THE FUTURE OF CAPTIONED RADIO

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PUSHING THE LIMITS OF DIGITAL TYPOGRAPHY ... AND A ROMANCE WITH SOUND.

CABLE RADIO - WITH WORD IMAGES - SHOWS IT CAN COMMUNICATE AND SELL!

INTRODUCTION

Captioned radio is a simple but effective technique employing an audio program and character generator, operating in a synchronous and organized manner for television viewership, with distribution on cable TV systems.

This technique reverses the delivery priority of the television presentation; i.e., the audio bears more importance on the communication than does the video. The television receiver acts as a radio with associated printed data displayed on the TV screen.

The primary advantage of this concept is to provide a long-play, automatic, low-cost program delivery system that is acceptable in format by both the cable operator and the TV viewer.

SYSTEM DESIGN

The delivery system consists of an integrated hardware and software package, using available "off shelf" equipment and technology, further cutting costs in technical research and development.

The basic program storage vehicle is economical audio magnetic recording tape. The audio tape format supplies high capacity program storage in the order of 5 to 12 hours per program unit. In addition, high speed audio tape duplication is used, giving a high copy depth of multiple programs at reasonable cost for field distribution.

The field program equipment package consists of an audio tape playback mechanism married to a character generator. Full television sync and color generation are added to the package as well as video-audio monitoring and operating controls. All equipment is housed in a standard 19" rack cabinet. The signal output, audio and composite color video, is fed into a television modulator for trunk line distribution.

The audio tape deck is of professional caliber employing a standard quarter-inch tape width and a four-track interlaced bidirectional format. Full sized 14-inch reeling is used to provide the high capacity program storage. Normally, tape speed of 7.5 ips is used for the advantages of increased fidelity, better signal to noise ratio, reduced flutter and wow components and reduced tape dropouts. However, some program material may merit the use of 3.75 ips tape speed to give optional increased program storage capacity.

The audio program is recorded in monural form on two of the four tracks of the tape (one track in forward mode, one track in reverse mode). The bidirectional feature allows for the program to perform on a "closed loop" basis for the length of the program, and repeat automatically at the end of the five to seven-hour presentation.

The remaining two audio tracks on the tape hold the control data to drive the character generator, and are parallel and

in unison with the audio program tracks. The character generator data signal is audio and uses a frequency range of 1200 to 2200 Hz.

Automatic reversing of the bidirectional tape drive is accomplished by audio control tone logic recorded on the tape and/or foil contact sensing.

Minimum field maintenance of the tape drive is expected because of the ruggedness of the deck chosen. Normal, routine cleaning, lubrication and head degaussing procedure is followed. Tape heads are expected to be replaced every two years. The program tape is changed once a week.

The character generator is a self-contained unit with local keyboard input in addition to the audio tape interface input. It holds a four-page internal memory that can be controlled and refreshed from the audio tape.

The page format is 10 rows of characters by 24 characters per row. Two character sizes are used: a larger upper case, 28-scan line high character and a smaller upper case, 20-scan line high character. The generator produces high-resolution quality characters and the clean font design that results in a large, easy to read display.

A companion rack mounted EIA sync and page colorizing generator drives the character generator and provides a choice of seven screen background colors for display with control logic stored on the audio tape.

Programming for the captioned radio concept is produced at a central studio. A variety of program formats and information may be presented. Normal low-cost radio production techniques are used to build the program. The master tape is recorded on a professional four-track, half-inch audio tape recorder. The associated caption copy is stored in sequence using digital computer data entry techniques; and, through FSK conversion, it is dubbed on the master audio tape.

The final program is checked for errors and corrections are made, if needed. The completed master tape is then placed on a high speed tape duplicator to reproduce the required field copy depth.

FIELD TEST

In 1976, a full year of field testing was conducted using the captioned radio concept. A cable radio format was established and the system was operated under a multitude of channel program requirements. A total of six CATV systems joined in the test. (See Addendum)

The test mix included a variety of: market size, subscriber base, geographic location, and demographic differences.

A commercial entertainment program was structured to prove the viability for an advertising base support. Substantial viewership was accomplished and audience reaction was effective. Pilot national advertising contracts were sold and performed with measurable results. The program was seven hours in length; produced weekly and repeated 24 times per week in all markets to reach the accumulated audience.

There were several interesting audience reaction points realized from the project test:

(1) Higher viewer reaction was noted with the use of intensive "screen dance" (a term denoting active screen display movement). When a static screen was displayed for sustained periods, audience reaction dropped to about 20% of normal.

(2) It is felt that the "expectance" level" of the TV audience watching a captioned radio program is less for non-commercial information material ("expectance level" -- the factor of a viewer's response to accept a nontelevision presentation).

FUTURE SERVICES

The future of captioned radio lies with the usage of cable TV distribution. The concept is custom built to serve a multitude of CATV systems on a network basis, capable of reaching large viewing numbers -- so essential to tape the advertising base. The use of captioned radio in the noncommerical-information program areas also needs the viewing numbers that CATV systems offer, to solidify and justify active participation.

Sub-networks, using lighter equipment, can be added -- giving a smaller, but selective, audience. These nets would include: hotels/motels, hospitals, MATV in large complexes, campus distribution and MDS service.

By using part-time, receive-only aural service from satellite transmission, current live program presentations using the captioned radio format would augment the basic taped programs.

CONCLUSION

Captioned radio service -- is a reality. It has audience appeal and is cost effective. The technology is simple and equipment for operation is available. Programming for captioned radio is produced on a central studio basis, supplying cable systems a network service for both commercial and non-commercial programs.

ADDENDUM

Cable TV systems joining the test project - 1976. The cable radio network reached 148,000 viewing homes.

New York, N.Y. -- TelePrompter Manhattan CATV Corp.
Reston, Va. -- Warner Cable of Reston (Radio Reston)
Madison, Wisc. -- Complete Channel TV, Inc.
Kansas City, Kans. -- TeleCable of Overland Park, Inc.
Rock Springs, Wyo. -- Sweetwater TV Co., Inc.
Los Angeles, Calif. -- Theta Cable of California