAGRAM 7

tions). But as diagram 7 depicts, TV FACTBOOK attributes between 82,400 and 125,000 of the homes to the "Average Daily Circulation" (i.e. no less than one tune-in per day) to the Erie stations. This runs from 29.35% of the "big circle" homes in channel 35's case to 35.61% of the homes in channel 12's case.

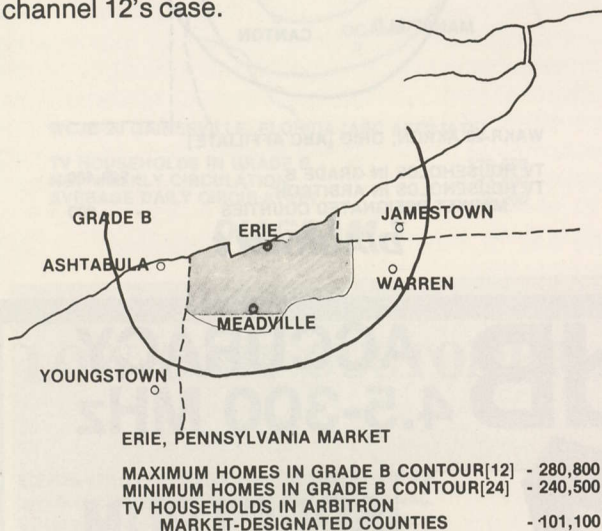


DIAGRAM 8

In diagram 8 we have the ADI for the Erie market (again, made up of three combined stations); this is a two county area (Erie and Crawford), and it totals 101,100 TV equipped homes.

As with Harrisonburg, Gainesville and poor Akron, Erie is losing some of its "big circle" homes to other surrounding markets. In fact, Erie (like the others) is even losing some of its Grade A contour areas (such as Ashtabula County in Ohio and Chautauqua County in New York) to other surrounding markets. Diagram 9 depicts where the non-ADI credited (to Erie) segments of its Grade A and B contours "go." Portions of the "big circle" are lost to five separate markets surrounding Erie.

Which brings us to a basic truth about market designations. A market, such as Gainesville, with a single station has a very difficult time to establishing an ADI, simply because through that one **single** transmitter at any given moment the station can transmit but **one single** (network) programs. Viewers, on the other hand, seldom if ever

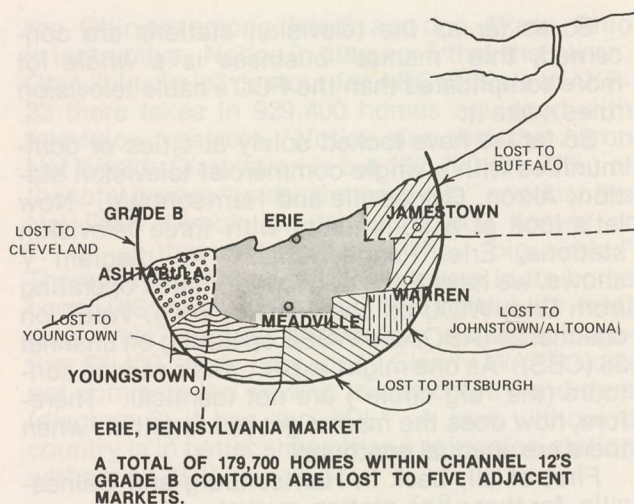
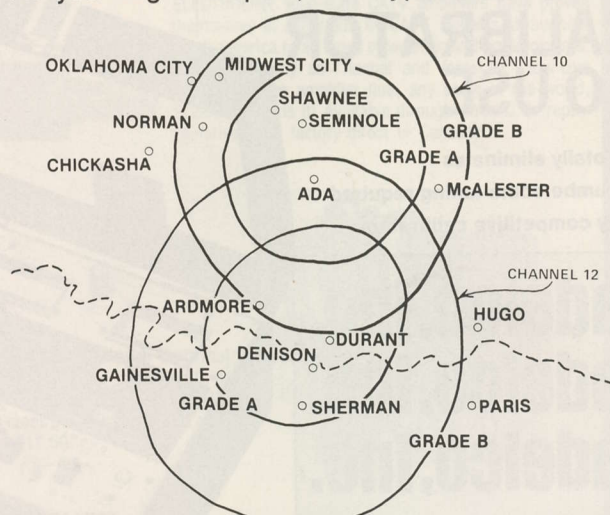


DIAGRAM 9

are satisfied with watching the programming on a single network. There are three, of course, plus variously available non-network signals and PBS signals. Akron presents a special case. It is close to Cleveland (too close apparently), and while it does carry ABC programming, the viewer-weight of ABC program popularity is simply not adequate to offset the combined viewership of NBC and CBS programming from Cleveland itself. It may well be that a station **could have** 100% of all of the network viewing for its network in an area (any area such as its home county, its Grade A or even its Grade B contours), but, if the people in the same area **did not choose that network's programs** (through the example station) for **at least 51% of their total viewing time**, the station would not receive the ADI credit for that area. In other words, a station operating alone, or in a two station market, where full network service is available from another adjacent market has a very difficult time getting its proper ADI credits. This has virtually nothing to do, on the surface with cable.

Let's locate a specific example of this problem. As you might suspect, the hyphenated market



KTEN[10]-ADA-ABC, NBC-AVERAGE DAILY CIRCULATION	- 37,500
KXII[12]-ARDMORE-NBC, CBS-AVERAGE DAILY CIRCULATION	- 59,100
HOMES WITHIN KTEN GRADE B	- 205,000
HOMES WITHIN KXII GRADE B	- 174,600

DIAGRAM 10

presents special problems. The example chosen is the Ardmore-Ada (or Ada-Ardmore if you wish) market in southern Oklahoma. Here we have a channel 10 NBC/ABC affiliate, and a channel 12 CBS/ABC affiliate. The channel 10 station is located in Ada, Oklahoma, approximately 70 miles south/southeast of the Oklahoma City coordinate point. The channel 12 station is located in the multiple-community-designation of Ardmore and Sherman-Denison, Texas. In reality, they form a "singular ADI market" and a "singular network service market" but they do not serve the same homes, or even close to it. This fact separates this two-station market from the previous example; the Erie, Pennsylvania market where although the three stations do not have identical or concentric "big circle" contours, they at least share very similar contours and the same city of license.

As diagram 10 shows, the overlapping "big circle" contours include 205,000 TV equipped homes for channel 10 and 174,600 TV equipped homes for channel 12. Their respective transmitters are approximately 54 miles apart. Now look closely at the Average Daily Circulation figures. For channel 10, that number is 37,500 (TV FACT-BOOK source), or 18.29% of its "big circle" TV equipped homes. But for channel 12 it is 59,100 (same source) or 33.85% of its "big circle" contour.

Channel 12 has 85.17% as many homes in its "big circle" as channel 10, but, it has 157.6% as many "Net Daily Circulation" tune-in homes.

These two stations can at any given moment provide TV equipped homes inside of their con-

tours with $\frac{2}{3}$ of the full network programming available. Seemingly, the combination of these two stations should be able to outweigh the viewership of any outside of market or "distant" signals offering even the full three networks. However, look at diagram 11. The ADI market for the two combined stations (again, where they combine to run up 51% or more of the viewing audience) is a nine county area (shaded region in diagram 11). Note that a very substantial portion of the channel 10 (and to a lesser degree the channel 12) service contours are lost to "out of market sta-

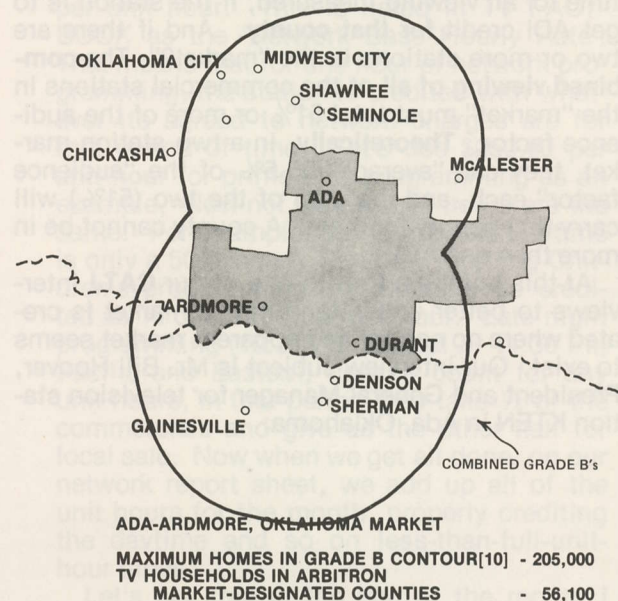
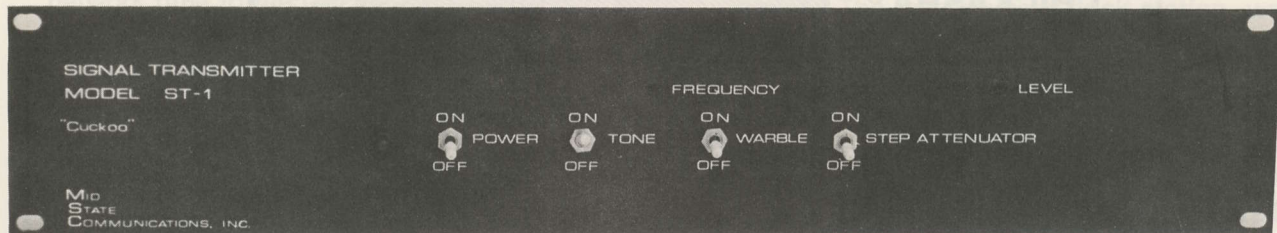


DIAGRAM 11

A NEW IDEA FOR RADIATION TESTING



An ST-1 signal transmitter bolts into your headend, and produces an easily identifiable signal at any frequency from 86 to 110 MHz. The signal can be either FM modulated at 1 KHz or FM warbled, like a cuckoo clock. The cuckoo signal can be easily recognized even in a noisy environment. A standard FM radio is then used as a receiver. The sensitivity of the system depends on the quality of the radio you purchase.

The unique part of the ST-1 is the AM modulation. FM receivers have been used effectively before, but they had trouble locating the exact break or leak because the FM receiver went into limiting. The ST-1 automatically steps 25 dB in 5 dB steps. When you are away from the trouble spot, you hear only the higher levels. The closer you get, the more levels you hear, and the louder the signal gets.

Using FM radios lets you equip several vehicles for leakage patrolling at a relatively low cost. This is a field proven system that is fantastically effective. The best part is that the ST-1 **costs only \$295.00**, and delivery is **two weeks**.

Mid
State
Communications, Inc.

174 S. FIRST AVE.
BEECH GROVE, IN. 46107
317-787-9246

tions." For the channel 10 station only, the ADI it participates in is shown in diagram 12, along with the indications of where the balance of its service contour area goes for ADI purposes. We'll come back to this diagram in later sessions in this **CATJ SERIES**.

The key thing to remember about ADI is that a station's "audience factor" is measured seven days a week, from sign-on to sign-off, several times per year, through the good services of an audience measuring company. And the station must run up 51% or more of the total audience time for all viewing measured, if the station is to get ADI credit for that county. And if there are two or more stations in the "market?" The **combined viewing of all** of the commercial stations in the "market" must total 51% or more of the audience factor. **Theoretically**, in a two station market, they can "average" 25.5% of the "audience factor" each, and the sum of the two (51%) will carry that county for them. A county cannot be in more than one ADI.

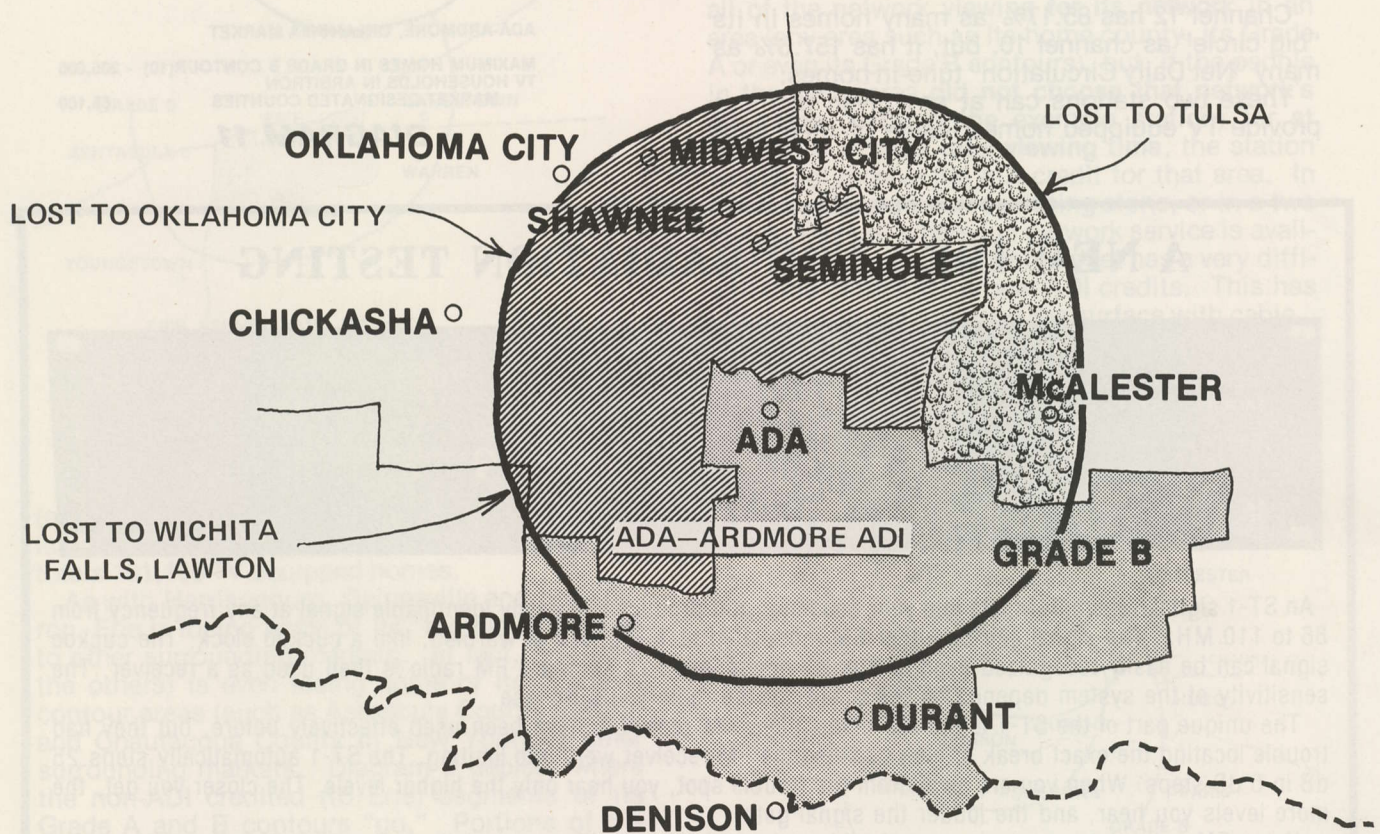
At this point we turn to one of our **CATJ** interviews to better understand how a market is created where no natural and apparent market seems to exist. Our interview subject is Mr. Bill Hoover, President and General Manager for television station KTEN in Ada, Oklahoma.

CATJ: "Your television station is part of a two station market, where the mileage separation between the two principal communities in the market, Ada and Ardmore, is some 47 miles. Who is responsible for such market designations?"

Hoover: "That is done by the survey company generally, but not always, with the concurrence of the stations involved. I was the prime mover in melding Ardmore and Ada into a hyphenated market. This was originally a pair of separate markets, and instead of being as we were before down around the 200th market designation, the combined weight of both stations now gives us a market standing as the 170th market. Obviously there are more dollars available for the 170th market than for one down around the 200th market point. Consequently if there are more dollars to fight each other over, together we are going to do a better job than we were doing both on our own."

CATJ: "How did you go about getting them to make this a single two-station market rather than the prior pair of one station markets?"

Hoover: "First of all the survey company has a natural leaning towards making these chunks of geography as large as possible. Secondly



ADA PORTION OF ADA-ARDMORE MARKET

A TOTAL OF 148,900 HOMES WITHIN CHANNEL 10'S GRADE B CONTOUR ARE LOST TO THREE ADJACENT MARKETS.

DIAGRAM 12

we were overlapping to a major degree, and this end of the State of Oklahoma is basically the same area. People throughout both coverage areas think of themselves as southern or southeastern Oklahomans and that helped. The viewing factor from the other adjacent markets are about balanced out the same, the Oklahoma City stations influence in my territory and the Dallas stations influence in the channel 12 territory is approximately the same. And so they just agreed that this made sense."

CATJ: "Now there are some markets, such as in Pennsylvania or in the San Francisco (Oakland/San Jose) ADI where there is more than one network affiliate per network. How in the world can this be if network duplication is one of the considerations for market determination?"

Hoover: "It just happens, that is all."

CATJ: "How can the networks calculate their station compensation in a situation like that? How do they know who to credit the station's share of the network income to?"

Hoover: "There is no relationship anymore between what a network charges an advertiser and what they pay the affiliated station. The network sells advertising on the basis of 85 or 90% coverage of the entire nation, for so many dollars. And they are always competing with other networks across the street. And if after the show has been on the air the audience rating service indicates the show does not deliver the homes anticipated or promised to the advertiser, the network may end up having to rebate some of the money they charged for the advertising spots sold within that show. This also can happen when network affiliates do not 'clear' the show in sufficient numbers to present the show in network time to the percentage of American homes the network promised to clear for the show. The network sells programs largely on the basis of so much cost per thousand homes delivered or capable of seeing the program."

CATJ: "On an adjustment like that, does the rebate follow right down the line to the local station?"

Hoover: "Oh no, this is the network's deal with the advertisers. Now the network has already predetermined that based upon certain advertising rates, they can afford to affiliate with network affiliates if the average audience factor for TV equipped homes delivered over the whole nation is say—and this is an example—\$15.00 per thousand, in prime time. And so the network gauge's a rate for this station, say \$15.00 per thousand as a norm. Now in the network's affiliation pool there are some stations in the group which have less efficient costs per thousand. Let's say for example that some stations have a network cost figure of \$20.00 per thousand, and to even it out on the other side there are some very efficient stations that have audience they can deliver to the network for \$12.00 per thousand."

So the network knows, going in, what their basic costs for affiliates are. Then the network goes over to the advertiser and he sells the advertiser on coverage of the nation, and gets the affiliates to carry the show. The network takes the money in with one hand (and we the affiliates do not know how much the network receives) and pays the affiliates out with the other hand, based upon the station's 'unit hour rate'. The network takes their slice out of the middle.

Now the station has an established rate per unit hour. This is listed in TV FACT-BOOK as the 'Network Base Hourly Rate'. That means that for one hour of network programming, the station is credited with whatever its agreed to network charges are for that period of time. Let's use \$250.00 per unit hour for prime time programming as an example. Now not all network hours are the same. For example, an hour in the daytime is only a 50% hour. Saturday morning Children's programming, for example, is credited as 1/3 of a unit hour per hour. Late night programming (10:30 PM Central or 11:30 PM Pacific and Eastern) doesn't count for any unit hours, in that period they take 1/2 of the commercials and give us the other half for local sale. Now when we get all done, on our network report sheet, we add up all of the unit hours for the month, properly crediting the daytime and so on less-than-full-unit-hour times.

Let's say that at the end of the month I have carried 100 unit hours, at \$250.00 per unit hour. That is \$25,000.00 in unit hour time which I have accumulated. Now my network affiliate contract says that I **don't get all of that unit hour rate**. It is on the basis of this unit hour rate that the networks build their own rate card. But I don't get that amount. The network says 'look station, we produced the program or we bought it, we scheduled it, we promoted it, we put it on the line, we delivered it to you, we pay ASCAP and BMI, we sold it, we collect for the selling of it ... and we are going to pay you not \$250.00, but we are going to pay you 30% of \$250.00 per unit hour of network time you cleared.'

So the affiliate gets 30%, or in our example \$8,333.33. Then the network says 'It costs us so much to furnish you sustaining shows for which there is no or very little advertising sold, and it costs us so much for a national hookup or network ... so we are going to deduct for line charges and sustaining fees 6.5% of the total.'

So we end up down here on our gross income line receiving about 25 cents on the dollar, or a little less. But then we didn't have to produce it, or sell it, or collect for it. We just threw a switch and because we had an audience the network wanted, we got paid something for our trouble. But because we had the network show, we are able to sell the spots before it, in the middle of it and after it. And we keep all of the money for those spots we sell locally."

Who Buys What?

Understandably, there is probably some confusion at this point between the significance of an ADI market, and the "big circle" market. And as for how network compensation interrelates to all of this ... well, let's see.

The network takes money in with one hand, extracts a hunk out of the center for their function, and passes a **portion** of the balance onto the affiliates. All broadcaster sources **CATJ** interviewed agreed that "there is no direct, even measureable relationship between the money an affiliate receives for a unit hour of time, and what the network takes in."

So how does the affiliate and the network arrive at a cost per unit hour? By old fashioned negotiation. The network's "norm" or average costs are the starting point. The network looks at the audience reached by the station, and says (in effect) OK—we have 100,000 homes reached and our unit hour base is (for example) \$15.00 per 1,000 homes delivered. Keep in mind that not all hours are full-unit-hours (i.e. daytime is 50% hour-hours) and also remember that the network rate card is established based upon unit hours and the \$15.00 (or whatever) rate per 1,000 homes. The stations do not actually receive this type of money for their delivered audiences. They receive something less than 25 cents on a dollar.

So we have a station delivering 100,000 homes to the network; **only not all of those homes are within the stations ADI** (or Area of Dominant Influence). Some of the homes are located in some other station's ADI. Does the **first** station get credit for all 100,000 homes, or only those located in its ADI?

The question is a good one ... and unfortunately, **if** there is a **concrete** answer (i.e. "Yes, that is the way it is," or conversely, "No, that is not the way it is"), **we never found it**. All station people we talked to smiled when asked the question, or frowned, and generally said "there is no real connection between your network base hour rate and your ADI ... it is more complicated than that."

This suggests that the stations and the networks constantly (or periodically) go through some form of negotiations to adjust their network base rates (or the rate per unit hour). But what factors are involved in these give and take sessions?

The broadcasters are number crazy. So are the networks. You just **know** that someplace in the central core of the networks there exists a department that constantly keeps tabs on cost-per-thousand homes reached. That is, after all, the basis by which networks **sell** national coverage to advertisers. Let's take a look at the following six markets, moving from number 1 through 160 by doubling the market number for each market studied. To keep things apples and apples, we have selected the ABC affiliate in each:

MKT #	DESIGNATION	BASE HOUR RATE	ADI SETS	ADI COST PER THOUSAND	DAILY CIRCULATION	DAILY RATE PER THOUSAND
1	New York	\$8,800	6,410,600	\$1.37	3,340,700	\$2.63
10	Pittsburgh	2,900	1,082,900	2.67	868,400	3.34
20	Indianapolis	1,358	738,100	1.84	414,500	3.27
40	Dayton	625	446,000	1.40	195,600	3.19
80	Albuquerque	600	238,500	2.52	160,100	3.75
160	Florence [S.C.]	600	78,500	7.64	101,700	5.90

Well, on a cost per thousand in the ADI area, we have a mean cost per thousand for the six markets of \$2.86. And in the average daily circulation area, we have a mean cost per thousand of \$3.68.

KTEN's Bill Hoover said "some stations are more efficient

than others." This bears out ... look for example at earlier example WSVA in Harrisonburg, Virginia. The station has an ADI cost per thousand of \$17.54 and an average daily circulation cost per thousand of \$8.45. Even within a market there are large variations:

JOPLIN/PITTSBURG MARKET NUMBER 114

Station/Ch.	Base Hour Rate	ADI Homes	ADI Cost Per Thousand	Daily Circulation	Daily Rate Per Thousand
CODE-12 [ABC]	\$800	150,200	\$5.32	115,800	\$6.90
KTVJ-16 [CBS]	225	150,200	1.50	76,300	2.94
KOAM-7 [NBC]	500	150,200	3.32	137,700	3.63

So how does CATV figure into all of this? We are coming to that. First lets clear away **who uses** which figures, ADI and weekly and/or daily circulation. According to our sources, ADI is utilized almost exclusively by national and regional spot buyers. For example, if Ford is backing up their network schedule with station buys for spot schedules, Ford is very concerned (through its agency) that it not paying **twice** to reach the **same** home. ADI's clear that up for the agency. It looks at the ADI map (or county lists) and then selects one or more stations in each ADI market to reach **those** counties. If it wishes to reach the Ardmore-Ada market (9 Oklahoma and Texas counties), it selects one of the two stations there. The

same holds true for regional accounts, such as Oklahoma Gas and Electric. To cover all of Oklahoma, they need four in-state ADI markets and a couple of nearby out-of-state ADI markets that happen to include one or more Oklahoma counties. For all practical purposes, the networks do not utilize ADI. **At least that is what the affiliates tell us.**

Others, such as networks, and local advertisers look more closely at daily circulation and in some cases weekly circulation. As we shall see next month, the networks **do keep track** of a station's "circulation", and when it goes down, the network insists that the station lower its "unit hour rate." **And that is where CATV's impact begins to count.**

NEXT MONTH IN CATJ

- * The COMPLETE 1977 FCC Tests Manual
- * Steve Richey And Counting
- * Broadcasters And Fines/Translators

SATELLITE TO HOME TESTS

Satellite To Home

In the United States there has been a firm reluctance on the part of our federal government to allow any experimentation in the emerging technology area of direct broadcasting to the home via a satellite transponder. And as long as nations experimenting in this area limit their own transponder radiation "antenna patterns" to cover only those portions of earth directly under their own political control, this is probably the way it will continue to be for several decades to come.

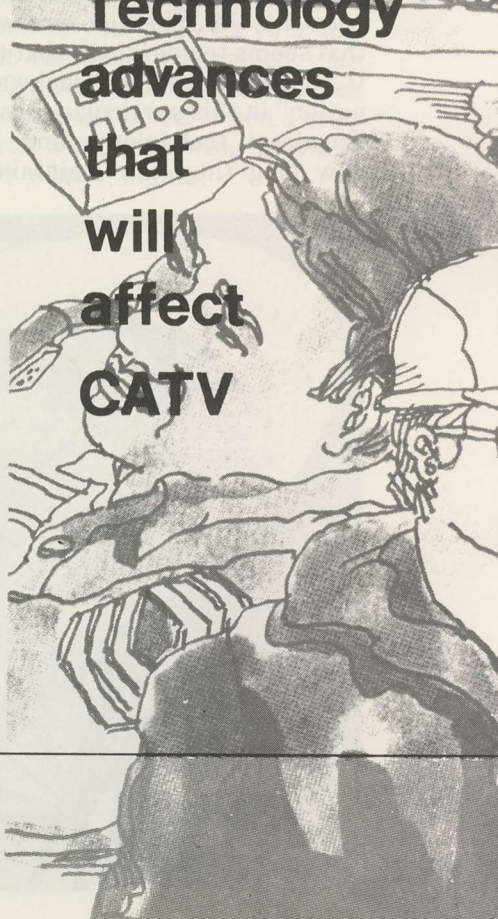
Yet in Europe, and in some portions of Asia, direct transmission of satellite programs to the home is about to become a reali-

ty. It is likely that the Germans (West Germany) will be among the first to operate such a system, followed within a short period of time by the Japanese and Indians.

In the upcoming 1979 *World Administrative Radio Conference*, a time where all of the nations of the world will sit around long tables to decide the future international allocations of radio frequencies, one of the "hot potato" items is sure to be the subject of allocating *specific* frequency bands to *satellite-to-home* broadcasting. The U.S. is against such allocations; if not worldwide (i.e. such allocations would ideally be co-shared around the globe for that singular purpose), at least in



THE WAY WE WILL BE...



Technology
advances
that
will
affect
CATV

the northern part of the Western Hemisphere. At "WARC" each nation has a single vote. Consequently, the U.S. carries the same vote-weight, as say Iceland. The nations of the world interested in promoting this concept of broadcasting are doing their best to sell it to others in advance of 1979.

Consequently, even if the U.S. is *not* for *this* form of satellite broadcasting, if the majority of the world's nations want it, such an allocation will probably be adopted.

Of course if the U.S. does not authorize such operations for the United States, we won't have it here; at least not directly. But another nation, such as Cuba, could easily cover the U.S. (along with Cuba) with their own satellite. They *could* tailor the antenna transmission coverage pattern of the bird to cover basically only Cuba; *but would they?*

The major foes of this concept are, not surprisingly, the commercial broadcasters in this country. *They*, pardon the pun, *have their bird on the ground*, and that is the way they wish to keep it. Whether they can influence the U.S. position in a way that seems to guarantee that the U.S. will become a "backward nation" in this particular area of broadcast technology, and for how long they can maintain a

status quo, remains to be seen.

The West Germans will probably be first. The system will be a 12 GHz system. The West Germans are finishing up on a 700-800 watt (CW power) 12,000 MHz transponder (transmitter). The West German system is extremely concerned with the type of home receiving system to be required to pick up these satellite-telecasts. The typical West German home receiver now costs from \$600-\$800. The new satellite receiver, it is planned, will cost the home owner the same amount.

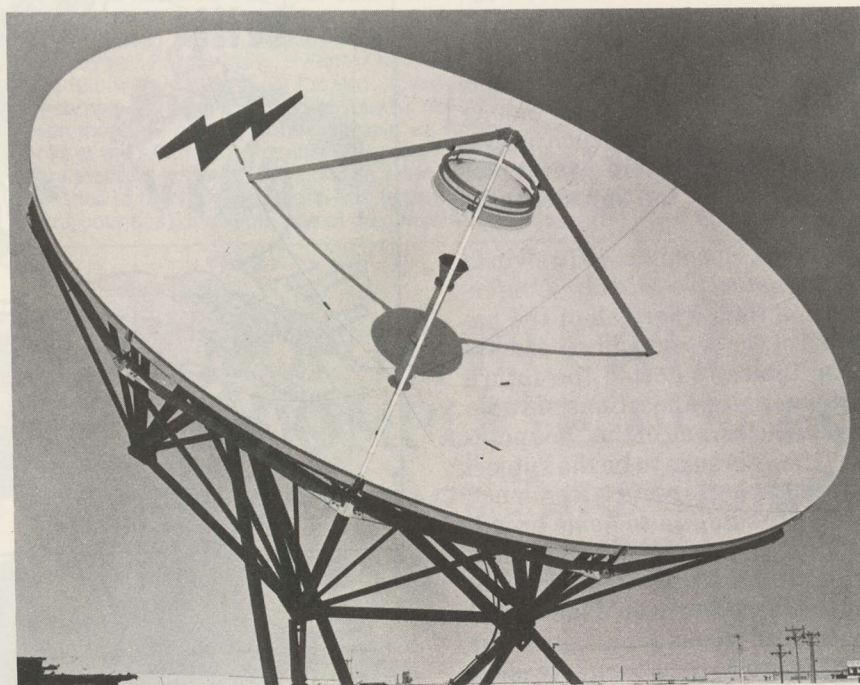
The system planners believe the television receiver needs to have a "weighted" signal/noise ratio of around 55 dB for a good quality picture. This means a 12 GHz dish antenna with from 37 to 41 dB gain will be required. At 12 GHz this amounts to a dish of 31 to 47 inches in diameter.

One of the more popular early receiver designs uses a double-down conversion format going from 12 GHz down to a high i.f. of around 900-1,000 MHz, and then down to a receiver lower i.f. of 120 MHz. The bandwidth of the satellite transponder will be approximately 400 MHz. Individual channels will be FM modulated so that they occupy around 80 MHz. each. The extra-wide bandwidth is one of the trade-offs for signal to noise ratio objectives

with relatively inexpensive receivers.

Several of the receiver designs have the 12 GHz received signal being mixed to the first high i.f. (around 900-1,000 MHz) right at the antenna. One design, by Valvo (a German company) presently utilizes a section of waveguide to carry the signal from the focal point feed to the *back* of the dish. The waveguide functions also as a high pass filter, to reject any local oscillator signal and keep it from being reradiated back at the satellite (the cumulative [in phase] effect of hundreds of thousands of local oscillators being redirected back at the satellite is of some concern). The back of the dish has an 11 GHz local oscillator (at the relatively high level of 9 dBm) driving a balanced mixer. The conversion loss of the 11 GHz microstrip balanced mixer is 3 dB. A thin film i.f. amplifier operating around 900-1,000 MHz has sufficient gain to give the receiver package an 8 dB noise figure at 12 GHz. The high i.f. signal is diplexed down the coaxial downline to the receiver where the second conversion to the 120 MHz (center) i.f. takes place. Power to run the antenna mounted electronics goes back up the coax in the standard CATV format.

Another receiver version will have a 12 GHz FET (field effect transistor) amplifier ahead of the balanced mixer. This, the Germans say, will produce a noise figure of between 4 and 5 dB for the receiver at 12 GHz. Because noise figure becomes increasingly more difficult (and expensive) to attain as the frequency goes up, the 4-5 dB noise figure at 12,000 MHz is particularly interesting to CATV types; it compares very favorably with the 1.6-3.0 dB noise figure early CATV satellite terminals are now working with. One of the promises for *CATV terminal costs* coming down in the immediate future, is the successful development of FET technology to the point where under 2 dB 4 GHz noise figures are available with low cost FET devices. The rapid development of higher fre-



quency (i.e. 12 GHz) FET technology, and the prompt production of total satellite front ends with quantity production of low noise FET's for the higher 12 GHz band will certainly speed up the companion lowering of CATV satellite pre-amplifier prices.

The FET's being actively pursued for quantity production for German home receiving terminals should ultimately produce 2 dB noise figures at 4 GHz while also, producing 4 dB noise figures at 12 GHz. At the higher frequency satellite band, the noise figure - bandwidth product is 500 MHz. That is, the FET low noise (4 dB) pre-amps at 12 GHz will be expected to pass a 500 MHz chunk of spectrum. At 4 GHz, the same FET will cover approximately 1/3rd the 500 MHz bandwidth, with a 2 dB noise figure spec.

One of the fall outs from the German development of low cost receiving equipment for the 12 GHz band will probably be a drastic lowering in prices for CARS band type equipment; in particular the receiving stations. If a 4 dB home terminal complete with antenna and antenna mounted down converter can be mass marketed in Germany for \$600-\$800, the companion piece as a CATV receiver in North America should also come down.

Another fall out piece should be the limited availability of 3-4 dB noise figure pre-amplifiers for CARS band equipment here at some very realistic prices. Many present day CARS band systems operate with no pre-amplifiers and attendant mixer-front-end noise figures of from 8 to 12 dB. Substantial fade and signal to noise margin improvement should be realized with existing receivers with the addition of the new family of pre-amplifiers. None of this would be possible, at reasonable or even low cost, without the development and quantity production of family-unit satellite terminals in Germany for the new German direct-to-home program.

Most present generation satellites utilize fairly conventional transmitting antenna patterns. Some pattern shaping has been

explored on a limited basis, but if you viewed the typical pattern from above you would see what appeared to be a circular contour with signal levels highest at the center of the contour and gradually falling off as the circle widens further and further from the center point.

The next generation Japanese CS (Communications Series) satellite will be the first to employ distinctive pattern shaping. The bird will have on board 4 GHz, 6 GHz plus 20 GHz and 30 GHz transponders. The 4 and 6 GHz radiation patterns will be essentially circular, much like the present WESTAR and RCA birds now serving North America. The 20 GHz and 30 GHz contours will however be pattern shaped to cover just the primary Japanese islands; in an elongated pattern which runs from SW to NE.

This approach *may* be adopted in future generations of U.S. satellites; antenna radiation patterns on the bird which can be shaped in a variety of coverage patterns, not unlike multiple tower AM radio arrays employed with directional patterns in U.S. broadcasting. It is expected that when such patterns become commonplace that not only will there be more "room" on the ground for more receiving terminals, because of frequency sharing due to less wasted cov-

erage areas (i.e. birds will cover only those areas they *must* cover, freeing the same frequency band for use by other birds in other areas, even within North America), but, that eventually remote transponder pattern steering, based upon user needs, may be employed before 1990 family birds are launched.

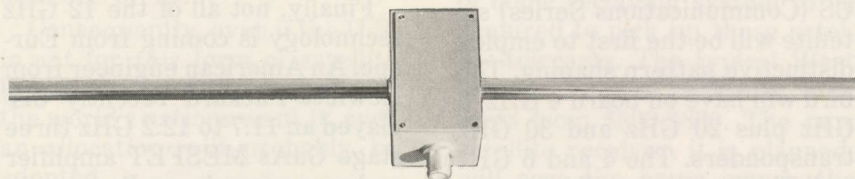
Finally, not all of the 12 GHz technology is coming from Europe. An American engineer from Hewlett Packard recently displayed an 11.7 to 12.2 GHz three stage GaAs MESFET amplifier under *cryogenic cooling* conditions. A normally derived GaAs FET type pre-amp has previously been shown to exhibit lower noise figures (and often coincidentally more gain) when the whole pre-amp is cooled to some (optimum) operating temperature below room or air temperature. In this case, the laboratory amplifier had a measured noise figure of 5.3 dB and a gain of 18 dB at room temperature. However, when the unit was cryogenically cooled to 40 degrees kelvin the amplifier had a measured noise figure of 1.6 dB and a gain of 31 dB.

And perhaps you have wondered to yourself why your distant channels, pre-amped with FET devices, often seem to look sharper and better when a crisp north wind is blowing on these cold winter nights!



RICHEY ON RADIATION TESTS

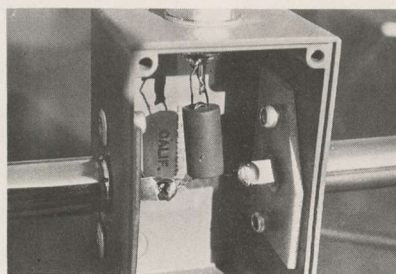
Steve Richey Describes A Do-It-Yourself Radiation Test Dipole/Amplifier Rig



In previous months this series of **CATJ** do-it-yourself construction article projects have covered (1) stripper for driving a frequency counter (September), (2) broadband noise generator (October) and (3) marker/signal generator for locating precise frequencies (November). This month we will deal with the construction of a home-built adjustable radiation (or signal strength measurement) dipole with a 15 dB gain flat broadband amplifier. The primary intent of this segment of the do-it-yourself test equipment package is to provide you with a way, with your trusty (if not trusted) calibration-referenced FSM/SLM, to make the devilish radiation tests. If you also utilize this system as a "Calibrate-able" package for making off-air field strength measurements, so much better for your package.

The package is two parts: an adjustable dipole constructed with a matching transformer (75 ohm balanced to 75 ohms un-balanced), and

a flat broadband amplifier. We make no suggestions as to a "mounting technique" for the radiation dipole. You should be clever enough on your own to figure out how to mount the unit to an expandable fiberglass or plastic pole-section array to allow you to raise the antenna to the proper height above ground (see box material here). The antenna is constructed utilizing two readily available rod-section antennas which are found at your neighborhood Radio Shack store (Radio Shack part number 21-1156). The transformer is a two turn, to two turn unit wound on virtually any CATV type 2 hole ferrite core (such as you will find inside of a two-way splitter). The antenna elements screw attach into mounts installed on a piece of G-10 or phenolic board, pop-riveted into the box as shown in diagram two and in the photo. The antenna rods must of course be insulated from the metal of the box (a Pomona Electronics 2417 box).



Because the signal levels are very weak, even **when** you are radiating **more** signal than the rules allow (see box material here), the typical (read **any**) FSM/SLM cannot detect accurately such weak levels,

so we need some extra "measurement gain" between the dipole and the SLM/FSM to make the system play. This is the function of the 15 dB gain flat or broadband amplifier. It raises the detected levels by 15 dB, which is enough to make your 727 or SLIM or FSM-2 (or whatever) meter read the radiated level (s) present. To determine whether you "comply" or not,

PREPARATION OF POMONA BOX

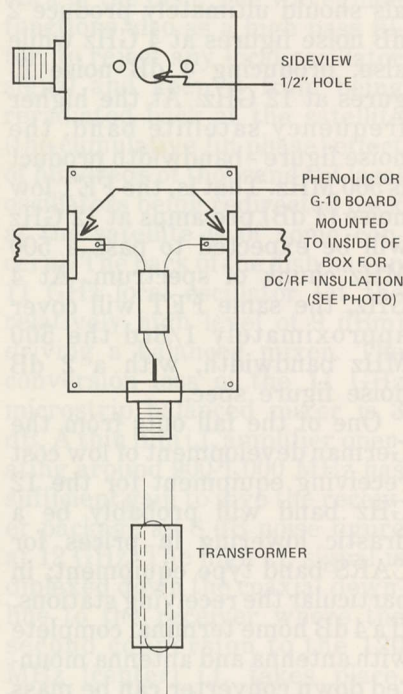
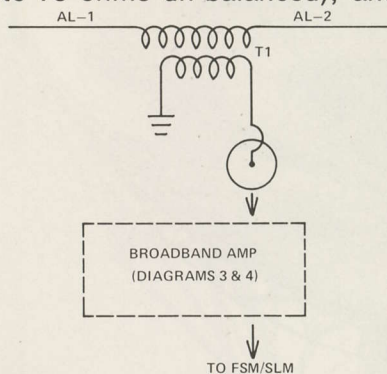


DIAGRAM 2

RADIATION LEVELS

Levels given below are "at" the properly-adjusted radiation-dipole **terminals** as measured at 75 ohms unbalanced. To these levels, adjust **upward** by the **gain** of the in-line broadband amplifier and **downward** by the known **loss** of the interconnecting downline cable to the SLM. Levels are absolute, and proper testing requires a freshly calibrated SLM/FSM.

Channel/ Frequency	Microvolts	[dBmV]
2	15.65	-36
3	14.20	-37
4	12.90	-38
74 MHz	11.70	-39
5	11.20	-39
6	10.40	-40
100 MHz	8.65	-41
108 MHz	8.05	-42
165 MHz	5.25	-46
7	4.95	-46
8	4.80	-46
9	4.65	-47
10	4.50	-47
11	4.35	-47
12	4.22	-48
13	4.10	-48



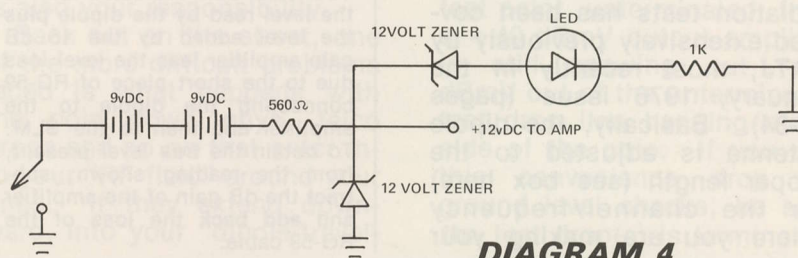
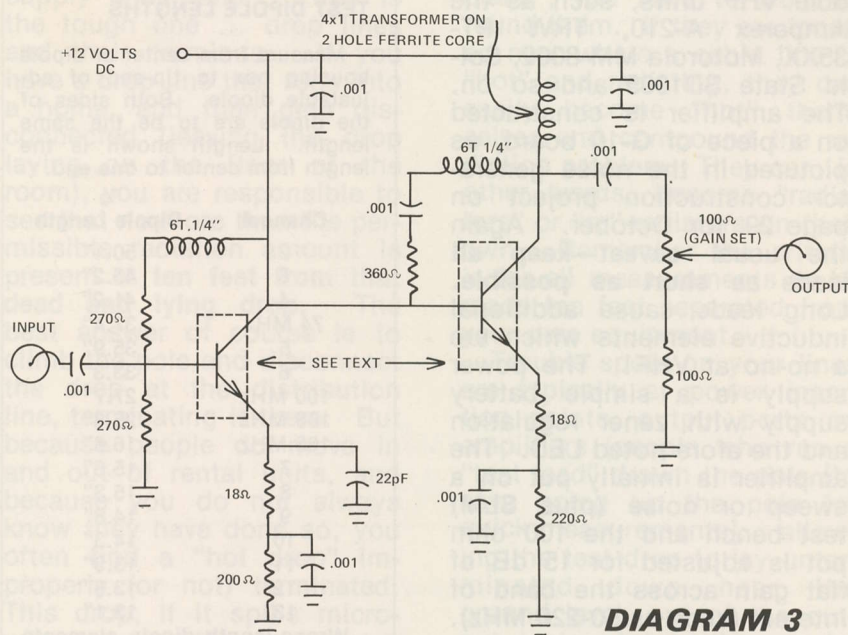
AL 1,2 - RADIO SHACK # 21-1156
BOX - POMONA #2417
F61A
T1 - SEE TEXT

DIAGRAM 1

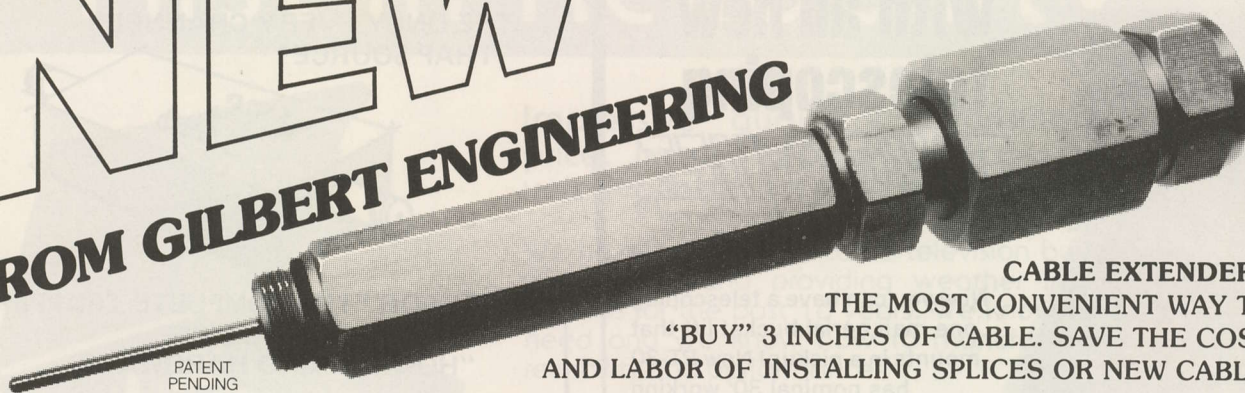
you back-off the noted measurements by the 15 dB gain of the amplifier. If you are still below the FCC specified maximum levels, you are (almost) home free.

The amplifier section can be built into a secondary housing, and it can be attached directly to the output F61A on the dipole head. The amplifier is DC operated (i.e. with its own internal battery supply) and there is an LED circuit which keeps the LED glowing as long as you are **above** the 12 volt (regulated) level. When the LED goes out, either the LED went west or your voltage is now below the "Threshold" point, and you need to replace the batteries because the 15 dB gain amplifier will no longer have the intended gain.

The amplifier itself is very similar to the amplifier described in the October CATJ segment on the broadband noise generator (see page 29, October). The transistors are of the TO-39 type (metal can) and they can be anyone of a number of commonly avail-



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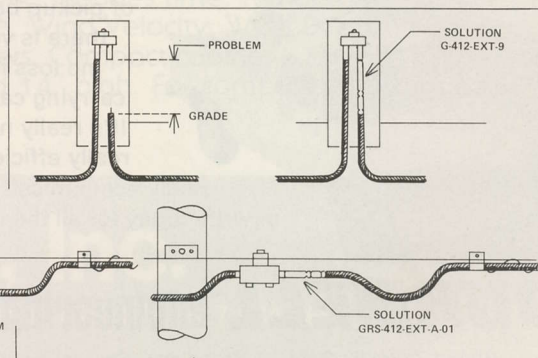


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able VHF units, such as the Amperex A-210, TRW PT-35XX, Motorola MM 8002, Solid State SD1005 and so on. The amplifier is constructed on a piece of G-10 board, as pictured in the noise generator construction project on page 29 for October. Again the usual caveat—**keep all leads as short as possible.** Long leads cause additional inductive elements which are a no-no at VHF! The power supply is a simple battery supply with zener regulation and the afore noted LED. The amplifier is initially put on a sweep or noise (plus SLM) test bench and the 100 ohm pot is adjusted for 15 dB of flat gain across the band of interest (such as 50-220 MHz).

Making Measurements

The technique for making radiation tests has been covered extensively previously by CATJ, most recently in the January, 1976 issue (pages 32-34). Basically, the dipole antenna is adjusted to the proper length (see box here) for the channel/frequency where you are making your

TEST DIPOLE LENGTHS

Measure from center of dipole housing box to tip-end of adjustable dipole. Both sides of the dipole are to be the same length. Length shown is the length from center to **one** end.

Channel	¹ / ₂ Dipole Length
2	50.1"
3	45.2"
4	41.2"
74 MHz	37.4"
5	35.9"
6	33.3"
100 MHz	27.7"
108 MHz	25.6"
165 MHz	16.8"
7	15.8"
8	15.3"
9	14.8"
10	14.3"
11	13.9"
12	13.5"
13	13.1"

Wrong-length dipole elements will register incorrect readings. Your **total** SLM indicated level is the level read by the dipole **plus** the level added by the 15 dB gain amplifier **less** the level loss due to the short piece of RG-59 connecting the dipole to the amplifier and then to the SLM. To obtain the **true** level present, from the reading shown, **subtract** the dB gain of the amplifier and **add back** the loss of the RG-59 cable.

radiation test/checks. **Note:** When adjusting the length of the dipole, start from the **center** of the Pomona housing and measurement **outward** to both end-tips. Do **not** start at the edge of the box and measure outward. The overall length of the dipole is from tip to tip, in two equal segments starting at the center of the box. The inaccuracy of starting at box-edge for low band VHF will be minimal, but at high band VHF you will have a slightly off-resonant dipole (i.e. resonating lower in frequency than the intended frequency) if you start at the edge of the box and work outward.

Then, based upon 76.605 (a) (12) measurement requirements, you elevate the reference dipole to the point where you are (as close as possible) **10 feet removed** from the cable lines and the dipole is facing **parallel** to the cable line run. All FCC-measurement-permissible levels are based upon a ten foot separation between the test dipole and the cable lines. If you go back

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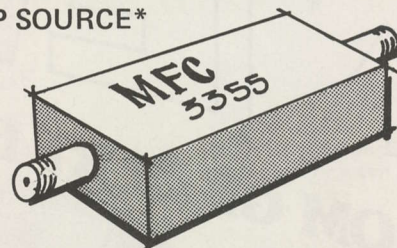
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100 feet, you are allowed (for example) 10 dB less signal (which will be too weak to read accurately). The dipole moves along the cable lines until a "hot spot" is found. Then the dipole, still maintaining the ten foot separation, is rotated in axis and azimuth until the detected radiation is peaked. This is the level of signal you must contend with, and if it exceeds the permissible level for that channel or frequency, you have a fix-it problem on your hands. Many systems move along the line at say five foot separation, and **when** they spot a hot spot, **then they back up to the ten foot specified distance** and perform the azimuth and axis checks to peak the response. If it stays below the permissible level for the channel, you are home free. If not ... well, that is what this exercise is all about.

Many people tend to "overlook" the fact that a cable system is responsible for radiation from **any** of its equipment. Any includes power

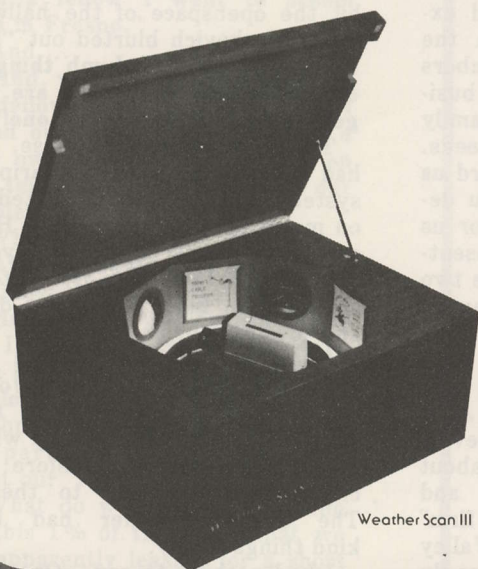
supply lines, and ... this is the tough one ... drop lines and their terminus. If you have a drop line that runs into a home, and then gets disconnected (leaving the drop laying on the floor of the room), you are responsible to see that no more than the permissible radiation amount is present **at ten feet from that dead and lying drop**. The best answer of course is to climb the pole and disconnect the drop at the distribution line, terminating it there. But because people do move in and out of rental units, and because you do not always know they have done so, you often find a "hot drop" improperly (or not) terminated. This drop, if it spills microvolts out onto the rug, is your responsibility. Probing for it is also your responsibility.

Back out on the street, one of the more difficult problems faced is what happens with the pole down guys, telco drops and so on that enter into your "RF field" around your lines. If they extend downward, into your "dipole-travel-

plane", you have to work around them. If they are located near where a cable line is "hot" and radiating, they can easily become "hot" themselves and compound the radiation problem. They can, in other words, become "radiators" or "re"-radiators on their own. Remember the criteria is for all measurements to be made ten feet separated from **your own** equipment.

Trouble spots on your lines are typically at power insertion points, output ports on amplifiers (people who run a "test lead" down the pole [to save going up the pole for quick measurements], allowing the test drop to lay unterminated down near the ground level, out of the output test point port), may be asking for trouble. A -20 dB test point, unterminated, from a +40 dBmV output amplifier is still spewing out +20 dBmV out of the unterminated test drop line hanging along side of the pole. If you use this convenience drop for ground level checks, be sure the test drop(s) is terminated.

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Coop's cable column



bob cooper editor in chief
CATJ

Experience Is What Counts

The years 1964-1966 were without a doubt the golden years of franchise hunting in this country, anything worth having was just about gone by the end of this era, and during the era such present day giants as General Electric, Storer, and others were out there scrambling with the best of them.

During those years while trying to get our own foothold in a quagmire of claims and counterclaims, we found ourselves appearing before the City Council of Los Banos, California one fine spring day. The City Council had determined that Los Banos needed cable television. A fine veteran by the name of Bill Hargan, functioning on behalf of his then employer Central California Communications Corp. (out of Salinas) had the inside track with the city, a community of some 9,000 souls located in the western portion of the San Joaquin valley, up against the coastal mountain range. Bill had been in town on several occasions, and **when we learned** that Los Banos was going to award a franchise, Bill just about had the lid on it. We were not the only people coming in late. General Electric Cablevision showed up at the same late date meeting as we did.

Mr. Hargan had done considerable survey work, and was proposing a microwave feed from over on the coast to bring the forbidden fruit (San Francisco signals) into Los Banos. The town had pretty decent UHF service from Fresno, offering all three networks and half decent outside antenna also produced some measure of signal from Central California's channel 8 in Salinas and one or two of the Sacramento

VHF stations up the valley.

Clearly our job at the last-minute entrance point was to postpone the inevitable award to CCCC. And General Electric had the same idea.

Now our firm (Valley Vision) and GE had their work cut out for themselves. Neither had an operating system, GE claimed to have a couple of franchises "back east" someplace, but other than that, the GE "cablevision" crew was as green as grass, and they showed it (which is a kind way of saying that GE got no votes the first night they appeared in Los Banos). The "we are big and therefore we should get the franchise" ploy fell on deaf ears. We had a different approach. My Valley Vision partner John Markovich came from a family that had extensive business dealings in the area. We went to two members of the city council who did business with the Markovich family empire and spelled out our needs. "We aren't asking you to award us the franchise ... just that you delay the award long enough for us to get together a suitable presentation" was our approach. The two agreed (surprise Bill Hargan ... now you know, after all these years!).

One of the two councilmen who felt inclined to help young John went a little overboard however. After my canned speech about how wonderful cable was and what a great little "local firm" (with emphasis on local) Valley Vision was, one of our friendly council persons picked up the cue.

"**You have so much experience**" said he to me. "**Tell us where you operate systems ... now.**" GE had already fallen into the trap only minutes before, and the councilman, anxious to make us look like

serious competitors was trying to direct us into an area that would help us stand out from GE.

I paused a few seconds and then a light shone someplace in the inner recesses of my mind. "Well sir, as you know, we are new in this area in cable ... but ... (the pause seemed forever) ... **we do have an interest in one cable system east of here.**"

"And where is that system?" asked the councilman.

I glanced nervously to the side to John Markovich and our third partner, a young attorney from Modesto. Both were looking straight at the tips of their shoes. John was red in the face and the attorney-partner was pressing the palms of his hands together so intensely that they flashed alternate bands of red and white.

"Well, it is a small system, but a good one. **It is in ... Mariposa,** east of Merced, in the foothills," answered I. I started to glance towards my two partners and then thought better of that.

The councilman then suggested that the city **not** award a franchise **that night**, but rather that it send a delegate to **inspect** the "Valley Vision system in Mariposa." The motion carried and I slid back into my seat next to Markovich. John lifted his leg and deliberately stepped down on my toe. **Very hard.**

A few minutes later the council meeting was over and I jumped from my seat and headed out into the hallway. Markovich and the attorney-partner followed, barely inches behind me. We no sooner hit the openspace of the hallway when Markovich blurted out "**Boy ... that was a real dumb thing to do. Now how in the hell are you going to get us out of that one!**"

The truth was, of course, we had no interest in the Mariposa system. The attorney started in on me at that point, but Bill Hargan's exit by us calmed everyone down for a few seconds. I took the time to beat it out the door and towards our parked car.

"**How in the \$%#&\$ could you do such a thing!**" demanded John. "I have to do business in this town. My father will kill me when he finds out we stood before the city council and lied to them!" The attorney-partner had less kind things to say.

I had nothing to say. Once uttered ... well, you can't very well take back something like that.

"And to make matters worse, they are sending a delegation up to Mariposa to see this system. **Now how are you going to handle that one?**" The emphasis was on

you.

By this time we were sitting in John's Impala. Well, they were sitting. I was still standing outside. "We should make you walk back to Modesto" one offered. It was a 50 mile hike. "Here, get in here and let's go get a beer and think this out" commanded John. I obliged.

Halfway down the block we passed a telephone booth. "Stop there a second" said I. "Is this another one of your underpass antenna tricks?" asked Markovich. I assured him it was not, got out of the car and did my Superman bit with the telephone booth.

A few minutes later I climbed back into the car. "What was that all about?" asked John. "No sweat" replied I. "We now own 1% of the stock in the Mariposa cable television system."

The silence was deafening. John stopped the car again, turned to me in the back seat and looking straight through me with one of his "boy I wish you were at the working end of my 12 gauge shotgun" stares. "Say that again" he commanded. I repeated the statement. "Valley Vision now owns 1% of the stock in Mariposa's cable television system" said I.

"Do you want to explain that ... or do we just drop you into the nearest irrigation ditch?"

"Very simple really" I began. "The fellow who owns the Mariposa system recently bought it from a fellow I went to school with in Fresno."

"And ..."

"And, when I just tried to reach the fellow I went to school with, I found out that the system had a new owner. So I called him on the telephone and explained our problem ..."

"Who's problem?"

"Ah, my problem, to him. He is the nicest fellow. Said he would be glad to help, and agreed to sell me, I mean us, 1% of the Mariposa system for a while, until this all blows over."

John was smiling but the attorney-partner had reservations about our "luck."

"What do we have to give him for this 1% of the stock that we are apparently leasing for a short while?"

I smiled. "Nothing that you will miss."

"Try me ..."

"Well, he has a low band only system and he wants to convert it to an all band plant. I just happen

to know where some line amplifiers are stashed, and I offered to help him get a good deal on them. That's all there is to it."

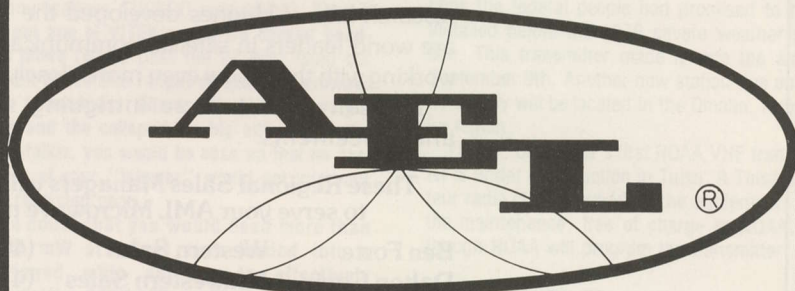
And so, the following week, I traveled to Mariposa to inspect the new "Valley Vision" system. The owner of the system was extremely cooperative (a full time employee of the California Highway Patrol who ran the system on the side), and even took me around to a couple of local clubs where I planned to "show off our cable service" to the delegation from Los Banos. The real owner explained to the club owners that I was going to be bringing in some people to see the system, and "would you please treat Bob here as if this were his cable system?"

They agreed and that was that.

Well, that was almost that. The ploy worked so well that a couple of weeks later John Markovich, speaking before another city council in another Valley town, felt the same urge I had felt in Los Banos.

"Why yes, Valley Vision has an operating system" said he. "And unlike our competitors here who are big and who have lots of money, we have real cable experience." The man from GE cringed (we kept falling over him in virtually every town for about six months running). The attorney-partner cringed. I just got up and went into the hallway outside the council chambers, where I found a pay phone and called my new friend in Mariposa.

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TECHNICAL TOPICS

KLISTRON SHORTAGE?

"If I were facing a \$1600.00 Klystron replacement cost (see CATJ for September, page 49) I'd be out shopping for new all solid state transmitters. The receive klystrons are relatively easy to replace with new solid state sources. Transmit klystrons are much more difficult to replace, however, because of the modulation problem.

"We have just updated our four Raytheon KTR-1000 receivers which we've been using as STL's in local origination situations. We're now going to try our hand at converting the transmitters. Some operators have had bad luck with modernizing programs in the past but I think they should reconsider their situation and either buy all-solid-state equipment or shop around again for modernization kits or components.

"KTR-II users should be pressuring Raytheon for retrofit kits to replace the klystrons with solid state sources."

I. Switzer, P. Eng.
Consulting Broadcast Engineer
Mississauga, Ontario
L4V 1G2

Surki:

Your logic is inescapable. When annual-type-replacement parts (such as klystrons) get so far out of line with the total cost of the whole package (when new), either the users respond by urging the original manufacturer to update his older equipment with field mod kits (as you suggest), or the user reconsiders what price he is paying to continue using the old gear. Maybe if the original manufacturer is reluctant to help put together retrofit kits, the user should remember this when he is shopping for a new replacement package. Once burned... etc.

CB ANSWER? JAM 'EM!

"First a general comment. Your magazine is undoubtedly the most consistently fascinating electronics magazine available today, in as much as it combines theoretical and practical aspects of television signal handling, as well as a lot of other fascinating stuff (such as the grid Allocation Proposal for TV and the historical FCC series). I have been reading CATJ since it first came out, and it is the only CATV magazine I save the issues of after reading it the first time through.

"What prompts this letter, however, is your report on CB TVI problems as experienced by CATV systems. This problem is as bad, or worse, here in California than elsewhere, largely because we utilize mountain-top headend sites and they are often accessible by regular (if not great) roads. And the CB'ers like to be up there on top just like we do.

"Our solution is not exactly 'kosher,' but this is, after all, war! By connecting a Texas Instruments SN74S124 dual astable multi-vibrator up such that one side is acting like a 10 Hz oscillator and then feeding the other side (which is a 27 MHz oscillator), and putting a long wire on the output, you have a small CB jammer. It doesn't get far, but it sure plays havoc with the receivers in the cars parked by the headend. A 'straight-faced' statement to the effect that such

a signal is due to the headend processing gear should be 'practiced' in advance. Perhaps a similar device (or effect) could be produced by a sweep generator, with the center frequency tuned to 27 MHz."

Jim Rieger
Engineer
Ridgecrest, Ca.
93555

Jim—

You California guys are devious! Actually, it is a perfectly sensible approach to an otherwise difficult problem. We have a few suggestions to offer along the same lines:

1) Part 14 (limited radiation devices, which includes the popular 100 mW or under handi-talkies) may provide the "almost-legal" approach to this problem.

2) By taking an "FCC approved" Part 15 unit and rebuilding the oscillator so that it is varactor tuned (rather than crystal controlled), you could take Jerry Laufer's ramp generator and "sweep" the 27 MHz band with a carrier. The carrier could be modulated with a relaxation oscillator creating a warble (just like Mid State Communications CUCKOO modulation). Then if you put one of VITEK's new CB coaxial band-pass filters (which pass the 27 MHz band but cuts off above this range) or one of Microwave Filter's bandpass filters between the output stage and the collapsible whip antenna on the handi-talkie, you would be assured that no harmonics of your "jammer" would get into your VHF receiving gear.

We doubt that you would need more than 10-25 mW of power even loaded into a shortened whip antenna to effectively "blanket" a CATV hilltop with a warbling-tone carrier that swept throughout the CB channels. And as you point out, if the CB'er cannot hear anything while parked on your hill but the "funny noise", he is shortly going to stop parking under your antennas.

Now — who will build up such a unit and send along to CATJ the schematic for same? As Jim says... it may not be entirely 'kosher' but then this is war!

HOW'S THAT AGAIN?

"Regarding Mr. Sarkar's explanation of proper phasing of helices (page 43, 'Honest Is Honest', August 1976 CATJ), for the life of me I cannot see the difference between diagrams 1 and 2. Can you? If so, please explain.

Do you suppose TACO's Mr. Sarkar would be kind enough to show how they phase three helices, at TACO, in a subsequent issue of CATJ?"

Marvin A. Truman
Patterson, Ca. 95363

Marvin —

You've got us. The only difference we can see between diagrams 1 and 2 is that in diagram 1 Mr. Sarkar has indicated that the phase relationship created by the 'start-point' on the helix twist is identical on both antennas, but it 'may not be' in diagram 2. And as for phasing three helices together... well, perhaps it would be

best for Mr. Sarkar to sit down and explain both questions to us in another letter... which if received here, will be published by CATJ. What say Tarpan?

NOAA WEATHER UPDATE II

In what has been characterized as "hopeless red tape", the NOAA VHF weather station service described originally in the January (1976) CATJ, and subsequently in the March (1976) CATJ seems determined to establish new records for federal "ineptness".

As reported in the July CATJ Technical Topics (see page 52), some non-federal government entities have decided on their own to install NOAA VHF (162.40 and 162.55 MHz) transmitters. To date, the States of Kentucky, Mississippi and Alabama have approved the installation of NOAA VHF (weather) transmitters on the state's ETV network towers, and the state of South Carolina is expected to approve such a plan very shortly.

The most recent new NOAA VHF transmitter to come on the air is in the Pittsburgh (Pennsylvania) area. This is one of the "spring-76" stations the federal people had promised to have installed before the 1976 severe weather season. This transmitter made it onto the air on September 9th. Another new station due on the air shortly will be located in the Omaha, Nebraska region.

Finally, Oklahoma's first NOAA VHF transmitter is under construction in Tulsa. A Tulsa amateur radio club is providing the equipment, and the maintenance, free of charge to NOAA, although NOAA will program the transmitter.

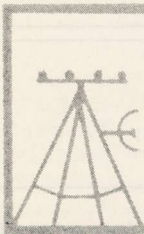
RHOMBIC SUPPLIES

"Fantastic summary of rhombic antenna designs in October CATJ! Really appreciated having detailed construction information. Only one problem... I found a source for strain insulators per your H.H. Smith instructions, but the copperweld wire is driving me up the wall. Can you help?"

K. Bostick
Madera, California
93637

KB—

When we set out to construct a set of Laport Rhombics for the CATJ Lab, we scouted around in 'Ham' circles and found numerous sources. Here are a couple. Adirondack Radio Supply (P.O. Box 88, Amsterdam, New York 12010) has 'several hundred thousand feet' in stock on rolls of copperweld. Price is 4 cents a foot plus shipping, UPS. William B. Shepherd, 12000 Twin Cedar Lane, Bowie, Md. (20715) has 5000 feet of # 12 AWG and is open to offers. Don Newcomb of Box 101, Rt 1, Lake Crystal, Mn. (56055) has around 4000 feet of # 13 copper-clad steel on a spool and he wants \$100.00 for it. We have other sources too, if these aren't adequate, let CATJ know. You might also check with salvage (wreck-out) companies pulling down rural telephone lines. This usually-on-rolls wire often has splices in it, but it should be excellent (and cheap!) none the less.



cata

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CATEL, 1400-D Stierlin Road, Mt. View, CA. 94043 (**M4, M9**)
CCS HATFIELD/CATV DIV. 5707 W. Buckeye Rd., Phoenix, AZ. 85063 (**M3**)
C-COR ELECTRONICS, Inc., 60 Decibel Rd., State College, PA. 16801 (**M1, M4, M5, S1, S2, S8**)
COMMUNICATION EQUITY ASSOCIATES, 8200 Normandale Blvd., Suite 323, Bloomington, MN. 55435 (**S3**)
COMM/SCOPE COMPANY, P.O. Box 2406, Hickory, N.C. 28601 (**M3**)
ComSonics, Inc., P.O. Box 1106, Harrisonburg, VA. 22801 (**M8, M9, S8, S9**)
DAVCO, INC., P.O. Box 861, Batesville, AR. 72501 (**D1, S1, S2, S8**)
EAGLE COM-TRONICS, INC., 8016 Chatham Dr., Manlius, N.Y. 13104 (**M9** Pay TV Delivery systems & products)
FARINON ELECTRIC, 1691 Bayport, San Carlos, CA. 94070 (**M9, S9**)
GILBERT ENGINEERING CO., P.O. Box 14149, Phoenix, AZ. 85063 (**M7**)
HOME BOX OFFICE, INC., 7839 Churchill Way—Suite 133, Box 63, Dallas, TX 75251 (**S4**)
ITT SPACE COMMUNICATIONS, INC., 69 Spring St., Ramsey, N.J. 07446 (**M9**)
Jerry Conn & Associates, 550 Cleveland Ave., Chambersburg, PA. 17201 (**D3, D5, D6, D7**)
JERROLD Electronics Corp., 200 Witner Road, Horsham, PA. 19044 (**M1, M2, M4, M5, M6, M7, D3, D8, S1, S2, S3, S8**)
LARSON ELECTRONICS, 311 S. Locust St., Denton, TX. 76201 (**M9** Standby Power)
LRC Electronics, Inc., 901 South Ave., Horseheads, N.Y. 14845 (**M7**)
Magnavox CATV Division, 133 West Seneca St., Manlius, N.Y. 13104 (**M1**)
Microwave Filter Co., 6743 Kinne St., Box 103, E. Syracuse, N.Y. 13057 (**M5, bandpass filters**)
MID STATE Communications, Inc. P.O. Box 203, Beech Grove, IN. 46107 (**M8**)
MSI TELEVISION, 4788 South State St., Salt Lake City, UT 84107 (**M9** Digital Video Equip.)
OAK INDUSTRIES INC./CATV DIV., Crystal Lake, IL. 60014 (**M1, M9** Converters, **S3**)
PRODELIN, INC., 1350 Duane Avenue, Santa Clara, CA. 95050 (**M2, M3, M7, S2**)
Q-BIT Corporation, P.O. Box 2208, Melbourne, FL. 32901 (**M4**)
RICHEY DEVELOPMENT CORP., 1436 S.W. 44th, Oklahoma City, Ok. 73119 (**M1, M4, M8, S8**)
RMS CATV Division, 50 Antin Place, Bronx, N.Y. 10462 (**M5, M7**)
Sadelco, Inc., 299 Park Avenue, Weehawken, N.J. 07087 (**M8**)
Scientific Atlanta Inc., 3845 Pleasantdale Rd., Atlanta, GA. 30340 (**M1, M2, M4, M8, S1, S2, S3, S8**)
SITCO Antennas, P.O. Box 20456, Portland, OR. 97220 (**D2, D3, D4, D5, D6, D7, D9, M2, M4, M5, M6, M9**)
Systems Wire and Cable, Inc., P.O. Box 21007, Phoenix, AZ. 85036 (**M3**)
TEXSCAN Corp., 2446 N. Shadeland Ave., Indianapolis, IN. 46219 (**M8, bandpass filters**)
Theta-Com, P.O. Box 9728, Phoenix, AZ. 85068 (**M1, M4, M5, M7, M8, S1, S2, S3, S8, AML MICROWAVE**)
TIMES WIRE & CABLE CO., 358 Hall Avenue, Wallingford, CT. 06492 (**M3**)
Titsch Publishing, Inc., P.O. Box 4305, Denver, CO. 80204 (**S6**)
Tocom, Inc., P.O. Box 47066, Dallas, TX. 75247 (**M1, M4, M5, Converters**)
TOMCO COMMUNICATIONS, INC., 1132 Independence Ave., Mt. View, CA. 94043 (**M4, M5, M9**)
Toner Cable Equipment, Inc., 418 Caredean Drive, Horsham, PA. 19044 (**D2, D3, D4, D5, D6, D7**)
Van Ladder, Inc., P.O. Box 709, Spencer, Iowa 51301 (**M9, automated ladder equipment**)
VITEK ELECTRONICS, INC., 200 Wood Ave., Middlesex, N.J.
WAVETEK Indiana, 66 N. First Ave., Beech Grove, IN. 46107 (**M8**)
WEATHERSCAN, Loop 132 - Throckmorton Hwy., Olney, TX. 76374 (**D9, Sony Equip. Dist., M9** Weather Channel Displays)
Western Communication Service, Box 347, San Angelo, TX. 76901 (**M2, Towers**)

NOTE: Associates listed in bold face are Charter Members

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D1—Full CATV equipment line
D2—CATV antennas
D3—CATV cable
D4—CATV amplifiers
D5—CATV passives
D6—CATV hardware
D7—CATV connectors
D8—CATV test equipment

Manufacturers:

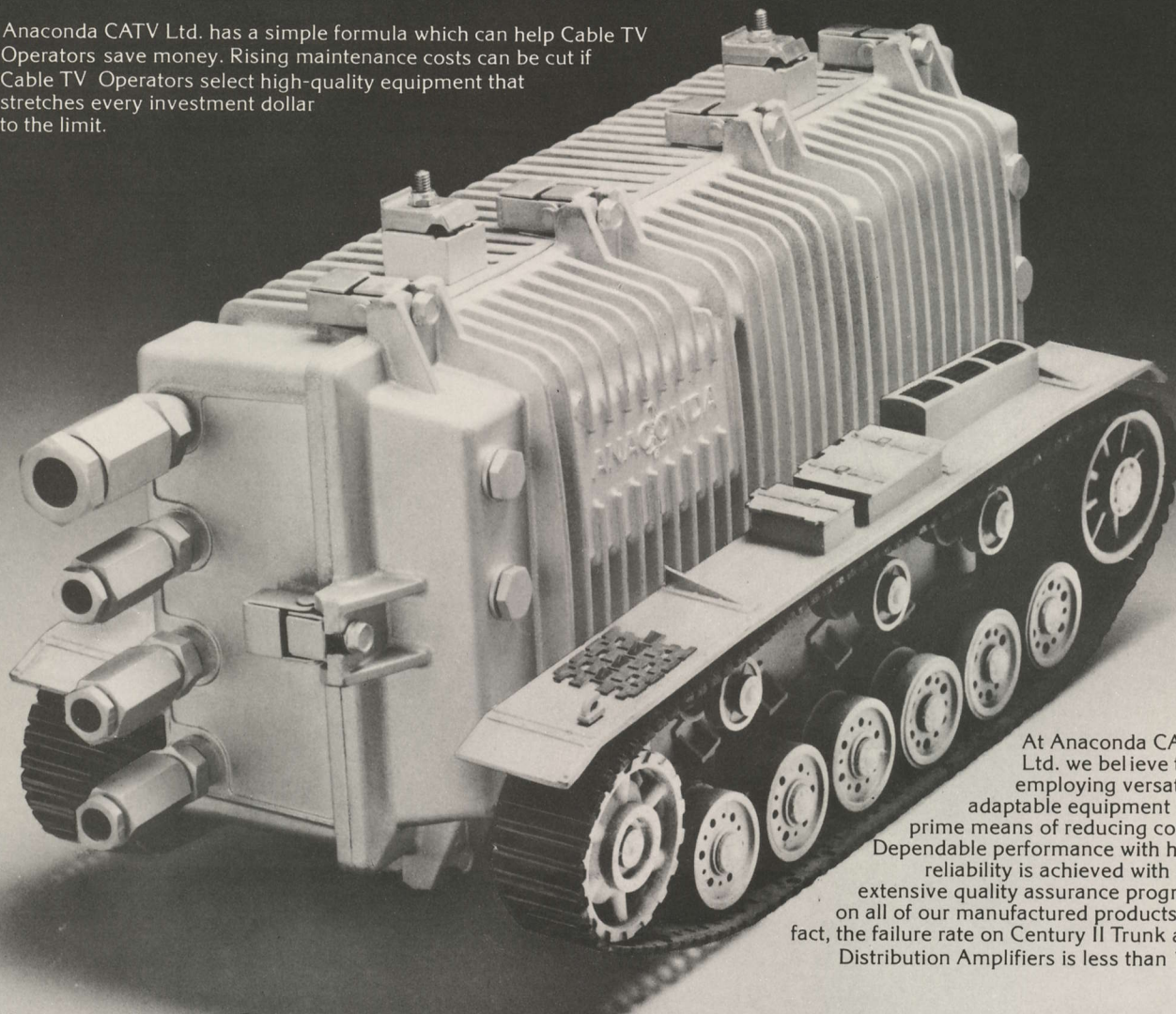
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LAKEWOOD TIMES NEWS			
HIGH SCHOOL FOOTBALL			
SO. PASA.	28	HOOVER	16
BURBANK	44	GLENDAL	7
PASADENA	14	ALHAMBRA	13
COVINA	21	SKYLINE	18
WINSTON	13	WEST	12
OREM	10	PROVO	3
EAST	24	HIGHLAND	14
VIEWMONT	36	OGDEN	14

HEADLINE  BILLBOARD

* NEXT WEEK'S MOVIES *

7:30 PM
THE SOUND OF MUSIC
JULIE ANDREWS
MONDAY
THE STING
PAUL NEWMAN ROBERT REDFORD
WEDNESDAY
GONE WITH THE WIND
CLARK GABLE
FRIDAY

GRANTS NATIONAL BANK
WED APR 8 12:24:32

TEMP 87 HI 94 LO 78
WINDS NE 12 TO 18 MPH
RAIN TODAY 0.16 MO 2.4

THE SMOKE HOUSE
THANKSGIVING SPECIAL
SOUP, SALAD & ROLL
ALL THE TURKEY YOU CAN EAT
TWO VEGATABLES
DESERT & COFFEE
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