

## CAB REPORT

# MORE CHOICE REQUIRES MORE CHANNELS

## A position Paper on Canada's Future Television Needs

### INTRODUCTION

The following position paper has been prepared by the Canadian Association of Broadcasters in response to a request from the Canadian Radio-television and Telecommunications Commission. Its purpose is to assist the CRTC to assess future television spectrum needs, as part of Canada's input into the 1979 World Administrative Radio Conference (WARC).

CAB notes that a further study of the potential demand for satellite services, jointly sponsored by CAB and the CRTC, will form an important supplement to the policy statement which follows.

### OUR OPTION ON THE FUTURE

- Fifty years ago Canadian radio pioneers would scarcely have foreseen today's 422 operating or approved AM radio stations in Canada—let alone the 283 additional CBC low-power repeater stations.
- Twenty-five years ago, the FM pioneers could not have anticipated today's 261 FM stations on-air or approved for operation.
- And twenty years ago, our TV pioneers were operating under the then "single station coverage" policy under which a station's Grade "B" contour could not enclose another station's transmitter site. Who, then, could have foreseen over 600 television stations including rebroadcasters, or cities like Toronto and Ottawa with seven and six Canadian TV signals respectively? And scarcely anyone would have anticipated the wholesale importation of three or more American national networks into most of Canada via cable television.

The VHF-TV spectrum is totally saturated in southern Ontario. Even in northern Ontario there are only eight VHF allocations open, the most southerly being one in North Bay and one in Sault Ste. Marie.

And, in the critical areas close to the border, the UHF-TV possibilities are being rapidly consumed. There are now 18 UHF-TV stations operating in southern Ontario, 14 of them in the critical area from Toronto west and south, with several others pending.

We do not know for certain what will happen in the next 20 years, but this industry has had a history of explosive growth, of adaptation to major changes and to new services, and of greater and greater competition.

It would be foolhardy indeed, if we did not safeguard and develop options so as to be able to adapt to future changes and challenges. Broadcasters must be prepared to serve Canadians in new and more diverse

ways if Canadian broadcasting is to flourish in the decades to come. In short, we must preserve our option on the future.

### RESTRAINTS ON BROADCASTING GROWTH

It is argued by some that Canada cannot afford to provide additional programming for additional broadcasting outlets.

And it is generally agreed that we cannot afford enough money today to result in consistently high quality competitive programming from Canadian sources. But Canadian programmers have produced many programs and series of outstanding merit, some of which have received international acceptance and even acclaim. And through co-production arrangements, there are more opportunities for improved program production in Canada. We do have to agree that the provision of additional quality programs which Canadians will enjoy is a constraint on our continued growth in diversity of services.

However, it should not necessarily be a constraint on our growth in broadcasting outlets, for these programs, to an increasing extent, should be made available to the public to view in other areas and at alternate times. Broadcasters may find it advantageous to repeat programs more often than now in a given period to afford the public a reasonable opportunity to see them at times convenient to the schedules of different viewers.

A most serious constraint is the tremendous cost burden broadcasters bear in the simple transfer from outlet to outlet of the programs available for the public. Canada is a vast country, and its networks suffer enormous cost penalties in interlinking their stations.

Canada's communications carriers have developed some of the most sophisticated facilities in the world, but too great a percentage of broadcast revenues are consumed in the charges of the common carriers for relay of the programs over their facilities. The CBC, according to their 1975-1976 Annual Report, spent \$23.7 million for such services, and similar CTV expenditures represent 6.6 percent of its expenses.

Yet, as additional signals are added to existing traffic over microwave routes, the revenues derived from each addition should substantially reduce the average unit cost of all transmissions because the great preponderance of microwave costs go into the development of sites, buildings, masts and antenna facilities. These are common to all the traffic carried and will

already have been funded.

So long as common carrier rates fully reflect these obvious facts, the costs of relaying broadcast programs will be less of a constraint on future broadcasting growth. Increasing competition between common carrier modes and companies would also tend to reduce total broadcasting costs.

### BROADCASTING SERVICES

In the populous parts of Canada, today's broadcasting fare has attained some readily recognizable forms: national and regional network services, provincial educational operations, independent, ethnic and "community" stations.

Ten of these are:

| Service          | Examples        |
|------------------|-----------------|
| CBC English      |                 |
| CBC French       |                 |
| CTV English      |                 |
| Regional English | Global          |
| Regional French  | TVA             |
| Independent      | CFAC-TV Calgary |
|                  | CHCH-TV         |
|                  | Hamilton        |
|                  | CITV-TV         |
|                  | Edmonton        |
|                  | CITY-TV Toronto |
|                  | CKVU-TV         |
|                  | Vancouver       |
|                  | CKND-TV         |
|                  | Winnipeg        |
| Community        | CFVO-TV Hull    |
| Ethnic           | CHIN Toronto    |
|                  | CFMB Montreal   |
|                  | CKJS Winnipeg   |
|                  | CJVB Vancouver  |
| Educational      | TV Ontario      |
| English          | ACCESS Alberta  |
| Educational      | Radio Quebec    |
| French           | TV Ontario      |

To these may be added the "closed circuit" services provided to some cable subscribers such as time and weather, public access, community and ethnic programming, printed news services, shoppers guide, traffic, transportation and market reports, and program guides. Cable will, of course, over a period of time, add more interactive, and largely "telecommunications" services such as burglar and fire alarms, meter reading, and information-on-demand (electronic newspaper) types of services which cable operators and common carriers look to for additional revenues.

In consideration of all of the above, and of the addition to large markets of "all-news" and more ethnic services, and national feeds such as that from the House of Commons, it is not too difficult to assume



that a total of at least ten distinct off-air services could be required in many parts of Canada. Even in less populous areas, six to seven such services are likely to be desired and in many instances with some service in both official languages.

While monetary constraints could delay the introduction of such services, over a period of two or more decades it is highly probable that most, if not all, will have requirements for channel allocations to serve the various communities of Canada.

To compound further the complexity of predicting services of the future, the impact of possible pay-TV operations cannot be neglected. If fully exploited, pay-TV will have a substantial impact, especially in areas where over-the-air pay systems are exploited. Pay-TV, if widespread in key regions and centres, could also affect the development of current and future broadcast services. The net result of pay-TV on spectrum allocations is, at this time, less than predictable.

#### TRENDS FOR THE FUTURE

Because of the complexities of modern life, the Canadian public is afforded little opportunity to see much of the TV fare presented.

The majority of sets are turned off, or tuned to a different channel, when most of the programs produced in Canada are actually broadcast.

Competition for audience frequently results in head-to-head scheduling of the best of our programs. However, recently there has been a greater tendency to repeat certain programs. This affords the audience a multiple choice of viewing times, and the producer an opportunity to recoup an additional portion of the programming costs from the increased air-time revenues.

We believe that this trend will increase over the years. This should not result in increases in program facilities and other costs, but it will require air time and channels to exhibit such programs.

To continue this trend, Canada may require all the means at its disposal such as off-air outlets, program delay facilities, terrestrial and satellite relay facilities, and ultimately, direct broadcasting from satellites.

A prosperous broadcasting industry could proceed to utilize these facilities fairly rapidly because technology is quickly providing more, better, and increasingly sophisticated systems. Optical fibre pipelines, better and more economical space satellite facilities, lower cost but higher quality program recording facilities,

and improved reliability are all contributing factors.

Additionally, multiplexed services, capable of providing information and data along with the television program, either as information associated with the program or entirely independent information, are being developed and market-tested in some countries. Information services now available on cable systems could well appear as auxiliary services to off-air broadcasts, as the public acquires receivers capable of displaying such material. Such services do not require additional channels and will make more effective use of the existing television spectrum.

Some within the industry foresee within the next few years as many as 12 distinct choices of television programming routinely distributed to all parts of the country.

#### CONCLUSIONS

To provide reasonable flexibility in the evolution of future services, television allocation plans should provide a wide margin for alternative choices.

Population growth and relocation, new communities, changing tastes, life styles, and more precise demographics can result in new demands for broadcasting services. Broadcasting outlets may be more appropriate to relay services from satellites in some instances; to serve as terrestrial transmitters in others. While some facilities may in time prove to be redundant, over the longer term we foresee increasing rather than diminishing requirements.

In congested areas close to the U.S. border, the CAB believes that insufficient TV channels are available for the anticipated demand, and that every step should be taken, now and in the future, to meet the demand. These will include full exploitation of the existing potential for Canadian channels, improvements in efficiency of use of the UHF-TV spectrum, and additional channels made available through direct broadcasting by satellites.

Thus, the Canadian Association of Broadcasters foresees at least ten distinct television broadcasting services being desired in major metropolitan bilingual areas, with six to seven of these services generally available throughout Canada. These numbers, in light of past growth in Canadian broadcasting and of the problems surmounted in reaching current levels, are conservative. For planning purposes, the Canadian government should seek to establish a generous margin of channel allocations for unforeseen demands.

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The Canadian Association of Broadcasters recently submitted its views to the Department of Communications on the future of the 406-960 MHz band, which includes UHF-TV allocations.

CAB's basic position is that there should be no change in the current broadcasting allocations, unless and until:

- improvements in receivers are effected
- permanent provision is made for substantial growth in broadcast services.

Here is a summary of the Association's comments.

#### 406-470 MHz

The only broadcast use of these frequencies is for STLs (studio-transmitter links). Broadcasters do not seek any changes in this portion of the spectrum.

#### 608-614 MHz (UHF-TV Channel 37)

Radio-Astronomy should retain these frequencies, but under the authority of a revised footnote in 1979, rather than as a permanently exclusive allocation.

It is conceivable that radio astronomers may, in future, lose interest in these frequencies after having investigated them over a number of years. Meanwhile, loss of this one channel to UHF-TV has an almost insignificant effect on channel allocations because of the UHF taboos. With taboo changes, this channel could assume greater significance.

*Editor's note: UHF taboos refer to the separation (distance in miles) required between stations, where there is a potential for interference, (e.g., co-channel, adjacent channel).*

#### 890-960 MHz

No comment re: 890-956 MHz.

The 956-960 MHz primary reservation for FM Broadcaster Studio Transmitter Link (STL) use appears to be adequately protected under the provisions of SRSP (Standard Radio Systems Plan) 310, Issue I. However, some difficulty has been experienced at DOC Regional level by FM broadcasters seeking allocations in this band, and we recommend that DOC take steps to ensure fair and consistent consideration of broadcasters' requirements at all regional offices.

#### 470-608 and 614-890 MHz

The UHF television band in Canada has been a centre of controversy since the United States' Federal Communications Commission (FCC) took action to relieve the pressure for land mobile spectrum by permitting shared use by land mobile with broadcasting on channels 14-20, and by reassigning channels 70-83 to exclusive land mobile use.

The CAB took an active role in the deliberation of the CRTPB Ad Hoc Committee and in the work of its Task Force. We agreed that the taboos should be revised to the extent possible through improved re-

## CAB REPORT

# 406-960 MHz

## UHF Frequencies Vital for Growth of TV Services

ceiver performance to the current state of the art. However, we did not accept the principle of giving up broadcasting spectrum when there was no clear indication that broadcasting needs could be accommodated in a reduced number of channels. That position remains the same.

Since the time the CRTPB concluded its study in 1974, fourteen UHF transmitters have commenced operations in the Windsor-Toronto corridor. Several more are expected in the near future. However, several cities of substantial size have no channel, or at best, only one channel still available for allocation. The potential channels for community stations, for multilingual stations, for possible pay TV stations, and for full exploitation of existing services, are simply not available.

Moreover, of the 36 total UHF-TV allocations in the area west and south of Toronto, eleven are on channels between 70 and 83, channels which land mobile interests hope to obtain. While a solution should be found to satisfy the land mobile requirement, the same can be said for UHF-TV broadcasting. In the areas of concentrated population, such as southwestern Ontario, there are not channels for present recognized demand, let alone for additional broadcast services which will materialize in the future.

Our study of the potential increase in allocations, if the taboos were to be modified, indicated that a substantial improvement would result. Since that time, the Technical Advisory Committee (TAC) has cleared a revised Broadcast Procedure 22 which could permit "drop-in" of 100 watt unallocated stations in some areas. Additionally, TAC has under study methods for further improvement in UHF-TV spectrum efficiency. These include application of the principles embodied in Broadcast Procedure 5 to UHF band to permit limited parameter drop-in allocations, and the classification of UHF-TV allocations into three classes of parameters—low, medium, and high. The latter provision could permit closer spacings of many allocations. Each of these techniques promises improved spectrum efficiency and an increase in allo-

cation possibilities but, at this time, the extent of these increases is unknown, as is the requirement for channels in the future.

Before any consideration can be given to a reduction in the amount of UHF-TV spectrum, it will be necessary:

- (a) to conclude the above studies, and to project the number and class of allocations then possible. Regulation of receiver performance is likely to be a necessary part of the process;
- (b) to negotiate with the U.S.A. to determine the Canadian share which might be achieved under the working arrangements;
- (c) to rationalize these allocations to the potential needs of the communities concerned; and
- (d) to provide for substantial growth in broadcast services to be offered in the future. For example, there is an insufficient number of possible allocations for local stations, ethnic stations and for a possible off-air Pay TV system.

Only after all this has been done can we determine whether surplus UHF-TV spectrum is available, and the extent of that availability. Cutting off the broadcast spectrum at channel 69 may have suited the Americans, but at this time, Canadian broadcast requirements already exceed available, usable spectrum in certain locations, and future requirements have not yet been estimated.

In summary, the CAB believes that it would be premature to propose a reduction in UHF-TV spectrum at this time. Only after final resolution of all the questions yet unanswered can the extent of surplus spectrum, if any, be determined. Under the present taboos and allocation plans, we have insufficient spectrum.

#### 620-790 MHz

In our opinion, satellite broadcasting in the band 620-790 MHz cannot materialize in North America, the only band suitable for this purpose being the 11.7-12.2 GHz band. The heavy use by terrestrial UHF-TV broadcasting in North America makes the satellite alternative useless. Unless Latin American countries want to retain this option, it should be discontinued.

# AM LOUDNESS: The Struggle Continues

## An Examination of the Audio Processing Chain

by Paul Firminger

AM loudness is probably the subject most often debated between engineers and program directors.

The struggle to become the loudest and brightest-sounding station in town appears to never end. In larger markets, a well-tuned ear can detect subtle changes monthly—even weekly—as constant adjustments and insertion of black boxes and gimmicks continue the never-ending search for the supernal sound.

This loudness phenomenon has spread from major markets to medium and small markets and now appears to encompass the entire North American broadcast scene. With the acceptance of the 125% positive modulation rule by both the FCC and DOC, many broadcasters concluded that loudness limits were set and the struggle was over. It wasn't long before program directors started asking: Why does the competition sound louder than us? If we're modulating to the 125% positive limits, then why do *they* sound louder?

The answer is complex and somewhat subjective.

The audio processing chain, transmitter, common point, antenna bandwidth, receiver response and the most overlooked area—the logarithmic action of the listener's ear, are factors contributing to apparent loudness. Books have been written covering these subjects in great detail, so for the purposes of this brief review, we will presume that good engineering practices, maintenance, and the latest state of the art equipment, including a transmitter manufactured in the last 10 years and capable of 125% positive modulation, are being used.

### AUDIO PROCESSING

The processing chain usually consists of compressors, expanders, equalizers, filters, special effects and peak limiters.

The market is flooded with many types of each equipment, all stating their particular technical advantage and the possible

signal enhancement you should expect. The horrendous task now begins of selecting which compressor, limiter, etc. Most Canadian dealers will allow a reasonable trial period of their products should you be actively shopping. Selection of equipment must be based on format and the desired end sound.

### Equalizers

Keeping in mind present day AM receiver responses and limitations, equalizers can be used to brighten and increase apparent loudness.

The equalizer is usually the first thing in the audio chain, and should never be used between the final limiter and transmitter input. It should be used discreetly and securely locked to prevent "finger trouble."

Low frequencies are wasted power and can be attenuated: they contribute little to the overall loudness of your signal, as most

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receivers cannot reproduce frequencies below 100 Hz. On the other hand there is merit in boosting the audio in the 1.9-3.4 kHz range since studies have shown the ear is particularly sensitive in that region, and boosting the range around 5-6 kHz appears to brighten the overall sound.

An equalizer, however, will never make up for the inadequacies of the transmitting system. Indiscriminate use of an equalizer can actually reduce your overall modulation level.

### The Compressor

Next in the chain we have the compressor. The main purpose of the compressor at this point in the processing chain is to level out the console audio. It will improve the average signal-to-noise ratio by contributing to higher average modulation levels. However, as more compression is added, the dynamic range decreases.

### Gimmicks

Now that we have a reasonably constant audio level, we come to the gimmick area.

Some stations have inserted a variety of so-called loudness-yielding devices. Be careful: that loudness device can actually decrease overall loudness. Extreme care and gradual adjustments are required in this area. An unpleasing sound can be a turn-off factor. Digital delays set for a few milliseconds appear to contribute somewhat to largeness and overall loudness. Other devices such as pitchers, flanger, chorusers, phasers, etc., have been tried, but their overall contribution to loudness is not usually justified financially.

### The Limiter

At this point the audio usually travels by STL, either wire or radio, to the transmitter site. Here the audio meets the limiter.

This is one piece of equipment you can't do without. Limiters are not compressors or leveling devices and should not be over-driven; their main purpose is to prevent over-modulation on instantaneous audio peaks. Over-driven limiters usually result in some attenuation to the higher frequencies.

### THE TRANSMITTER

The processed audio finally arrives at the input of your transmitter.

To achieve the loudness criteria that you seek, remember the final product is only as good as the weakest link in the chain. It is imperative that your transmitter and power supply be fine-tuned to factory specifications. If your transmitter is less than a decade old, it will probably be capable of super-modulation.

Many articles have been written on this subject, including a paper presented a few

years ago by Mr. Bill Jones of Caldwell Equipment, Toronto, at a CCBA convention.

As you raise the level of modulation, the power requirement of the transmitter increases exponentially, by the square. Unless your transmitter power supply and modulators are healthy, you are probably deceiving yourself in trying to attain this high level of modulation. If the transient response of the transmitter power supply is not good, there will be insufficient power after a super positive peak to swing the car-

rier completely negative. The net effect is NO loudness gain—because all you have done is shift the centre-line of the modulation a little higher.

If your transmitter fails to produce the 124.99% positive peaks while maintaining the 99.9% negatives into your array, don't panic yet. Test your transmitter in the fly covered reactance free 50 ohm dummy load. It will probably become a whole new ball game. All of a sudden your transmitter will perform all the tricks you would like.

*continued on next page*



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## ANTENNA BANDWIDTH

This result points to a narrow common point and probably a narrow bandwidth in the transmitting array.

Antenna matching and tuning is many a time beyond the scope of chief engineers. It's not the normal day-to-day routine to go about adjusting common points and ATU's. Besides, very few stations own the expensive measuring equipment required for these adjustments. Your broadcast consulting engineer is the man to call: he grinds his teeth daily on these and similar

RF problems. Money spent with him will be well worth it.

But before dashing to the 'phone' start checking and cleaning all grounding clamps and straps, regrounding where necessary. If your array is 15 years old, or older, very little thought was given to broadbanding the towers and common point. For today's sustained high modulation levels and swinging positive peaks, the array components are more than likely marginal, resulting in narrow bandwidths. Your studios and plant in general have kept

up technologically, but the array rarely sees any of the money ear-marked for the technological improvements required to match your competition's loudness.

It's time for the front office to open the treasure chest and invest. A narrow bandwidth array is like a 6-inch speaker unto a BGW 250B amplifier: there's just no way you will ever sound loud, clean, and bright if the final component in the broadcast chain (the array) has not kept pace with technology and demand. The desire to sound clean and loud with tinkling cymbals and crisp "s's" can be a reality if approached logically. The cost is the price paid to improve your product to remain competitive in the market.



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"Our Systems Engineering capability will be strengthened considerably with the appointment of Bing Kwan to join our marketing team", says Bob Cook, Sales Manager, Professional Products Division, Noresco Mfg. Co.

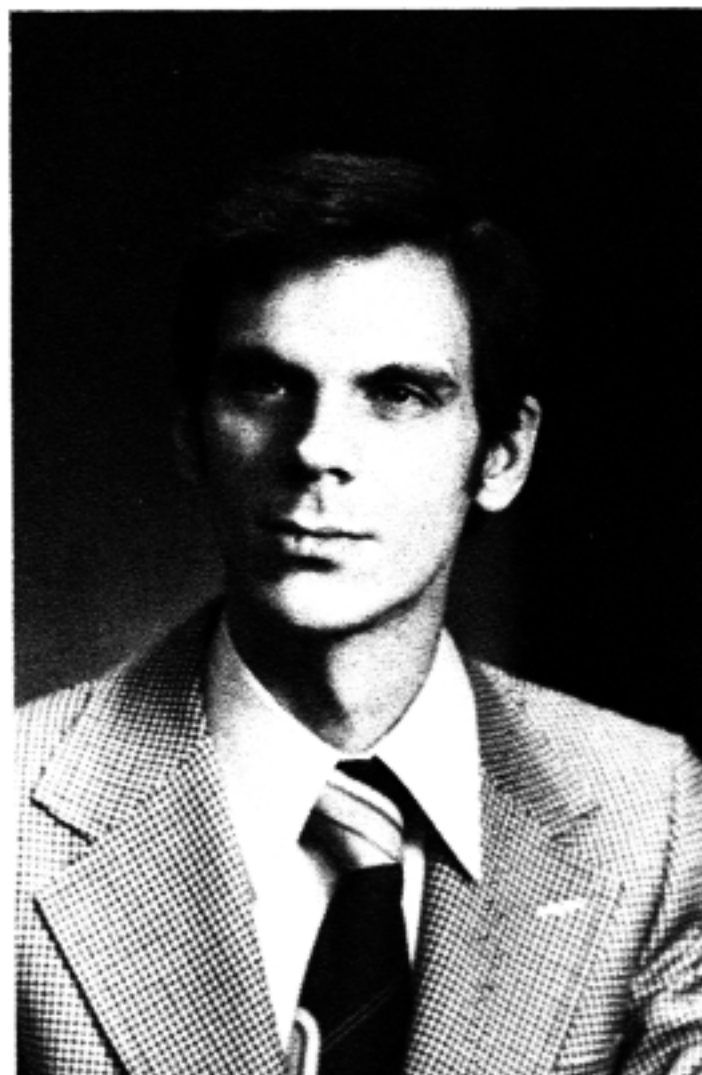
With ENG, TRI Chroma production, Freeze Frame and Slo Motion systems all coming on the market, a supplier must be able to help the station engineer put these together so they can make money from day one.

With Bing Kwan's talents, Noresco now has systems know-how second to none.

"Oh I wouldn't say it quite that way," said Bing, "but on the other hand I would want to argue with the second greatest systems engineer in Canada."!!

"I'd be glad to announce what Bing will be doing, if I only understood it", says Jim Detlor.

## AUDIO ACOUSTIC LABORATORIES, INC.



Leon Giannakeff

Wiebe Bergsma, general manager, is pleased to welcome Leon Giannakeff as manager of technical services for Audio Acoustic Laboratories.

Leon was formerly manager of Research & Development with Hardman Industries, Ltd., where he helped pioneer certain developments in 8-track tape cartridge technology and production systems. He also designed, set-up and managed 8-track and cassette duplicating facilities at MCA Records and Capitol Records in Toronto, and was involved in the design and implementation of tape production improvements in areas of automated packaging systems.

Leon received his B.Sc. in Music Education from Ball State University, Muncie, Indiana, where he engaged in recording work and was instrumental in the construction and operation of music theory auditory training labs, as well as doing graduate work in electronic music composition.

A member and former treasurer of the Toronto chapter, Audio Engineering Society, he is also on the audio tape specifications board of the Canadian Standards Committee. His hobbies include amateur radio and rebuilding and flying airplanes.

## RECEIVER RESPONSE

Before investing large sums in extra wide bandwidths, consider the typical receiver your listener is using to intercept and listen to your signal.

Recent evaluation of five various priced AM and AM-FM receivers demonstrated poor audio responses. The worst AM receiver response was a reasonably flat  $\pm 4$ db between 500 Hz and 2700 Hz. Frequencies above 3000 Hz and below 150 Hz were non-existent. The best response came from the most expensive receiver and hardly your typical table radio at \$189.00. The response of this receiver ran  $\pm 4$ db from 150 Hz to 3100 Hz. Again, frequencies above 3500 Hz and below 60 were non-existent. Car radio also have very poor audio frequency responses, similar to the cheapest receiver tested.

It's nice to boast that your console and transmitter is  $\pm 1.5$  db from 30 Hz to 13,500 Hz or better—but who can hear it? Present-day receivers cannot reproduce that response, and human aging of the ear apparatus attenuates the high frequencies and tends to blend or boom the low frequencies. All things being equal, there appears to be merit in attenuating the low frequencies (below 80 Hz) and above 7000 Hz with slight increases around 2-3 kHz and 3 kHz and 5.5 kHz to take full advantage of the logarithmic action of the human ear (your listener).

With broadcasters scrambling for ratings, and importance shifted from fidelity to loudness—it's become a jungle. To survive, you must be equipped and sound as big and tough as your competitor. With the shoe-horning of additional AM frequencies into all parts of Canada, loudness has become a cancer, devouring market by market. One-station towns beware: there's coming a day you too will have to invest and put on the breastplate of loudness . . .

*Paul Firminger is chief engineer of CHYM and CKGL-FM Kitchener, Ontario, and a member of the Editorial Advisory Board of BROADCAST EQUIPMENT TODAY.*



# CCBA ENGINEERING NEWSLETTER

By John Evans Publicity Chairman, CCBA Engineering

• CFGM Richmond Hill, Ont., is engaged in a very large simultaneous change of AM facilities. While extensively modifying its existing 50 kilowatt AM transmitter plant in Mississauga to change frequency from 1310 to 1320 kHz on the dial, it is building a new facility for CFTJ Radio in Cambridge (Galt) to move from 1320 to 960 kHz. As a result of these changes, both stations will increase their coverage areas substantially.

A few of the particulars: the CFGM tuning and phasing gear is Continental, with towers by LeBlanc & Royle; and in Galt, a new CCA 1 kw transmitter, CCA tuning and phasing gear, Moseley remote control equipment and Dorrough Audio Processing are being installed. The towers in Galt are manufactured and installed by Sky-Hook. **Bruce Carnegie**, who is managing these projects as well as the installation of a new FM station in Toronto, says that everything

is running well at present, but he's rather busy!

• Radio Station CKNX in Wingham is currently going FM, and as part of this move is adding studios, record library and office space to the existing building by taking over some of the TV storage area.

The main equipment package is from McCurdy, with custom designed mixing consoles and facilities. Spartan Century 2 cartridge machines are being used, and four Studer B67 tape machines have been purchased. Mesa Audio Industries, whose engineer, Haakon (Hank) Volner has been responsible for world-famous recording studios, are doing the acoustic design work. Transmitter-wise, CKNX has chosen the Collins Generation 4 type transmitter. **Scott Reid** expected to be on the air by mid-April and we hope to have some more information on this project, with pictures, for the next issue.

• At CJOY in Guelph, **Larry Smith** reports that a mini-sequencer has been built for use by announce/operators. It consists of four thumbwheels connected to the start and end message tones of various pieces of equipment connected to the console. By dialing a sequence of numbers, Cart 1 can start Cart 2, Cart 2 can start a reel-to-reel, etc. Included is a button in the news booth to enable the newsmen to play a commercial spot, without even having to know what cart machine is going to be activated.

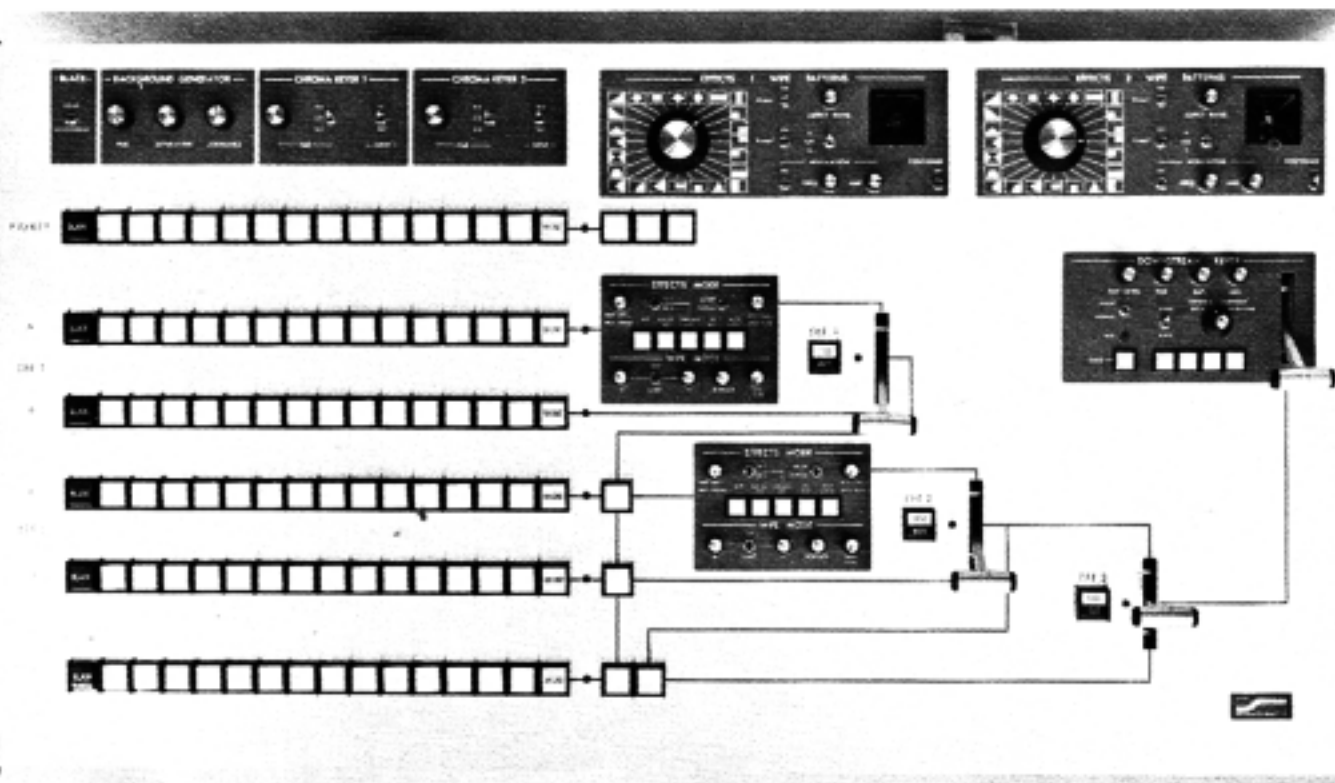
CJOY is currently building a digitally controlled 15x15 talk-back system. A binary-coded word is sent on four lines to the switching centre and sets up an audio path to the desired room. Should that room be busy (on air or using the talk-back), a busy tone is routed back to the calling party.

• **John Forrest** of Tele-Tech Electronics is now co-owner of a 1946 LaFrance fire truck known as Pumper #23 at the Bolton Fire Department. John is secretary-treasurer of the Bolton Fire Fighters Association and an active volunteer fire fighter.

• Best wishes from CCBA Engineering go out to the WABE being held in Winnipeg at the Hotel Fort Garry, April 26-28th!

• This column is to be a regular feature in BROADCAST EQUIPMENT TODAY, so please keep me informed by mailing or phoning your station news and projects to John Evans, c/o C.K.B.B., Box 950, Barrie, Ontario L4M 4Y6; Telephone (705) 726-9500, or BET at (416) 463-5304.

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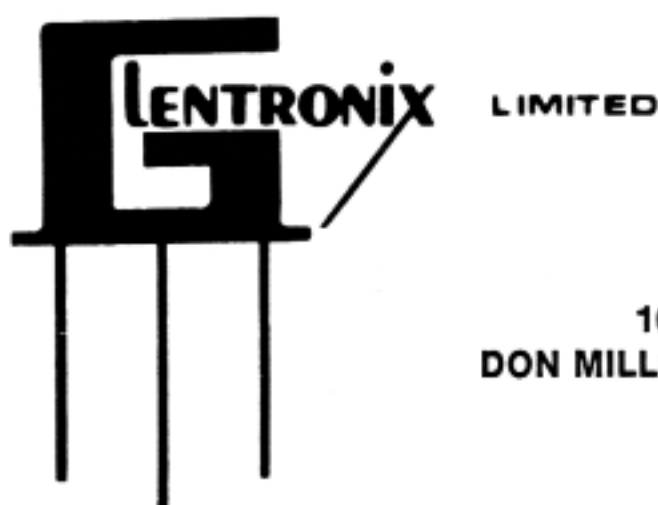


The ROSS RVS 16-6B pictured above features:

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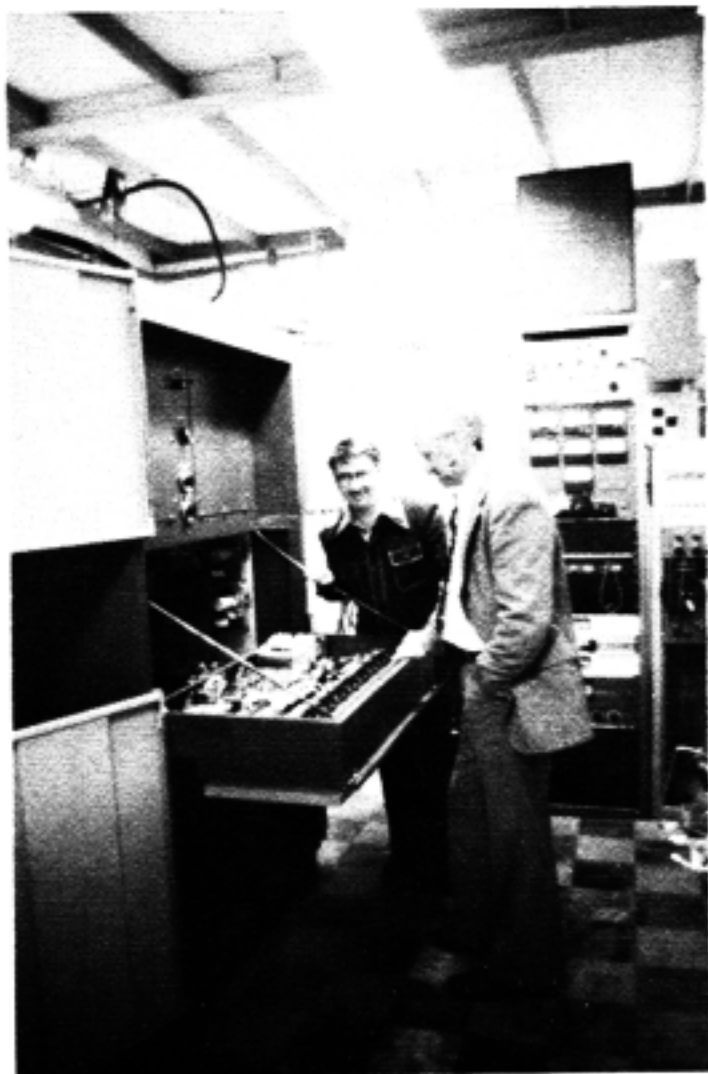


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# happenings

• CFOS Owen Sound boosted its daytime power to 2,500 watts on 560 kHz last March 25th, when the station switched to its new transmitter—the first AEL AM transmitter in operation in Ontario. Photo shows **Paul Firminger** of CHYM with **Terry Brown** of M.S.C. Electronics Ltd., Canadian representatives for American Electronic Laboratories. The new installation is part of an agreement whereby CHYM will move to 570 kHz and CFOS will acquire a rebroadcaster at Port Elgin on CHYM's present frequency of 1490 kHz.



• Two announcements from SMPTE: 1. The 119th Technical Conference and Equipment Exhibit will be held October 16-21 at the Century Plaza Hotel in Los Angeles. Some 5,000 are expected to attend the event, which will feature 175 equipment booths, as well as papers on TV and motion picture engineering topics. 2. The 1977 catalog of test materials is now available, free of charge. Address: SMPTE, 862 Scarsdale Ave., Scarsdale, N.Y. 10583, U.S.A.



• New facilities at CHYR Leamington, Ont., include a 4386 McCurdy console with two McCurdy turntables, two Ampex AG600s and ITC triple deck cart machines. The control room provides for newscasting as well as announce-operating, a concept already introduced at CHYR's sister station, CJJD Hamilton (see BET, Jan/Feb 1977). Station engineer at CHYR is **Ted Cribbie**.

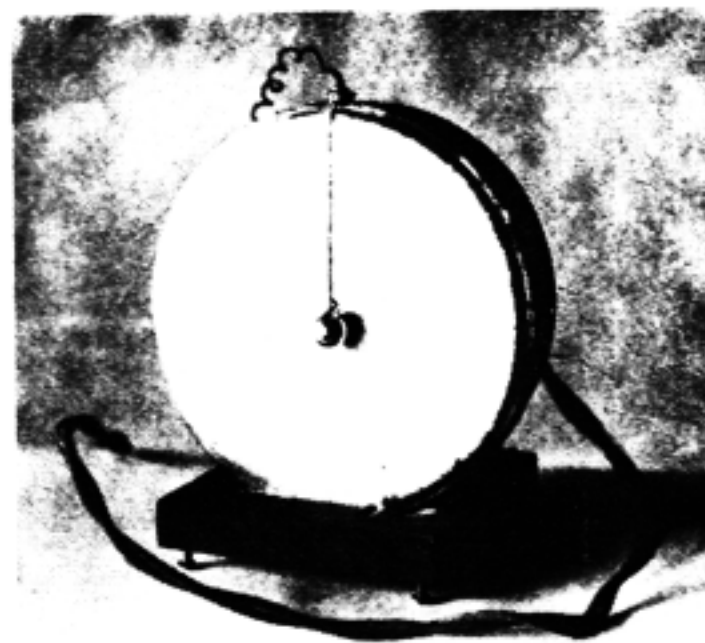
• All of the three FM's recently licensed for the Montreal area will be installing CCA FM 25,000E transmitters. The stations are CIEL-FM Longueuil, CIME-FM Ste-Adele and that licensed to Telemedia (CKAC)—which plans to use the call letters CITE now in use by Telemedia's Sherbrooke FM station. CCA/Caldwell also supplied their 3,000E transmitter, FMC circularly polarized antenna, and all remote control and monitoring equipment for the new FM station of La Radio Communautaire de Jonquiere, Que.

• **Peter Shurman** has been named vice-president of CJFM Montreal. Shurman, whose background includes engineering as

well as announcing and sales, continues as station manager.

• *Field tests on AM Stereo are scheduled to begin May 1st over three U.S. stations—WGMS Bethesda, Maryland; WTOP Washington, D.C. and WBZ Boston, Mass.*

• The **Jack Dennett Microphone Collection** is now on permanent display in the lobby of Toronto's CN Tower. Donated by CFRB Radio to mark the station's 50th anniversary this year, the collection consists of 14 microphones, including a carbon model dating from 1921, a 1936 "salt shaker" and the 1937 RCA 44 BX. The display also features a granite etching of Dennett.



• *Speaking of microphones: as noted in our March/April issue, this year marks the 100th anniversary of its invention by Emile Berliner. Photo shows the original 1877 microphone.*

• **Peter Hiscocks** of Ryerson Polytechnical Institute in Toronto is the instructor for a new course in *Acoustics and Sound Systems*. A post-diploma course designed for electrical graduates with at least one year in the field, it was presented for the first time earlier this year on Tuesday evenings during a 13-week semester. The course is scheduled to run again in January, 1978, and Peter would appreciate feedback from people in the industry. His number at Ryerson is (416) 595-5141.

• **CBC** has purchased 30 U-Matic video cassette recorders from Sony of Canada at a cost of \$250,000. They'll be used at 10 major CBC locations, primarily for ENG.

• **Canadian General Electric** recently demonstrated a home television set that automatically adjusts color to the Vertical Interval Reference (VIR). Practically all U.S. programs are broadcast with a VIR signal and major Canadian TV broadcasters are expected to add the coded color reference this year. CGE claims to be the first manufacturer in Canada to provide this feature on its TV receivers, which may also be adjusted manually for programs not VIR encoded. The sets have a small red light to indicate when a VIR signal is being received.

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# directions

A review of current policies and decisions of the Canadian Radio-television and Telecommunications Commission.

## HEARINGS

### MONTREAL-APRIL 4

Among the applications scheduled to be heard at Loew's La Cité in Montreal, commencing April 4th were:

- **CBC**—for an FM station at Halifax, 100 kw on 90.5 MHz, to rebroadcast its English AM service. The application follows complaints that the nighttime service of CBH is inadequate.

- **CBC**—for FM at Sept-Iles, Que., 15 kw on 96.9 MHz, to rebroadcast the English AM service, replacing an existing LPRT.

- **CBC**—for a low-power TV rebroadcaster at Gagnon, Que.

- **Global Television**—for a network to carry the Provincial Lottery draws. In addition to Global and northern Ontario outlets, the program is carried by CKY-TV Winnipeg, CFCN-TV Calgary, CKCK-TV Regina, CFQC-TV Saskatoon, CICC-TV Yorkton, CFRN-TV Edmonton, and CHAN-TV Vancouver and their associated rebroadcasters.

- **Dalhousie University Student Union**, Halifax, N.S.—for an AM carrier current operation, 20 watts on 610 kHz.

- Applications for new cable television systems in the province of Quebec:

- St-Methode—Claude Labonte
- Notre-Dame du Laus—Marcel Blouin
- Lac des Ecorces—Marcel Blouin
- Val-Barette—Gerald Larocque
- Ste-Veronique—Guy Charette
- St-Jean des Piles—Gagnon et Fils
- St-Philippe de Neri—Francois Dionne
- Ville-Marie—Alphonse Piche

### VANCOUVER—MAY 3

#### PREMIER-WESTERN DEAL TO BE REVIEWED

A hearing scheduled for the Four Seasons Hotel in Vancouver, beginning May 3, is to consider the transfer of effective control of Premier Cablevision Limited and Western Broadcasting Co.

Western would acquire shares of Premier, which recently rebuffed a takeover bid by Rogers of Toronto, while the Premier management group would acquire 16% of Western. The CRTC says it will explore the implications of the "considerable degree of concentration of ownership", as well as the interlocking television and cable TV ownership, which would result from the agreement.

### OTTAWA—MAY 30

#### PAY TELEVISION

A public hearing on Pay Television is planned, commencing May 30, at L'Esplanade Laurier, 140 O'Connor St. (20th floor, west tower), Ottawa.

Prior to October 1, 1976, the Commission received 105 submissions on the reopened question of Pay TV in Canada. "Very few submissions," the CRTC notes, "addressed the question of the form and function of a Pay TV agency."

Generally, broadcasters and independent program producers opposed the introduction of Pay TV at this time. Many submissions said Pay TV would be dominated by U.S. feature films, providing little benefit to Canadian program production.

The cable industry, on the other hand, was confident that Pay TV could be successful and that significant revenues could be generated to assist Canadian production. It argued that if Pay TV is not soon introduced, unlicensed services will soon move in.

The CRTC says: "It is essential to establish now whether Pay TV can be used to assist Canadian program production . . . to determine whether the design of a program agency can guarantee that Pay TV will satisfy the demands of the public, while ensuring positive benefits to Canadian broadcasting and program production."

The May 30 hearing will therefore concentrate on the following areas:

- programming for Pay TV and Canadian content requirements,
- how a Pay TV program agency can support Canadian production,
- restrictions against Pay TV "siphoning" existing programming,
- the structure of the Pay TV program agency.

## DECISIONS

### AM Radio

#### WALKERTON-HANOVER BID TURNED DOWN

The proposal by C. L. Chambers for a 10 kw station on 1360 kHz at Walkerton-Hanover, Ont., has been denied. The CRTC stated that in making the decision, it had considered existing services in the area and

their viability, and was not satisfied that the proposed programming would add significantly to that available in the area.

#### Other AM Decisions:

- Change of ownership of CFTJ Cambridge approved; the station must continue to be identified clearly with Cambridge. The new owners, principals of CJOY in neighboring Guelph, paid \$495,000 for the station.

- Yellowhead Broadcasting won approval for 50-watt rebroadcasters at Hinton, Grande Cache and Whitecourt, Alta.

- Two CBC rebroadcasters in B.C. have ceased operation: CBUE Hope, which was replaced by CBUE-FM, and CBXV Portage Mountain, which served a temporary hydro campsite.

- In renewing the licences of several stations, the CRTC has called for improved programming to their respective communities. The stations are CJD Hamilton, Ont., CHAB Moose Jaw, and CKBI Prince Albert, Sask.

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### FM Radio

#### CBC OUTLETS OK'd

The following CBC FM stations have been approved by the CRTC:

| City                         | Watts   | MHz   |
|------------------------------|---------|-------|
| Fredericton/Saint John, N.B. | 100,000 | 101.5 |
| Ft. Fraser, B.C.             | 115     | 102.9 |
| Burns Lake, B.C.             | 327     | 99.1  |
| Houston, B.C.                | 318     | 102.1 |
| Smithers, B.C.               | 161     | 97.5  |
| Vanderhoof, B.C.             | 118     | 96.7  |

The B.C. outlets will carry the CBC AM service.

At Prince George B.C., the program source for CBRG is to be changed from CBU Vancouver to CBUF-FM to provide French AM network service; English AM service will continue via CHPG. The CBC plans new FM stations to improve both English and French AM service to the area.

#### Other FM decisions:

- CKRD-FM Red Deer, Alta., has become an affiliate of the CBC English FM network.
- The request by CJUM-FM Winnipeg (University of Manitoba) for increased ad-

vertising limits has been denied.

- The licence of CHMF-FM, Missi Falls, Man., has been revoked. The station served a temporary Hydro construction site.

- The application by the CBC for a French FM station at Toronto (38 kw on 89.5 MHz) has been withdrawn pending technical negotiations with U.S. authorities.

- CBC-FM Charlottetown, P.E.I., will change frequency from 103.1 to 96.9 MHz.

### Television

#### TIGHTER PERFORMANCE DUE FOR TORONTO STATIONS

The CRTC has renewed the licenses of Toronto-area television stations to March 31, 1981. However, it has called on each to re-examine its role in the market, define its primary audience, and submit a new Promise of Performance to describe programming which will fulfill this role.

In a lengthy review of the development of television in southern Ontario, the Commission noted the size and wealth of the market, indicating that stations there no longer need concessions or exemptions from regulations.

So that stations will not be burdened by obsolete past commitments, each is to prepare a new Promise of Performance with detailed commitments in the areas of news and public affairs, entertainment, educational and children's programming.

The documents are to be filed by April 1, 1978, with a hearing in early 1979.

#### Comments on each station:

- CBLT—Must have identity as a local and regional station, as well as a CBC network outlet. Non-network hours should be devoted to Canadian material as much as possible to balance the "overwhelming" U.S. programming available in the area.

- CFTO-TV—Its support has been "critical" to the success of the CTV Network. CFTO's Glen-Warren Productions, described as the third largest production facility in the world with 400 full-time employees, and "an impressive Canadian achievement", was urged to develop its plans for Canadian drama programs.

- CKVR-TV Barrie—Committed to increased news and local events coverage for a regional audience north of Toronto.

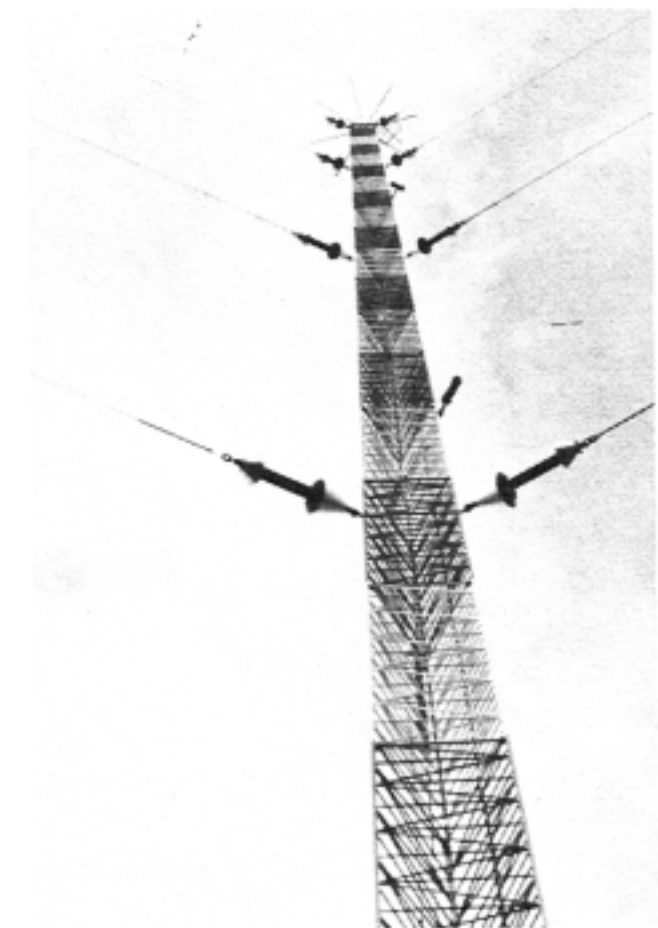
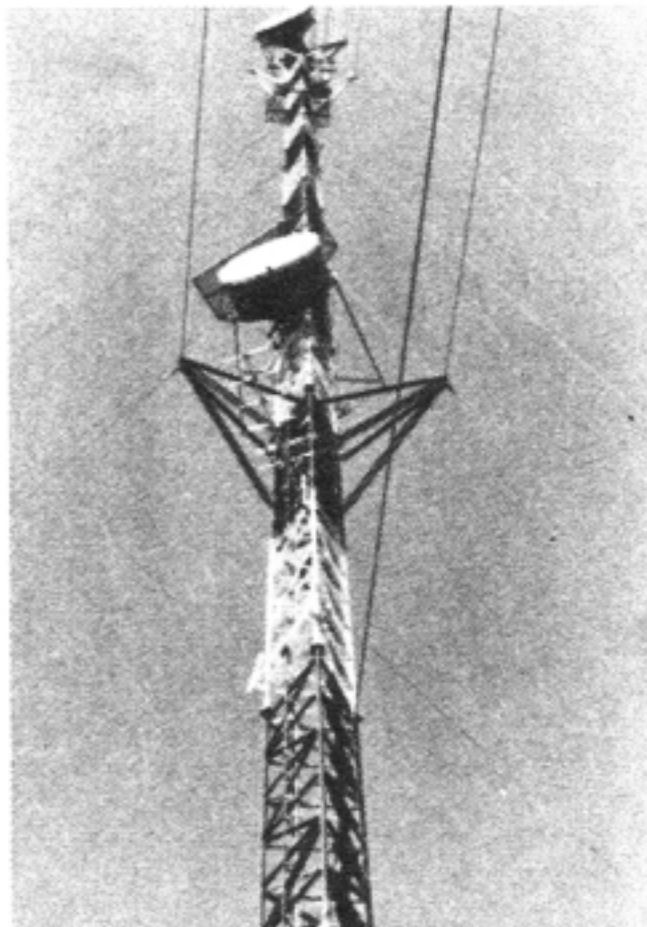
- CKCO-TV Kitchener—"Must move immediately" to meet its commitment for a separate feed to rebroadcasters on the late

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evening news and to staff its regional news bureaus accordingly. Separate commercials are to be scheduled on rebroadcasters only during separate programming.

● **CHCH-TV Hamilton**—Since it became an independent station in 1961, CHCH has made a "valuable contribution" to Canadian programming particularly in co-financing. However, Hamilton needs a local television service and CHCH must fill this need, particularly in the areas of news and public affairs.

● **Global TV**—Permission was given for Global to increase commercial content to 12 minutes per hour, effective April 1, 1977. As a large part of Global's uniqueness is in its regional nature, the CRTC does not consider it appropriate for Global and independent stations in western Canada to form a network at this time. An improved financial picture at Global should be reflected in continued progress toward achieving its original program commitments.

● **CITY-TV**—Will be expected to take "early and significant steps" to provide a genuine alternative with Toronto-oriented material in prime time. CITY is also to exercise greater care in its choice of U.S. programs, "particularly those containing violent elements".

#### OWNERSHIP CHANGES APPROVED

● **Global Communications Ltd.**—The interest held by IWC Communications Ltd. has been purchased by Global Ventures Western Ltd. and Seymour Epstein. In approving the sale, the CRTC said it constituted a change in effective control (the purchasers had argued it did not) and was subject to CRTC approval, notwithstanding any private contract between the owners.

● **Channel Seventy-nine Ltd.**—The purchase of a major interest by Multiple Access Ltd. was approved. The Commission was told that the purchase would give CITY-TV the stability and backing required to meet its objectives. Multiple, however, is to give priority to its relationship with the CTV network (it also owns CTV affiliate CFCF-TV Montreal), and is to inform the CRTC as to how it will separate the two organizations.

#### Other Decisions & Renewals:

● Purchase of CKCK-TV Regina by Harvard Developments approved. A separate news gathering system is to be established immediately, and substantial technical im-

provements are to be made over the next two years.

● Licences have been granted for CBC rebroadcasters at Etzikom, Alta. (27 kw), and St. Vincents, Nfld. (4.5 kw).

● Low power rebroadcasters have been licensed at Collins Bay, Sask., Ocean Falls, B.C., and seven Yukon communities.

● The licences for OECA stations at Sudbury and Thunder Bay, Ont., have been extended to March 31, 1980.

● CBIT Sydney, N.S., is upgrading studio facilities substantially to improve local programming.

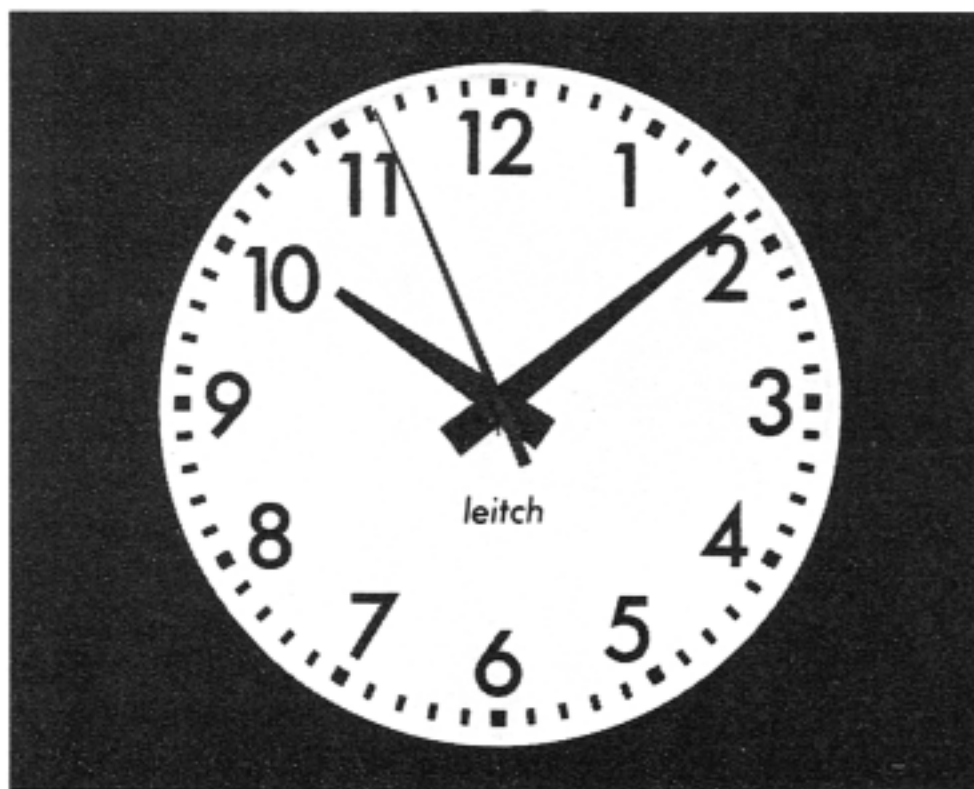
● CHAU-TV Carleton, Que., also plans to improve its production facilities, adding color. The station is to expand news and public affairs coverage to meet the needs of viewers in both Quebec and New Brunswick.

● CJFB-TV Swift Current, Sask., has purchased studio and portable equipment to improve local programming. The CBC is planning new facilities at Shaunavon to replace an existing rebroadcaster of CJFB.

● Two stations, CKRT-TV Riviere-du-Loup, Que., and CHBC-TV Kelowna, B.C., were renewed with commendations on their local programming service.

(continued on next page)

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## directions

### Cable TV

#### NOW IT'S "OPEN DOOR" FOR FM ON CABLE

The CRTC's review of its controversial ban on U.S. FM signals on Canadian cable systems has resulted in a greatly relaxed policy on the question. The Commission received 257 written submissions, most calling for the continued choice offered by carriage of U.S. stations.

The revised policy allows re-instatement, upon application by each cable system, of all Canadian and U.S. stations authorized as of December 15, 1975. A cable system may also apply to carry any FM station receivable at its head-end.

U.S. FM stations which solicit advertising in Canada will be closely monitored for any economic damage they may cause to Canadian stations. (The CRTC is also assessing the effects of section 19.1 of the Income Tax Act, which disallows advertising on U.S. stations as a deductible business expense for Canadian firms.)

The Commission retains its discretion to modify this policy in any area where it considers there is an imbalance or deficiency of FM services.

#### MARITIME SYSTEMS RENEWED

The licences of 22 cable systems in Nova Scotia and Prince Edward Island and of Chamcook Communications Ltd, which relays U.S. signals to cable systems throughout the Atlantic provinces, have been renewed for a full five-year term, to March 31, 1982.

Two licensees, J. L. Bragg in Springhill and Antigonish Cablevision Ltd., are to be in operation by March 31, 1978; while three others, J. S. MacAlpine in Digby, Seaview Cablevision Ltd. in Lockeport/Shelburne, N.S., and Prince County Cablevision Ltd. in Summerside, P.E.I., are to operational at such time as the microwave service, via M.T.&T., becomes available.

Chamcook now has an affiliation agreement with all cable systems in Nova Scotia, New Brunswick and P.E.I. It will also provide two signals to Newfoundland, where cable companies have signed a five-year agreement with Canadian National Telecommunications for transmission facilities from North Sydney, N.S. to St. John's Nfld., expected to be operational by October.

The CRTC supported interventions from several cable licensees which requested greater flexibility in Chamcook's cost-sharing formula.

Uniform distribution of priority Canadian signals, as urged by Atlantic Television (ATV), will be a requirement for all Class A systems (over 3,000 subscribers), and for Class B systems "only insofar as it is economically and technically feasible".

Distribution of FM signals on the television service was denied in a number of cases, in accordance with CRTC policy. The CRTC also questioned the distribution of CRXL, programmed by the Department of Education's Radio Broadcasting course in Halifax, over the community channel of Dartmouth Cable TV Ltd.

Able Cablevision Ltd. of Liverpool, N.S., was commended for its "significant efforts in the area of community programming".

#### TWO LICENSEES FOLD

The CRTC will hold public hearings to grant new cable licences to serve Roberval, Que. and Yarmouth, N.S.

Roland Tremblay's licence for Roberval issued on June 14, 1974, was revoked after he advised the Commission that economic circumstances prevented him from establishing service. The deadline for new applications was April 29, 1977.

At Yarmouth, Yarcom Cable T.V. has been in the hands of a receiver since January 24, 1977. The CRTC renewed the licence for six months and received applications until April 1st.

#### NEW FACILITIES

- A new system has been licensed to the Milk River (Alta.) Cable Club.
- Maclean-Hunter Cable TV in the St. Catharines, Ont., area has received a DOC certificate for continued operation of its Harmonically Related Carrier (HRC) system until 1980. The company is to phase out the system, in order to utilize more suitable means to provide augmented channels. In the meantime, M-H is required to remedy complaints related to TV receiver tuning problems; make free converters available to subscribers, where necessary, for basic service reception; and absorb the cost of retuning receivers. The system is also to provide additional production facilities for community programming.

- Citizens Cable T.V. of Burlington, Ont., is providing centrally-located studios as well as mobile facilities for community access programming.

- In renewing the licence of Cable 8, the co-operative programming service of seven Hamilton area systems, the CRTC stressed proportionate contributions by each. Southmount Tel-e-Vents was singled out for its "exceptional" community programming effort.

- The Commission was less enthusiastic about community programming elsewhere: Borden Cable was told that proposed funds for part-time rental of a Toronto mobile unit would be better spent locally; and Pine Ridge Cable (Oshawa) and Jarman Cable (Brantford) were told to allot greater resources to their community channels.

- New or changed head-end facilities were approved for Greater Winnipeg Cablevision, Nor-Video Services, Atikokan, Ont., and A. C. Weatherby, St. Stephen, N.B.

- Increases in service area: QCTV, Edmonton, Alta.; Prince County Cablevision, Summerside, P.E.I.

- Community Antenna of Calgary will add local originations, including background music, deleting CHFM. Both Community Antenna and Calgary Cable T.V. received permission to originate an FM service on channel 282, with the condition that no advertising be carried.

- Southport Cable TV, licensed in 1974 to serve Port Elgin and Southampton, Ont. has been renewed for two years. The system, not yet established, is awaiting delivery this fall of distant signals via microwave.

- Maclean-Hunter Cable—this time in Guelph, Ont.—was again rapped for failing to respond to its subscribers' interests. A bid for a rate increase from \$5.25 to \$6.00 monthly was denied.

#### AUDIO SERVICES ON CABLE EXTENDED TO MARCH, 1978.

The CRTC is continuing its study of closed circuit audio services carried by cable TV systems.

At the end of 1975, the Commission ruled that such services must be discontinued unless specifically authorized. Because of the effect on various ethnic and student radio operations, implementation of the policy was delayed to March 1, 1977.

It was intended that such operations would require a CRTC licence, however, only two applications have been received. It appears that those involved would prefer to use SCMO facilities on a conventional FM broadcasting station.

While the possible solutions are being examined, cable systems may continue to carry these audio services until March 1, 1978.

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