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Response to FCC  
Inquiry into Encryption Technology for  
Satellite Cable Programming

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TV/COM International

PREPARED FOR: FCC

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TV/COM INTERNATIONAL 16516 VIA ESPRILLO, SAN DIEGO CA, 92127

## **Introduction**

This document is in response to the Federal Communications Commission's Notice of Inquiry adopted October 8, 1992 and released November 4, 1992 (Inquiry into Encryption Technology for Satellite Cable Programming, PP Docket No. 92-234).

By this Notice of Inquiry ("Notice"), the Commission undertakes its third examination of encryption technology for satellite cable programming. The current proceeding responds to a request from members of Congress to "(1) review efforts to develop at least one additional source of video descrambling modules compatible with de facto industry standards for use of the C-band, and (2) review the feasibility of ensuring that all legal and compatible descrambling modules be eligible for authorization through the Direct Broadcast Satellite (DBS) Authorization Center." In addition to exploring these issues, this document takes this opportunity to address related technological issues, such as the feasibility and utility of a standard decoder interface that would permit a single integrated receiver descrambler or IRD to function with multiple encryption systems, perhaps by use of a separate replaceable security card, and the implications of the trend toward digital transmission of video.

### **About the Author:**

Todd Easterling, Director of Marketing Operations for TV/COM International has been employed by TV/COM since August, 1991. Previously, Mr. Easterling held marketing and product management positions with General Instrument, VideoCipher Division. At General Instrument, Mr. Easterling's accomplishments included product specification and marketing of VideoCipher II Plus, VideoCipher RS, and DigiCipher HDTV satellite decoders and receivers.

### **Summary of TV/COM's comments/recommendations**

- Competing manufacturers should have access to the DBS Center.
- At least two additional manufacturers should be granted the right to manufacture the analog VideoCipher product. The replaceable security card utilized by VideoCipher modules and future digital decoders should use a non-proprietary standard edge connector/interface (non-proprietary).
- A standard non-proprietary, "digital module" protocol should be developed for the next generation commercial and consumer digital compression IRDs and modules. The digital module should include a standard edge connector for interfacing with IRDs.
- The industry should adopt MPEG as the standard for digital compression.
- Next generation satellite systems should be capable of multiple uplink and control facilities. TV/COM's digital compression system accomplishes this. Thus, a programmer can operate its own control center or share control with a central "DBS" center at their discretion.

## Background on TV/COM International (formerly OAK Communications)

### The Company:

TV/COM International, formerly called OAK Communications, designs, manufactures and markets digital compression products, electronic encoders, decoders, access control systems and interactive terminals for use in cable, MMDS and satellite television systems. TV/COM is a privately held company and is controlled by Concord, a Denver, Colorado company. TV/COM is not affiliated with Oak Industries, Inc.

### Headquarters:

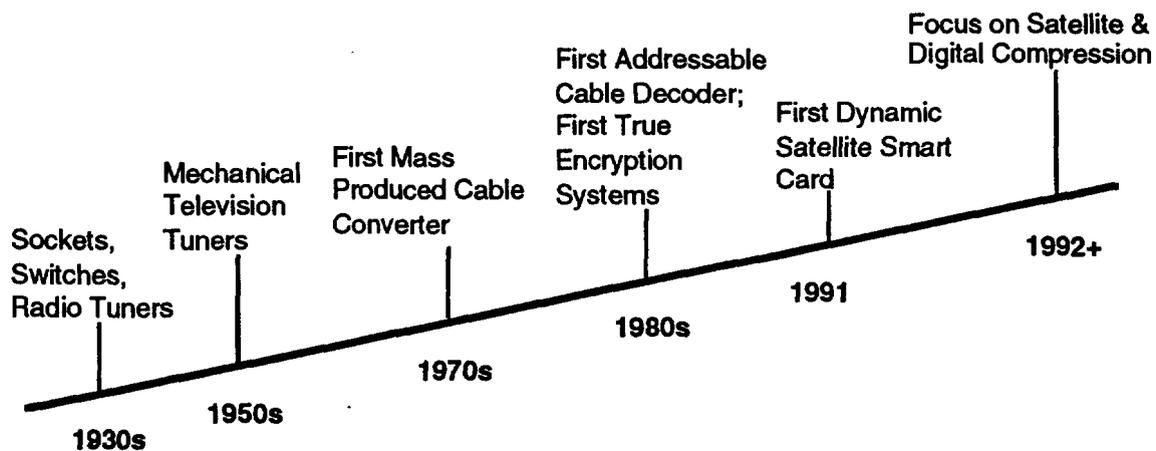
TV/COM International is located at 16516 Via Esprillo, San Diego, CA 92127 Phone: (619) 451-1500 FAX: (619) 451-1505.

### Company History:

OAK Mfg. Co., founded June 1, 1932 in Crystal Lake, Illinois, produced sockets, switches and tuners for the radio industry.

In the late 1940s and early 1950s the demand for television sets exploded. Capitalizing on its experience in manufacturing switches, condensers, and radio tuners, OAK took advantage of this market opportunity and became the world's leading supplier of television tuners.

OAK Communications, the company's CATV business, was established in 1971. OAK's engineers invented the addressable converter/decoder and developed the first baseband decoder, encrypting video and audio for total security.



In 1975, OAK entered into a joint venture to operate subscription television services. The first service began broadcasting in Los Angeles in 1977 under the name ON TV. It was an instant success, and between 1978 and 1982, OAK opened four additional subscription television services, established a satellite delivered pay television service, co-produced feature films for distribution to the pay TV market, fielded the industry's first commercial satellite encryption system (Orion®), and expanded its manufacturing capacity for cable television converters and decoders.

In 1979 OAK moved its corporate headquarters from Crystal Lake, Illinois, to Rancho Bernardo, California.

In 1982 HBO sought proposals for an encryption or "scrambling" system for its signals. OAK responded to the Request for Proposals from HBO, however, the order went to M/A-Com, Inc. and on January 15, 1986, HBO began scrambling its satellite feeds. Though widely believed to be superior in encryption security compared to M/A-Com's system, M/A-Com's system was selected partially due to its lower cost. The M/A-Com system was a cost reduced derivative of the OAK Orion system. In the late eighties, OAK licensed its addressable technology to several of the industry's major manufacturers including General Instrument, Scientific Atlanta and Zenith.

Although the loss of the HBO order and subsequent orders from other programmers standardizing on VideoCipher II was a huge blow to OAK, the selection by Cancom of OAK's Orion system in the early eighties, to secure programming of Canadian content programming to all of Canada, has kept TV/COM's sales healthy.

In order to promote the company's global accomplishments and international focus, the name OAK Communications was changed to TV/COM International at the Western Cable Show on December 2, 1992.

Today, TV/COM is focusing its resources in strategic areas including interactive technologies for cable and satellite, new applications for its ProGuard network encryption products and digital compression for both cable and satellite.

### **Competition in the Provision of VCII Decoder Modules**

As stated in the FCC Notice of Inquiry (section III, paragraph 12), General Instrument controls, either directly or indirectly, the manufacturing and distribution of all VideoCipher modules. General Instrument claims to have a second source manufacturer of the modules, Channel Master. Channel Master, however, must purchase key components from General Instrument and General Instrument keeps a close eye on the price points Channel Master sells its version of the module at and on the distribution practices of Channel Master. General

Instrument has refused to license any other company to manufacture VideoCipher modules, even at times when product manufacturing capacity could not meet demand.

Since HBO's scrambling of its satellite feeds in 1986, virtually all other programmers have adopted the VideoCipher scrambling system. The reason for selecting VideoCipher is very simple. Programmers get access to the DBS center located at and operated/controlled by General Instrument and access to the hundreds of thousands of VideoCipher decoders in the market. Thus, for a domestic programmer desiring to serve cable head ends and the home satellite market (TVRO), there is virtually no option other than to go with VideoCipher scrambling.

Due to the extreme barriers to entry, TV/COM International, and other smaller encryption providers such as Scientific Atlanta have essentially abandoned efforts toward competing with General Instrument in the entertainment segment of the domestic satellite encryption business. TV/COM has instead focused its resources on international opportunities and on smaller niches within the domestic satellite communications industry.

The form factor for the VideoCipher module General Instrument and Channel Master sells has driven industry manufacturers of integrated receiver descramblers (IRDs) to design their products such that they will accept the VideoCipher module. Although TV/COM also offers a scrambling module compatible with the physical form factor of the VideoCipher module, TV/COM is virtually excluded from the U.S. entertainment market because TV/COM's scrambling system is not compatible with the proprietary General Instrument VideoCipher system.

In response to the Notice of Inquiry (section III, paragraph 15) and the request for comments from equipment manufacturers on the viability and desirability of a non-GIC supplier of decoder modules, TV/COM believes that other manufacturers of satellite scrambling systems should be allowed to enter the VideoCipher module business. More importantly, however, TV/COM believes that the industry should focus on preventing General Instrument from developing a monopolistic position in digital compression or "digital modules," rather than trying to "fix" the analog encryption business at the "eleventh hour" before introduction of digital communications. To this end, TV/COM proposes an open architecture digital system and module protocol for the next generation of programming security systems. This will be discussed further in the document.

Although TV/COM agrees that competition could benefit the U.S. analog satellite industry, it is TV/COM's opinion that the window of opportunity for an alternative manufacturer to make a substantial business from manufacturing and marketing a VideoCipher-like analog module is passing quickly. With this in mind, TV/COM is more

concerned with the transition to digital compression. General Instrument is purported to be developing a new "digital module interface" that will only accept General Instrument's DigiCipher module, a module said to be slightly larger than the current VideoCipher module. Industry speculation is that General Instrument intends to transition the entire industry from the virtually monopolistic analog VideoCipher system to the new digital DigiCipher system, thus maintaining their control over the U.S. satellite entertainment programming market. It is TV/COM's opinion that this should actually be where the focus of the FCC's attention should lie. Digital compression will provide the industry, and the FCC, with a fresh new starting point that can encourage competition and tremendous benefits to the end consumer. These benefits can only be realized if a digital module protocol is developed and made available to any manufacturer of digital transmission technology. If General Instrument is permitted to essentially force the industry into using a proprietary digital module interface, they will again control the U.S. satellite entertainment programming delivery business.

#### **Access to the DBS Authorization Center**

TV/COM believes that if the DBS Center is indeed intended to serve programmers, programmers should have a stronger management role in the operation of the DBS Center. The DBS Center is located on General Instrument VideoCipher Division's premises and is managed by General Instrument employees. It is TV/COM's opinion that location of the DBS Center at General Instrument and management of the center by General Instrument employees has led to a conflict of interest. Very sensitive and valuable information is maintained at General Instrument's facility for the intended purpose of the DBS Center (e.g., customer address and purchasing records for all VideoCipher subscribers). This information is of extreme value to a company which not only manufactures scrambling equipment, but also manufactures and markets its own line of integrated receiver descramblers. There has been much industry concern that this valuable customer information could provide General Instrument with an excellent tool for marketing its own products.

As stated in the Notice of Inquiry, HBO and Showtime are purported to receive a "commission" on every VideoCipher module produced, regardless of whether the module is used for descrambling an HBO or Showtime service. Industry speculation is that this arrangement was entered to appease HBO and Showtime at a time when VideoCipher decoders were heavily compromised (i.e., HBO and Showtime were losing millions of dollars because VideoCipher security was broken). In addition to not being fair to the other programmers using VideoCipher and yet not receiving module payments, the "deals" with HBO and Showtime further lock the industry into a state of non-competition. In addition to purported module commissions, industry speculation is that General Instrument may have only agreed to programmers' demand for a

security module upgrade in conjunction with a commitment from certain programmers agreeing to utilize General Instrument's DigiCipher system when available, thus much of the U.S. satellite business may continue to be controlled by General Instrument if nothing is done.

### **Other Technological Issues**

The FCC has requested information on encryption technologies available today (section V, paragraph 21). TV/COM International manufactures two scrambling systems. Orion® is a system very similar to the VideoCipher scrambling system. Orion is used by Cancom, the largest Canadian satellite communications company, for delivery of programming to virtually all of Canada (cable headends and TVRO). ProGuard® is TV/COM's "top of the line" scrambling system and is used for programming delivery demanding the highest possible security. The system is currently in use in South America. ProGuard utilizes a replaceable "security card" for upgradeable security, although the security has not been broken to date. Both ProGuard and Orion decoders are available in commercial rack mount and consumer stand-alone or module configurations. Users of ProGuard and Orion control their own subscribers, unlike users of General Instrument's VideoCipher system. TV/COM believes that the databases and control of a programmer's customers should be maintained by the programmer. To accomplish this, TV/COM sells a control system to each programmer, rather than demanding that the programmer use a "DBS" center.

As stated in the Notice of Inquiry, the trend toward digital compression will impact the delivery and control of programming. TV/COM does not want to see the industry make the same mistakes as it transitions from analog to digital. It is obviously in General Instrument's best interest to attempt to push the industry into adopting its proprietary digital compression system and digital module protocol. TV/COM believes that General Instrument should not be allowed to demand the use of a proprietary digital module interface from the current VideoCipher licensees. The FCC should promote the adoption of an open architecture digital compression system (MPEG) and promote the use of a digital module protocol that would make it possible for several competing manufacturers to build digital modules using an industry standard non-proprietary interface with integrated receiver decoders. Although General Instrument's HDTV proposal for broadcast television to the FCC is non-MPEG, General Instrument has recently made announcements that it is changing a version of its satellite delivery system to MPEG, or MPEG-like due to pressure from programmer PBS and cable operator TCI. TV/COM believes that the industry would best be served if it adopts the MPEG standard for digital compression and arrives at a "digital module" protocol for commercial and consumer integrated receiver decoders of the future. If one manufacturer maintains control over the protocol, the industry will continue to be monopolized.