LOCAL COMMERCIAL INSERTION: A PARTNERSHIP CABLE OPERATOR, PROGRAMMING SERVICE AND MANUFACTURER

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Local commercial insertion is becoming an increasingly important revenue resource for the cable operator. Program services, cable operators and equipment manufacturers must work together in coordinating the development of commercial insertion equipment, program services signaling procedures and methods to ensure continued growth in local advertising sales. Procedures and guidelines for signaling methods, pre-roll times and signal measuring must be established. Local availabilities are important to the cable operator, and the lack of sensitivity by some program suppliers and manufacturers is of paramount concern. Operators are sometimes forced into buying automated equipment not capable of handling the task at hand. The challenge of handling the problems inherent in local commercial insertion touches all of those involved in our industry. A close examination of these problems, discussions and solutions will ensure the success of cable operators, program services and the equipment manufacturers.

Selling advertising on local cable has not been as easy as some operators were led to believe. The new revenue stream flowing from local advertising spot availabilities on satellite network programming very often started as a trickle. System operators have been faced with significant capital expenditures to develop reliable commercial insertion equipment, but instead they have encountered problems with scheduling, signaling and malfunctioning equipment.

The Cabletelevision Advertising Bureau says more than 800 cable systems have local advertising sales capabilities. It is important to note that more than 100 of these systems are of the smaller category, serving 5,000 or less subscribers. At present, more than 1,000 cable systems can accommodate local cable advertising through the use of of data channels, alphanumeric and graphic displays.

Cable advertising is fast becoming an increasingly important revenue source for the cable operator.

LOCAL ADVERTISING REVENUE PROJECTIONS

* Year	Dollar Projections
1983	$ 50.4 million
1984	80 million
1985	128 million
1990	672 million
1994	1.3 billion

* from Cabletelevision Advertising Bureau

The industry has launched an aggressive campaign documenting the growth of cable. The Cabletelevision Advertising Bureau, rep firms and systems are helping to inform advertisers and major agencies about the effectiveness of cable advertising. By now, most of us have seen CAB's, Einstein campaign, $E=mc^2$. The formula, "Effectiveness Equals More Cable," should help increase both cable programming services and local advertising revenues.

On June 13, 1983, in Houston, Texas, the CAB board of directors unanimously approved the recommendation that a Local Sales Advisory board be formed. This board would be would be responsible for:

1. Identifying key issues affecting the development of local cable advertising, and
2. Reporting to CAB on the role it should play in dealing with those issues.

I have had an opportunity to assist the Local Sales Advisory Board and work as a member of the ad hoc technical subcommittee. The role of the subcommittee was to deal with technical problems in coordinating systems' commercial insertion equipment with network transmission procedures.

Our goal was to survey systems and determine the exact problems that occur in commercial insertion procedures. The technical committee's immediate concern was to work with the cable networks and equipment manufacturers to improve their support of local commercial insertion operations.

SATELLITE TONE SIGNALING

An objective was set to establish, if economically viable, a unified cue tone system which could be utilized by all programming services. At the time, we found that there were a number of signaling methods used.

1. DTMF tones (Dual Tone Multi-Frequency): These tones are most common on ESPN, CNN, CBN, ARTS and Entertainment, Nickelodeon and SPN, just to name a few.

2. DTMF tones placed on a separate audio subcarrier from the program audio. This is being used on USA Cable Network.

3. VITS (Vertical Interval Test Signal): Such as that being used for signaling of local availabilities on The Weather Channel.

4. MTV "pilot" tone cue method: A 19 KHz sub audible tone transmitted on the 5.8 MHz audio subcarrier. It is used by MTV in conjunction with the Wegener or Leaming stereo audio system. The pilot tone starts the pre-roll five seconds prior to the commercial break and stays on for the duration of the break. The tone drives a contact closure on the back of the stereo audio system which, in turn, remotely controls automated switching and machine control of VTRs.

   Another 19 KHz tone is transmitted on the 6.62 MHz audio subcarrier to switch audio from the network to the local source.

During 1983, a fifth method of signaling was also being used within the industry. An inaudible digital signal was used by SNC. Sat-A-Dat devices were used in the headend to decode the digital signals sent by the network. The Sat-A-Dat device provided contact closure to activate automation equipment.

The signaling cue tones utilized by satellite services consist of four DTMF tone pairs. The overall duration of the burst is approximately 1/4 second for the group of four tones. The fourth digit of the code is used to differentiate between the start and finish of an availability. Star (*) indicates the beginning and pound (#) indicates the end of the spot.

Most satellite services place a great deal of attention on the reliability and location of the cue tones. However, there have been numerous mistakes in cue tone transmission. In order to achieve a high degree of reliability with automated commercial insertion equipment, the proper audio level during DTMF tone transmission is extremely important.

One of the major problems with automated insertion equipment is the proper maintenance of audio levels as they apply to satellite tone decoders in the system. NCTA has recommended that during DTMF tone transmission, subcarrier deviation shall be 12 dB below peak deviation for that subcarrier. A convenient method must be developed and documented to measure the amplitude.

In order for the tone decoders to operate reliably, the amplitude range must be within a specific area. These amplitudes are very difficult for most cable technicians to accurately interpolate. Program signals vary radically, depending on the nature of a given program.

Tones are only transmitted several times an hour and few systems have the necessary equipment to check levels from the satellite receiver. There has been a lack of industry coordination and standardization concerning tone controls. Since the tones facilitate the automated insertion of locally generated material by the cable affiliate, it is necessary that satellite services place a high level of concern on the audibility of tones and their relationship to the program audio.

It has been proposed that the tone and space duration be not less than 35 ms and not more than 45 ms, with a 35-45 ms silence between tones. It is also proposed that there be a 40 ms pre-tone silence before each sequence of tone burst.

During September 1983, the Local Sales Advisory Board agreed to have its local advertising divisions closely monitor DTMF network tone performance during a two week period. During this period, commercial insertion operators kept a log of every problem caused by network signaling, equipment malfunctions, and operator error.

Documentation also included local breaks not running as scheduled, network's failure to send tones, erratic tones running in the middle of programs and scheduling errors. Erroneous tones may have been caused by cross talk in VCR audio channels but some were actual tone burst.

It was found, for instance, that during live coverage of a news event on CNN on September 6, tone signaling information ran at 15:55:56 EST during the Nigerian ambassador's presentation to the UN Security Council. The tones caused automated equipment to be activated, causing a break from the network. The reoccurrence of cue tones during live news coverage occurred again on September 7 at 14:28:00 EST, September 12 at 14:56:00 EST, and again on September 12 at 15:56:00 EST.

It was also found during the two week period that during scheduled local availabilities occurring during live sporting events on ESPN and USA Cable Network that DTMF tones and schedule information were sometimes erratic. It was also noticed during this time period that many of the video cassette players being used throughout the industry would not cue and lock within the prescribed pre-roll times for various networks. More than 75% of all units being

used for automated commercial insertion required more than 5 seconds pre-roll time. Most of ATC's automated 3/4 inch video cassette players required more than 5 seconds pre-roll time, for instance.

When all the variables concerning method of signaling, length of pre-roll time, fluctuation of schedule and operator error are combined, the reliability of automated commercial insertion becomes suspect.

PRE-ROLL TIME

The Cabletelevision Advertising Bureau's technical subcommittee proposes an eight (8) second pre-roll time for both manual and automated insertion systems. Since most video cassette players and recorders are servo-locked through the use of a TBC or simply by receiving a reference from the satellite signal, sufficient time must be required for servo-lock and pre-roll.

MODE OF OPERATION

Some important considerations for the operator when purchasing equipment for commercial insertion is the mode of operation, i.e. how the spots are sold, will the control system be manual or automated, will the system accommodate only "Run Of Station" (ROS) schedule, random access, sequential access or will it be a combination of manual and automated insertion. When making the selection for the type of equipment needed, the operator must take into consideration who the competition is and where the cable advertising revenue will come from. There are generally two attitudes in developing the cable advertising business.

1. Small Market

   The cable operator may be creating an advertising medium that does not already exist in the market the cable system serves. This is most common in smaller communities where the majority of local advertising is handled through print and radio. The lack of local television provides the cable operator with a new form of advertising in the market served. In this scenario, the cable operator has a greater equipment selection to choose from to accommodate the insertion of commercials. The cable operator may select to purchase equipment which is operated manually or automated equipment. The operator must examine the staffing required for either operation.

2. Large Market

   In a larger market, most commonly in the top 50 ADI, cable advertising is being compared to television advertising. The competition in this market is the broadcaster. The cable operator must be far more selective in choosing equipment which is capable of performing competitively with the scheduling standards, operational techniques and technical standards of the broadcaster. The switches from satellite services to local commercials and back to satellite service must be transparent. Switching must take place in the vertical interval and local equipment must be phased with the signals from the satellite feed.

   Extremely close attention must be given to the adjustment of audio and video levels to coincide with those of the satellite service. Time base correctors and audio signal processing should be considered when developing a commercial insertion system to serve a large market.

   Equipment must be flexible enough to accommodate program changes and commercial position changes. Optional log verification systems may be needed to certify the actual positioning and play times of commercials. These systems are generally staffed during the hours of operation to allow for manual operation or override of the automated system.

EDITING COMMERCIAL REELS

The formatting of commercials is extremely important when selecting a mode of operation. Attention should be given to the amount of time required to edit commercial reels. It may be necessary with some automated systems to tone tapes, digitially encode information, or carefully note the control track or SMPTE time code of the tapes.

Editing commercials can be very time consuming. With some systems, an operator can opt to edit commercials back to back on a videotape. This technique is most common when scheduling a Run Of Station schedule (ROS).

An operator can select the technique of building spot reels by carefully studying the schedule of the various satellite services. A tape can be built which consists of individual breaks which will be run in 30, 60, 90 or 120 second commercial segments. This tape can then be programmed manually or through an automated system. The operator must be aware that this technique is not flexible when dealing with program schedule changes.

Another common method is editing "pods." Tapes are edited to accommodate groupings of commercials. These groupings are then programmed as a commercial pod. The positioning of various commercials are selected prior to the editing process. This technique is most commonly used in semi-automated systems.

The single spot tape is the least common used by cable operators with manual or automated commercial systems. A tape with one single commercial may contain identification and signaling information. The tape is most commonly used in a sequential automated system and can easily be played in a manual sequential operation.

Regardless which editing format is used, the operator must always pay close attention to the details involved in the editing process. The operator must time the commercials carefully, must place toning or digital information at precise locations and must not

overlook the importance of proper video and audio levels.

EQUIPMENT

Selecting the proper equipment to meet the mode of operation the cable system has chosen may be the most important step in designing your commercial insertion system. During the period from August 1983 to April 1984, I have been able to identify 30 hardware manufacturers all claiming to design and build automated commercial insertion equipment for the cable industry. Many of these operators are familiar with the satellite programming services which provide local commercial insertion availabilities, as well as the needs of the cable operator. Other manufacturers have never been on the premises of a cable system, nor have they seen any of the satellite services with which their system is designed to work. Much of the equipment has never been tested in a field environment. Cable operators are being told that the automation systems are so reliable that the equipment can be set up in a headend and operated for seven days at a time totally unattended. Some manufacturers lack the sensitivity to understand the operational needs of the cable system. Sometimes a cable system finds itself with equipment that cannot perform the requirements of the advertising sales department. Other times, the equipment is designed with software that cannot accommodate operator errors, satellite signaling errors or last minute program changes. Manufacturers must understand cable, the business of commercial advertising on cable and the satellite programming with which their equipment is designed to interface. A manufacturer that does not know the difference between the DTMF signaling on CNN and the tone signaling on MTV should not be telling the operator that his system is fail proof, and all tones are the same. Too often, the cable operator has been touted in ordering equipment which he thinks and has been told will serve his needs only to find that it does not perform as expected. It is the responsibility of the cable industry, hardware manufacturers and the programming services to work together to provide information which allows the manufacturers to design and build equipment suited to fill the needs of the end user.

Many manufacturers perceived the cable industry as the new frontier—an opportunity for increased sales and a new source of revenue. Manufacturers should not take advantage of the cable operator by rolling out product which is not ready for field distribution. Too many cable operators have spent too much time attempting to de-bug insertion systems, spent time replacing components and returning equipment which has been recalled by the manufacturer. Recently, one noted manufacturer of commercial insertion equipment recalled to the factory the first 75 devices delivered to the field. Cable systems are in the business of selling commercial avails, not being test locations for various manufacturers.

There are a number of manufacturers that have excelled in the design, development and rollout of commercial insertion equipment. They have taken the time to evaluate cable's needs, and the method in which cable operators would like to insert commercials. They have studied the individual programming services and signaling techniques, and they have been in the field to see what works and what doesn't.

Cable operators must take the time to question the manufacturers and seek out other end users that are using the products proposed. Also, the cable system should check the integrity of the manufacturers and vendors when seeking out commercial insertion equipment. The manufacturer and vendors must be financially stable to stay in business long enough to complete the project and to provide the necessary service and support after the hardware has been sold.

DESIGN AND DEVELOPMENT OF COMMERCIAL INSERTION SYSTEMS

When designing a commercial insertion system, one should take into consideration the entire scope of the project.

1. The mode of operation
2. The number of channels
3. The programming services on which the availabilities will be inserted
4. Network signaling methods
5. Physical requirements
   - (a) Space
   - (b) Electrical
   - (c) HVAC

A design and development phase should allow for the gathering of all the necessary data pursuant to the engineering design phase of the project. The objectives and design parameters should be identified, reviewed, discussed and prioritized. All mechanical and electrical criteria must be evaluated pursuant to the performance of engineering and final design of the commercial insertion system.

Manufacturers and turnkey vendors should produce documentation necessary and incidental to effect application. Documentation should be further defined as providing hardware descriptions including block diagrams, schematics, system wiring diagrams and control diagrams.

The design should be reviewed to ensure that optional interfaces with the headend are included. These could include stereo processors similar to the ones used with The Nashville Network and MTV. Those most commonly used are the Leaming, Wegener and Catel. Some of these processors will require optional VCR cards. If an operator is planning to insert commercials on a stereo service and has unanswered questions, it is best to contact the manufacturer or the particular satellite service for assistance.

THE TIME IS NOW

Cable operators, programmers and manufacturers must work together and concentrate efforts to ensure the industry's overall chances of success with local advertising sales. Generally recommended practices must be established for all areas. The time is now to settle on pre-roll times that manufacturers, programmers and cable operators can live with.

The first step has been taken. All parties now realize the need to work closely in establishing guidelines for the technical development of commercial insertion. We must work together to develop economically viable methods to accomplish local commercial insertion. We must study the problems of commercial insertion involving multiple headends and system interconnects.

Programmers and manufacturers alike must not forget the needs of the small system operator. We must afford these systems the same support and concern that we offer the large MSOs. The intent is to bring the program services, local operators and manufacturers together to avoid the many, many horrendous problems that we have encountered.

Cable advertising is fast becoming an important part of the cable industry, however, without major attention to the problems inherent in local advertising, the operators, the program services, and the manufacturers can expect major dissatisfaction. In order for local commercial sales to be successful, a cooperative effort must be made between cable operators, program services and equipment manufacturers to develop reliable methods of commercial insertion.

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BIBLIOGRAPHY

Redding, Alan: "Special Report - Commercial Insertion Equipment," Cable Marketing, February 1982

"Ad Insertion Equipment Seen Reaping Future Profits," Cable Age, November 30, 1981

Killion, Bill: "Advertising Insertion Equipment," Sat Guide July 1982

Killion, Bill: "Advertising Insertion Equipment Part II," Sat Guide August 1982

Rosenthal, Edmond: "Local Ad Sales Get MSO Headquarters Support," Cable Age May 31, 1982

Allen, Joe: "Cable and Advertising," Video Systems June 1982

Brenerman, Paul D.: "Local Commercial Insertion For Satellite-Programmed Facilities," Broadcast Engineering October 1983

Abramson, Dan: "Advertising Interconnect," Cable Age October 10, 1983

Hausman, Robert: "Affiliate Advertising Sales Get Bigger Network Boost," Cable Age April 25, 1983

Hausman, Robert: "Pioneering Local Ads," Cable Age March 28, 1983

Metz, Brad: "Automated Ad Insertion Systems-The Next Hot Item," Cable Age February 28, 1983