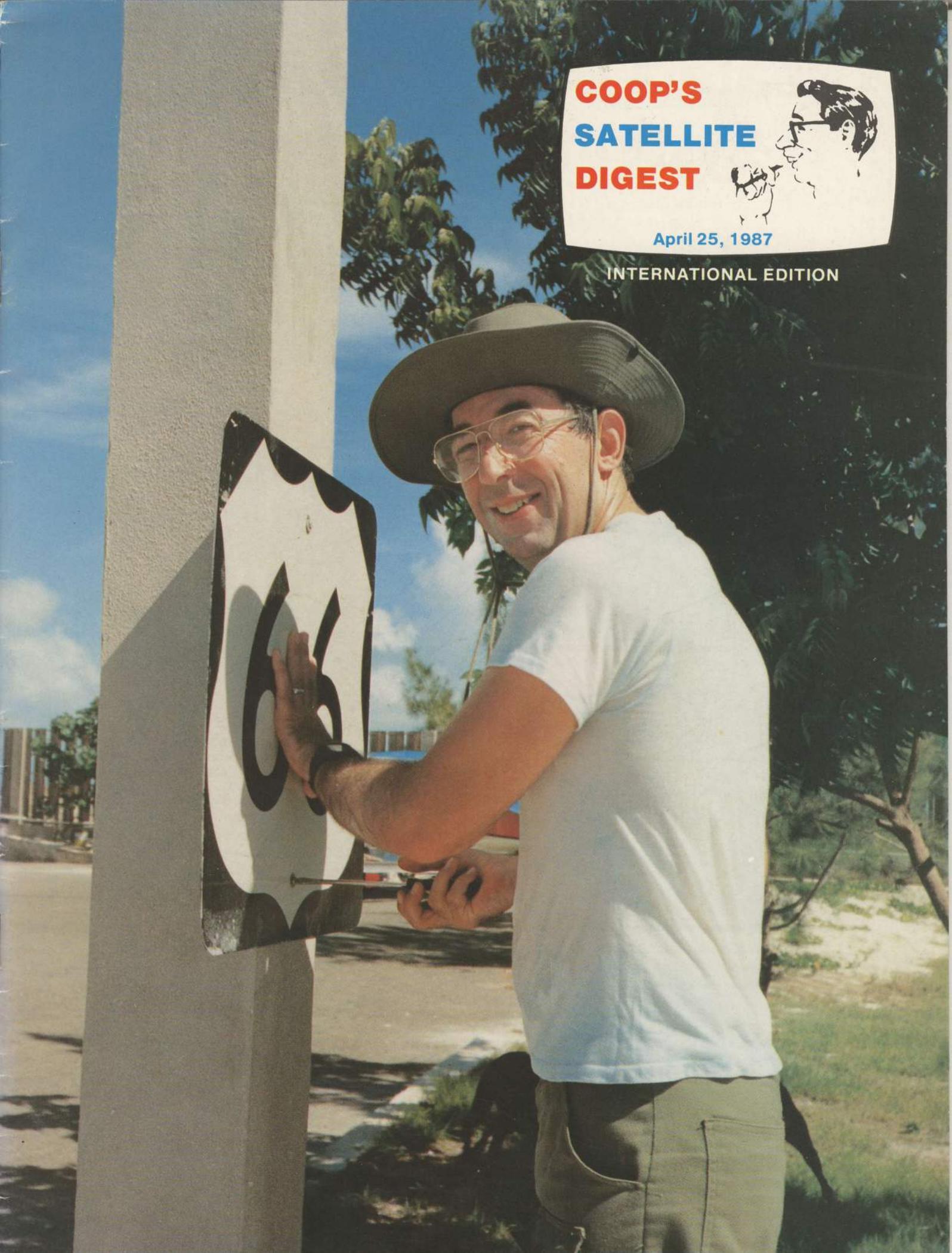


**COOP'S**  
**SATELLITE**  
**DIGEST**

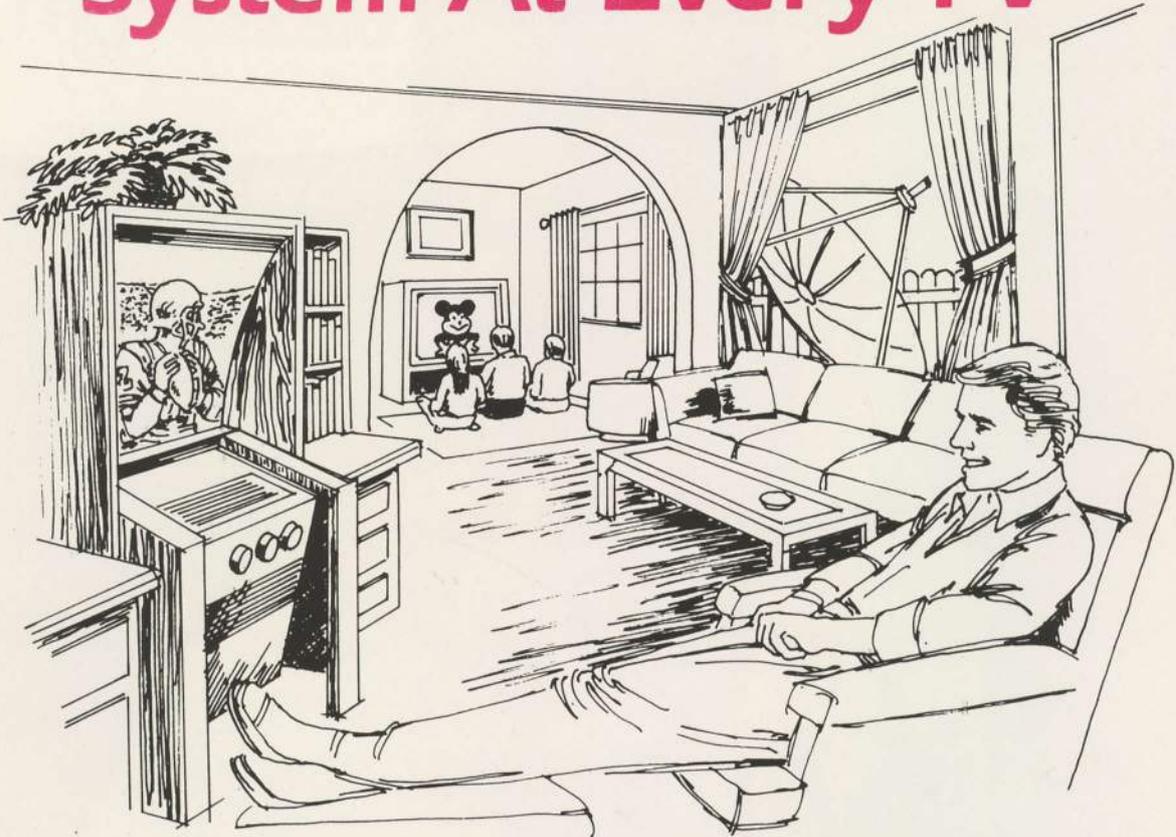


April 25, 1987

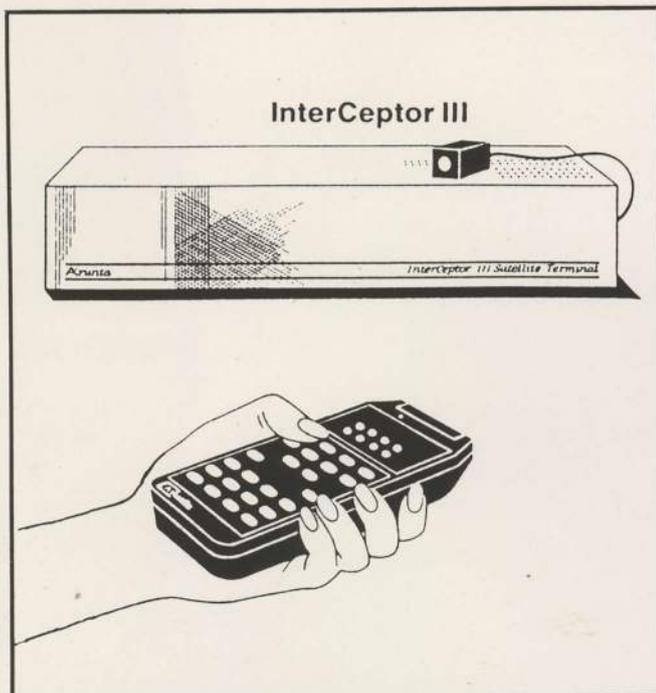
INTERNATIONAL EDITION



# Create a Complete Satellite System At Every TV



## with Remote Sensors by Arunta Satellite



The "World Class" U.S.-made Interceptor III Satellite Terminal is a fully programmable C/Ku band Receiver, Stereo Processor and Actuator.

The Interceptor III's extensive list of features includes: **"Total Menu-Driven On-Screen Graphics"** allowing full system control from any TV set via a remote sensor. **"True Dual Band Performance,"** **"63 User Selectable Channels Per Satellite with 1000 Channel Memory"** for automatic selection of all C and Ku channels as well as all of the audio sub-carriers, **"Timed Programming"** for planning future viewing or taping, **"Parental Lockout,"** **"Video Bandwidth Adjustment,"** **"T.I. Filtering,"** and every function and feature of the system is controlled automatically from your armchair with an easy to use keypad.

Although the Interceptor was introduced in 1984, its unique plug-in upgrade design has kept it above the pack today, and will keep it that way tomorrow and the day after.

Arunta's U.S.-made Interceptor III is the only way to enjoy the total universe of satellite entertainment, and our remote sensors can provide it to every TV in your home.



3111 E. Thomas Rd.  
Phoenix, AZ 85060  
(602) 956-7042  
Telex #466323 (Arunta+)

**TOP OF THE MONTH**

**THE LAWSUIT.** GI and cohorts would like to shut down CSD, Scramble-Fax, Boresight and any other journalist directed operation that is providing news and data on the descrambling scenerio. That's the bottom line for a \$5,000,000 lawsuit brought in March. We review the suit and the responses, and what it all means for the home dish industry, here.

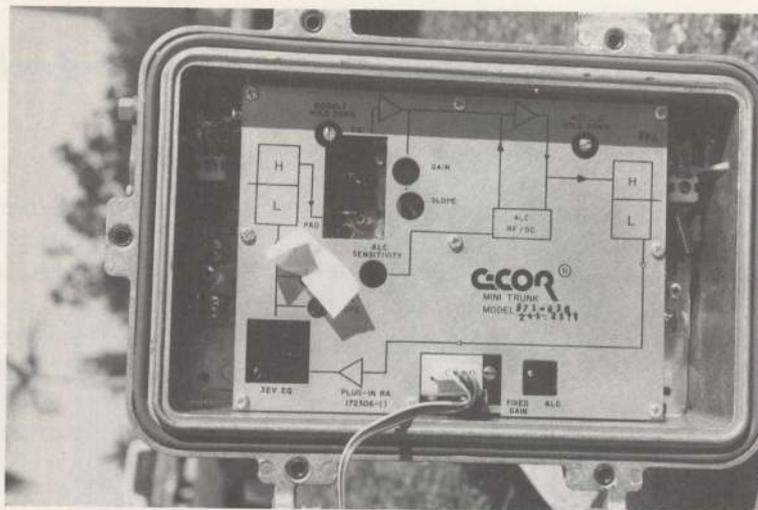


CSD # 1/ October, 1979

**CABLE** the mechanics. In our continuing series we study the design criteria for the 'feeder lines' and learn why feeder lines are in some ways more challenging than the master-trunk lines in a cable system.

April 25, 1987

**STOP PRESS/Late News** ..... 2  
**COOP'S COMMENT/Editorial Opinion**..... 4  
**BE A CABLE OPERATOR/Part 9** ..... 6



**ALLI'S TECHNICAL CORNER** ..... Missing  
**TRANSPONDER WATCH** ..... Missing  
**CORRESPONDENCE** ..... Missing



**OUR COVER/** It started, and ended 'just off Route 66'. Four miles up Anderson Road near Arcadia, Oklahoma Coop built the first home dish in 1976. Highway 66 is now essentially gone but this road sign remains on Provo. The beginning, and, the end.

**COOP'S  
 SATELLITE  
 DIGEST**



**COOP'S SATELLITE DIGEST** published on the 15th of each month, dated for the current month, by CSD, Limited, a Turks & Caicos corporation with corporate offices located at Tower Plaza, Providenciales, Turks & Caicos Islands, British West Indies. Under contract, an office is maintained in Fort Lauderdale, FL (P. O. Box 100858, Fort Lauderdale, FL 33310; 305/771-0505) for the contracted purpose of processing all subscriptions, advertising orders, receipt of all mail and correspondence. All communications relative to CSD operations should be directed to this office. CSD, Limited also maintains an equipment testing laboratory for satellite receiving systems and components in the Turks & Caicos Islands. CSD routinely reports on the technical performance of equipment, both privately and in print. CSD also participates in the operation of 'test tube' low power radio and television broadcasting stations and a rural area cable TV system as an ongoing research project into the challenge of bringing modern communication services to third-world, undeveloped regions. **CSD subscription rates** are \$60 for 12 issues where U.S. zip codes apply, \$65 in US funds in Canada and Mexico and \$75 in US funds elsewhere. All non-US copies are sent via AIRmail. CSD has been published each month since October of 1979 and publisher Bob Cooper created the home TVRO industry in 1978. Single copies are \$6 in US and \$7 elsewhere. Bob Cooper, Jr. is publisher. CSD is copyrighted by CSD, Limited in the Turks and Caicos Islands and USA. **Second Class postage paid** at Ft. Lauderdale, FL. Application to mail at second class postage rates is pending at Ft. Lauderdale, FL. Direct dial telephone to CSD, Limited is 809/946-4273 but be warned; this is an expensive telephone call!

## STOP-PRESS

### Late News At Deadline

THIS will be the last issue of CSD/Coop's Satellite Digest. Subscribers are scheduled to receive a replacement publication for the balance of their subscription term starting this September. Details in Coop's Satellite Comment in this issue.

PRIME-TIME 24/SBN scheduled to begin addressed-encoding April 15th; the three network service signals have been operating in fixed key mode since early March. SBN offering special three-year advance payment program with and without VC2100 decoder at significant discounts.

SWISS court in Geneva has ruled that pirate decoders offered for sale in Switzerland are 'legal'. Decoders provide French 'Canal Plus' reception and Swiss court found that since broadcasts being decoded originate in some country other than Switzerland, their use by Swiss citizens is not illegal. Similar rulings are expected from other European courts this year.

CNN has managed significant break-through by gaining approval of its CNN European service by Swedish Televerket cable TV networks. CNN growth in Europe has been stymied because of national policies against importation of US originated programming. CNN coverage has been largely limited to hotel SMATV systems and very small cable operations. More than 170,000 Swedish homes will gain CNN with the approval.

1987 LEGISLATIVE attempt to force cable programmers to deal with home dish programmers submitted by Senators Gore (Tn), Ford (Ky) and Bumpers (Ark) with companion bill introduced in House by Representatives Tauzin (La), Rose (NC) and Gregg (NH). Bills are slightly modified efforts from 1986 failure, encourage but do not mandate third-party selling of cable programming. Under proposed legislation, programmers could continue to sell direct to home dish owners alone but if they allow any other party to offer their programming, programmers would be forced to accept 'other qualified sellers' as well. New wrinkle; under proposal, PBS would be prohibited from scrambling satellite feeds or would be required to maintain at least one such feed 'in the clear'.

STRONG belief Canadian Cancom program sales firm, offering Canadian home dish owners and cable service from Canadian and US broadcast stations on Anik, will switch over from Oak Orion to Videocipher encoding technology. GI now approving shipment of VC2100 units into Canada, through US Videocipher distributors. One possible side effect of changeover to Videocipher: firms hiding in Canada, offering clone or musketeer chips, will be closed down by Canadian authorities as Videocipher begins functioning in Canada.

HOLIDAY Inn Hi-Net system serving more than 1,100 hotels now owned 100% by COMSAT. Buyer assumed \$25M in debt, paid additional \$25M.

EUROPE will be initial test market for Matsushita-COMSAT created 'flat plate antenna' intended for Ku band home reception. Antenna will be approximately 1 inch thick, resemble picture frame. Targeted introduction date is mid '88 with US versions available after European units. Antenna is not 'electronically steerable', will either be fixed on single satellite or require mechani-

cal rotation system. No price yet.

ADM/ Antenna Development & Manufacturing (Inc.; P.O. Box 1178, Poplar Bluff, Mo. 63901; 314-686-1484) is delivering 26 foot dishes of aluminum and steel design at list price of \$16,000. Antenna follows redesigned hub-panel support system and ADM 20 and 16 foot antennas now also employ new, improved design (see right). Antenna will have significant demand in Caribbean and other weak signal areas.

BELGIUM hotels are now legally entitled to carry satellite programming on SMATV systems even as local cable systems may not. Annual license fee of \$1,000 (US\$) is required.

PALAPA B2P bird, on Delta launch vehicle late in March, apparently a success. B2P will allow Indonesia to retire ailing present C band satellites shortly.

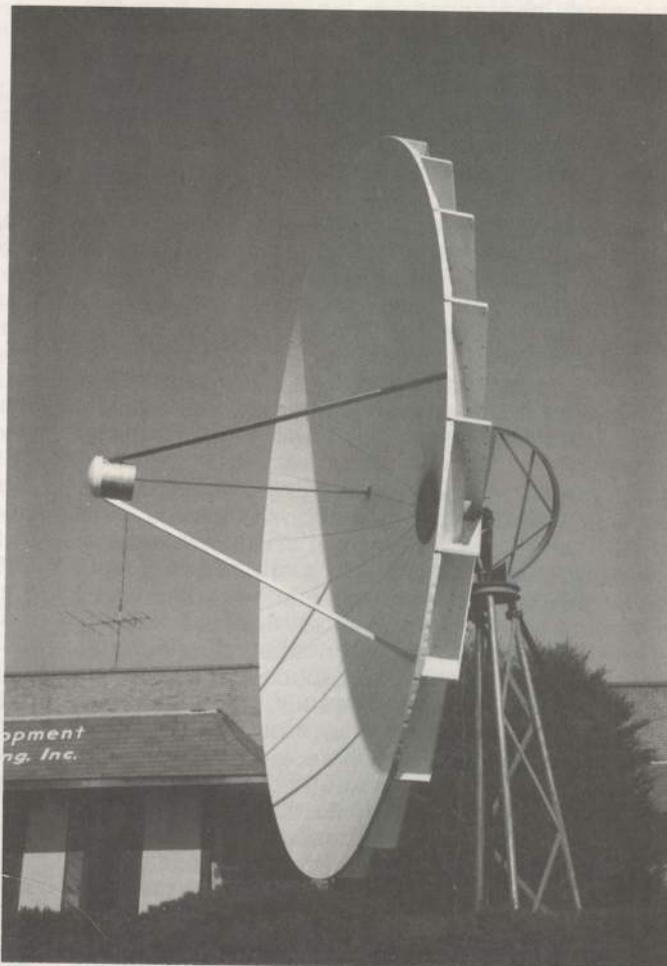
BBC has October start-up date to begin worldwide distribution of daily 30 minute newscast. Program will be designed for international use.

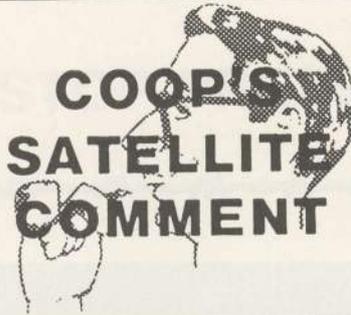
K-SAT Broadcasting and D.M. Sat have formed joint venture to transmit 'data bases' to home dish owners with PC capabilities. Data is uplinked at 4:15PM eastern daily and details from 408/848-5572.

ZENITH showing off proto-type 27" television receiver with built-in TVRO receive functions and antenna positioner. Company has no hard marketing plans at present; Luxor has been selling all-in-one receiver system in Europe for three years.

MULTI-CHANNEL Microwave Distribution systems, using an unspecified portion on the 2-3 GHz frequency spectrum, has been legalized in Ireland; the first European country to allow such a service. Cable operators will have first crack at new licenses, allowing them to serve rural areas adjacent to cabled areas. Irish experimenters have been using standard UHF TV channels to transmit satellite programs, illegally, for more than a year.

AND - after nearly 150 issues of CSD, that is it!





**COOP'S  
SATELLITE  
COMMENT**

- **WINNING A \$5,000,000 Suit**
- **CHANGING Players In Descrambling**
- **WHY SBN?**

-Editorial Comment from Bob Cooper-

### HOW MUCH IS \$5,000,000?

For most people, litigation is an effective deterrent to engaging in activities which might be construed by a court to have offended the rights of others. And, for most people, the opportunity to 'trespass' on the rights of others does not occur too often. A journalist is an exception to this observation since by his very vocation, he is collecting facts and creating reports which assimilate those facts. Once collected and assimilated, his reports are disseminated to others with an interest in the facts.

The January (01) 1985 edition of CSD had Arthur C. Clarke and Paradigm's David Johnson on the front cover. The industry was riding out of an all-time best-selling season and spirits were running high. Inside, in this section devoted to editorial opinion, I wrote about a gnawing problem related to product distribution. The subject included comment about Long's Electronics, Inc. of Birmingham, Alabama.

Through 1983 and 1984, dealers were finding it tougher and tougher to compete in a marketplace increasingly dominated by 'wholesale price advertising'. Several of the program guides were under pressure to stop accepting 'distributor advertising' which invited consumers to either buy at dealer pricing or suggested that a person could become a dealer if he or she simply produced a 'business resale tax number'. The thrust of our editorial comment was as follows:

A dealer must sell his service and expertise. He cannot compete on price and price alone when his competition buys and resells several thousand dish systems for each system he buys and resells. A dealer must use his expertise to carefully select the best quality merchandise he can locate and he must use his talents to become so totally familiar with the product lines chosen that his service response time on those products is lightning fast and completely skillful.

The editorial drew a parallel with the video parts wholesaler and the video specialty shop. It quoted from segments of an editorial in a video store trade journal to illustrate that the problems between direct-sale discounters in TVRO and TVRO specialty dealers was not unique to our industry.

**James N. Long**, the individual, and Long's Electronics, Inc. took exception to the editorial comment. And filed a \$5,000,000 libel suit against this writer. Long objected to the way his business was charac-

terized in the editorial. He would later tell the court:

"**Long's Electronics total wholesale sales** to dealers dropped more than \$9.5 million (from more than \$48,950,000 in 1984 to \$39,409,710 in 1985) and there was a substantial drop in the net profits in Long's Electronics on its wholesale sales after publication of the January 1, 1985 Coop's Satellite Digest article, and in my opinion, based upon my conversations with various dealers and all of the circumstances, this substantial decrease in wholesale sales and in profits on wholesale sales was caused by the defendant's (ie CSD) defamatory and untrue statements..."

The editorial that bothered Jimmy Long dealt with where one must place the responsibility when sales dwindle. Dealers speaking with me during the period 1984 (and before) liked to single out Long's Electronics and their widespread corporate advertising and catalog distribution as the reason why dealerships were failing. Our January (1) 1985 editorial essentially said 'Hogwash . . . Long's is in the **wholesale** distribution business and you are in the specialty shop business. If you pick good equipment, know everything there is to know about that equipment, install it properly and stand behind it with local service, you will not be losing customers to someone ten states away who sells at discounted prices by mail order'.

Long attempted to show that within our industry, there was no 'controversy' concerning national, wholesale price selling. He told the court:

"Prior to the publication of the January 1, 1985 Coop's Satellite Digest, I was not aware of any controversy, public or private, involving me or my company... We did not regard ourselves as 'discounters' and never thought we were so regarded in the industry."

An affidavit prepared by **Dave Fedric**, a founder of National Microtech and a person very involved in product distribution from 1980 onward, would dispute Long's statement in this area. Fedric told the court that he had discussed Long's sales policies with Long, and with this writer, on several occasions prior to the January 1985 editorial.

Long also told the court, in a sworn affidavit: "**At no time prior to the publication . . . had Long's Electronics ever purchased discontinued or obsolete satellite television equipment to resell to dealers . . . At no time prior to the publication had Long's Electronics . . . ever purchased merchandise that an original equipment manufacturer had overstocked or was 'stuck with'**

to resell to dealers... At no time prior to the publications ... had Long's Electronics ever purchased factory mistakes or rejects".

The court in such a civil action has deadlines; dates by which certain motions and affidavits and evidence must be submitted for court consideration. Long's attorney attempted to bring in an affidavit after such a deadline, and the apparent purpose of that affidavit was to show that this writer had knowledge prior to writing the editorial in question that Long's did not engage in helping manufacturers clear out warehouses. The affidavit, filed late, came from **Robert Maniaci**, President of Boman Industries. Maniaci told the court that during a visit to his factory in the summer of 1984, he had told Coop "... Jimmy Long and Long's Electronics had never purchased anything other than first class and quality merchandise".

To illustrate damages claimed by Long's in the \$5,000,000 suit against Coop and CSD, Long would provide the court with an exhibit titled 'Sat.(ellite) Sales Analysis - Increases and Decreases'. I reprint it here and it begins with the month of January (1982) when Long's had satellite hardware sales of \$117,768 with a gross profit margin of 18.0% and a gross profit of \$21,197. It then takes the student down through December of 1985 when the sales at all locations totaled \$2,467,764 with a gross profit margin of 19.5% and a gross profit for the month of \$481,214. Long told

the court to especially notice the decrease starting in January of 1985 and in following months; decreases which he attributed to the CSD editorial. He said:

"I attempted, without success, to obtain additional wholesale lines after publication of the January 1, 1985 Coop's Satellite Digest articles. Panasonic and MaCom, two important lines, refused to deal with me because they said I did not have the kind of reputation they were seeking in a distributor".

He concluded with:  
 "... in my opinion, (the) Coop's Satellite Digest article damaged my personal reputation and damaged my ability to engage in other lines of work in the electronics business ...".

My attorneys thought otherwise and presented a case to the Federal District Court requesting a 'Summary Judgment' in our favor. This was in the fall of 1986. By a date certain in early March, each side would be required to submit to the court a list of witnesses which would be called should the case go to trial in early April as scheduled. Our list of witnesses would include nearly a dozen TVRO dealers, former distribution people, and even Doug Brown and Chris Schultheiss of Triple D Publishing who had alleged they also had problems with Long's after they refused to continue accepting advertising from the Birmingham firm if that advertising included a message that wholesale, discount pricing was available to anyone who asked for it or presented a 'business resale tax number'.

On March 02, 1987 Judge James H. Hancock of the United States District Court for the Northern District of Alabama issued his decision on my attorney's request for a 'Summary Judgment' (ie. a decision by the Judge without the need for a jury trial, said decision based upon the evidence presented to the court by both sides). The Judge found for Coop's Satellite Digest, and me personally, and against Jimmy Long and Long's Electronics. The court also ordered that the costs of the suit would be paid by James N. Long and Long's Electronics.

The court said "The plaintiffs here do have great notoriety and fame in the community of the TVRO industry, the group to which the statements were published, and this court believes that is the 'public' with which it must be concerned."

And, "... the very nature of their business, the slant and volume of their advertising, and the volume of their business place them at the heart of the 'controversy' between volume (dealer) and small specialty operator".

The defense tried to maintain that Jimmy Long was a private person, beyond editorial comment, and there was 'no controversy' until the editorial appeared in print.

"The court finds that plaintiff James N. Long is a 'limited purpose' public figure ... (and) ... it would be impossible, legally, to find Long's Electronics a public figure without also finding James N. Long a public figure... James Long was as well known as his corporation; they are, at least in the TVRO industry, inextricably intertwined by name and corporate structure."

As to his affidavit, the court said "The (supplemental) affidavit of Mr. Long is largely supposition (and) the statements made in the editorial... are not actionable".

Long's Electronics, Inc.  
 Set Sales Analysis - Increases and Decreases  
 For The Periods Indicated

	Crestwood	Other Locations	Mail & Phone	Total	Gross Profit \$	Gross Profit %	Profit Increase (Decrease)	% Profit Increase (Decrease)	Sales Increase (Decrease)
Jan-82	117,768			117,768	18.0%	21,197			
Feb-82	183,191			183,191	18.0%	32,974			
Mar-82	213,721		93,218	306,939	18.0%	55,252	28,557	57.4	152,649
Apr-82	244,327		381,578	625,905	18.0%	112,663	43,881	46.4	236,832
May-82	232,155		295,876	528,031	18.0%	95,045	9,723	5.1	27,687
Jun-82	171,159		441,137	612,296	18.0%	110,213	16,369	14.3	90,537
Jul-82	167,866		535,391	703,257	18.0%	126,586	16,233	12.8	121,544
Aug-82	183,343		726,398	909,741	18.0%	163,753	37,388	22.8	91,181
Sep-82	158,438		866,952	1,025,390	18.0%	184,570	22,617	12.1	125,649
Oct-82	198,864		846,212	1,045,076	18.0%	188,114	383	0.2	1,686
Nov-82	253,385		1,875,644	2,129,029	18.0%	383,225	52,552	13.7	291,953
Dec-82	483,962		1,887,693	2,371,655	18.0%	426,898	29,273	6.9	162,626
Jan-83	215,986		1,181,797	1,397,783	18.0%	251,587	116,911	46.5	193,958
Feb-83	193,218		1,251,668	1,444,886	18.0%	260,077	6,490	2.5	47,165
Mar-83	273,484		1,481,655	1,755,139	18.0%	315,925	41,448	13.1	238,269
Apr-83	191,113		1,129,332	1,320,445	18.0%	237,688	63,845	26.9	148,858
May-83	289,598		1,258,545	1,548,143	18.0%	278,669	26,649	9.6	178,585
Jun-83	217,499		1,872,491	2,089,990	18.0%	376,198	132,131	35.1	276,928
Jul-83	195,843		1,818,827	2,014,670	18.0%	363,843	113,846	31.3	276,928
Aug-83	271,558		1,845,863	2,117,421	18.0%	381,335	162,641	42.7	363,563
Sep-83	229,863		1,897,542	2,127,405	18.0%	382,933	13,901	3.6	97,228
Oct-83	232,353		1,454,942	1,687,295	18.0%	303,515	61,578	20.3	134,187
Nov-83	362,471		1,684,818	2,047,289	18.0%	368,112	46,597	12.7	265,984
Dec-83	536,582		1,335,573	1,872,156	18.0%	336,988	17,124	5.1	195,132
Jan-84	861,241		1,228,457	2,089,698	18.0%	376,146	35,156	9.3	217,542
Feb-84	1,227,786		1,376,983	2,604,769	18.0%	476,858	95,884	20.1	554,912
Mar-84	1,987,773	61,389	1,856,183	3,844,265	18.0%	690,366	212,338	30.8	1,179,854
Apr-84	2,299,582	323,313	1,996,458	4,619,343	18.0%	831,482	143,114	17.2	795,878
May-84	1,978,482	432,782	1,985,854	4,397,114	18.0%	775,834	56,848	7.3	455,185
Jun-84	1,661,827	466,282	1,583,518	3,691,799	18.0%	664,524	81,938	12.3	455,185
Jul-84	2,875,472	612,957	1,562,780	4,950,943	18.0%	765,890	70,385	9.2	482,144
Aug-84	2,452,685	801,555	1,824,275	5,078,719	18.0%	914,165	148,689	16.2	851,776
Sep-84	1,878,542	958,348	1,585,196	4,371,586	18.0%	787,766	132,491	17.1	674,121
Oct-84	1,883,636	1,883,169	1,757,959	4,524,764	18.0%	816,181	55,235	6.8	347,416
Nov-84	1,789,418	1,184,386	1,646,956	4,620,760	18.0%	825,687	26,454	3.2	147,190
Dec-84	1,936,668	1,855,376	1,386,387	5,178,431	18.0%	931,323	134,283	14.4	194,463
Jan-85	1,185,819	745,179	1,841,381	3,772,379	18.0%	679,022	229,582	34.4	417,292
Feb-85	1,183,951	872,488	949,268	2,965,707	18.0%	533,734	132,582	24.8	278,292
Mar-85	1,816,146	994,289	1,853,865	4,664,300	18.0%	838,377	116,633	14.0	278,292
Apr-85	1,332,878	1,345,689	1,292,188	3,970,755	18.0%	714,996	85,432	12.0	318,213
May-85	1,336,899	1,643,261	1,348,805	4,328,965	18.0%	782,606	165,749	21.2	354,527
Jun-85	984,784	1,186,543	944,367	3,115,694	18.0%	561,216	69,782	12.4	274,438
Jul-85	1,188,835	1,538,883	1,855,265	4,582,983	18.0%	825,732	158,186	19.1	618,895
Aug-85	1,141,345	1,614,422	1,544,586	4,300,353	18.0%	774,963	27,927	3.6	143,378
Sep-85	985,754	1,495,356	985,935	3,467,045	18.0%	623,662	181,242	29.2	359,188
Oct-85	756,542	1,415,807	979,871	3,152,220	18.0%	568,000	146,267	25.9	327,851
Nov-85	566,235	1,143,175	848,222	2,557,632	18.0%	459,168	115,867	25.2	194,181
Dec-85	839,324	1,128,331	780,113	2,747,764	18.0%	494,214	17,543	3.5	61,882

EXHIBIT "A"

## BE A CABLE OPERATOR (Part 9)

### UNTAPPED Trunk

You will recall that within a cable television plant we have two different grades or levels of signal-carrying coaxial lines; the **trunk line** which is also called 'the main line' and the **feeder lines** which are additionally known as 'distribution cables'. Also recall that a customer service line is never run to a home from the trunk line; only from a distribution line. This is an engineering decision based upon the belief that if you 'tap into' the trunk cable with a customer tap-off (directional tap) device, the tap-off device produces a measurable and perceptible degradation in the trunk line service. In areas where there are many customers to be served, multiple tap-off devices are commonly located at each pole or home along the way. All tap-off devices do add throughloss (ie. **flat loss**) to the cable they are inserted into and the cumulative losses from directional tap-offs is not inconsequential.

If you installed tap-off devices along the trunk, this additional loss would reduce the spacing between trunk line amplifiers appreciably. It is safe to say that with 30 potential cable homes per mile (this is considered light loading, far less than one finds in a suburban or urban area) the addition of directional taps to the lines increases the loss per cable mile by 20-30 dB. In a traditional mile of trunk cable using 25 dB gain amplifiers and .500 (half inch) trunk cable, you typically use around 4 trunk amplifiers per mile. If you added to that same mile **30 dB** of tap off device **loss**, you would increase the number of amplifiers in that mile by no less than 1.2 and as much as 1.8. Thus the tap-off devices are avoided in trunks because the effect is to greatly increase (30-40% increase) the number of trunk line amplifiers required to serve a given length of cable. This is both a cost and a service-quality decision since each additional trunk amplifier raises the threshold of noise in the system (see last month's installment for noise

discussion).

To arrive at customer homes with the best possible quality signal, we bridge or split out of the trunk with a feeder/distribution line. Think of these secondary lines as you would your community water system; the community provides water mains which serve the entire area. The trunk cable is the water main. On each property there are smaller pipes that carry a lesser amount of water just for that plot of ground. The individual water-carrying subsystem is similar to the feeder lines.

The value that connects the individual plot to the mains is analogous to the trunk splitter or bridger device. If something crazy goes wrong with the individual plot water distribution system, the balance of the water distribution system can be 'protected' from that craziness by simply turning off the valve connecting the two together. So too can the section of feeder line that serves a street or subdivision be turned off at the point where the feeder and the trunk merge. This allows cable techs to work on that particular feeder cable without upsetting the television reception of the balance of the community.

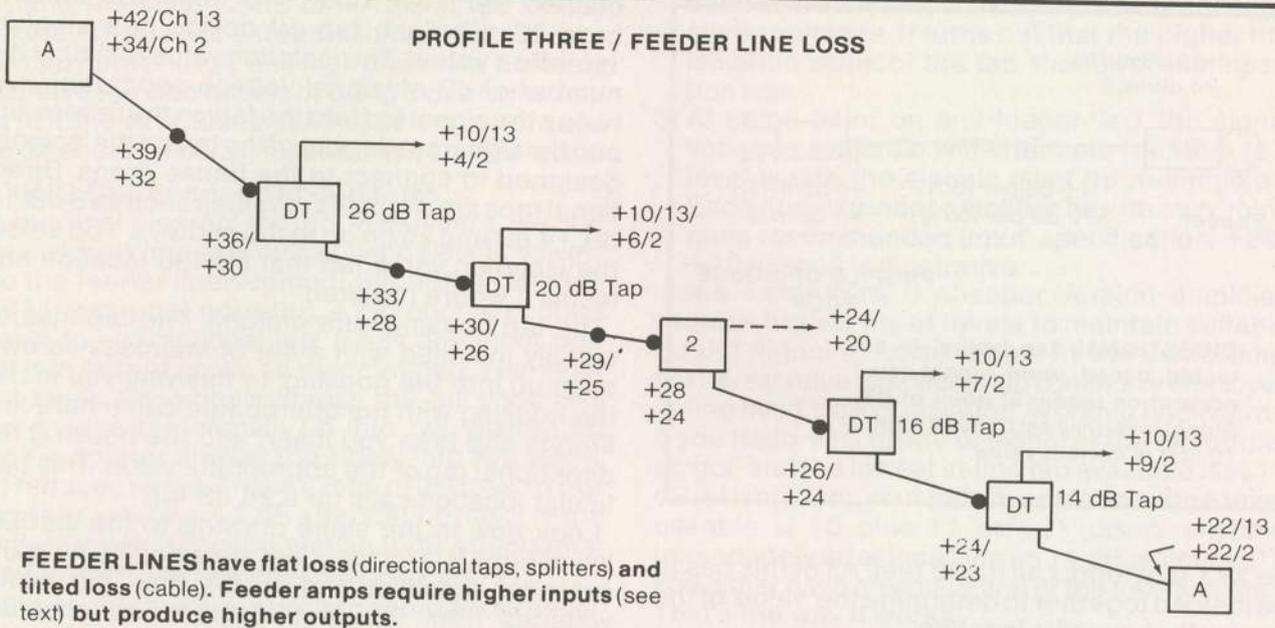
Last month we looked at the way a cable trunk line amplifier is designed to move the wide cable spectrum of frequencies through the section of cable that follows the amplifier. We learned that because the cable has a greater loss per increment of cable footage at higher frequencies than at lower frequencies, the cable (trunk line) amplifiers operate in a 'tilted' mode with greater output at the higher frequency end of the spectrum than at the lower frequency end. We also learned the difference between 'flat loss', which affects all cable frequencies uniformly, and 'tilted loss' which affects the higher frequencies more than the lower frequencies.

In designing a cable feeder line, we have to be conscious of flat loss, tilt loss, **and** the actual amount of signal provided to each subscriber's television set. In the trunk cable, the numbers start and finish within that particular piece of cable. In a feeder line, the numbers start in the feeder cable but do not 'end' until we are connected through a cable **drop line** to the customer's television set(s).

**A diagram here** shows what happens as the feeder line cable is transported into the home. The feeder line stays in the street or is buried behind the lots. At regular intervals a directional (customer) tap is installed in the line. And at various intervals a line extender (LE) amplifier is installed in the feeder line to boost signal levels back up again.

At any given point on the feeder line there is a certain signal voltage present from the various cable TV channels. Typically, there will be a greater signal voltage on the higher channels (such as 13) than at lower channels (such as 2). The trick is

PROFILE THREE / FEEDER LINE LOSS



to arrive at each TV set connected to the system with no less than some specified amount of signal on any one channel (typically 0 dBmV) and no more than another specified amount of signal on any other channel (typically +10 dBmV).

If you connect a signal level meter (SLM) to an operational cable system, you can do a quick analysis of the way the system is operated. Ideally, every channel in the system would arrive at the TV set with +6 dBmV of signal. In the real world, you will find either the higher channels hotter or the lower channels hotter. If the higher channels are hotter, chances are your tap is located fairly close to the last in-line line extender amplifier. We'll see why shortly. If the lower channels are hotter, chances are your analysis tap is located just before the next line extender amplifier. This happens because the line extender amplifiers, like the trunk amplifiers, operate in a 'tilted mode' with greater high channel output than low channel output. If you run into a situation where these measurement trends do not fit, that is a clue the cable system is out of balance at some point and the roles between low and high frequencies have been reversed. If the low channels and the high channels are equal, or if the low channels are hotter at a point close to a line extender amplifier, this could be an indication that the cable plant has lost its 'tilt' on the trunk, or within the feeder line system. The net result is usually progressively worse reception on the channels as one dials up in number.

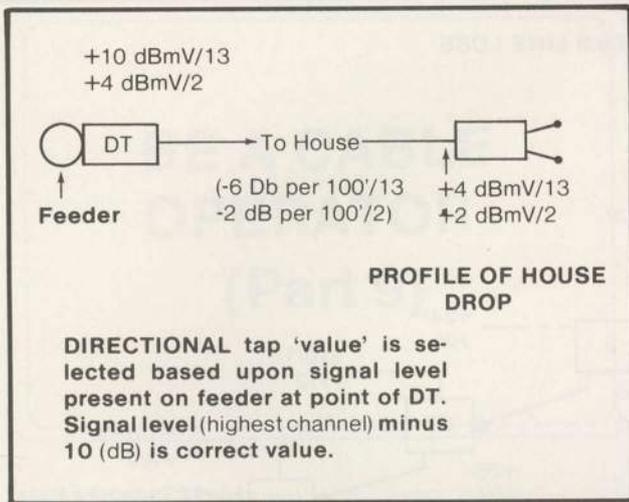
In our drawing, we see that the directional tap has an imbalance at the tap itself of 6 dB; the high band channels measure +10 dBmV on the hot-

test channel while the lower band channels measure +4 dBmV on the weakest channel. This is not in the house; this is at the tap 'on the pole' or 'at the ground mounted cable pedestal box'. We still have to get the signal indoors to the TV set.

And that requires another section, and type of cable; drop cable. The drop cable used will be either a member of the RG-59 family or the RG-6 family. This smaller diameter cable is familiar to you because you use an almost identical breed of cable for your runs from the outdoor dish and electronics to the indoor satellite receiver.

This smaller cable has a very accentuated loss ratio; i.e. higher frequencies are 'lost' or attenuated in this small diameter cable much faster than in the larger diameter .412 or .500 aluminum jacketed cables used for the feeder or trunk lines. In our drop cable example we have specified 2 dB of loss per 100 feet for channel 2 but 6 dB of loss per 100 feet at channel 13. This illustrates that in a 100 foot run into the house, the channel 13 (high end) signal will attenuate by 6 dB while the low end channel 2 signal will attenuate by only 2 dB. Therefore that 6 dB of imbalance out at the tap (+10/+4) will start to level out in the drop line so that it will read +4 dBmV channel 13 and +2 dBmV channel 2 at the TV set end of the drop line.

We know what signal level we want in the house; not less than 0 dBmV, not more than +10 dBmV. We know this because these are the best values to feed to a modern color television receiver. We also know, from computation, what the feeder line signal voltages will be at a given point in the system. And we also know that our 'average' drop will



be XXX feet long; call it 100 feet. All of this has to be melded together to determine the 'value' of the tap for that specific location.

Some numbers. See our 'Profile Three' chart here.

Our line extender amplifier has been adjusted to provide +42 dBmV on channel 13 and +34 dBmV at channel 2. This is the amplifier's 'tilt'. Then the signals travel through .412 feeder cable towards the end of the line. Along the way we have installed customer directional tap devices so we can serve homes. Each directional tap has a through-condition attenuation (ie. **flat loss**) which is added to the loss of the cable (tilt loss). At any given point, if we know the amount of cable between that point and the last amplifier, and we know how much loss there is per increment of cable (foot, 100 feet, etc.), we can quickly calculate the actual feeder line signal voltages at the location where the tap is to be installed.

In our diagrammed example, we have a DT (directional tap) at a point some 200 feet down line from the LE (line extender amplifier). We are allowing for 3 dB of cable loss at the highest channel and 2 dB of cable loss in the feeder cable at the lowest channel, per 100 feet, in our example. This means the input to the directional tap is 2 x 3 dB or 6 dB less at the highest channel and 2 x 2 dB or 4 dB less at our lowest channel. This makes the input to the DT +36/30 (it started out as +42/34).

We also know that we would like to have +10 dB at the **output** of the tap because we expect to run through 100 feet of RG-59 type cable to get to the TV set from that tap location.

If the feeder line level is +36 dBmV on the highest channel, and we need +10 dBmV at the output of the tap, we can now determine the correct value for the tap. How?

+36 dBmV is the line level. +10 dBmV is the

desired tap level. Take +10 from +36 and we have 26 dB. Each tap off device has a value; '**isolation value**'. The isolation value is simply the number of dB of 'signal voltage separation' between the signal fed into the tap on the feeder line and the signal coming out of the tap on the 'spigots' designed to connect to the house drops. Directional taps are available in values such as 8 dB, 11 dB, 14 dB and so on up to the mid 30s. You select the isolation value tap that fits the location and install it where required.

The tap housings are uniform. The tap inserts, usually installed with a set of stainless screws, snap up into the housing. In this way you install the housing with the appropriate cable hard-line fittings and then you insert into the housing the directional tap of the appropriate value. This particular location calls for a 26 dB tap.

Look now in the same drawing to the last DT, lower right. It is located just ahead of the next line extender amplifier and by the time our signal voltages from the first diagrammed amplifier (+42/34) have arrived to this point, they have traveled through approximately 800 feet of cable and through four preceding DT devices plus a line splitter. The DTs and the line splitter have added '**flat loss**' to the signal voltages while the cable itself has added '**tilt loss**'.

Now, in the **last DT** we have an input signal level that we calculate to be +24/23. The specifications tell us that we should hit or go into the next line extender with a signal level not lower than +21/21 if we want clean output signals. This is shown after the last DT.

Note that we **now have** a much smaller 'range' between the highest channel (+24 into the last tap) and the lowest channel (+23 into the same tap). This is a natural balancing effect caused by the tilt equalization that occurs along the feeder line cable. We still need +10 dBmV on the highest channel 'out' of the directional tap so the computation is identical to the first DT example:

**Line level** ±'s +24

Tap level desired ±'s +10

Tap isolation is +24 minus +10 or 14 dB

The DT 'value' here, then, is **14 dB**.

Although not diagrammed, some discussion on what will happen to the customer signal levels from this tap. We previously diagrammed a tap that had +10/+4 at the output of the tap and saw that when we arrived inside the home to connect to the TV set we would 'level' out to +4/+2 because of the tilt built into our drop cable. But when we start off with +10/+9, and we go through 100 feet of the same cable, what happens?

We still lose 6 dB at our highest channel and 2 dB at our lowest channel. This means that a signal level meter connected to the end of this drop will show +10 minus 6 or +4 dB at the highest chan-

nel, and, +9 minus 2 dB or +7 dB at the lowest channel. This is not a troublesome difference, or reversal between low and high channels; it merely illustrates the side effects of being close to the output of a line extender amplifier, or just in front of a line extender amplifier, for customer service levels.

**LAYING Out Feeder Sub-Systems**

In our final diagram for this installment, we see that our trunk line service (left hand side) is 'valved' into the feeder line segment through a mainline 'DC' (directional coupler). A directional coupler is akin to a directional tap; it has one input port and two output ports, as diagrammed. The input port takes the signals across the full spectrum and divides the signals up into two nonequal parts (a splitter divides the signal into two equal, but reduced parts). This is a form of flat loss. In our diagram, we have a 1 dB attenuation (loss) in the trunk-through direction and an 8 dB attenuation (loss) in the trunk to feeder bridged port.

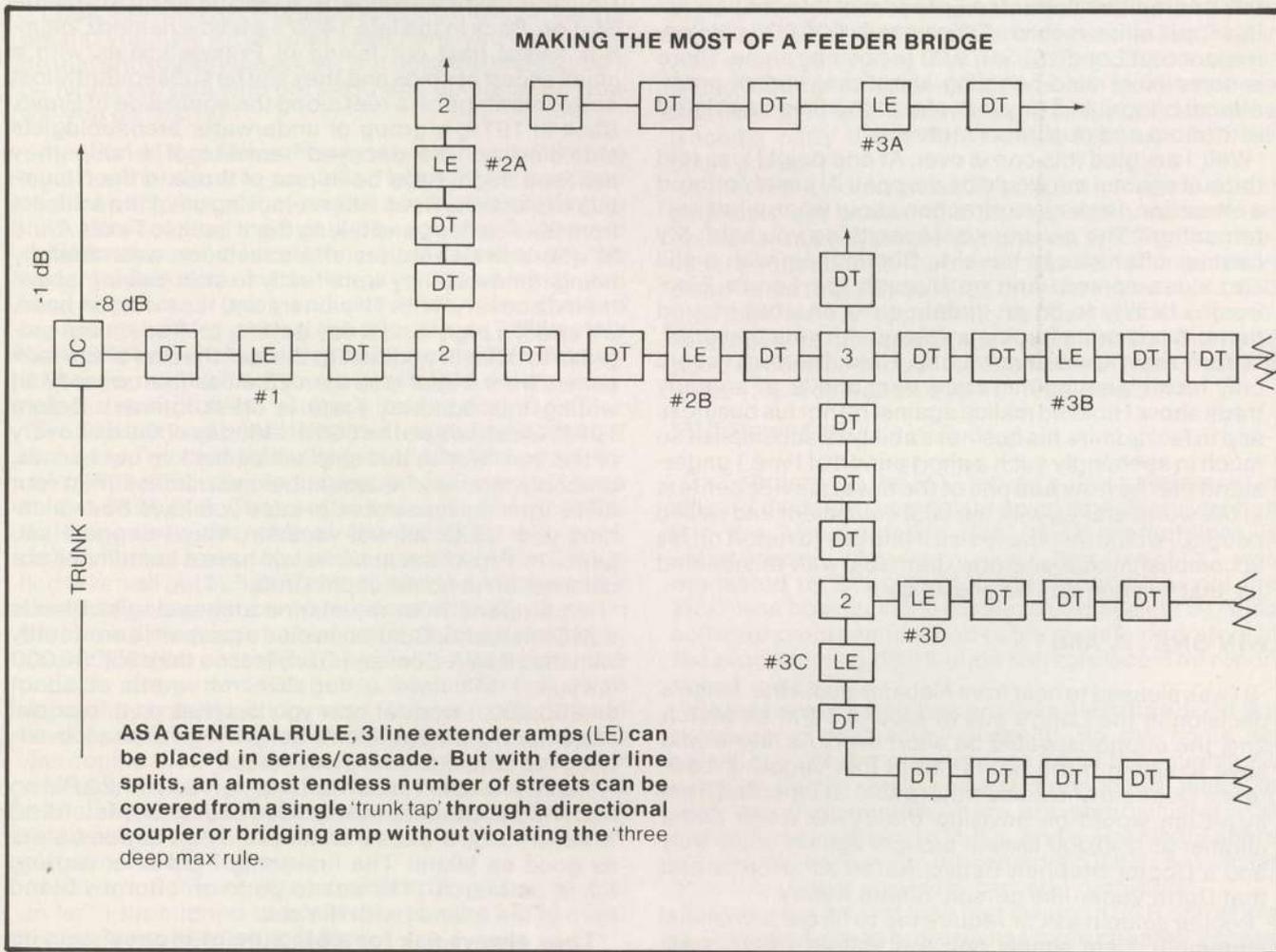
- 1) A feeder line can be split into separate street or line feeds an almost infinite number of times.
- 2) Each directional tap (DT) inserted into the line

adds some amount of flat loss to the feeder line signal voltages. It turns out that the higher the isolation value of the tap, the lower the insertion loss.

- 3) At some point on any feeder 'leg' the signal voltages available will attenuate (reduce) to a level where the signals must be re-amplified. Each line extender amplifier has its own 'minimum recommended input' specification. +20/+20 (dBmV) is illustrative.

Line extenders, a cheaper version amplifier, require higher input levels to maintain suitable output signal-to-noise ratios. At the same time, the lowest value directional tap commonly employed in-line has 11 dB of isolation. Working backwards, if you need +10 dBmV of signal at the tap output spigot, and the lowest in-line tap available is (-) 11 dB (of isolation), your minimum feeder line level useable is 10 plus 11 or +21 dBmV anyhow. Immediately after inserting an 11 dB isolation DT, you either have an end-of-line or the next amplifier. That's the way it works.

- 4) Line extender amplifiers are 1/3rd the price of a trunk amplifier and have no more than 1/3rd the



overall operational capabilities. That means there is a limit to how many LE amps you can 'cascade' (put in a row) before you develop significant noise and interference problems.

#### COOP/ Continued from page 5

"In attempting to balance the reputation of individuals and businesses against the First Amendment rights of those who publish their views as 'facts', the court must not allow a well known business and businessman to prevent comment on certain business practices within the limited publication found in this case. To do so would prevent the dissemination of information and thought within an industry which has a direct bearing upon a media reliant public'.

Discovery, the art of seeking out details of a litigant's business operations while building a case defense or suit, played a minor but not uninteresting part in this case. For example, in a five day period in January of 1985, the U.S. Postal Service accepted 263,084 pieces of mail (catalogs) from Long's Electronics. If that seems like a considerable volume, during the same month the **total number** of catalogs mailed by Long's through a single Birmingham post office was **587,466**. We obtained this information under the Freedom of Information Act from post office records. Those nearly 600,000 catalog-mailers cost Long's \$73,079.90 in postage alone. There is something mind-boggling about that sort of promotional budget in a tiny industry at the time populated with 'mom and pop' retail stores.

Well, I am glad this one is over. At one point I was told the suit against me would be dropped if I simply printed a retraction. I asked 'A retraction about what; **what** am I retracting?' The answer was 'everything you said'. My counter offer was to travel to Birmingham with a still and video camera and go through the Long's Electronics facility to do an update story on what I found there. Word came back 'stay away with your cameras'.

I don't even know Jimmy Long. I told the court I could only recall meeting him once, very briefly, at an early trade show. I hold no malice against he nor his business and in fact admire his business ability to accomplish so much in seemingly such a short period of time. I understand that he **now has** one of the finest service centers in the world, staffed with the best equipment and skilled people. I would still like to visit it one day to report on his accomplishments and now, perhaps, with this behind us, that will one day be possible.

#### WIN ONE . . . And

If I was pleased to hear from Alabama about the Judge's decision in the Long's suit at around 5 PM on March 2nd, the euphoria would be short lived. As fate would have it, within three hours out in Las Vegas, J. Lawrence Dunham and some others who GI inherited from M/A-Com would be advising the TVRO world about another \$5,000,000 lawsuit brought against yours truly and a Doctor Stephen Bepko, Karen J.P. Howes and that Darth Vader-like person, Shaun Kenny.

People seldom ask or require me to fill out a financial statement. I am simply not in a league where such

instruments are needed. But I always pondered what one does with a \$5,000,000 lawsuit hanging over their head when completing such a form. Do you list it under contingent liabilities? Debts? Unpaid taxes? Good grief.

Between 5 and 8 PM on Monday, March 2nd, I should have been bright enough to sit down and fill out a financial statement. Then I could have said, with a clear conscience, that I didn't have any \$5,000,000 anything hanging over my head. Well, I blew it.

The GI et al suit seemed less serious when read to me over the telephone than after I received it in person. There is an interesting story there. J. Lawrence Dunham, in Las Vegas, told the inquisitive crowd of reporters that "Cooper was served with the papers, today, in Miami". That particular 'today' was March 2nd of course. Miami would have been a strange place to serve me since I seldom go there and usually go out of my way to avoid it. Why not East St. Louis or Hoboken? Equally delightful places.

March 3rd came and went. No papers. No sign of anybody bearing papers. March 4th came and went; still no papers. Late on March 5th, they did finally serve Doctor Bepko at his home in Baltimore. But not me. I called my attorney and asked him what I should do. I hope he charges by the word and not the telephone call; "Nothing" was his response.

On March 7th, still unserved, Patti and I flew to Houston where we rented a car and drove up to College Station. Back in the late 1400's a fellow named Columbus sailed past our Island of Providenciales with a small escort of ships and they say he subsequently lost one of his ships on a reef along the south side of Provo. Back in 1979, a group of underwater archaeologists stumbled on the decayed remains of a ship they believed might have been one of those in the Columbus exploratory fleet. After removing all of the artifacts from the sea floor, and taking them back to Texas A and M where five centuries of encrustation was carefully being removed, they were ready to start 'talking' about their discovery. With TV camera and tape deck in hand, we spent a night and a day getting briefed on the progress to date. In addition to the fact that the shipwreck comes from a spot less than 25 miles from where I sit writing this editorial, there is other interest. Before **1992**, which will be the 500th birthday of the discovery of the 'new world', this ship will be back in our Islands, probably in a new museum being built less than four miles from my typewriter. In case you have been planning your 1992 annual vacation, may I suggest you pencil in 'Provo' because we will have a humdinger of a celebration in honor of old Chris.

I understand from my marine-archaeologist friends that Christopher Columbus died a pauper. I can identify with that. If M/A-Com and GI collect on their \$5,000,000 lawsuit, I will have a negative net worth of about \$4,950,000. I wonder how you put **that** on a financial statement? Perhaps Jimmy Long will give me a job carrying his catalogs to the post office.

Finally, after the Texas trip, I was served. At 4:20 PM on March 9th. I suppose that is close enough to March 2nd to satisfy J. Lawrence Dunham. And Fort Lauderdale is as good as Miami. The first thing I did after arriving home on March 11th was to go to an attorney friend here in the Islands with the suit.

"**They always ask for a big sum of money**" said he

trying to make me feel better. "And besides, debtor's prison is not so bad here in the Islands". I asked him how he figured that. "It has a roof . . . the regular one does not". We don't lock many people up down here because everyone is so law abiding. We also don't have very many laws so it is more difficult here to run afoul of the law than it is in the states.

I suggested we make a list of what I had that they could get if there was a judgment. He suggested we first check the laws to see if a judgment granted in the states was any good here. He checked and I made up a list of my assets.

"The two Dobermans belong to my son Kevin" I pondered out loud. Do I list them or not????". It turned out that unless the items belonged to me and me alone, they didn't get on the list. "They are suing you, not you and Kevin" pointed out the attorney.

When I completed the list and took it back to my friend the attorney, he read it over. "Not much . . . is this all you have to show for your 48 years?". I admitted that was it. And then I added, "You have to remember that CSD has fallen from 60 pages of advertising per month to two or three, and that I got it back after selling it to those guys in North Carolina with the obligation that I send the subscribers magazines for which the North Carolina guys got the money. It has not exactly been an easy couple of years!". He rolled his eyes.

"Look, your first big problem is paying the legal fees to defend yourself. From what I see here, you can't even do that and **my advice** is free. But up in the states, you'll be hiring lawyers who get \$200 and up per hour. How will you do that????"

I mentioned that Shaun Kenny was on the air soliciting legal contributions to pay bills. "I cannot counsel you on accepting any of that money nor in participating in that. After reading the suit, while you and Shaun are individually named, I don't think your defenses are the same. He has done some things on the air which you have not done in print, and vice-versa. Keep the two separate, and forget about the offer of fees." Ultimately that would be a decision I would have to make on my own.

"After you decide that you can't afford to defend yourself, the next problem you face is what do you do?"

The Summit had collected a not insignificant amount of money. The costs of putting it on were just as significant. With 252 people paying \$1,500 each, it was almost \$380,000. That would pay a lot of legal bills. **Unfortunately**, the cost of chartering jet airplanes, paying hotels, taxis, food and a myriad of other things had taken all but \$28,000 of that. **And then the lawsuit started.** For someone who had created trade shows in the home dish industry, I had certainly forgotten a lot in a hurry. Like the cost of the 'wives' who came along. We pulled a charge of \$400 out of the hat for the wives apparently not expecting many to show up. We should have made a list of the real costs for the extra person. It was double the charge we collected and there were far too many wives in proportion to the number of Summit attendees. But, the wives seemed to have a good time and whether they realized it or not, it was the travel bargain of their lifetimes.

"I haven't received a dime from the Summit proceeds so far" I mentioned to my local attorney friend. "Not complaining, just noting a fact".

"That's good . . . if the case gets far enough along where you have to show how you 'profited' from the Summit, you can honestly say you did not." He had that right. Maybe my notebook filled with the events as they transpired would make a good book. Alas, for the past ten years I have been trying to write just one book in my 'spare' time and it was less than a third done. I didn't have much hope of starting a new one. Even 'The Rise and Fall of the First TVRO Industry'.

"Look at the bright side of this" suggested my attorney friend. I asked which side that was, hoping he was not going to mention that the debtor's prison here had a roof, again.

"How many people can point with pride to having started an industry, almost single handed? When this is all over, somebody will figure out that you should have gotten a medal, not a shaft with an EPROM on the end of it." I doubted that. I recalled an article in the January 'Satellite Direct' where a GI employee, Doug Lindquist, offered that perhaps what GI needed to do was to make 'an example' of somebody, "like they did with Captain Midnight", as a warning to others not to screw around with GI's videocipher. Hey, what better guy to hang out to dry than Coop?

"Of course you could become a martyr" suggested my friend the attorney. I didn't fancy Joan d'Arc's last few minutes of life. I pondered what GI really wanted out of their prosecution. An example, yes. Retribution? Perhaps. A martyr? Unlikely. But with people like Taylor Howard prophesizing that the busting of Videocipher would lead to the **total demise** of the industry, there was little chance of martyrdom. I'd be lucky to escape a lynching party if the TVRO press kept up their full court press.

In the end, it would probably boil down to some sort of balancing act, attacking a 'journal' for its contents or opinions was not a safe thing to do. Getting the publisher for his actions, real or not, was something else. In a one horse town, if you killed the sheriff, you could also give the sheriff an opportunity to ride out of town promising never to come back again, and arrive at the same point of control without the bloodshed. Was GI after a 'clean' town or a dead sheriff? Time would tell.

### FCC Bows Out

On February 12, the FCC issued a press statement in which it declared "immediate government intervention into the home satellite dish (HSD) marketplace is unnecessary". You may recall that the FCC was requested by Congress to study whether or not the 'HSD' was being unfairly discriminated against by cable software programmers and cable system operators in the programming distribution marketplace. The report noted, in part:

"**Signal scrambling has profoundly influenced** the provision of programming directly to the home via satellite . . . At the present time 34 of the roughly 70 satellite cable services have announced plans to scramble their signals. There are approximately 1.6 million households with HSDs, and a significant share of them have access to other media such as broadcast television, cable and videocassette recorders".

This may be the first time that owning a VCR or **having the opportunity to buy one** has been deemed 'access

to media'. By that rationale, everyone in the world should be spared the expense and heartache of owning a home dish; simply purchase a VCR if you want 'media access'.

"The Commission (has) concluded that the marketplace seems to have settled on a defacto standard... All of the American cable programmers with scrambling plans have chosen the Videocipher II system".

"Signal scrambling has public interest justifications — it protects programmers from commercial theft of their services and allows them to recover compensation from all who view their copyrighted product . . . (the) record in this proceeding disclosed no evidence that programmers were forced into practices not otherwise in their best interests".

**I like that line.** It says that 'while some programmers may have been forced to scramble their signals, it was really best for these programmers that they did scramble, even if the programmers were not bright enough to do so on their own'. In other words, the end justifies the means employed by the cable MSOs because "(the) public interest is served when the incentives to produce programming are maintained. Programmers and cable operators each have legitimate interests in ensuring that compensation is obtained from all, not just some, viewers of programming".

I don't know about you, but I get just a tad ill in the stomach when an agency such as the FCC condones the pressure placed on programmers such as CNN and

CBN to force them to scramble by rationalizing 'scrambling was in their best interests, even if they were forced to scramble'.

"The Commission also determined that distribution mechanisms for HSD programming appeared to be developing in a competitive way . . . (the) structure (developing) allows for head-to-head competition among programmers on a national basis".

"The report (also) concluded that the prices of HSD programming are **comparable** to those available to cable subscribers". Comparable? I can 'compare' a Volkswagen to a Cadillac. They may even be 'comparable' ("worthy of comparison"; **Webster**). That is the act of 'comparison' ("possibility of being compared; estimation of similarities and differences"; **Webster**). That does **not mean** they are 'equivalents'. I think the FCC needs a lesson in grammar.

"In addition to the satellite cable programmers, the three major commercial broadcast networks have plans to scramble (their) satellite feeds. The Commission has found that the networks are legally entitled to scramble these network feeds. Scrambling the network feeds will limit service available to a small fraction of television households, but it will protect the exclusivity provisions of network-affiliate distribution systems that efficiently serves the preponderance of households."

Back in 1934, when the FCC was established by the Communications Act of the same year, the Commission was given the responsibility of providing a system

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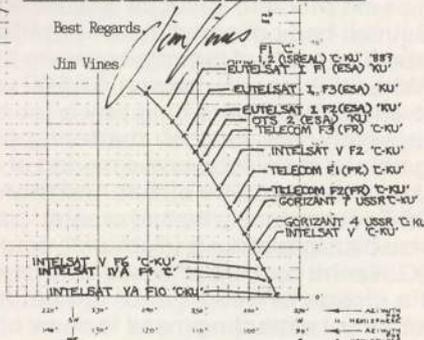
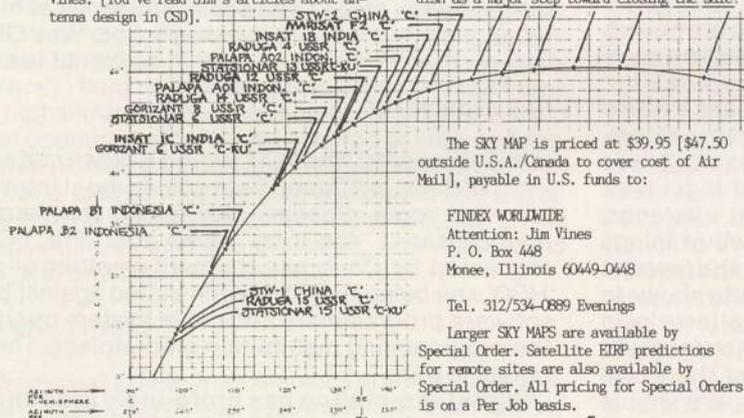
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which would serve **ALL** of the people of the United States. In 1952, when the FCC created the present VHF-UHF broadcast system for over-the-air broadcasting, it announced that **'every home**, no matter where it was located, would have direct access to at least one television channel'. Nothing was said about ignoring the needs of "a small fraction of television households". The 1952 mandate was totally clear; **'every home, equally'**. Apparently the mandate has changed in 35 years and now it is sufficient to serve "the preponderance of households".

The FCC study could have been written by any staff member of the National Association of Broadcasters or any staff member from the National Cable Television Association. The summary report is worded so decisively against the needs and aspirations of rural American served properly **only by satellite** that there is not even a ray of hope to bolster our spirits. It deals in 'promises' rather than facts, and notes in the area of lower rates, "Little information on HSD program packages is yet available, but two cable MSOs have **announced rates comparable to** cable subscriber rates". If that is not blue-sky enough for you, here's another quote that sticks out in this FCC report:

"One 'third party distributor' **claims** to be close to assembly of an HSD program package". Egads. Everytime I open up my copy of **Orbit** or **Satellite Times**, there is some yo-yo outfit in Oshkosh making the front page with a **claim** that they have somehow, against all odds, beaten the cable camp into submission and they are 'almost ready to announce' third party program packaging. Pick virtually any issue of the software/programmer trade press you like and you will find a similar 'claim' in print. And the FCC, hot on the trail of the 'facts' for their report to Congress, goes right ahead and picks up such pap and includes it in their report.

The FCC decision that 'government intervention into the home dish marketplace is unnecessary' is one of the worst examples of perverted reasoning in recent years. Draw a parallel if you like. Here's the supposition; highly toxic radioactive waste is being hauled through the streets of Queens and a citizens group finds out about it and demands an investigation of the safety hazards this presents. The report comes back.

"There is no need for government intervention into this radioactive waste hauling because no truck hauling the gunk has yet had an accident and there has been no loss of human life to date. Besides, the company that is hauling the gunk is exploring painting their containers iridescent-orange to warn citizens to stay out of their way and they only hire drivers who have a minimum of two weeks experience driving 18 wheel rigs".

Remind me to stay out of Queens. And the FCC as well.

### HDTV Via DBS: Two

In our February 'Comments' section I wrote about a plan to allow all of the more farsighted US telecasters to own a piece of the sky. The concept is that if high definition television is going to replace standard NTSC television in North America, some spectrum must be found for HDTV. Tests reported in my February notes spoke of the FCC allowing two side-by-side UHF channels in Washington, DC to be 'batched' for demon-

stration of a Japanese created 1,125 line HDTV system.

We credited some far sighted people at the FCC with recognizing that HDTV is coming, and when it gets here, it will totally bury NTSC television. At least that is the plan. But, for it to get from its present laboratory status to its would be in-the-home status, some space must be found in the 'spectrum' for this many-megahertz-wide system. Basically, it takes about twice as much spectrum space to transmit HDTV as it does to transmit (525 line) NTSC. The microwave frequency range seems to be the answer. But even the microwave frequency range is crowded and finding enough room for multiple channels of HDTV service, so that it can be received all over North America, is quite a challenge.

The FCC is considering the DBS allocations in the 12 GHz region. CBS likes that idea; they have been spending dollars and time on developing their own version of HDTV for many years. Only CBS has a different plan than the FCC; CBS would like to use 'terrestrial' transmitters at 12 GHz while the FCC would like to use space-located transmitters. There is a clash here.

The 12 GHz frequency range is essentially a point-to-point frequency range. That means 12 GHz signals do not bend over hills, go through buildings, or pass through vegetation. When it rains, the rain drops get in the way between two points and even if the transmitters can 'see' the receiver in clear weather, a heavy rain will shut down the path by increasing the loss between the two points.

Our February report centered around the development of HDTV in Japan. In fairness to the USA, not all of the creative HDTV work is being done in Japan; Europe is working on this challenge and so are some Americans. CBS as a corporation is one of the American firms. A small electronics research group called **New York Institute of Technology** is also working on the problems associated with HDTV. The NYIT approach seems to have a lot going for it because it is 'compatible' with existing 525 line television. Let's see what 'compatible' is all about.

Prior to 1953, all US television was in black and white. From 1949 until 1953, there was a serious crash program to turn black and white into color. CBS, RCA and several others long since forgotten put big bucks into the project. Each developer of a system brought their system to the FCC and to Washington for a show and tell period. The final shoot-out boiled down to a system created by CBS and a system created by RCA. CBS won and the FCC sanctioned the CBS 'color wheel' system. In effect, CBS color became **'the standard'** and in the future all color telecasting would be done using the CBS system. And all television sets would be built to that standard.

Ooops. And here you thought RCA (NBC) had created the color system we use today. Well, they did. But our RCA system was not **the system** the FCC adopted and approved as 'the standard'.

The CBS system was mechanical. First they built a wheel, a round disc which had a series of colored cellophane sheets on it. Then they attached this disc to a motor and the motor spun the disk. The electron beam that carried the video or picture information shot through the spinning disc, the bits of colored cellophane and onto the CRT face. To make sure that the color stayed

true, the disc in the individual home receivers had to spin at the same rate and with the same 'start up' point as a similar disc installed in every television camera used for a particular program.

The disc had to be about 3 times the diameter of the diagonal face plate dimension on the TV screen. Say you had a ten inch faceplate or picture; the disc was 30 inches in diameter. Now say you had a 25 inch faceplate. the disc for this would be **75 inches** in diameter or more than six feet across. Hummm.

**The FCC bought this system**, complete with the big motors required to spin the discs and the giant disc size and CBS was off and running. Well, almost. Within days of this important FCC decision, the U.S. government declared a 'freeze' on certain electronic component parts. The Korean 'War' was underway and to tool up for the defense effort, a number of industries were told to cut back on non-defense projects. So for a year or two, the CBS system laid unused even though the FCC had decided it was 'the best'.

Oh yes, there was another problem with the CBS system. A show transmitted in CBS color came out on a black and white set 'scrambled'. That is, the CBS system was **not compatible** with the then-existing NTSC 525 line black and white standard. In other words, if and when CBS got going with the system after the Korean freeze was lifted, they would have the difficult decision of which programs to transmit in color (with no, or very few viewers) and which to transmit in black and white

(which everyone could receive).

Mercifully, by the time the Korean freeze was lifted, the chief competitive system from RCA had been greatly improved. First of all, it was truly 'compatible'; a program transmitted in RCA (NBC) color could be received in black and white on **all** existing receivers. That made it far easier for NBC (RCA) to start up color telecasting since they would not lose any audience by adding color. The FCC reconsidered their 1952 decision in favor of CBS, and then reddecided in favor of RCA. The Korean War freeze saved us from giant spinning wheels in living rooms all over America.

**The NYIT system is compatible.** They claim that it can be transmitted in such a way that existing sets will get the same programs without HDTV receivers while at the same time those people who want HDTV (like those who 30 years prior wanted color) can upgrade to HDTV. The demonstrated-to-date Japanese systems seem to have overlooked this consideration.

How does all of this impact on the creation of a new, HDTV type of service from satellite? We still have the spectrum problem. Since both the FCC and CBS seem to be eyeing the 12 GHz 'DBS allocation' for DBS, it appears that however the standards sort out we will see some use of this frequency range. If CBS wins out, and that is unlikely since the 12 GHz band is hardly well suited for serving locations more than 12-15 miles from the transmitter(s), the FCC must decide that their original allocation of the 12 GHz 'DBS band' was in



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error. In short, the 'exclusive DBS allocation' will have to become a 'shared' or re-allocated-to-terrestrial frequency assignment. **That would probably spell the end to DBS in America.**

The FCC, on the other hand, would like to simply reclassify the DBS band from its present DBS service to a new 'HDTV from space' service. And the FCC would like to see that existing broadcasters have the opportunity to sign up for these new 'satellite channels'. The FCC plan clearly makes the most sense at the moment.

The broadcaster camp, meanwhile, is being worked into a frenzy by its own trade press. The impoverished broadcasters are worried that if HDTV comes to pass, their old fashioned 525 line NTSC programming will make them 'second class citizens'. That really means that the broadcasters recognize the consumer-superiority of HDTV and some are now predicting that we may have HDTV available in some form, in North America, in as little as three years. However it sorts out, the satellite world will be affected.

## THE END

This is to be the last issue of Coop's Satellite Digest. Please hold the cheering down in San Diego so the rest of the country can read in peace.

I attempted to resurrect a magazine which came back to me in shambles, this past August, without success. Some explanation.

In August of 1985 CSD was sold to a North Carolina publishing company. My concept was to get out from under the month to month production of CSD so I could concentrate on creating unscrambled television programming for home dish owners. The sale price of CSD was modest enough, but it would sustain my family for several years so that I would not feel the need to bring home a paycheck each month to meet our family needs. I was not expecting to retire; only gain a couple of years 'breathing room' so that a project of the magnitude of creating **free television** could bear fruit.

Well, the sale fell through. I received only a portion of the agreed to price for CSD and found that I was still having to do most of the writing anyhow. Ultimately, in August of 1986, I would find the CSD records bundled up in a couple of brown cardboard boxes sitting on my doorstep in Fort Lauderdale once again. The North Carolina group wanted to simply cease publishing CSD and they shipped it back for me to bury. I elected to gamble that it could be saved, against all odds, and I put into it all of the savings and assets I could scrape together to keep it going from August until now. My wife Patti and I had agreed that we would give it **six months** to turn around because at that point we would be out of funds to keep it going. No staff worked harder, no staff was ever more dedicated and no staff ever did so much with so few people as in that period of time.

By Patti's and my agreement to one another, January should have been the last issue. We elected to publish February because there was the story of the 'Summit' to be told and if we didn't tell it, nobody would; **accurately**. We elected to publish March because fallout from the 'Summit' was still all around and we hated to leave in the middle of a story.

When CSD moved to North Carolina in August of '85, it

had been rolling along at between 50 and 60 pages of advertising per month. When it came back, it had **two pages** of advertising and AVCOM was one of those. The folks in North Carolina knew they were giving CSD back (or 'up') and they had no incentive to keep CSD in the advertising budgets for those few suppliers still in business. They also did us a dirty trick with the U.S. Postal Service and our Second Class Permit, but that is another story. Bottom line; we had no revenues.

When the attorney said 'Write me a check for \$10,000 as a retainer to defend you against the GI charges' we said "Oooops...we don't have \$10,000." So we sold something we didn't expect to sell and wrote the check. When the attorney next said 'Expect to write additional checks for upwards of \$50,000 within 45 days', we quickly figured out that we didn't have anything left to sell and certainly could not subsidize CSD any longer.

There are those who point out their belief that GI's suit is designed primarily to silence sources of information which might somehow 'assist' people in decoding Videocipher, without authorization. These people feel the GI challenge is to 'freedom of the press'. When GI brought suit against the people at 'The Black Box Solution' on March 19th, it was reported to me GI was prepared to drop their charges against the Arkansas people provided the Arkansas people ceased publication of 'The Black Box **Newsletter**'. If GI ultimately does drop the suit against the Arkansas people, and if the 'Newsletter' does cease to publish, this would add credence to the belief that GI is out to muzzle any and all press dealing in descrambling information.

There are numerous ways to muzzle the press. Shaun Kenny tells me Boresight will not stop, that he can last as long as he can raise money from viewers to stay on the air. I refuse to accept money from viewers and readers and have returned checks sent in by well meaning people who want to help us in our time of need. I refuse to get on television and shed tears asking for financial support like so many of the satellite delivered religious networks.

Late in March, while our attorney was preparing the mandatory response to the GI suit, Patti and I burned the midnight oil concentrating on how we pay for 'the future'. The answer was that without the GI lawsuit, we might have been able to keep CSD 'alive' for another month or two, at the most. With the lawsuit, we should have shut it down several months ago because that is when the money ran out. We have not had a single dime from CSD since we got it back in August, and in fact the last time I received any money for any CSD work was in February of 1986. In effect, the last 14 months have been 'on me' with Patti and I subsidizing the continuation of CSD with dollars, beyond our time, since the August 1986 issue.

In 14 months of no pay, we have learned creative ways to cut corners, and systematically reduce our living expenses to help make it possible to subsidize the magazine. Money I had received as partial payment for CSD from North Carolina back in August of 1985 kept us alive until it ran out. After that, we began disposing of assets we had acquired in better times. Ultimately, they too ran out.

My attorney drove in a final nail when he pointed out "**Suppose this suit is scheduled for trial** and we enter the discovery phase?". I had some fiendish

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thoughts about 'discovery' since this would allow us to gain legal access to GI and other corporate memos and reports that they have been careful to bury until now. My glee ended when he added "And suppose GI decides they will go out and depose every single person who attended the 'Summit'. You will be virtually obligated to do the same thing; go into the world, find everyone who attended, and have an attorney interview each such person to obtain their 'sworn affidavit' concerning the 'Summit'. What do you suppose that might cost???"

The answer, given the \$200 per hour attorney rate and mucho travel to and from each deposition, lodging while there and legal secretaries to transcribe each deposition, is someplace between the annual national budget for El Salvador and the cost to launch the Space Shuttle.

The Bill of Rights guarantees to each citizen the opportunity to be **heard** in court. It does not guarantee how he will **pay** for the legal legwork required to get into court. There are many ways to muzzle the press; spending money against a member of the press is one of those ways.

I will miss CSD. I suspect some of you will also miss CSD.

Some of you will miss CSD enough that you will want the unused portion of your subscription money returned. There is no unused portion; obviously we are not in a position to do anything about that, at this time.

But we have a 'gem' of a plan. After this issue, there will be no additional issues of Coop's Satellite Digest. Nor any other 'cute variation' of CSD created by me which attempts to pass along information concerning descrambling. In fact, this is the last time I intend to write the word **d-e-s-c-r-a-m-b-l-i-n-g**.

If we can get advance advertising support from a suitable number of suppliers, we would hope to launch in approximately August/September a new **technical publication** dealing with advanced dish system design and installation. Yes, this **was** what CSD was 'all about' in the early years, and yes, we have gotten away from that theme in the past two years because of you-know-what. If we can put together such a publication, which will ignore the entire question of you-know-what because it will no longer be relevant, then those unfulfilled subscriptions to CSD **will be honored** with the new (yet unnamed) publication. Right to the end of the number of issues you still have coming.

All of this will of course depend to a large extent on the direction taken by the GI attorneys in the next few months. When our \$10,000 retainer has been all used up by our attorney, we will be flat out of defending ourselves any further. Our attorney knows that. Whatever GI elects to do to us after that point is up to them. With our resources totally exhausted, there is not much we can do to be combative.

And that, for whatever wisdom as there may be here, is a commentary on our legal system. You don't have to be wrong; you simply have to be unable to afford a defense, and you are a loser. The other side gets to call you an outlaw or whatever they wish and you have no choice but to take your lumps. The resources of GI and the U.S. Customs Service are inexhaustible. Mine are exhausted. And so am I.

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