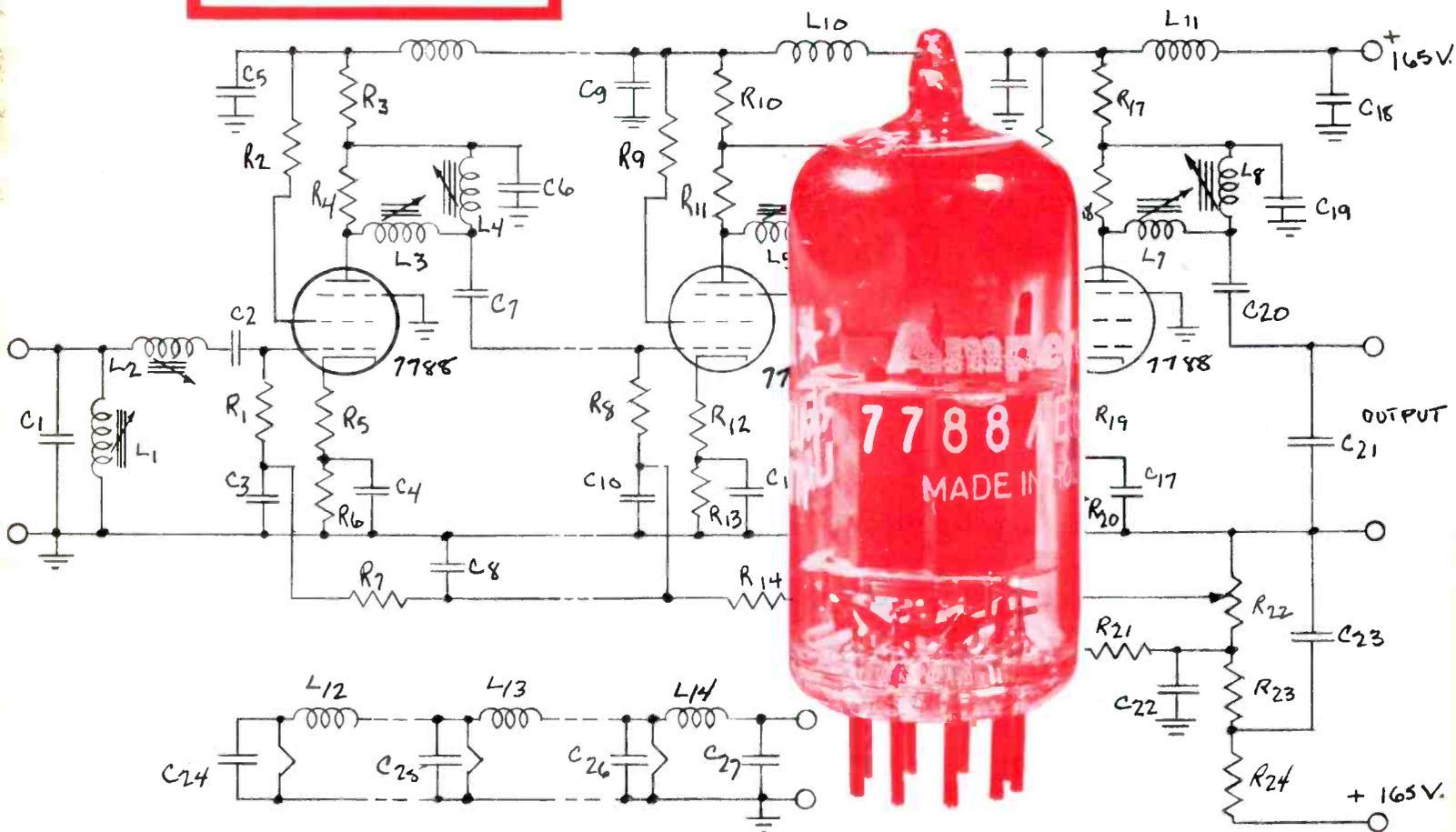


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1962**

Al Bowdy, KCOP Television
915 N. La Brea Ave.
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tv horizons



The Professional Television Journal

IN THIS ISSUE

New Amperex 7788 Promises Vastly Improved
Line Amplifier, Front End Circuitry for CATV

Additional Report — NCTA 1962 Convention

Two Approaches to Full 12 Channel CATV



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COAST**



**EXPERIENCED
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BOB MAGNESS

Channel

1

SALINAS FRANCHISE ORDINANCE "UNCONSTITUTIONAL" SAYS TELEPROMPTER

... And the battle continues. Possibly prompted by harrassment, the Salinas City Council entered into the legislative area of rulemaking heretofore only reserved for state and federal levels. As reported in the March issue of Television Horizons, one of the factors influencing legislation towards CATV has been the FCC policy toward the minority few CATV system operators. Nevertheless, rather than bow to unfavorable regulations and lose the principles governing private business, TelePrompTer officially withdrew its application on July 11th for a CATV franchise in Salinas, California.

The withdrawal request was contained in a letter from Mr. Irving B. Kahn, president of TelePrompTer Corporation, to Mr. Thomas G. Dunne, City Manager. Besides the actual withdrawal, several points were brought forth regarding municipal legislation of the type initiated by the Salinas City Council. The contents of the letter indicated the company's view toward "total surrender and submission to an unconstitutional attempt at regulation of the CATV industry." Mr. Kahn went on to say that "If the City Council today can regulate CATV, it can by the same token regulate the broadcasting industry." "The authorities are clear that Congress has fully occupied the field of radio and television and that if Congress in its wisdom has not provided for regulation with respect to some aspects of it, the states cannot step in to fill in what they believe is a gap in regulation." Mr. Kahn further stated "we find it hard to believe that the City Council will persist in attempting to enforce an ordinance which obviously cannot escape challenge in the State and Federal Courts, and which will be disruptive of sound business practices to the detriment of the citizens of Salinas."

- CATV
- MATV
- Fringe TV
- ETV
- UHF-TV
- Associated Industries' News

PROTECTIVE LEGISLATION FOR CATV

Recent legislation by the State of Florida provides considerable measure of protection for the CATV operator. Under this new legislation, a fine of \$500 or imprisonment in the county jail for a period of not more than one year may be levied against those persons willfully tapping or otherwise illegally using indirectly signals carried by CATV system lines or cable.

Sufficient description is carried by the measure to allow prosecution of those who depend on cable radiation as a means to circumvent the nominal fees charged for most CATV services. Furthermore, the measure covers damage to any of the equipment normally used by a CATV system and in cases of willful or malicious damage exceeding \$200 allows for a penalty fine of \$5,000 or imprisonment for a period of 15 years.

If you don't have this kind of legislation in your state, you should have. This most assuredly can result in a savings to the CATV operator as well as a means to discourage the ever present free-loader.

PRIMING FOR CATV LEGISLATION?

While the NCTA Convention was operating at full steam and making an effort to discuss the broadcaster vs. CATV situation with NAB representatives, Mr. Dan W. Shields, NAB special assistant for TV was making his views known to a group of Georgia Broadcasters. The basic text of his talk was directed toward the small TV stations and their battle with CATV. In his hard sell approach, Mr. Shields stated, "What we have is a completely unregulated business competing against a regulated industry, using as its major weapon the very product which its competitor turns out, and paying nothing for the product."

On June 27th during an NAB meeting in Washington more was said regarding CATV and regulation. The outcome of this meeting consisted of a recommendation to intensify efforts to secure congressional approval of legislation to regulate CATV although this action was described as "informal".

REMOVAL OF EXCISE TAX APPROVED

Effective January 1st, CATV system operators will no longer be required to pay the 10% excise tax on leased private line services. This will be a welcome relief to the CATV operators using the facilities of common carriers. The decision to drop the excise tax was prompted by complaints from remote viewers who had to rely on CATV systems for television, on the basis that local viewers were not required to pay any tax.

GADSDEN, ALABAMA CATV

Mr. Walter L. Hotz of Alabama Cablevision Co. recently announced that a new CATV system would be opened in the Gadsden area. Their current aim will be to provide five channel service to an estimated 19,000 homes to the tune of 190 miles of cable.

TELEVISION HORIZONS

PUBLISHED MONTHLY BY HORIZONS PUBLICATIONS
Post Office Box 1557 • Oklahoma City 1, Oklahoma

EDITORIAL

Last month we pledged ourselves to renewed efforts to strengthen our ties with the CATV industry. We noted a complete editorial reappraisal of all fields not directly concerned with (not concerning to!) CATV operators, and noted that our's was the ever growing and responsible task of chronicling the explosive growth of our industry.

As part of the general overhaul at Television Horizons, this publication's first full time editor joins the staff this month.

We make no fancy claims for Russ Miller, because we know he wants it that way. We note only that he has far reaching and vast experience within the video industry, and his experience stems from both management and engineering. As an engineer he is top notch. As a management devotee, his qualifications can best be summed up by noting that he is level-headed and conscientious. We think he possesses all of the qualifications necessary to build Television Horizons into a truly representative book for our industry. A book that you will be proud to display in your front office.

Because Russ will be devoting considerable research time to this field, we hope you will take it upon yourself to see that he is informed sufficiently in advance of regional CATV meetings to attempt to schedule them into his busy itinerary. We feel that by circulating Russ about from coast-to-coast and making you more aware of his ability and interest, the usefulness of Television Horizons to you in your everyday conduction of your CATV business affairs will become more and more apparent.

Won't you see that he is truly an informed young man? An occasional critique of his efforts would also be appreciated. He, and we, would much rather hear your howls of indignation monthly, than have you save them up for one barrage at the annual NCTA meeting! If you are mad enough to say something, say it when it can do some good . . . not six months later.

As Dave Garroway used to say . . .
PEACE!

RBC

TABLE OF CONTENTS

FEATURES

7788 TUBE PROMISES CATV COST CUTS Russ Miller, Television Horizons	4
PHOTOGRAPHIC COVERAGE 1962 NCTA CONVENTION Stanley M. Searle, Horizons Publications, Inc.	6
THE 12 CHANNEL CATV SYSTEM Vic Nicholson, Jerrold Electronics Corporation	12
FULL SPECTRUM TELEVISION VIA CATV Irv Kuzminsky, Entron, Incorporated	14

DEPARTMENTS

General News of the Industry CHANNEL ONE	1
A Step Ahead EDITORIAL	2
Wired Broadcasting Rejected OUR MAN IN EUROPE	10
New Equipment, Acquisitions, Trends CATV CABLE DROP	17
Carter Mountain Microwave LETTERS TO THE EDITOR	20

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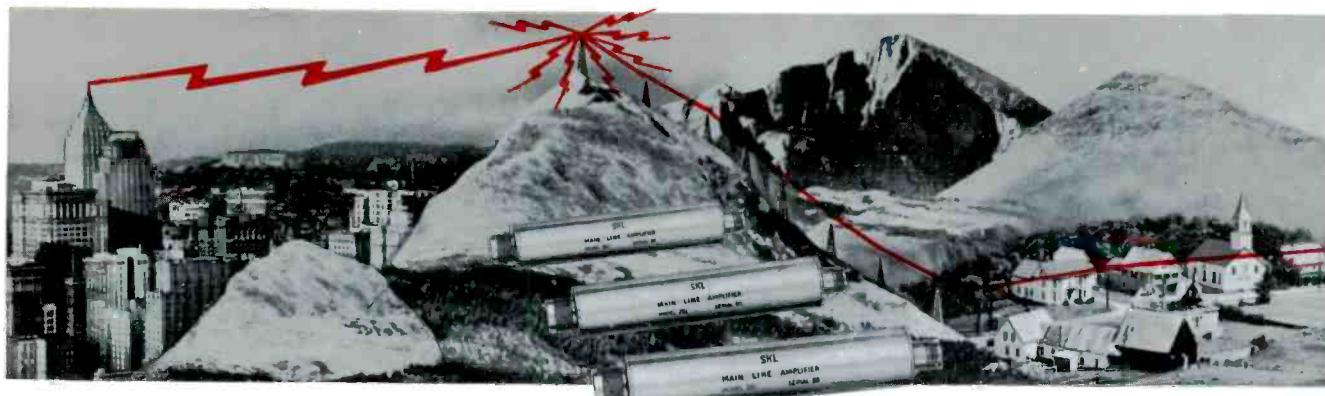
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A Complete Solid State CATV Equipment Line

- Fully Transistorized
- Remote Cable Powered
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- Long Cascaded Trunks
- Economical Feeders



Both present and prospective CATV system owners can gain real happiness from SKL's engineering achievements in solid state equipment.

For example, the present owner who has a tall tower or a rather inaccessible antenna site is constantly fighting the inconvenience and cost of maintaining tubed equipment at these locations. Now he can install SKL's maintenance-proof Model 271 Antenna Preamplifiers to save tower climbing. And now he can lock his equipment shack door on a completely transistorized head end station which ages a great deal more slowly and requires check-ups much less frequently than he himself does.

The prospective owner planning a new low band and subchannel system can save money and know peace of mind by going SKL solid state all the way from the start. As he smiles on his carefree head end, he will look at his cable powered, cable mounted line amplifiers — ruggedly constructed in waterproof housings — and count the dollars he didn't spend on amplifier cabinets, mounting brackets, cross-arms, jumper cords, service entrance equipment and installation labor. He will look at his very few power supply points and marvel at how little they cost to put in and how low his power bill is every month. He won't think about tube maintenance, because it doesn't even concern him.

SKL

**SPENCER-KENNEDY
LABORATORIES, INC.**
1320 SOLDIERS FIELD ROAD
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ALgonquin 4-5400

Please call or write us about your interest in SKL solid state equipment. We'd like to tell you other ways in which it can contribute to your happiness.

7788 Promises CATV System Cost Cuts and Unique Extra Low Noise Gain

— Russ Miller, Managing Editor, Television Horizons —

Many CATV systems are faced with the problem of weak signal picture quality especially in the high band region. More elaborate antenna configurations might clean up or even get you that extra channel but obtaining 6 db more signal is not easy. Prime reason one for picture degradation is the noise factor inherent in the head end pre-amp, so let's think a moment about improving this situation.

Certainly it is recognized that a vacuum tube is an efficient noise generator and it becomes more so the higher in frequency we go. Starting with a marginal signal to begin with and feeding it into a noisy pre-amp will result in what you would expect, picture and noise. Granted, the vacuum tube can be noisy but by how much. Standard high band noise figures can be anywhere from 8 to 14 db with the latter more common. If we could but slice a few db off this figure or (ideally) get the pre-amp into the antenna noise region we probably would have that high band signal we were hoping for. But let's go even one step further in considering that extra or improved channel.

Now, how about the trunk-line amplifiers, for here is another place where we can add still more noise to an already degraded picture. Improving the trunk-line amplifiers would seem in order also and what CATV operator hasn't given some sleepless nights to pondering this problem. What is the actual crux of this problem. It goes back to our friend, the vacuum tube. But, there is a solution to system noise; the use of better tubes. Already there are some good head end pre-amps and trunk line amplifiers available which make use of inherently low noise tubes. Although full acceptance of the more sophisticated amplifiers has not come to pass in the CATV industry, this is largely due to foremost items of cost and reliability.

Following along these lines, the Amperex Electronic Corporation has added another tube to the fold that possesses many outstanding features applicable to pre-amp as well as general broad-band service. This is the 7788/E810F, a dual frame grid, long life, shock and vibration resistant pentode. What makes this tube useful is its high, 50,000 micromho Gm rating, and the low Req or equivalent noise resistance of 100 ohms. Along with this, the 7788's long life rating of 10,000 hours plus the use of a standard nine pin miniature envelope add to make this tube highly worthwhile. Using this tube in pre-amp service is comparatively easy and higher gain coupled with a reduced noise figure will most certainly benefit any system.

At this point it should be mentioned that the 7788 is not a direct replacement for any of our conventional tubes. However, in broad-band service, this tube's characteristics and excellent figure of merit

can save a number of extra stages and improve the overall noise figure tremendously. To illustrate the high gain of the 7788 and the resultant savings possible, an example of its application in an i.f. amplifier follows:

Center Frequency	70 Mc
Bandwidth	15 Mc to 0.1 db points 40 Mc to 3.0 db points
Gain	75 db, including 25 db for AGC
Input and Output Impedance	75 ohms
Reflection Coefficient	less than 5% over 15 Mc
Output	2 volts

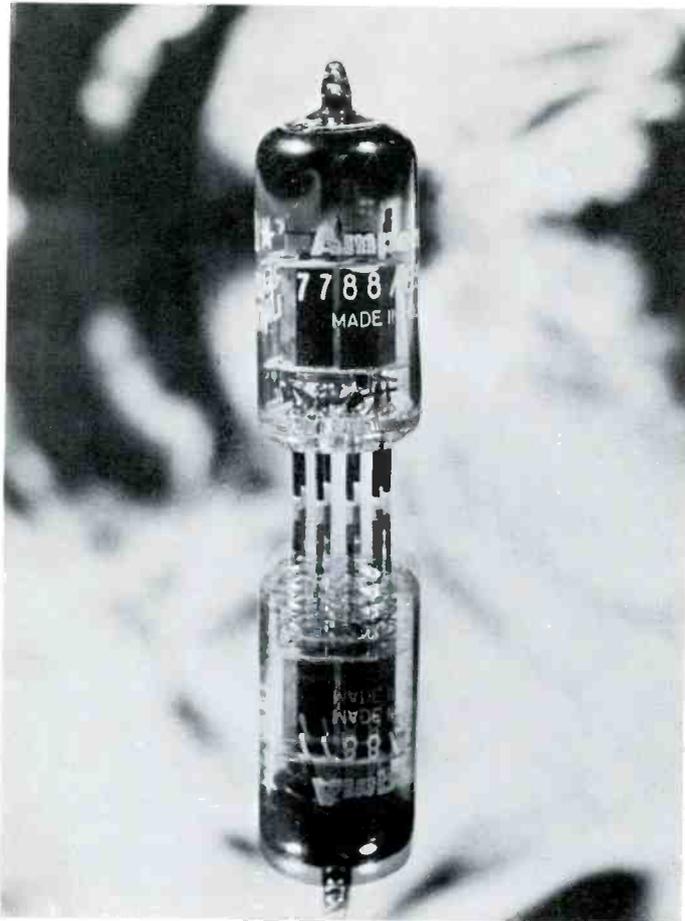
These specifications are for a typical CATV line amplifier using six 7788's. Previous amplifier designs incorporating tubes of lower gain would require a total of 11 tubes for identical results. This is a net saving of 5 tubes and a big saving in maintenance time and money. What about the noise? The figures should speak for themselves, less tubes, lower initial Req, less noise.

The high transconductance of the 7788 should be looked into carefully from this standpoint, consider a 20% reduction in Gm due to reduction in cathode emission. With an average of 50,000 micromhos, Gm, a reduction of 20% will result in a change of only 10,000 micromhos, not very much of a change for this tube.

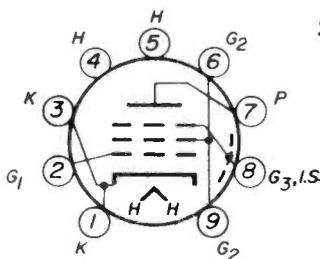
Application of this tube to the modern CATV system is only a matter of time. In fact, there will most surely be additions to this line of tubes as the need for them arises. The benefits that will be reaped are enormous and represent a major step forward in the industry.

For those interested in trying the tube in an experimental pre-amp or broad-band amplifier, be guided by the practices pertaining to modern high high transconductance tubes. Because of the very high Gm rating of this particular tube, extreme care must be exercised in the placement of parts, for it takes but a small degree of feedback to set up parasitic oscillations. These circuit susceptibilities to oscillations can be avoided by taking ordinary precautions such as adequate by-passing, short leads, common ground connections made directly to the chassis and the use of parasitic suppressors such as resistors or ferrite beads. Shielding is also an important factor and adequate isolation between the input and output circuits must be provided.

Operation in its pentode form should be preferred to retain the gain of the stage although triode operation will reduce the noise factor somewhat more, but this does not appear to be advantageous.



Since a rather rapid change in plate current will occur with a small change in bias, a source of fixed bias should be used. This is a point where decoupling will be of considerable importance. Input capacitance of the 7788 is rather high, approximately 16 mmfd (cold value) but it can be put to work by using a series tuned resonant network in the grid circuit or by using a conventional low-pass network. Output capacity is low and any accepted form, including parallel resonant networks will function satisfactorily. Coupling into and out of the stage should follow accepted practices with one added word of note: couple to effect the best band pass and noise figure.



PIN CONNECTIONS

- 1- CATHODE
- 2- GRID NO. 1
- 3- CATHODE
- 4- HEATER
- 5- HEATER
- 6- GRID NO. 2
- 7- PLATE
- 8- GRID NO. 3 & INTERNAL SHIELD
- 9- GRID NO. 2

Sounds workable so far but what if it doesn't work? It will, and better still, out perform the majority of all premium type tubes now functioning in this service. Possibly the only trouble that may be encountered is adequate by-passing. Here is where low inductance capacitors are necessary. The silver button mica or some of the newer stud mounted varieties were found the best performers in Horizons Lab. These types of capacitors should be used in the screen grid and control grid circuits to effect stability. Typical operation of the 7788 in pentode service is as follows:

Plate Supply Voltage	120 VDC
Grid No. 2 Supply Voltage	150 VDC
Grid No. 3 Supply Voltage	0 VDC
Grid No. 1 Supply Voltage	-1.9 VDC
Plate Current	35 mA
Screen Current	5 mA

Reduction of noise can be an important factor in clean CATV operation mainly at the head end but this idea can extend to the rest of the amplifiers. Keep your noise **down** and your signal **up**!

Editor's Note: This tube has been tried by the Horizons Lab in a test pre-amp. The performance of the 7788 was far better than anticipated. Actual stability was checked as well as the gain and over-all sensitivity before any precise measurements were conducted. The performance tests made on the pre-amp were accomplished with a Hewlett-Packard 608D signal generator. By comparison the 7788 does and will out-perform any of the well known tubes now in current service.

STAINLESS STEEL CATV LASHING WIRE



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\$6.00

PER 1200 FT. ROLL
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on orders of 18 or
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6 coils per carton.

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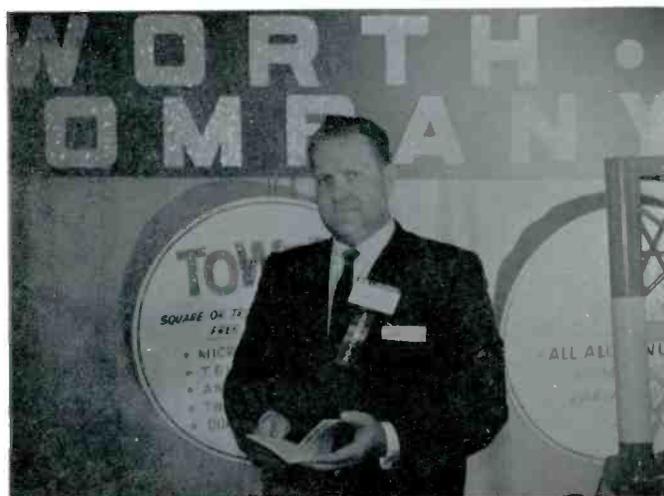
3833 Wilshire Blvd., Los Angeles 5, Calif., (DU 2-4225)

Photographic Coverage 1962 NCTA Convention

— Stanley M. Searle, Horizons Publications, Inc. —



CAS Manufacturing Company's new CATV Weather Board shown above features a moving tape across the center of the unit, which carries printed advertising messages. A new sub-channel to high-band "Up-Converter" was announced by CAS at the Convention. CAS President John Campbell is shown here (r) with Kenneth Durant.



A man who can be proud of more "ups" than "downs" stands with his booth. He's T. W. "Tommy" Moore, President of Fort Worth Tower Company, Inc., Fort Worth, Texas.



Robert W. "Bob" Burton, Sales Manager at Times Wire and Cable, shows off a large economy version of the JT-400 coax, along with some slightly smaller samples. Imagine suspending the large version from your poles!



George Acker of Aberdeen Company, Los Angeles, California is shown holding a roll of his firm's stainless steel lashing wire now marketed nationally by Aberdeen.

One of the more explicit set of predictions concerning the future technical trends of the CATV industry came from Denver, Colorado CATV broker and management consultant Bill Daniels.

Daniels noted "I expect, in the next several months, to see from 30-50 percent of all CATV sys-

ADD UHF

to your catv system with a

BLONDER-TONGUE MODEL UBP UHF PRE-AMPLIFIER

There's nothing like the Blonder-Tongue UBP on the market today. Mast-mounted to take advantage of the maximum signal-to-noise ratio available at the antenna, it increases signal voltage by at least 14db. The UBP uses two low-noise frame grid tubes. The remote power supply sends a 'safe' 24 volts of AC power to the mast-mounted UBP amplifier of the same download which carries the signal. The UBP is enclosed in a weatherproof housing with swing-down chassis for easy servicing.

The original Blonder-Tongue Ultra-booster covered only channels 70 to 83. When it was introduced in the MPATI areas, it was so dramatically effective that installers throughout the country demanded units for their particular UHF channels. There are now five standard models, each covering a specific portion of the UHF spectrum: (1) UBP 14 thru 29; (2) UBP 25 thru 40; (3) UBP 41 thru 55; (4) UBP 56 thru 69 and (5) the original UBP for 70 thru 83. In addition, other frequency ranges are available on a custom basis.

The professional UBP, for CATV use, has a 300 ohm input to the amplifier, with 75 ohm Benconnectors for amplifier output and remote power supply input and output. Three M-73 male Benconnectors (for RG-59/U) are supplied. (Note:

Type F male connectors fit M-60 Benconnectors).
Net price of basic UBP is\$99.50

CUSTOM UNITS AVAILABLE—UBC

Custom UB units (model UBC) are available for any desired frequency spread covering a 5 to 14 channel segment of the UHF band, with your choice of the following connectors:

INPUT OF AMPLIFIER

1. 300 ohm stripless screws
2. 75 ohm Benconnector (with M-73 supplied)
3. 50 ohm type N connector
4. 75 ohm type N connector

OUTPUT OF AMPLIFIER

1. 75 ohm Benconnector (with M-73 supplied)
2. 300 ohm stripless screws
3. 75 ohm type N connector

Input and output connectors of RPS will be the same as amplifier output connector.

Net Price of the UBC is\$125.00

300 ohm UB units are also available\$59.50

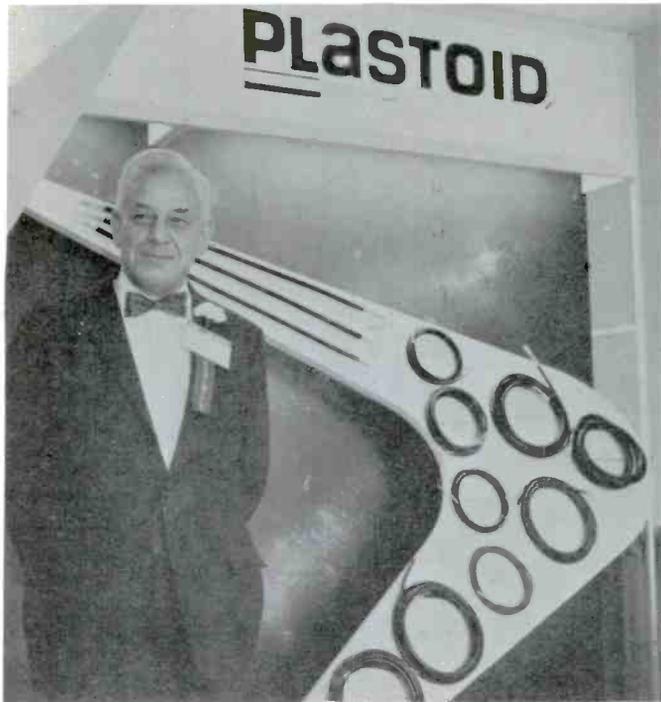
engineered and manufactured by

BLONDER-TONGUE
9 Alling St., Newark, 2 N. J.

Canadian Div.: Benco Television Assoc. Ltd., Toronto, Canada Export: Roche Int'l., N. Y. 16, N. Y. Cable: ARLAB
Home TV Accessories • UHF Converters • Master TV Systems • Closed Circuit TV Systems • CATV Systems



Model UBP with remote power supply



Plastoid Corporation's new flat braid CATV cable was featured in this attractive display at the Washington Convention. R. A. "Dick" Hyer of Plastoid is shown here.

tems adding weather information to their channels." Daniels also noted that he understands a "news service will soon be made available to CATV systems, using teleprinter machines connected directly to the wire services now providing such news and reports to the radio and television stations throughout the country." As Daniels described the new service, "a camera will train on the newprinter machine and the home viewer will be treated to direct read-out of the news as it is printed on the wireservice machine."

Daniels also foresees additional use of the FM and background music signals by the industry.

Indicative, perhaps, of the new interest in auxiliary services were the three manufacturers of weather and music services who were on hand as exhibitors at the convention.



Shown holding a "G-Line" launcher in the Surface Conduction, Inc., hospitality suite are Dr. Theodore Hafner, President of Surface Conduction, and Kerwin "Kim" Sanford of TELCO, Lewiston, Pennsylvania distributor of CATV equipment.



Arthur Baum, President of Viking Cable Company (l) and Kerwin McMahon of Viking (r) show their Model VIK 940 Broadband Amplifier to Earl Haydt of Palmerton, Pennsylvania.



Hans Blum, Chief Engineer for Entron, and Charles Miller of Phelps-Dodge, Puerto Rico, at the Entron exhibit. Entron announced their new ADABAND equipment along with a complete line of CATV products.



A. J. Sequeira, General Manager of U. S. Wire and Cable (l) examines new data sheets and a TVH reprint with Thomas L. Higgins, Vice President in Charge of Sales at U. S. W & C.

Suddenly!

TUBE AMPLIFIERS ARE OBSOLETE!

After two years of extensive research and development, AMECO has produced a line of transistorized all-band cable-powered amplifiers that provide the most economical means of all-band CATV distribution possible.

Thoroughly tested and proven in the field, AMECO'S all-band transistorized amplifiers are operating in systems today!

The AMECO line of transistorized amplifiers and remote cable power accessories are ready for *Immediate delivery!*



ATM-50

TRANSISTOR MAINLINE AMPLIFIER

- 25 DB USABLE GAIN
- CASCADABLE
- LOW NOISE FIGURE (10 DB)
- 50-110 MC AND 170-218 MC BANDWIDTH
- EXTERNAL TILT AND GAIN CONTROLS
- CABLE POWERED OR DIRECT POWERED
- PROVIDES 24 VAC POWER ON OUTPUT FOR ATB-10 BRIDGING AMPLIFIER

only

\$225⁰⁰*



ATB-10

FULLY TRANSISTORIZED BRIDGING AMPLIFIER

- 40-220 MC BANDWIDTH
- 3 DB PLUG-IN PADS
- COMES WITH 2 AND 4 OUTPUTS
- LOW NOISE FIGURE (8 DB With "0" DB PAD)
- 10 DB GAIN
- CABLE POWERED OR DIRECT POWERED
- PROVIDES DC POWER ON OUTPUTS FOR ATM-20 LINE EXTENDERS

only

\$135¹⁵*



ATM-20

FULLY TRANSISTORIZED CASCADABLE LINE EXTENDER AMPLIFIER

- 20 DB USABLE GAIN
- LOW NOISE FIGURE (6 DB)
- 20-220 MC BANDWIDTH
- CABLE POWERED OR DIRECT POWERED
- EXTERNAL TILT-GAIN CONTROL
- TEST POINT ON OUTPUT

only

\$69⁵⁰*

*Subject to standard discounts

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OUR MAN IN EUROPE

GORDON J. KING
Assoc. Brit. I.R.E.
Brixham, Devon, England

THE FUTURE OF BROADCASTING IN THE UNITED KINGDOM

A voluminous report, comprising about 150,000 words in 342 pages, dealing with the future of broadcasting in the UK, was recently presented to Parliament by the Postmaster General. The report consists of the findings of a Committee of eleven, established by the Government almost two years ago, under the chairmanship of Sir Harry Pilkington, an industrialist. The report covers every aspect of sound and television broadcasting, including subscription television, educational service of broadcasting and the relay services, and is presented in the form of recommendations.

The main technical considerations of the report relating to ordinary off-air broadcasting are: (1) a gradual change of standards from the existing 405 lines to 625 lines, (2) the introduction of a third television programme under the control of the BBC and later a fourth programme under the control of the ITA when that Authority is reorganized and has "proved its capacity to realize the purposes of broadcasting", (3) the early introduction of a compatible system of colour television on 625 lines, (4) the use of the UHF bands (Bands IV and V) for all further extension of television services, including colour and (5) the introduction of "local" sound broadcasting networks in Band II under the control of the BBC.

These are all in the form of recommendations, and a White Paper issued by the Government seven days after the Pilkington Report gives the green light for a change of line-standards on all new channels (in the UHF bands), for the introduction of two new programmes and for the start of colour programmes. The final sanction for these things to happen is expected to be given during the winter session of Parliament.

DUAL STANDARDS

In anticipation of a gradual changeover to 625 lines, set manufacturers are already in bulk production of "dual-standard" receivers. These are perfectly suitable for the VHF 405-line signals as currently transmitted, but also feature a "standards switch" which, in effect, changes the line timebase frequency and the video and sound channels to the CCIR standards on 625 lines. The video passband is widened, the vision detector altered for negative modulation and the sound channel for intercarrier sound. Such receivers also embody facilities for connecting a separate UHF tuner, though some models already have

such a tuner incorporated.

The idea will be to transmit the existing two VHF programmes (BBC and ITA) on 405 lines, and duplicate them on 625 lines at UHF at CCIR standards. As and when the new programmes become available they will be given suitable channels in the UHF bands. In that way, the new standards will be established first in the UHF bands, and while all this is happening a shadow network of 625-line CCIR stations on VHF channels will be set up.

At some time in the future the old-standard VHF stations would be closed down and the new ones switched on. By that time most viewers would be in possession of a suitable receiver and there would be a smooth changeover from the old to the new standards without the embarrassment of existing receivers being rendered obsolete.

This duplication method is recommended by the Pilkington Committee and will almost certainly be given the go-ahead by the Government, but the problems associated with wide-scale UHF broadcasting are fully realised, and it is thought that this method of changeover will prove the feasibility or otherwise of UHF broadcasting in the UK without disrupting the existing services.

WIRED BROADCASTING REJECTED

The alternative to UHF broadcasting is large-scale wired broadcasting, and this was considered by the Pilkington Committee, as based on proposals in favour of the system by the British Institution of Radio Engineers. However, the Committee rejected this as an alternative to UHF off-air broadcasting, maintaining that one-hundred percent coverage would be necessary to avoid the need for off-air stations having to cater for gaps in the wired network. And that the cost of erecting such a comprehensive system would be very great indeed. This, in spite of the fact that receivers for a wired service would be somewhat less complex than ordinary off-air receivers, which would to some extent off-set the cost of the network.

Nevertheless, the Committee admitted that relay systems generally are desirable as a secondary means of transmission. Indeed, many are of the opinion that relay television in this country is all set for a great revival in view of the limited range of the UHF transmissions and the many pockets of low signal field which are bound to exist even when the UHF network is fully developed.

OTHER RELAY MATTERS

One rather interesting point in the report is that against the sound accompaniment of a television programme being relayed on its own. Such has been practiced on certain systems in this country in the past, though rarely on coaxial systems. On multi-

wire systems, for example, the television sound is distributed at physical audio, while the video is carried modulated at relatively low-frequency. Thus, in some cases, sound-only subscribers are able to switch to TV sound. If this recommendation is authorized by the Government, then it will mean that certain systems of that kind will have to be redesigned at the main station end.

Pay-TV, both by wire and radio, is rejected by the Committee. It is pointed out that "subscription television is necessarily much the dearest way of providing a service". Also, "if the case for introducing it is to be made out its supporters have, therefore, to show that the service would bring marked increases in the range and quality of programming. They have also to show that these advantages would not be offset by a decrease in the range and quality of the existing services." On the question of a pay-TV experiment, the Committee say that "at first sight the idea is attractive", but that it "is illusory because an experiment, necessarily limited in extent, cannot show what would be the long-term effect of a nation-wide service on the existing services".

However, it seems that the Government may not accept this recommendation, for in its White Paper it thinks that there are "urgent considerations" against the Committee's view. It thus reserves its decision on this matter.

While the Pilkington Committee was against Cinema-TV; for instance, the public showing of special events on TV screens in cinemas and other places where the public would pay to view, the Government

feels that there may, in fact, be a place for such TV shows, and it is prepared to consider applications for a service of this kind on the individual merits.

The Government's White Paper also says that the BBC's second channel will commence in mid-1964 in the London area. And after that it will be extended to the rest of the country by stages. The BBC has also been given the go-ahead to transmit some programmes in colour as part of its 625-line second TV programme, and the same scope will be given to the ITA when the political issues of that Authority's future have been decided at Government level.

It is thought that the amount of colour TV would at first be less than one hour a day, and that initially a colour set would cost about £750, as compared with £70 for a monochrome set. However, by mid-1964, if there is adequate demand for colour, such a receiver is likely to drop to between £200 and £250.

These, then, are the basic moves for the future of television broadcasting over here. There has been considerable debate in all circles since the publication of the Pilkington Report, mainly on political implications which are geared to advertising, control and so on. But as our concern is essentially technical, these factors are not revealed in this write-up and, in any case, they have yet to be thrashed out in Parliament.

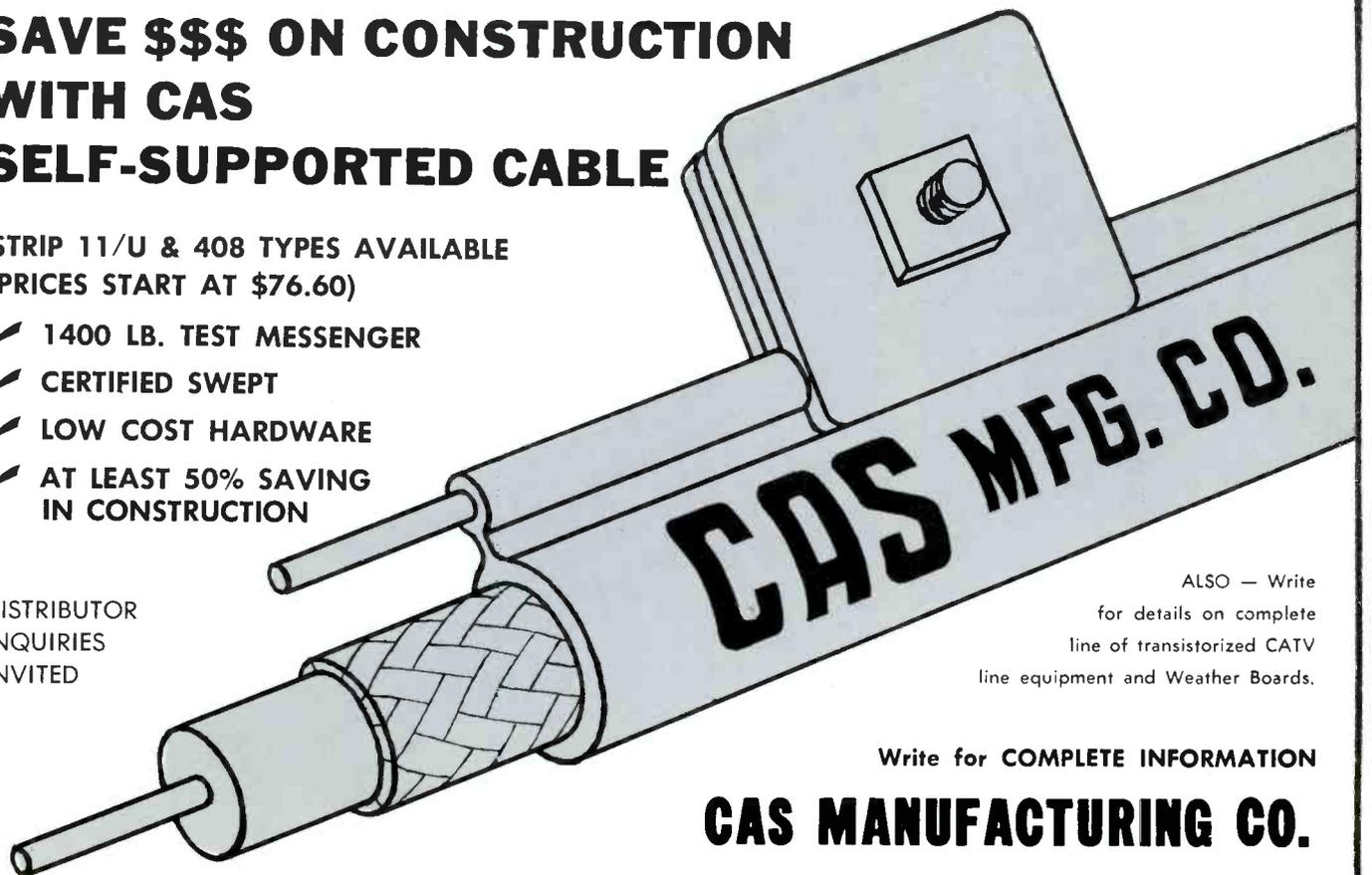
It is clear, though that there is certainly going to be quite a bit of work and re-thinking so far as coaxial relay is concerned. We have got to make room for two more channels of 8 Mc/s and get cracking on the design of UHF converters and low-noise amplifiers. So to the future . . .

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THE 12 CHANNEL CATV SYSTEM

by
Vic Nicholson
Chief Engineer
Community Systems Division
Jerrold Electronics Corporation

Introduction

The most important commodities a CATV system operator has to sell are picture quality and quantity. It has generally been difficult in the past to supply a full measure of both items, due to technical limitations or lack of available channels and programming. With the advent of wide-band micro-wave equipment, the operator is now able to bring in TV channels that were heretofore "out of his reach." Furthermore, the Federal Government is encouraging the licensing of additional UHF stations. Educational TV stations are becoming more abundant. Programs, of a public service nature, are being originated locally by the schools, municipalities, etc.

Since more channels and better pictures are now available at the antenna site, it only remains to deliver them to the subscriber without degradation. In a modern CATV operation supplying up to 12 channels plus FM, the system may be handling and controlling as many as 30 carriers or more. The subscriber in most large communities today is used to "Class A" picture quality provided by the local channels. The CATV system must match them in quality.

It follows logically that the system equipment specifications published by manufacturers must be real and must refer to a precise criteria in order that an operator be assured that the equipment he purchases will provide the system performance he expects.

Head End Equipment

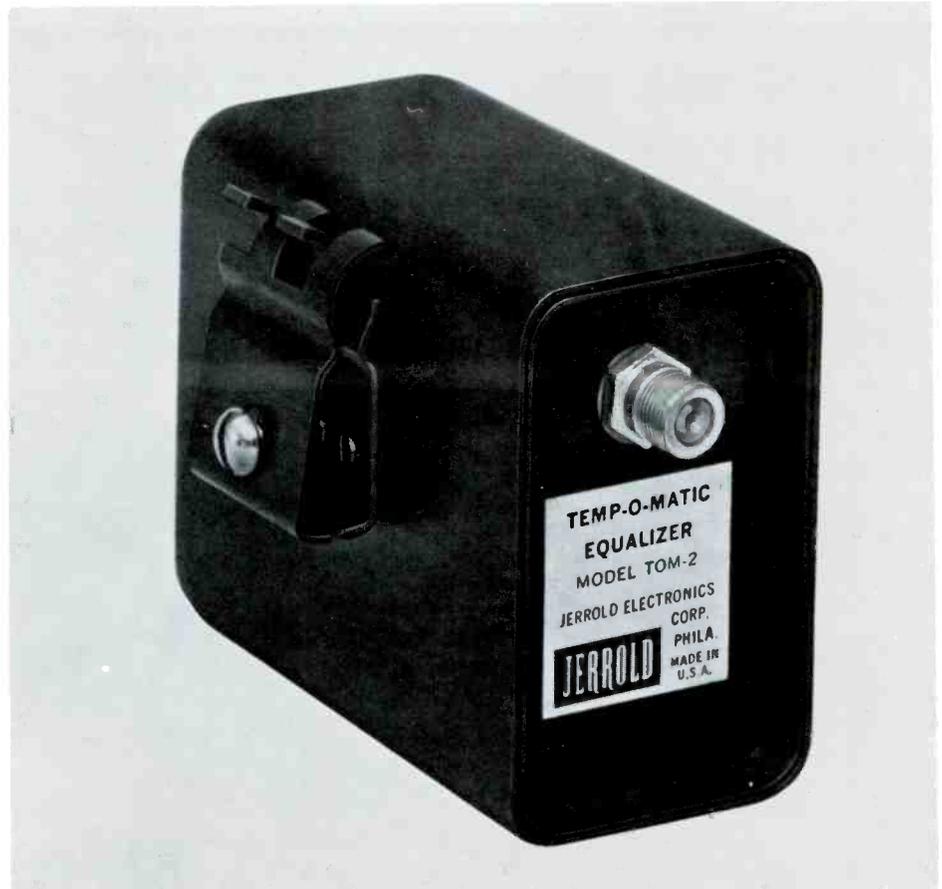
In accordance with these standards, Jerrold has developed a new product capable of providing a full twelve channels of VHF with a minimum of equipment and maintenance.

The heart of the new system is a single channel, signal-processing unit which performs all the necessary controlling operations for any VHF channel in such a way that adjacent channels on both high and

low bands can be fed to the distribution system. This unit, dubbed the Channel Commander, reduces and controls adjacent sound carriers by means of limiting action at relatively low i.f. frequencies. It prevents adjacent video carrier interference by employing selective filters and amplifiers. Built-in AFC insures and maintains exact tuning. The equipment permits the operation of high channels directly on the received frequency without introducing co-channel. This is done by using the same oscillator for both i.f. down and up conversion. A precise AGC prevents interference of one channel with another, and the built-in standby oscillator auto-

matically turns on a xtal-controlled carrier when the station goes off the air to prevent the introduction of noise into adjacent channels.

Because of the unique method of sound control, there is no need for concern as to the ability of the television receiver to handle all twelve channels. Receivers were designed for non-adjacent channel operation to prevent degradation of the picture by adjacent sound channel interference. CATV operators know that by maintaining sound carrier levels at least 15 db below the video carrier they're able to successfully feed adjacent low-band channels through a distribution system. However, until the present, there



Cable attenuation characteristics due to temperature are aptly handled by the thermatic equalizer

was no method of controlling sound levels in the high VHF band that would meet the necessary temperature stability at narrow band width and not introduce color phase or amplitude distortion.

This control technique enables TV receivers to accept adjacent channels on the high band every bit as well as they do on the low band by keeping high channel sound carrier levels at least 17 db below the video carrier. This takes care of the 2 db difference in selectivity of the television tuner on the high band.

In addition to 12 channels of TV, many FM signals (both monaural and stereo) can be fed to the same distribution system. It is necessary to set and control the level of all FM signals to 15 db lower than that of channel 6 video carrier to prevent any visible second-order beats. There will still be sufficient FM signal for any tuner since they generally require less than one-tenth the signal fed to a video receiver.

Trunk Line

Trunk-line transportation of 12 channels also requires equipment that will maintain the quality of all of these signals irrespective of line voltage or temperature changes over long cascaded runs.

Transportation of 12 channels through a large system requires not only the best possible noise figure and output capabilities, but also cable with the lowest possible attenuation. Many existing trunk lines still incorporate older-type solid-polyethylene-dielectric cable. This can be replaced with the new low-loss strip braid cables. This prevents doubling the number of units in cascade when converting a low-band to an all-band system. Therefore, existing trunk lines should be replaced with cable having a loss on channel 13 even less

than the existing cable has on channel 6. This permits use of existing amplifier locations with no additional degradation of signal.

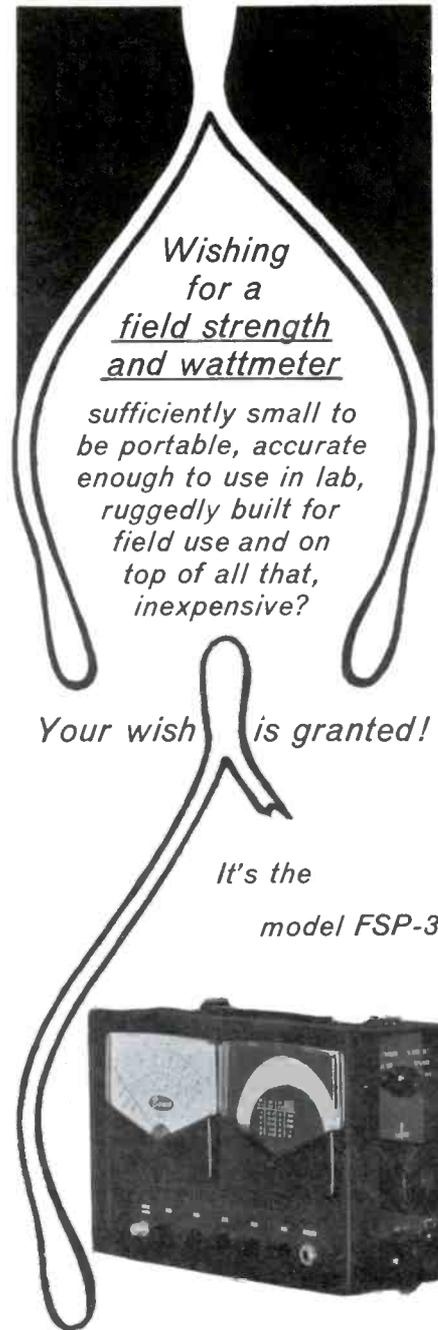
All trunk-line components, whether cable amplifiers, or accessories, must be built to extremely tight specifications, as response variations and other degradation factors are cumulative. In the amplifiers, all tubes and components should be operated well below the manufacturer's recommended capabilities. In order to prevent reflections, which cause ghosts or smearing of the picture to appear on a TV set, the input and output match of trunk-line amplifiers must have a VSWR of 1.2 or better. This will provide the additional attenuation of more than 20 db necessary to prevent any ghosts or reflections caused by the amplifiers. This also prevents any splices, fittings, or splitters within several hundred feet of the amplifier from causing ghosts in the system. An excellent impedance match at the amplifier output also minimizes radiation from the cable by reducing standing waves.

Temperature variations in the cable are an extremely important system consideration, especially for all-band operation. These variations can cause changes in overall levels and also changes in tilt between Channels 2 and 13. Cable will increase in attenuation 0.09% per db of cable per degree fahrenheit increase in temperature. Control of tilt variation is best handled by a thermatic device.

In addition to controlling variations of tilt with temperature, it is also necessary to equalize for the cable's normal tilt. This can be handled by variable plug-in equalizers at specific intervals.

It is still necessary to control the average output of the amplifiers.

(Continued — Page 18)



Dimensions: 5¼" x 11¼" x 7¾" □ Weight: only 10 lbs. including batteries □ Sensitivity: 5 microvolts minimum readable signal or 60 m/v full scale with sensitivity control at maximum □ Selectivity: all spurious responses including image more than 80 db down, 4.5 Mc/s or more away from selected frequency □ Battery Life: 180 hours continuous or better than 3 hours per week for one year.

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The new single channel, head end unit for the 12 channel system

Full Spectrum Television via CATV

by
Irv Kuzminsky
 Director, Research & Development
 ENTRON, INCORPORATED
 Silver Spring, Maryland

Introduction

In the early days of CATV not enough consideration was given to some of the basic problems pertinent to Community Antenna Systems. However, with maturity and experience has come a forced recognition of many of these problems. The increasing demands of once satisfied customers and the addition of FM and educational television have forced the addition of more channels and the improvement of picture quality. Trunk lines have become longer with the expansion of many systems. For these reasons, many of the earlier systems have required modifications.

In the past, many problems were unique and required unique solutions. Now, with increasing numbers of Community Systems, there are very few problems which have not been encountered previously and solved successfully. Now that we have reached the point where we deal with routine solutions to routine problems, we become victims of the urge to build better systems. Because of this we would like to look at the problems involved in a multi-band transmission system to determine the best solution, considering present and future requirements.

The system to be evaluated should be capable of transmitting two bands of information. These are the low VHF and FM bands and the high VHF band. The transmission system consists of coaxial cable and repeater stations suitably spaced.

It is desirable, in order to minimize maintenance problems, to have the greatest possible spacing between repeater stations. This spacing is determined by the maximum output that can be obtained from the amplifier, the cable attenuation vs. frequency characteristics and the amplifier noise figure. The maximum output is limited by several considerations: system radiation limits, output tube distortion

and intermodulation levels, and the number of channels passed by the amplifier; the cable attenuation varies inversely with the cost of the cable; and the amplifier noise figure has a minimum practical limit. It has been determined that a repeater amplifier spaced at intervals of 25 to 35 db of peak cable attenuation with a noise figure less than 10 db will result in reasonable output levels and good signal to noise ratios.

In general, the slope of the cable attenuation vs. frequency curve, commonly known as tilt, is almost identical for all cables so that, except for the length of cable between repeater stations, the design is independent of the cable type. A typ-

ical curve is shown in Figure 1. This has been normalized to an attenuation of 26 db at 216 Mc. Two types of systems will be analyzed in their application to this transmission system. They are: (1) a wide-band system using distributed line or chain amplifiers, and (2) a split-band, high-low system.

These systems will be evaluated on the basis of performance, reliability and cost. Let us first examine the performance capabilities of both systems.

Equalization: The amplifier gain curve should be the same as the cable loss curve in the amplifier pass band. In the split-band system, this is accomplished by providing different gains in the various

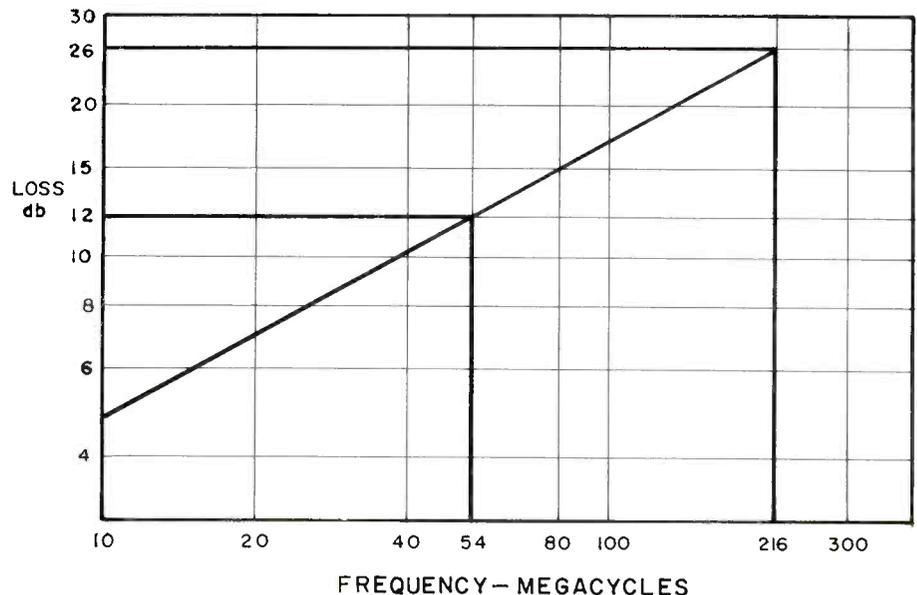


FIGURE 1 - CABLE ATTENUATION VS FREQ.

bands and tilting the response curve of each amplifier to correspond to the tilt of the cable loss curve in that band. With distributed type amplification, compensation over so wide a band is difficult and is usually obtained by providing additional loss at the lower frequencies so that the combination of amplifier gain and equalizer loss over the pass band is equal to the cable loss.

So we see that where we have just gone through an expensive repeater amplifier to obtain signal amplification, we must suffer an additional expense to throw away some of the gain. Figure 2 is a comparison of the wasted gain and bandwidth inherent in the operation of both systems.

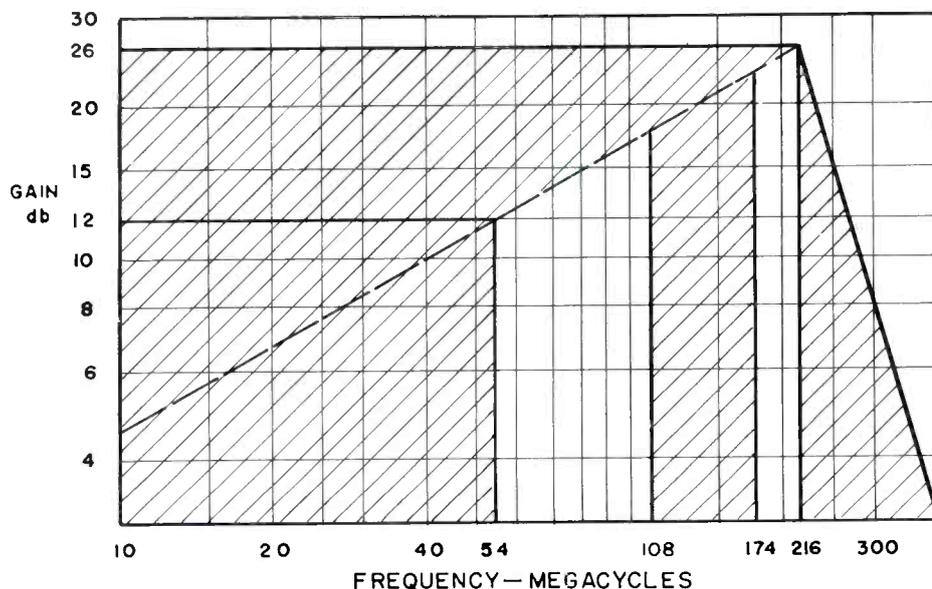
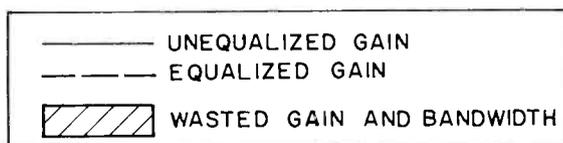


FIGURE 2(a) — FREQ. RESPONSE, DISTRIBUTED AMPLIFIERS.



Harmonic Interference: Each amplifier in the split-band system serves as a filter since less than one octave is covered in each band. Harmonic outputs from each amplifier are therefore suppressed by characteristics of the split-band amplifiers and the multiplexing networks. With the distributed amplifier, such filtering is not available. Second and third harmonics of low band signals fall into

the high band. These harmonics may cause interference to desired signals.

Output Levels: The split-band system is capable of about twice the output voltage that can be obtained from the distributed amplifier system. This is due to the lower plate impedance and larger number of channels in the distributed amplifier. The output level of the distributed amplifier can be increased by increasing the number of tubes in the output stage. However, there is an optimum stage gain which results in a minimum tube requirement. Any departure from this optimum stage gain will require additional tubes and additional cost of maintaining the desired amplifier gain.

tained in the receivers for signals nearest the band edges of the split-band amplifiers. In addition, the distributed amplifier has a poorer noise figure due to the effect of adding to noise contribution of each tube in the input stage.

Signal Level Variation: Signal level variation on the trunk line is due mainly to loss of transconductance of the amplifier tubes and to changes in cable attenuation with temperature.

For a change of 20 percent in tube transconductance, the gain of the 12 tube, fourstage distributed amplifier would change by 7.76 db while the gain of a three-stage single band amplifier would change by 5.82 db.

Changes in cable attenuation with temperature variation are too great to be neglected. The cable attenuation varies from its nominal 68 degrees F by -7.7 db/100 db at 0 degrees F to $+45$ db/100 db at 110 degrees F, or a total change of 12.2 db/100 db for a temperature change of 110 degrees F. Since cable attenuation varies with frequency, change in attenuation will also vary with frequency. For a change in attenuation of 10 db at 216 Mc, there will be a change of only 4.5 db at 54 Mc.

In the distributed amplifier system, signal level variation is a serious problem. Automatic gain control of such a system is very difficult. Because of this, variations in the system may be accumulated to the point of severe signal level changes and differences in signal level changes at both ends of the pass band. The large changes in cable "tilt" require the use of thermatic equalizers in the wide band system.

In the split-band system, signal level changes can be corrected by incorporating AGC. Differences in signal levels in an amplifier are smaller because of the narrow pass bands involved. For example, a change of cable attenuation of 10 db at 216 Mc would be accompanied by a change of 8.7 db at 174 Mc. There would then be a change of 4.5 to 6 db over the low VHF band. While differences in signal level may still accumulate and become a serious problem, the differences will be less than one-third of those in the wide band case.

Let us now examine the reliability of each system. First, we will define a system failure as the loss of information, either by sufficient degradation so as to make the information unusable or by complete

Noise Power: Due to the fact that the total bandwidth of the wide-band system is more than twice the sum of the band widths of the multiplexed amplifiers, the noise power present in the split-band system will be about half of that in the distributed amplifier system even if we assume identical noise figures for all amplifiers. Because of the poor selectivity in receivers, better signal to noise ratios will be ob-

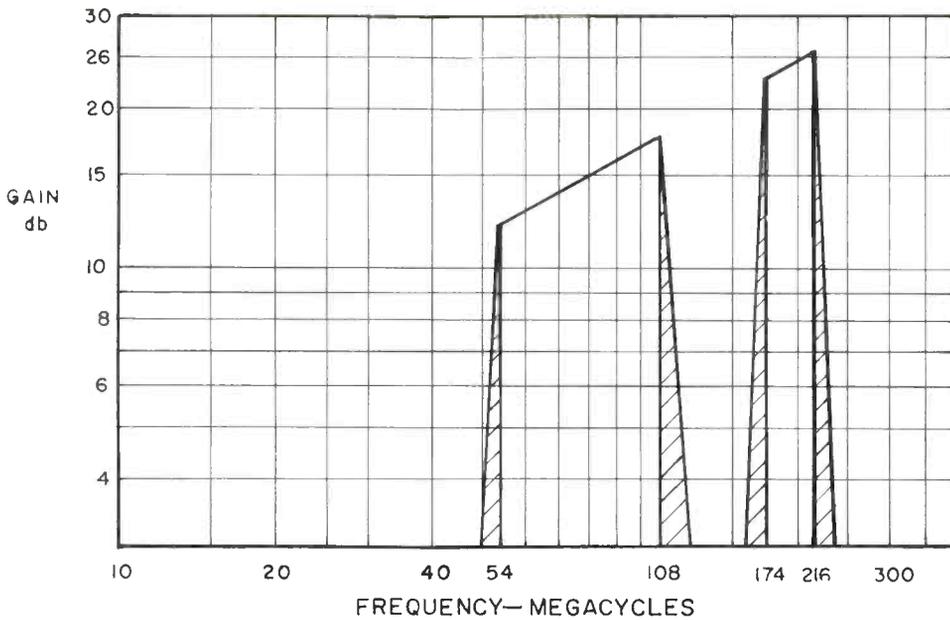
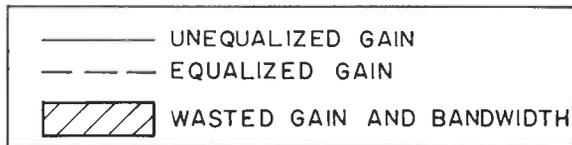


FIGURE 2(b) - FREQ. RESPONSE, SPLIT-BAND AMPLIFIERS



loss of information.

While it may be true that failure of an amplifier due to tube filament opening is more likely in the split-band system, such a failure would

remove information from only one of the bands. Other types of tube failure would result in a complete system failure for the wide band system, while the multiplexed sys-

tem would still lose only one of the two bands. It is more probable that a distributed amplifier will fail than an amplifier in each of the multiplexed bands. However, the use of conservatively operated 10,000 hour tubes greatly reduces the probability of tube failures. Even if the probability of tube failure were entirely eliminated, we are still faced with the problem of system failure by signal degradation. We have seen that this problem is virtually non-existent in the split-band system using AGC.

Let us consider a system having a total cable attenuation of 500 db at 216 Mc. This would correspond to 6 miles of 3/8" Spirafil. Due only to changes in cable attenuation, a variation from the nominal 68 degrees F value could be obtained at the end of the trunk line of plus 22 db at 110 degrees F and -38 db at 0 degrees F. This would cause either serious overloading or signal degradation to the point where the signals would not be usable. Changes in amplifier gain would make the problem even more severe. These changes would have little effect on a split-band system with AGC but would result in a system failure in a distributed amplifier system without AGC.

This brings us to the third point for evaluation: the relative costs of the two systems. The distributed amplifier system uses more tubes than the multiplexed system, but fewer amplifiers. In addition, the wide band system requires the use of cable loss equalizers and thermatic equalizers, whereas the split-band system requires the use of splitting and combining filters. A usually reliable method of estimating the cost of electronic equipment is based on the number of tubes. On this basis, the cost of split-band amplifiers should be about two-thirds the cost of the distributed amplifiers. Also, the split-band system permits an operator to install low band equipment initially, while deferring the cost of high band equipment to a later date. The high band may be added as funds become available and additional channels are required. Existing low band systems may be easily modified by adding high band equipment.

With the wide band equipment, existing low band equipment must be discarded, thereby substantially increasing the cost of converting to an all band system.

(Continued Page 18)

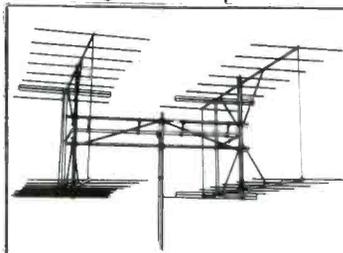
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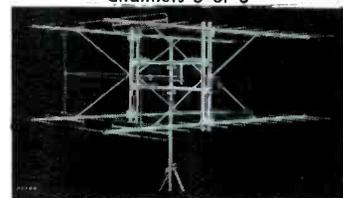
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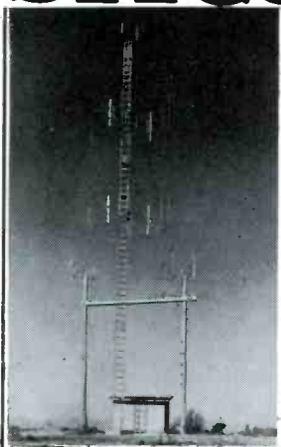
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The July issue of TVH carried a report on the DAVCO Electronics Corporation operation in Batesville, Arkansas, Jim Davidson, president. The original story was written to fill 1½ pages in the July issue, although it was boiled down to an even page at final production time. In the process of boiling the story down, several paragraphs were cut from the story, and a photo omitted. Unfortunately, this left one dangling photo reference and some possible mis-understandings all around.

To clarify the mis-representations, if any, the following points are made.

(A) DAVCO does **not** engage in the business of signing up subscribers for CATV systems. Their's is a management and engineering function only.

(B) The caption under the photo on Page 19 might convey the impression that DAVCO is in someway inter-connected with the CATV operators of the mid-south. False. The photo caption was intended only to show some of the many fine CATV operators in the mid-south, the area which is served by DAVCO. Naturally not DAVCO or any other system installer in the mid-south is in anyway connected with the organization, except to support it on a personal level.

(C) The photo of the functional headend referred to in the third line, page 19, did not appear. It was cut during the editing process.

Despite our efforts to the contrary, this story apparently was anything but an example of our usually rather carefully prepared editorial reports. Our apology to Jim Davidson of DAVCO, and to anyone else who may have been disturbed by the errors.

The Editor

NAME CHANGE FOR JERROLD

At a recent stockholders meeting a reorganization of the corporate structure of Jerrold Electronics Corporation was announced along with a change in name to The Jerrold Corporation. The change in organization was devised to more fully reflect the diversified character of the company according to Mr. Sidney Harman, President.

The Jerrold Corporation will become the parent company with five subsidiary operating companies: Jerrold Electronics Corporation; Harman-Kardon, Inc.; Technical Appliance Corporation; Pilot Radio Corporation; and Analab Instrument Corporation.

Analab, manufacturers of oscillographic instruments, has just recently been purchased by The Jerrold Corporation.

CATV FOR MONTEREY, CALIFORNIA

Entron, Incorporated, has recently signed a contract with Alarm Corporation, Carmel, California for the construction of a CATV system in Monterey. Construction of the new system will be undertaken by Systems Construction Corporation, a subsidiary of Entron. The new system will use the same receiving antennas and equipment that feeds the Alarm Corporation's CATV system in Carmel, California.

Entron will install the new Adaband equipment for distribution of both high and low band VHF signals.

DANIELS HANDLES DELMARVA

Daniels & Associates, pioneer CATV brokerage firm in Denver, Colorado, recently announced the sale of Delmarva CATV Company of Salisbury, Maryland, for which Daniels & Associates arranged the financing, to General Television, Inc. of Denver, Colorado.

The Delmarva CATV Company which recently acquired Peninsula Television also located in Salisbury, Maryland serves a total of 6,000 subscribers in the local area.

Mr. M. F. Malarkey, Jr., of Delmarva CATV Company, Washington, D.C. will continue as Chairman of the Board. The purchase price was not disclosed.

INTERNATIONAL RELATIONS

At the U.S. exhibit in the Third Central African Trade Fair, improvement in relations was highlighted by Blonder-Tongue's CCTV system aimed at classroom instruction via the TV media. Thousands of visitors to the American Pavilion found modern technology providing the answer to mass education, with few teachers, as is the case involving nations lacking in school facilities.

The particular display was set up as a model teaching lab to demonstrate the tremendous potential that CCTV offers the underdeveloped countries.

BT APPOINTS 'OUR MAN CANTOR'

Television Horizons staff contributing editor Lon Cantor, formerly Technical Writer for Blonder Tongue Labs, Inc., Newark, N. J., has been appointed as the firm's new

CABLE



DROP

Director of Publicity. Writer Cantor joined Blonder Tongue in 1959 after serving as a technical writer for the Westinghouse TV-Radio division. He graduated from Columbia University in 1958, studied public relations, and also studied technical writing at the Navy Electronics Technicians School, Great Lakes, Illinois. Lon's column **The Field Engineer** appears as a regular feature of Television Horizons.

TWO ADDITIONAL SALES BY DANIELS

Re-newed activity in the field of CATV system sales and purchases has been reported by Bill Daniels of Daniels & Associates, Denver, Colorado. Daniels, one of the leading CATV management consultants in the industry, reports the sale of systems in Mineral Wells, Texas and Colville, Washington.

The Community Aerial System of Mineral Wells, serving approximately 1,300 subscribers, was formerly owned by John Campbell (CAS Manufacturing Company) and Kenneth Durant. Buyers were Bob Magness of Bozeman, Montana and Maurice Mixon of Cisco, Texas.

Colville Video, Colville Washington was sold to Frank Reardon of Butte, Montana. The 900 subscriber system was formerly owned by Bill Baker.

Daniels reports his firm has negotiated the sale of 13 CATV systems since January 1, 1962.

FCC ISSUES SECOND NYC UHF REPORT

A May 28 release from the Federal Communications Commission provides additional preliminary data on the channel 31 Commission sponsored test.

An analysis of preliminary data issued in mid-April appeared in the May issue of this publication.

The May 28 data reflected the results obtained at 193 VHF/UHF installations where channel 2, 7 and 31 signals could be directly compared. The mean results reported do not differ measurably from the first set of preliminary data, printed here in May.

The Commission stated it hopes to have complete data from 1,000 installations by October 31, 1962, at which time the observation and data recording phase of the test will be concluded.

DYNAIR ANNOUNCES SOLID STATE VIDEO AMPS

Dynair Electronics, Inc., 7564 Broadway, Lemon Grove, California has announced a new series of four solid state video amplifiers. Video amplifier Model DA-20B is completely solid state, including regulated power supply, has 20 db gain (variable), weatherproof housing, dual-source terminated outputs and a number of other features.

Video Distribution Amplifier DA-23A provides three outputs from one input, 20 db gain. The unit has a high impedance bridging input which may be looped or terminated with a 75 ohm termination. Power supply, also regulated, is solid state too. The unit requires only 1 $\frac{3}{4}$ inch of 19 inch wide rack space.

Model DA-60P-A has the same physical dimensions and electrical operating requirements as Model DA-23A.

END

12 Channels — Cont. from Page 13

In an all-band system this is done by means of an AGC unit at approximately every third amplifier location. This AGC is best handled by means of a crystal controlled pilot carrier generated at the head end. A pilot carrier is preferable to an off the air signal since any change of the control signal affects the output of all channels in the system.

Distribution of high and low channels on the feeder cables is most efficiently handled by a high-output device that electronically isolates them from the main line. A compatible distribution amplifier allows operation of the trunk-line amps at low levels permitting maximum system tolerance, yet has enough gain and output capability to really hit the feeders hard. This minimizes the number of line extenders needed. It is also important that these distribution units be well matched both at the bridging input (to prevent reflections in the trunk line) and at the outputs (to prevent reflections on the feeders).

As you can see, more channels, and the equipment to take advantage of them are available. Now, with the ability to deliver up to 12 channels, your market has greatly expanded to the point where your only limitation is your initiative and your imagination.

END

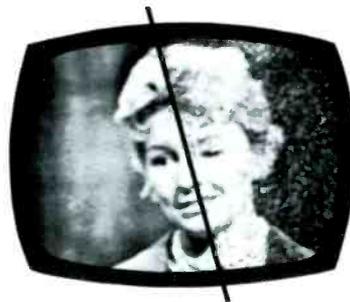
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Ceco manufactures complete equipment for TV cable systems.

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Community Engineering Corporation

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Full Spectrum — Cont. from Page 16

In conclusion, the superiority of the split-band system over the broad band distributed amplifier system has been demonstrated on the basis of performance, reliability, and cost. The split-band system requires no cable loss or thermatic equalizers, suppresses harmonic interference, is capable of higher output levels, has better noise performance, has less signal level variation, is at least as reliable, costs less, and enables the addition of the high band with reduced initial cost.

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PRESSURE TAPS

Button & Hook Types for overhead drop hook-ups. Two piece clamp for underground hook-ups.

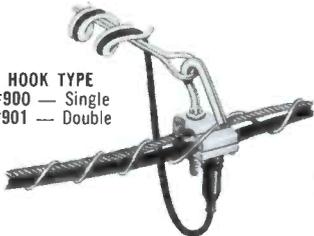
Resistive Type

29.5 db., 32, 34, 36.5, 38.5 — Channel 6

Capacitive Type

38 db., 30, 24, 19, 16, 14, 10 — Channel 6

HOOK TYPE
#900 — Single
#901 — Double



Packed 25 pieces to a carton

UNDERGROUND TYPE

#915 — Single

#916 — Double



BUTTON TYPE

#902 — Single

#903 — Double



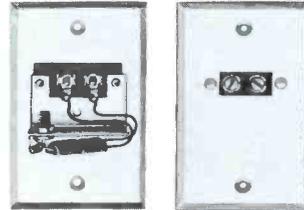
MATCHING TRANSFORMERS

75-300 ohm
Balanced
AC Isolated
Full 6 db voltage step-up
Connector with unit

#910



Packed 25 pieces to a carton



#917



#911

GROUNDING BLOCK

Vik-O-Plated
Stainless steel pins
Simple installation
Protected installation
For RG59 Co-axial
No coring or splicing required
Low cost



Packed 25 pieces to a carton

#920

LINE SPLITTERS – 2 & 4 way

All band design
Radiation proof
VSWR less than 1.3 to 1
Fittings: 59U type
11U type

Packed 12 pieces to a carton



#930

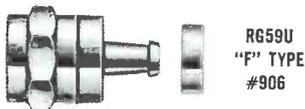


#931

FITTINGS

A complete line for all co-axial cables

#909
"C" TYPE



RG59U
"F" TYPE
#906



VK108
For strip
braid coaxial

We have a complete line of all cable fittings. Information upon request.

COAXIAL CABLES

For every community television application.
Trunk line, feeder lines, distribution lines, house drops.
Solid and low loss foam dielectrics.
Stranded and strip type copper shields.

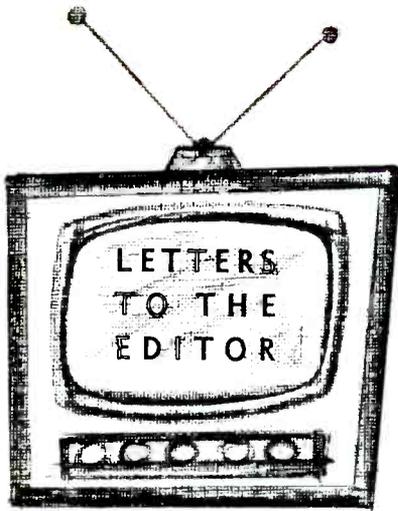


VIKING CABLE COMPANY

MANUFACTURERS OF COAXIAL CABLE AND CATV PRODUCTS

830 MONROE ST HOBOKEN, N. J.

Telephones: New York: Whitehall 3-5793
Hoboken: OLdfield 6-2020



More — Carter Mountain Microwave Comments

Dear Editor:

Your February issue contained a full page description of our situation with the "local" television station, KWRB, and your ideas on same.

This was the first time that anyone has printed so many facts about this situation in such a short space as one page and done the thing justice. It was terrific!

A point not mentioned in your article and one the Commission tried to and did ignore is the fact that Western TV, when it became evident that long delays were in store for us, constructed long lines to accomplish the same thing with wire that the microwave grants would do, i.e.:

Thermopolis—21 miles of 4" spaced wire from Copper Mountain to Thermopolis, carrying two channels (3 amplifiers). We call it the **M Line**.

Riverton—3 miles of conventional ladder line carrying KTWO-Casper to that town.

Lander—9 miles of ladder line from the old Comprovision system in Needles, California, bringing KTWO to that town.

I want you to know how much I appreciate your keen appraisal of our problem here.

Rob Bliss
Secretary-Treasurer
Western Television Corp.

Mr. Bliss:

Strange indeed that the Commission chose to ignore the presence of the open line systems feeding the three towns. All of which adds even more confusion and intrigue to the way this case was handled by the FCC. It may not be over yet.
EDITOR.

The Editor:

Living far distant from the place and facts, we have followed the "Carter Mountain Case" with interest, but have been dependent upon what we have heard.

However, we believe it is a very bad thing for two segments of the TV industry — or for that matter, any industry — to let a situation deteriorate to the point where they ask a non-judicial agency of the Federal Government to decide which one is to go out of business in favor of the other. Possibly that isn't the question, but it seems to be from what we read.

Not many years ago no one had television and they managed to survive somehow and were reasonably happy. We doubt that any portion of the TV industry can claim to be a necessity of life. We are all luxuries.

So, we believe that the parties involved ought to consider the very wide areas in which they might find agreement. To do so, each should abandon any idea that he has the right to shut

the other one down. Neither — in our opinion — has that right. We might even suggest that each has some responsibility to help the other survive.

F. L. Dupree, Jr., President
London Community TV, Inc.

Mr. Dupree:

We couldn't agree more. However, we feel and have so stated from the beginning, that it is not a matter of who should be allowed to survive, but rather one of one system complimenting the other. We have yet to be convinced that a broadcast licensee issued by the FCC carries with it an insurance policy against going out of business, regardless of how poor the management of the licensee is!
EDITOR.

MORE ABOUT MICROWAVE

"Congratulations are in order. You are to be complimented for giving us a magazine that is easy to read and with articles that are most interesting. In short it is just what we in the CATV business needed.

"I do want to call your attention, however, to the article on page 14 of the February issue. Your suggestion that CATV operators investigate the possibility of forming a Microwave Company to serve their respective systems might not be acceptable to the FCC. It is my understanding that the law requires that there be no common ownership between at least 50% of the CATV companies and a common carrier microwave company operating in the 6KMC band. In our case we who own Oneonta Video, Inc., Sidney Video, Inc., and Delta Video, Inc., must come up with at least three other CATV customers in whose companies we have no financial interest. This we have done by selling the microwave service to the systems in Norwick, Walton, Hornell, Ithaca and Wells-ville, all in New York. We have not owned the Norwick system since January, 1961."

Bill Calsam, President
Oneonta Video-Eastern
Microwave
Oneonta, New York.

Mr. Calsam:

It would appear that you are correct in your interpretation of the common carrier law, and we are in error. If our readers have further interpretations of the law, we should like to pass them along in this column.

Editor:

We have a Jerrold equipped low-band system and wish to add channels through the use of channels 7-13. Can we? How?

Melvin Lowrey
Box 125
Sabinville, Pa.

Mel:

The best way we know of getting you the required information is to publish your letter. Stand back and watch the answers roll in!
EDITOR.

FM and CATV

"I saw the information you gave on servicing Blonder-Tongue equipment and thought maybe you could help me or tell me where I can get some information on how to extend our B-T MLA broad-band amplifiers to cover the FM band. We have 40 of them and needless to say, it would cost us quite a bit to replace them at this time. So if you can supply us with the information on conversion on the amplifiers we would greatly appreciate it."

C. J. Morton
Goldendale TV Cable, Inc.
Box 241, Goldendale,
Washington

Mr. Morton:

I am sure your area B-T representative will see this letter and supply you with the appropriate information.

The Editor

FOR SALE:

Adler Type UST-10 UHF Translator, Series 122. Channel 2 input, Channel 72 output. Adler Type USTA-4-S unitized transmitting antenna and 90 feet Andrew Heliac 50 ohm cable.

Contact:

George Oliver, Traffic Manager
Yosemite Park and Curry Co.
Yosemite National Park, California

Outstanding opportunity now exists for a top-level man experienced in the layout and trouble-shooting of CATV systems. Prefer sales-oriented man who has some additional background in MATV and/or closed circuit TV. This position has become available due to the growth and expansion of this leader in the field of commercial communications equipment. Tremendous growth potential for right man. Excellent salary plus outstanding employee benefit program.

Relocation expenses paid.
Call collect (Market 2-8161) or write Joe Murray.

Blonder Tongue Laboratories, Inc.

9 Alling Street
Newark 2, New Jersey

THE DISEASE SPREADS !

The people of Rotorua, New Zealand were considerably annoyed when local Post Office Officials stopped a public showing of TV via translator. The senior radio inspector involved in the dispute claimed that the station had no authorization to operate and would have to be immediately shut down. The gentleman who developed the equipment said he built it to amuse himself and had he known of the ultimate repercussions never would have used it. Last word indicated that the old town of Rotorua was about to march on the postal authorities.

FIRST MEXICAN STATION OVER U. S. TRANSLATOR

An application for UHF channel 77 translator use has been filed by the "Zapata TV Translator System, Zapata, Texas." The system will operate repeating the signal of XEFB-TV, channel 3 in Monterrey, Mexico.

Several Canadian border stations are now carried by UHF and VHF translators in Montana and North Dakota. This is the first application for the translating of a Mexican telecasting station through a U. S. translator.

TO ANTENNA

MAKE THE MOST OF THE AVAILABLE SIGNAL

with the all new TRANSISTORIZED

EMCEE LOW NOISE PRE-AMPLIFIER

Best Signal-to-Noise Ratio ever offered!

3.5 db Low Band, 4.0 db High Band

EMCEE introduces the lowest noise pre-amplifier presently available in the industry. The LPA is specifically designed for single channel operation where pre-amplification with the lowest possible noise is required.

The high reliability LPA transistorized pre-amplifier is powered through the coaxial signal cable from a separate power supply located at the termination of the cable into the receiving equipment. Thus, no external power lines are necessary. The

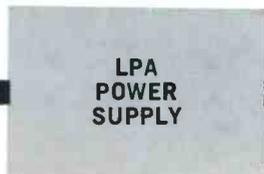
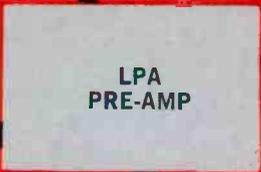
low transistor current drain enables the use of the Model LPA with any cable length. Cable attenuation of up to 10 db can be tolerated. And the full benefits of the extra low noise properties still realized.

A 6 db switch-controlled attenuator is provided at the power supply for situations where it is desirable to pad out the signal after amplification. Each LPA pre-amplifier is tested and guaranteed for noise figure, and a noise figure report is included with each LPA pre-amplifier.

SPECIFICATIONS

GAIN: 25 db minimum.
NOISE FIGURE: 3.5 db Max. Ch. 2-6, 4 db Max. Ch. 7-13.
FREQUENCY RANGE: Single VHF channel

OPERATING TEMPERATURE RANGE: -40 to +140°F.
POWER REQUIREMENTS: 115V AC
MOUNTING: Weatherproof - straps to TV mast or antenna.
CONNECTORS: 83-1-SP Coaxial (UHF) Connectors.



AMPLIFIED SIGNAL

110V AC

ELECTRONICS, **M**ISSILES AND **C**OMMUNICATIONS, INC.

262 East Third Street • Mount Vernon, New York • MO 8-3012

ELECTRONICS, MISSILES & COMMUNICATIONS, INC.
262 E. Third Street • Mount Vernon, New York
Gentlemen:

Please send me full information on Model LPA* Transistorized Low Noise Television Pre-Amplifier

NAME _____

ADDRESS _____

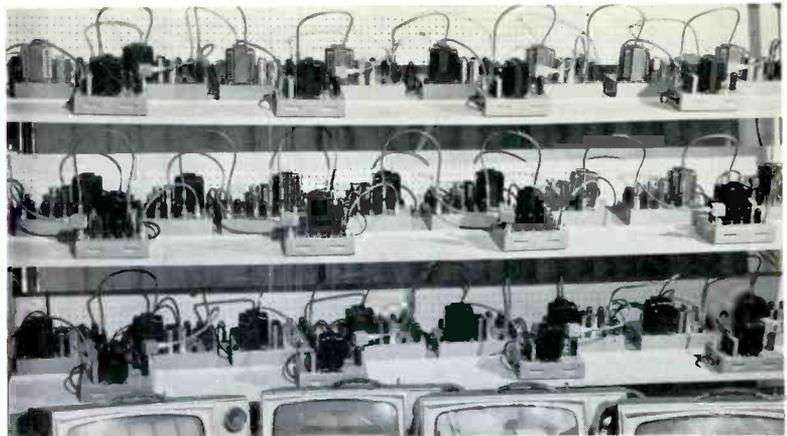
CITY _____ STATE _____

They came . . .

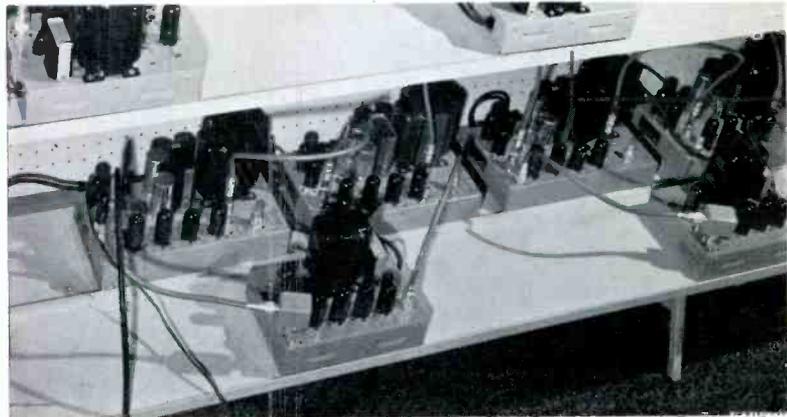
They saw . . .

They marveled . . .

- They came to the CATV Convention in the Nation's Capital
- They saw ENTRON's new ADABAND in operation, supplementing a low band system, pulling in all channels . . . both LOW and HIGH bands!
- They marveled at ADABAND's easy installation . . . installed while the present low band system continues operation . . .
- They marveled at ADABAND's compatibility with the present low band system . . .



Live demonstration with 45 amplifiers cascaded



Model LRA-40 and model HRA-400 heart of the ADABAND



An ADABAND plan for any system

Those that saw . . . recognized ENTRON's new Adaband as the answer to their high band questions . . . both in ease of installation, and operation. **IF YOU ARE PRESENTLY RECEIVING ONLY THE LOW BAND CHANNELS . . . ADABAND!** Receive the low band and the high band with equipment that is compatible with your present system. No trunkline equipment need be discarded with Adaband.

- Inquire about the all band design for new or existing systems. A complete new catalogue and price list is available. Also, write us about your present low band system. We'll be happy to offer an Adaband design especially for your system.



4902 Lawrence Avenue, Bladensburg, Maryland

• APpleton 7-9585