

GENERAL
INSTRUMENTVideoCipher Division
General Instrument Corporation
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FAX 619-535-2486

February 7, 1989

*Change from
standard V-C II to
V-C II+ standard*

General Instrument has been reviewing its plans for introduction of VideoCipher II-Plus technology later this year. As you know from our announcements in December, we have diligently worked to accommodate our licensed manufacturers and alleviate their major concerns related to this improved product.

In recent weeks, a new and quite positive trend has emerged and is influencing immediate decisions regarding VideoCipher II-Plus security. The trend, of course, is the improved security outlook. The "-7" firmware has held up under assault by pirates and "Chip on Board" hardware is on schedule. In addition, the fourth quarter of 1988 showed a dramatic improvement in the ratio between new authorizations and shipments by General Instrument. In December and January, new authorizations exceeded General Instrument shipments.

Given the favorable authorization/shipments ratio, the impact of our unrelenting six-point anti-piracy program and the new federal law with its severe penalties, it appears that the TVRO environment is much more secure than it was in September when we formally announced our plans for VideoCipher II-Plus introduction. Based on current information, we believe this more secure environment should prevail in 1989.

In this current operating environment, General Instrument remains committed to distribution of the VideoCipher II-Plus security cartridge to consumers as a means of enhancing security. In 1989, the VideoCipher Division will invest in establishing the infrastructure for direct distribution. This will include purchase of computers, software, and personnel training.

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However based on the current security environment, we intend to place our direct distribution plans on "stand-by" status, as a new weapon available to fight piracy--when needed. Our stand-by, direct distribution infrastructure will be prepared to go into operation within 60 days of a serious VideoCipher II-Plus security compromise.

This decision means the following for our licensed manufacturers when VideoCipher II-Plus technology is introduced in the September time frame:

- * Direct distribution will be a capability and security feature of the VideoCipher II-Plus system and will be held on stand-by status.
- * Under the existing License and distribution methods, licensees will receive from General Instrument both the support module and the security cartridge, coupled together.
- * The basic VideoCipher II-Plus module/security cartridge remains, as you were notified last year, an enhancement to our existing technology and will not require a new license for existing licensees.
- * As a security enhancement feature, under the existing license, General Instrument will implement direct distribution of the security cartridge should the VideoCipher Division determine such distribution is necessary.
- * Because of stand-by direct distribution and the delivery to licensees of integrated security cartridges and support modules, licensees may wish to institute plans to redesign IRD back panel configurations that will permit easy consumer installation of VideoCipher II-Plus security cartridges. Specifications/dimensions for this modification are not ready. In our effort to openly communicate with licensees, please be advised that General Instrument intends to implement an IRD back panel that will allow consumer-friendly interface of VC II-Plus security cartridges.
- * Should direct distribution become necessary, licensees would purchase from General Instrument a support module and a certificate. Consumers would redeem the certificate for a security cartridge, already paid for at the time of their IRD/standalone descrambler purchase.

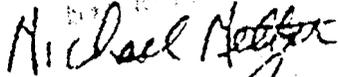
MAI (11/1/1994)

**GENERAL
INSTRUMENT**

We view this announcement as a very positive development. The tide is turning against piracy and momentum is gathering in favor of those who are working hard to legitimately build this industry.

Should you have any questions regarding stand-by direct distribution, please call me.

Sincerely,



Michael Meltzer
Vice President
Sales and Marketing

P.

RECEIVED

JUL 1 1991

FCC MAIL BRANCH

APPENDIX D

Documents to pages 12-14

W

GI'S CSPP PROGRAM On April 1, General Instrument began shipping the VC II Plus modules covered by their new Consumer Security Protection Program (CSPP). Under the program, during the first three years of ownership, eligible, subscribing consumers will be protected against any migration to a newer version of VC II Plus technology that may be required. The new modules are encased in a maroon frame and have distinct serial numbers that easily identify them as CSPP-protected.

pg 8
Satellite Retailer June 1991

DISTRIBUTION

Before the
Federal Communications Commission
Washington, D.C. 20554

GEN Docket No. 89-78

In the Matter of

Inquiry into the Need for
A Universal Encryption Standard
for Satellite Cable Programming

REPORT

Adopted: April 12, 1990

Released: April 25, 1990

By the Commission:

Table of Contents

	Paragraphs
I. INTRODUCTION	1-4
II. ANALYSIS AND COMMENT SUMMARY	5-68
Consumer Costs and Benefits of a Mandatory Standard	7-30
Advanced Television and Other Enhancements	31-38
Unauthorized Decryption of Satellite Cable Programming (Piracy)	39-49
Costs and Benefits of a Standard for Other Authorized Users	50
Competition in the Manufacture of Decryption Equipment	51-56
Impact of the Time Delay Associated with Commission Standard Setting Procedures	57-60
Other Matters	61-68
III. CONCLUSIONS	69-75

Appendix: Institutional Comments and
Reply Comments in General Docket No. 89-78

I. INTRODUCTION

1. The Commission undertook this inquiry pursuant to Congressional instructions in the Satellite Home Viewer Act of 1988.¹ Our mandate was to determine "the need for a universal encryption standard that permits decryption of satellite cable programming intended for private viewing." The Act also provides that, if the in-

quiry establishes that a standard is "necessary and in the public interest," the Commission "shall initiate a Rule Making to establish such a standard."² The term "satellite cable programming" is defined in the Communications Act as "video programming which is transmitted via satellite and which is primarily intended for the direct receipt of cable operators for their retransmission to cable subscribers."³

2. The Act enumerates the following six factors that the Commission should take into account in its inquiry:

- (1) consumer costs and benefits of any such standard, including consumer investment in equipment in operation;
- (2) incorporation of technological enhancements, including advanced television formats;
- (3) whether any such standard would effectively prevent present and future unauthorized decryption of satellite cable programming;
- (4) the costs and benefits of any such standard on other authorized users of encrypted satellite cable programming, including cable systems and satellite master antenna television systems;
- (5) the effect of any such standard on competition in the manufacture of decryption equipment; and
- (6) the impact of the time delay associated with the Commission procedures necessary for establishment of such standards.⁴

3. The *Notice* in this proceeding, and prior Commission reports, provide background information regarding the home satellite dish (HSD) programming market.⁵ In its earlier general investigation of the HSD market, the Commission concluded that a mandatory encryption standard would not serve the public interest. At that time, the Commission found that the market had settled on the Videocipher II (VC II) system as a *de facto* standard, so consumers were not required to purchase multiple decoders and that a mandatory standard would limit the incentives for innovation in encryption technology. The Commission expressly noted the possibility that a "quantum leap" in technology could occur, whereby an existing encryption system was replaced by one offering substantially higher quality or lower cost.⁶

4. In this inquiry, the Commission undertook a comprehensive reconsideration of the utility of mandatory encryption standards. After careful analysis of the record, we conclude that imposition of mandatory encryption standards at this time would not serve the public interest. The next section of this *Report* contains our analysis, organized by issue and accompanied by a summary of the comments in this proceeding. Our conclusions appear in the third and final section of the *Report*.

II. ANALYSIS AND COMMENT SUMMARY

5. Eighteen institutions or groups filed formal comments in this proceeding and nine filed reply comments.⁷ Two of those nine did not file comments. The record also contains roughly 75 comments from individuals and a one-hour tape of opinions from a satellite radio talk show provided by K-SAT.⁸ No institutional commenter favors a mandatory standard at this time and most of them strongly oppose it. The individual comments generally advocate

system is a possibility, programmers will do so only in extreme circumstances and are likely to give the manufacturer substantial leeway in responding to piracy.⁷⁷

49. GIC asserts that it "would be a major beneficiary of the reduction in piracy."⁷⁸ One explanation for this claim that we find persuasive is that the demand for encryption services is growing, both here and abroad. GIC's participation in these potentially lucrative markets (e.g., DBS in the United States and in Britain and Japan among other places) would be jeopardized by continuing failure to deliver security in the home satellite market in the U.S.⁷⁹ Thus, while a mandatory encryption standard would not reduce piracy, there are significant incentives for private parties to take actions to combat it.

50. *Costs and Benefits of a Standard for Other Authorized Users.* Only one commenter even mentioned this explicitly, and its discussion was couched wholly in terms of consumers.⁸⁰ Robin Adair, in advocating a standard that would apply to all media (cable, at the subscriber's television receiver, MMDS, HSD, etc.) suggests that the resulting decoder would be less expensive.⁸¹ Presumably, this would benefit other authorized users as well as HSD consumers. By and large, we believe that the governing considerations here are the same as in the consumer case, so we conclude that these users, too, would not be well served by a mandatory standard.

51. *Competition in the Manufacture of Decryption Equipment.* Various commenters complain about what they see as limited competition in the Videocipher II decoder market.⁸² However, no institutional commenter suggests that a standard *per se* would increase competition. Some individuals assert that a standard would lead to increased competition in decoder manufacture and lower decoder prices. For example, Russell R. Moore argues that

A new standard would allow other companies to get into the marketplace and create competition that could do nothing but benefit consumers. Lowering the price of the decoder would create more consumer acceptance . . .⁸³

These commenters do not address the question of cost levels for decoder technology. While claims have been made that a secure decoder could be produced for much less than the VC II, no evidence or analysis has been presented to support them and they must be considered mere speculation.⁸⁴ GIC notes, quite properly, that the cost of a decoder depends on the particular characteristics embodied in it and a different encryption technology than VC II (e.g., VC I) could yield higher decoder prices.⁸⁵

52. Assuming that a standard contains proprietary technology, the amount of competition depends on the licensing practices of the patent holder(s). NRTC and AHSA suggest that, directly or indirectly, the Commission should regulate those practices with respect to GIC and Videocipher. GIC and SBCA contest the Commission's authority to compel patent licensing.⁸⁶ Individuals who support a standard generally do not address the issue of proprietary technology.⁸⁷ We take no position on the legal issue since we have concluded that a standard would not serve the public interest and that the specific complaints of NRTC and AHSA require no regulatory intervention (see *infra* at paras 61-68).

53. GIC asserts that, in fact, it licenses Videocipher II technology widely. It notes that there are 22 IRD licensees and that Channel Master is a second source licensee for Videocipher II modules.⁸⁸ The IRD licensees do not compete in the provision of decoding capacity, since they use identical modules. However, they compete in a limited sense with respect to the markup they add to the module price and the tooling costs they incur to insert the module into their IRD assemblies. It is also worth noting that the dish owner is not limited in the choice of satellite receivers generally by GIC's licensing practices, and we assume that there is substantial competition in the overall satellite receiver market among the 22 licensees and, perhaps, other providers too.

54. IRD licensees can purchase the VC II module from either GIC or Channel Master. Competition here is limited by the fact that Channel Master must purchase certain proprietary chips from GIC. In essence, then, Channel Master can compete with GIC on the value added in fabricating modules from those and other components.

55. Two commenters that are themselves involved in developing alternative encryption systems, NEC Home Electronics and Payview, focus on another aspect of competition. The discussion above relates to competition in the provision of equipment for one particular encryption system. These commenters urge against a standard on the grounds that it would inhibit competition among systems. Thus, even if it were true that a standard increased competition in the manufacture of a given system, consumers might still benefit more from an environment in which manufacturers of rival systems could easily enter the market. As NEC phrases it competition would be better served by refusing to establish an encryption standard and by allowing the market to operate freely . . . a scrambling standard mandated by the FCC would make it much more difficult for new competitors to enter the market because the standard would prevent them from offering innovative products to compete against VC II and similar systems.⁸⁹

56. We conclude that the effect of a standard on competition in the manufacture of decoding equipment is ambiguous. Moreover, we find that VC II equipment is widely available and that nothing in the record of this proceeding provides grounds to question the workings of our nation's constitutionally provided for patent system in this market.

57. *Impact of the Time Delay Associated with Commission Standard Setting Procedures.* With respect to time delay there are two issues--the effect and the duration. Commenters who addressed these issues generally agreed that the delay associated with a standards setting proceeding would have a significant effect. Those who attempted to estimate the duration of the delay came up with figures measured in years rather than months.

58. With regard to the duration of delay, GIC presents a list of 10 "recent FCC technical standards proceedings," for which it claims that the adoption time for standards ranged from five to 15 years. GIC estimates that it would take "three to five years or longer for the Commission to adopt an encryption standard."⁹⁰ HBO suggests that "at a minimum, it would take approximately two years for the Commission to conclude an encryption standard proceeding."⁹¹ Netlink estimates that the process would require "several years" and observes that, even after the Commission has made its choice, a court challenge is likely.⁹²

sed "Northern Exposure" has at-
ss-over attention but more viewers
ght style and the gentle, affable quirks
abiding citizenry. It is no accident that
as peaked and that "Northern Expo-
ime-time sun.

er "St. Elsewhere" producers Joshua
reaped the benefits of "Peaks" trail-
ision while managing to find a quiet and
something that eluded Lynch, partner

a nice place to visit. It was just so mor-
the place "Northern Exposure" calls
want to live.

"Peaks." Granted, few will forget the
ey Horne (Sherilyn Fenn); java-and-
ooper (Kyle MacLachlan), the kind of
is Tibetan bent) Americans will follow
er or whatever he was).

ere who could actually relate to, care
le? That always helps if you want a se-

an (Rob Morrow), the New York medi-
to relocate to Cicely as payback to
or his education. High-strung, easily
ner, he's no hero figure. But the com-
people far more likable and believable.
ersexed young ladies of "Peaks," "Ex-
est Maggie O'Connell (Janine Turner),
ep a boyfriend alive. And then there's
who's 44 years younger than her boy-
illum), a 62-year-old tavern owner.
emselves.

BC ever expected "Twin Peaks" to work.
thusiastic interest from critics, the show
lay night time slot opposite NBC's top-
how suffered. When the '90-'91 season
to Saturday, a night its young audience
didn't work, "Peaks" was shuttled back
which it was yanked again in April.

other hand, came on with little fanfare
retrospect. After a strong performance
ed the more-comic-than-dramatic hour
ay night lineup where it has prospered.

"Twin Peaks," which in classic soap-
lines, there was no way to get on.
s and world of "Northern Exposure,"
ney can visit when they want.
Peaks" behind after Monday night will
n Exposure" lies ahead. ■

and several state attorneys general filed sepa-
rate antitrust suits attempting to block
CNBC's takeover of FNN. Previously, a
deadlocked U.S. Federal Trade Commis-
sion had refused to take action to block
CNBC's takeover of FNN. Commission
members voted 2-2, with one member ab-
staining.

"The question the courts will have to

to \$115 million and for the first time
adopted the Dow group's revenue-sharing
plan. The contingent payment will consist
of half of the combined FNN-CNBC rev-
enues above \$227 million, if any, between
1992 and 1994.

The Dow group initially bid \$90 mil-
lion in February but was topped by
CNBC's \$105 million a month later. ■

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Short Takes

CHANGES: Fox Net, which launched
June 6 with an 18-hour programming
schedule for smaller cable systems, can
be found unencrypted on Galaxy 3 on a
transponder Fox officials hadn't yet deter-
mined at press time. Regular Fox Broad-
casting programming will continue its
east and west feeds on T3/18 and T3/24
... In case you haven't noticed (and few
people have), KUBD, the old movie sta-
tion that takes over late at night from
KRMA, has been off the air since the
abrupt move to F2*18 from F1 a couple of
months ago ... Fight fans hoping to learn
that the Tyson-Ruddock fight would be
made available to the home dish audience
via VideoCipher II Plus will have a long
time to wait: the June 28 fight was can-
celed so Mike Tyson can go for the heavy-
weight title against Evander Holyfield
later on this year ... Fans of "Mork &
Mindy" on Nickelodeon will be happy to
note that episodes different from the Nick
at Nite shows began airing at 4 p.m. on
June 3 in place of "You Can't Do That on
Television." #199-

G1 MOVE: As was reported here last
week, get ready for a move of the Galaxy
1 satellite which will begin on June 21 at 9
a.m. and end on June 28 at the same time.
G1 will move one degree east from 134
degrees west longitude to 133 degrees.
Dish owners with autotune capabilities
should adjust their dish location every day
or so to continue receiving a top-quality
picture.

A full report will be in next week's *Sat-
ellite TV Week*.

SLUGFEST: TVKO's "Slugfest in the
West" pay-per-view boxing matches featur-
ing Loreto Garza vs. Edwin Rosario for the
WBA World Jr. Welterweight title and Jorge
Paez vs. Tracy Spann in a lightweight bout
will be aired live on June 14 on F3*21 at 9
p.m. from Sacramento, Calif. The bouts
will be available to VC II Plus decoder own-
ers only, via 1-800-426-1731.

COURT TV: The Courtroom Televi-
sion Network is slated to launch on July 1
on Satcom F1R (F3), with as many as
three live trials a day, special programs
and highlights of the week's hottest trials
nationwide.

VIDEOCIPHER PRICES: Current
retail prices for VideoCipher modules are
as follows: Outright purchase of a Video-
Cipher II Plus with Consumer Security
Protection Program (three-year upgrade
warranty), \$399, or \$419 with built-in Vi-
deopal pay-per-view modem; replace-
ment VC II Plus or untampered VC II
with exchange VC II Plus or untampered
VC II, \$79 and VC II Plus CSPP with
exchange untampered VC II, \$199, or
\$219 with built-in Videopal. Consumers
who wish to exchange tampered VC II
modules for VC II Plus CSPP modules
will pay \$349, or \$369 with built-in Vi-
deopal. These prices, effective Apr. 8,
1991, do not include postage and hand-
ling; prices and module availability are
subject to change. Call General Instru-
ment's customer service number, 1-704-
327-2026, in North Carolina for purchase
or exchange information. ■

June 9-15
S.T.V. Cable

saying that he
t seem too confi-

of fact, I can think

ost's most popular run-
um roll, please):
obably won't be the next

line of stylish menswear
id sneakers.

l-footed lawbreaker Letter-
Connecticut home to Los
traffic tickets for tightfisted

rs claiming to be wife no

west who haven't had their

-the-wool East Coast guy,

give NBC another shot.

absolutely, positively won't

p. Cut to commercial.) ■

Howard Rosenberg

merica

inert stump before a video
s carriage was typically stiff,
ritone voice a droning, som-
singer.

temperatures for such famil-
Palestine, Ala.: "I'm sorry to
, he *did* say that.
guru of international affairs,

o-anchor of "CBS This Morn-
esire" to be a weathercaster,
esday's program as an awk-
ular Mark McEwen.

"secret desires," you'll hear
t Affair." And see him act them
' It's that kind of media world.

wanted to do the weather, or
during the Persian Gulf war?
ver. ■

munications Association (SBCA) asked
members of the House Telecommunica-
tions Subcommittee to exempt satellite
transmissions from a retransmission-
consent provision that broadcasters are
seeking to attach to a pending cable bill.
The action follows recent approval by the
Senate Commerce Committee of the
retransmission-consent scheme in S.12.

In a May 21 letter to subcommittee
members, the SBCA said it was "dis-
tressed" that home dish owners could be
affected by retransmission consent be-
cause broadcasters may charge satellite
carriers a fee for carriage rights.

Retransmission consent revolves
around the local broadcast carriage obli-

SBCA said to include them in a
retransmission-consent framework would
be a "misapplication" of the concept.
There is no local carriage issue in the
home satellite broadcast marketplace, the
SBCA said.

Because the 1988 Satellite Home
Viewer Act creates a license number un-
der which satellite carriers pay statutory
rates for carriage of superstations and net-
work signals, the SBCA said it would be
unfair to pay twice for the same signal.
Home dish owners also could end up pay-
ing higher subscription rates for the same
programming, the association said. □

—Dave Hartshorn

Short Takes

CHANGES: Sports Channel Los
Angeles has moved to T3•19 from F3•12
... Pacific Sports Network has moved
from T3•19 to T3•17, a temporary loca-
tion it will share with Prime Network ...
The new In Court channel, which
launches on July 1, will be in the clear on
F3/12; *Satellite TV Week* will carry its
program information ... QVC's program-
ming has replaced the defunct J.C. Pen-
ney shopping network on F3/08; as of
July 1, QVC says it will differentiate the
content on F3/08 from its home location
programs on G3/09 ... The Fox Net 18-
hour programming can be found on G3/
02 ... Don't forget that G1 is still moving
this week to 133 degrees west longitude.

AURORA UP: Aurora 2, the replace-
ment C-band satellite for Aurora 1, was
successfully launched from Cape
Canaveral on May 29 at 6:55 p.m. eastern
time. It will be located at 139 degrees
west longitude, which will force a move
of Satcom C1 to 137 degrees west very
soon.

3-D 'HONDO': *Hondo*, the classic
John Wayne 1953 western, will have a
syndicated premiere in the Natural Vision
3-D process on more than 150 nationwide
TV stations June 24, 25 and 26. Special
99-cent glasses will be available in nu-
merous retail stores, including 7-Eleven,
Burger King, etc. Proceeds will benefit

the Leukemia Society of America.
Hondo, originally shot in 3-D, will be
seen on satellite on WWOR, WGN and
KTLA on Wednesday, June 26, at 7 p.m.

VIDEOCIPHER PRICES: One of the
seven retail prices for VideoCipher mod-
ules listed here in the June 9-15 issue of
Satellite TV Week was incorrect. The cor-
rect price for a replacement VC II Plus or
untampered VC II with exchange VC II
Plus or untampered VC II module is
\$199, not the \$79 price stated. This and
the others are prices paid to General In-
strument for direct purchase by anyone,
whether consumer or retailer; they do not
include shipping, handling and applicable
sales taxes. As noted earlier, prices and
module availability are subject to change.
For further information call GI's cus-
tomer service number, 1-704-327-2026.

TYSON-RUDDOCK: The on, then off,
then on again Mike Tyson-Razor Ruddock
fight in Las Vegas this Friday night, June
28, will be available to dish owners with
VideoCipher II Plus modules, but only on
TVN via Videopal or call-ahead. Check
T3/24 for details. Telecasting of a major
fight of this caliber on VC II Plus is a
breakthrough, not only for the home dish
industry, but also for TVN. If buy rates are
good, look for other pay-per-view holdouts
to become available to VC II Plus-equipped
home dish viewers. □

ALWAYS
*** PG 1989, F
Sun G1-05 SHO
G1-16 SHO
THE AMAZING SP
**1977, Adventur
Sat S3-15 KTLA
AMAZONQUEST
**1949, Adventure
Tue G1-03 WGI
AMERICAN EMPI
**1942, Western
Sat S2/05 CHA
ANDY HARDY GE
**1939, Comedy
Fri G1-05 SHC
G1-16 SHC
ANDY HARDY ME
**1940, Comedy
Tue G1-05 SHF
G1-16 SHF
ANDY HARDY'S
**1941, Comedy
Sun G1-16 SH
ANGUISH
*** R 1988, Ho
Wed G1-19 CIN
F3-23 CIN
ANIMAL BEHAVI
** PG 1989, Co
Sun G1-05 SH
G1-16 SH
Fri G1-05 SH
G1-16 SH
ANOTHER 48 HR
** R 1990, Cor
Sun F3-13 HE
G1-23 HE
Tue F3-13 HE
G1-23 HE
Fri F3-13 HE
G1-23 HE
THE APPALOOS
***1966, West
Sun S3-15 KT
ARMED AND DA
** PG-13 1986, C
Tue G1-05 SH
G1-16 SH
Sat G1-05 SH
G1-16 SH
AROUND THE V
**1943, Musica
Fri F3-01 A
ARSONSQUAD
*1945, Adventu
Fri S2/05 C
AS YOUNG AS
**1951, Com
Sat F3-01 A
ATTACK FORC
**1981, Adven
Sat G1-03 W
B
BABY DOLL
***1956, Dram
Thu G1-17 I
BACHANDBR
** NR 1987, C
Wed G1-05 S
G1-16 S
THE BACHEL
BOBBY SOXE
***1947, Com
Thu F3-01 P
BACK DOOR T
**1939, Dram
Thu S2/05 C
BACK TO BAC
** R 1989, D
Mon F3-13 H
G1-23 H

June 22 - 29

68. The criteria that AISA suggests are subject to varying interpretation, and the third one in particular seems quite onerous. The patent system is designed to provide rewards to innovation and these conditions would likely discourage providers from stepping forward. Moreover, we have concluded that market incentives appear to provide legitimate owners of VC II decoders with adequate obsolescence insurance. We have further concluded that VC II technology is widely available. In the absence of any showing of the magnitude of any benefits flowing from its proposal, and in deference to the sound principles underlying patent law, we decline to adopt AISA's proposal or to address our jurisdiction in connection therewith.

III. CONCLUSIONS

69. After a thorough reconsideration of the relevant issues, we conclude that the public interest would not be served by a mandatory encryption standard for satellite cable programming. We wish to stress that we are not asserting that the HSD marketplace in general, or the encryption system portion of it in particular, are functioning perfectly.¹⁰³ We are not passing judgment on the business plans of GIC, its critics, or any other entities involved in the HSD business. The focus of this inquiry has been on whether a mandatory encryption standard would serve the public interest and we have decided that it would not.

70. Our examination of the record convinces us that the VC II system remains the *de facto* industry standard, so consumers need not purchase multiple decoders. We are cognizant of various developments on the horizon that might lead to the introduction of alternative encryption systems, either alongside of or in place of the VC II in years to come. We do not rule out the possibility that, at some point, the consensus on encryption standards may break down in a way that imposes unacceptable burdens on consumers. However, that day is not at hand, and we do not wish to constrain the development of new services and technologies by adopting a satellite cable programming encryption standard at a time when one system is so widely used by programmers.

71. We continue to believe that theft of satellite services, so-called signal piracy is the single biggest problem facing the industry. It is a matter so serious that failure to bring it under control could threaten the future of direct-to-home transmissions. These high stakes provide substantial incentives to industry participants, manufacturers, programmers, dealers, and others, to combat piracy. The new VC II Plus decoder is one part of the anti-piracy battle. While it is too early to say that the VC II Plus will, in fact, stem the tide of piracy, we are convinced that its introduction will not obsolete legally-authorized VC II decoders. Moreover, we are convinced that a Commission standard-setting proceeding would be protracted, would diminish industry incentives to combat piracy, and could compromise the integrity of the standard adopted.

72. The record in this proceeding suggests that the effect of a standard on decoder costs and competition in the manufacture of decoders cannot be determined without knowledge of certain key aspects of the technology chosen. Decoder costs depend on the particular characteristics of the standard chosen. Competition depends on the licensing practices of the owners of patents on the technology. The security requirements associated with the

manufacture of encryption equipment may militate against widespread production of key components. In any event, the costs of a standard in terms of limiting innovation incentives and possible compromise of anti-piracy efforts are compelling arguments against a standard. Moreover, VC II equipment is, in fact, widely available and there appears to be substantial competition in the manufacture of the satellite receivers of which decoding capacity is a part.

73. As the products and technologies of the future, such as advanced television, DBS, digital compression technology, and others, come to the home satellite market, there will undoubtedly be demand for new and different receiving equipment. The demand for and supply of encryption services will, concomitantly, evolve. The Videocipher II system, widely used today, will not last forever. It is premature to speculate on the system or systems of the future, let alone the identity or conduct of the relevant manufacturers. Nevertheless, we see the demand for encryption services in the HSD and other markets growing over time. Developments with respect to encryption technology will certainly not be ignored by the Commission. Nor will we ignore evidence of abuse of their position by owners of any proprietary technology used in the encryption of satellite cable programming.

74. Accordingly, IT IS ORDERED, THAT this proceeding on the need for a universal encryption standard for satellite cable programming is TERMINATED.

75. IT IS FURTHER ORDERED, THAT the Secretary SHALL FORWARD copies of this Report to the appropriate Committees and Subcommittees of the House of Representatives and the Senate.

FEDERAL COMMUNICATIONS COMMISSION

Donna R. Searcy
Secretary

APPENDIX

Institutional Comments and Reply Comments in General Docket No. 89-78

Commenters

American Home Satellite Association
ESPN
GE Americom
General Instrument Corporation
Home Box Office
Hughes Communications Galaxy
Motion Picture Association of America
National Basketball Association/National Hockey League
National Cable Television Association
National Rural Telecommunications Cooperative
NEC Home Electronics
Netlink
North American Philips

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APPENDIX E

GI v/s Competition

(Multiple decoder manufacture: DecTec)



INTERNATIONAL INC.

P.O. BOX 2275, SIDNEY, BRITISH COLUMBIA, V8L 3S8, CANADA

Offices: 1962 Mills Road Phone: (604) 655-4463 FAX: (604) 655-3906

Gore, let

Dear Senator Gore:

Attached is information on the mounting legal battle and use of industrial espionage by Forstmann Little owned General Instrument Corporation to keep a small R&D firm from breaking up GIC's monopoly of the satellite descrambler market (which marks a \$1 billion per year business for GIC).

The enclosed materials will provide background on the issues surrounding DECTEC International Inc. who has developed an open architecture, multi-format satellite scrambling technology designed to break apart the present monopoly and provide consumers with a choice.

Aside from what is referenced in attached, there are several issues involved here including the depths to which an aggressive hi-tech company will go to protect their market position. GI currently nets an estimated \$8 million per month from the sale of satellite decoders. GI has enjoyed an industry-wide monopoly since 1986 where, as sole producer of the de facto industry standard, they have benefited by changing the claims associated with their product in order to require consumers to purchase additional products.

DECTEC's product, The Secure Universal Norm is designed to eliminate product obsolescence. S.U.N. is field programmable and completely flexible allowing for in-the-field upgrades and the ability to run several scrambling systems simultaneously (as a universal, open architecture computer might be able to run Apple or IBM programs through one machine).

The S.U.N. multiple decoder is based on newly developed U.S. technology, and the product's design requires the use of parts that are made only within the United States. The S.U.N. product works such that the logic circuitry and mechanics are permanent within the box, while the descrambling and video/audio processing functions are re-configurable.

In essence, the product is a blank canvas which accepts software,

downloaded through a removable smart card, which defines the product's functions and processes.

This advanced design approach has enabled DECTEC to emulate functions of the Videocipher II product made by General Instrument Corporation without infringing any rights or patents. As such, the emergence of the DECTEC product forces GI to play by the rules of free enterprise where competition encourages progress, innovation, product reliability and equitable pricing. (For example, DECTEC's S.U.N. descrambler is priced lower than the model sold by General Instrument).

Still, while consumers, receiver manufacturers, some programmers, and retailers support the DECTEC product, GI is forcing the company into a highly volatile state by employing some of the more aggressive forms of industrial espionage. It is apparent to many that GI's primary objective is to keep DECTEC from marketing and selling its product.

However, we are firmly committed to the manufacture, marketing and sale of our Secure Universal Norm scrambling system in order to offer the consumer an alternative descrambler, to bring the programmer a secure means of collecting subscription revenue, and to provide the industry with a universal multi-format system and a platform for free enterprise and open competition.

While satellite dish owners patiently await a universal multiple decoder and while satellite retailers, distributors, and IRD manufacturers look forward to an open marketplace characterized by choice and competition, we realize that we have a great deal of work ahead of us to clear a path into the free market.

It is to this end that I respectfully submit the enclosed information and thank you for your time and attention.

With Kind Regards,

John Grayson
CEO, DECTEC Intl. Inc.



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OVERVIEW OF ENCLOSED:

UNIVERSAL MULTI-FORMAT DECODER ENTERS MARKET, THREATENS GI MONOPOLY

As a high tech research and development firm, DECTEC International Inc. has spent the past three years developing a reconfigurable universal scrambling system for use in several satellite applications, including home entertainment, distance learning, satellite news gathering, and business conferencing.

DECTEC's primary interest is in offering a universal multiple decoder to the home entertainment satellite market to provide receiver manufacturers, programmers and consumers a choice over the current system. However, DECTEC has found that the direct-to-home (DTH) market is completely and uniquely closed off.

General Instrument Corporation, the owner of the present de facto scrambling standard, appears to have a considerable amount of control over the DTH industry and has pursued various tactics (including discrediting DECTEC through slander and threatening DECTEC engineers, secretaries, and staff members) in order to keep the DECTEC product from competing against the VideoCipher system.

DECTEC's intent is to offer a competitive, compatible scrambling product which is completely reconfigurable and field programmable. The Secure Universal Norm scrambling system (S.U.N.), which is based on recent breakthroughs in U.S. developed Logic Cell Array technology and advanced "smart card" design, is capable of emulating several scrambling schemes, including the VideoCipher manufactured by General Instrument, without infringing any patents or copyrights.

The universal multi-format design allows several encryption schemes to be processed through a single "automatically adjusting decoder" at a cost per unit below that charged by General Instrument who produces a static single-system decoder.

Up until now, the scrambling industry has developed such that when a particular encryption technology is selected, the system provider becomes the sole manufacturer and supplier of decoders for the life of the technology. The market becomes locked up and

competitors are closed out. To use an analogy, it's as if a person selecting AT&T for its long distance carrier could only receive and send AT&T calls through AT&T telephones. One home might wind up with several telephones in order to receive calls through MCI, Sprint, and so on.

As a universal multi-format system operating with off-the-shelf componentry, the Secure Universal Norm opens the door for competition and technological progress to provide the satellite industry with a functionally secure and virtually unpiratable scrambling system.

Here are some advantages of a universal, multiformat system:

1. Consumers will not be required to swap out hardware when first generation products are made obsolete and new models are made available.
2. S.U.N.'s advanced "smart card" technology allows independent companies to offer new systems. It gives broadcasters and programmers the flexibility to chose between systems and enables them to enhance features of existing systems without causing the consumer to purchase additional hardware.
3. The consumer needs only one unit in his home which can receive and process several scrambling formats simultaneously.
4. Piracy is virtually eliminated as the software program running the unit's security function can be changed in-the-field through replacement smart cards which are self-encrypted and virtually impenetrable.
5. Repair can be performed by any qualified service center as all parts are off-the-shelf.
6. Consumer confusion can be virtually eliminated and technology can progress at a quicker pace.
7. Integrated Receiver Descrambler manufacturers can make their own decoder modules, controlling supply, manufacturing, and costs.

DECTEC can immediately and without changing out any consumer or programmer hardware offer an alternative to General Instrument Corporation's VCII decoder module which descrambles Videocipher encrypted signals. The S.U.N. unit only decodes services that a consumer has subscribed to, paid for, and has been authorized to receive.

The Secure Universal Norm scrambling system has been supported by most satellite and engineering trade publications and it has been recognized by the FCC. However, as the technology upsets the

status quo by introducing a dynamic approach to consumer electronics product design, DECTEC fears its technological invention and marketplace solution will be squashed by a company and a conspiracy much larger than itself.

We thank you for your time in reviewing this information and look forward to further discussions. Should any member of your office be interested in the details of the technology, or in the difficulties we face in going up against Forstmann Little and General Instrument Corporation, we would be happy to speak with you over the phone and in person. We are able to provide a demonstration of the S.U.N. scrambling system at your convenience.

EDITOR'S MESSAGE

BY JAMES E. SCOTT

Thoughts on the Encryption Mess

It's been slightly more than five years now that the TVRO industry has endured the VideoCipher II albatross it let be hung around its neck. The weight has been an ever-growing burden which slowly, inexorably has been sapping the strength of the industry as piracy has spread and spread and spread.

Several items in the "Industry Watch" section of this issue speak directly to this subject, as well as does one that came to our attention right at press time.

DigiCard

The first item is the General Instrument Corporation VideoCipher Division's latest round of fixes. GI is trying to get programmers to help fund a free upgrade of all legitimate VC II owners with untampered modules to second-generation VC II Plus modules with built-in DigiCard "smart card" security devices so the compromised VC II datastream can be shut off.

This upgrade, of course, will earn GI millions more dollars for its modules. The money, of course, ultimately will come, in the form of higher prices, from those trusting souls who buy programming legally. Once the VC II Plus is compromised, GI, of course, will make more money when it upgrades those tens of thousands of trusting souls who have been stuck with the first generation VC II Plus module to the new VC II Plus DigiCard module.

There are many people in the TVRO industry who have no compunctions whatsoever about speaking their minds on the subject of GI's VideoCipher Division. What these brave, untrusting souls say is that, where piracy is concerned, there's a smoking gun, and that it belongs to GI. Their logic is so compelling as to be impregnable: GI profits from selling VideoCipher modules, so it will always keep selling modules, for whatever reasons it can find.

These brave souls say that GI is amoral, even apolitical. They say it doesn't care about anybody's problems but its own because it profits from a Vid-

eoCipher module sold into piracy as much as from one that is turned on by a programmer — through its not-for-profit DBS Center in the center of the VideoCipher Division's headquarters, of course. If GI can turn off all the pirates and thereby force everyone to buy yet another module, it will, they say, because GI sees nothing wrong with doing so.

These brave souls have not been quite brave enough to actually do something about GI until recently. We have learned that efforts are presently being made to bring about a thorough investigation of the whole VideoCipher encryption story, to determine once and for all whether or not GI has any culpability in piracy, to determine whether or not GI does indeed hold a smoking gun to the head of the TVRO industry.

We hope these efforts succeed because this industry cannot forever wonder what GI's role has been in piracy, if any. More to the point, however, we think this has to be done before any intelligent debate on adoption of an encryption standard can be held. The TVRO industry would do well to beware of growing pressure in Washington to adopt an encryption standard this year.

DecTec/SUN

The second item is the news that the field-programmable Secure Universal Norm (SUN) encryption system created by DecTec International Inc. in Sidney, British Columbia, Canada, soon will be the heart of a DBS authorization center being built in Canada.

More and more thinking observers are beginning to look past initial reactions to SUN as a clever pirate device and to attempts to label it the "BlackCipher" and to label DecTec personnel as "well-known hacker underground" pirates.

The reason these thinking observers are looking with growing optimism at SUN is that it offers a way out of the present — and potentially future — encryption mess. What SUN offers is an "open architecture, multi-format television scrambling system." DecTec president John Grayson says, "It's like having a computer system that can run any kind of software whether it's for a Macintosh or an IBM machine."

We don't know whether the SUN actually can do this or not, but the concept/attempt must be scaring the hell out of GI, which would see its stran-

glehold on the U.S. TVRO/cable encryption/DBS authorization center business loosen alarmingly if programmers could choose to use whatever encryption system they wished at the SUN DBS authorization center.

Why should GI be so concerned? Consider these words from John Grayson, who is making an eloquent and clever public relations push against GI:

"According to GI's 1990 annual report, General Instrument has made more than \$800 million from the sale of its VLSI-based cable/satellite products which represents 60 percent of total corporate revenue. With an operating profit of \$134 million, GI's cable/satellite products account for 90 percent of the company's pre-tax net income. Losing any of its 100 percent marketshare in the U.S. satellite market would seriously diminish GI's worth. Under competitive market conditions, GI's return would be considerably less and DecTec projects that within the first year of SUN's introduction, the product will pick up 20 percent of GI's marketshare."

Parting Thoughts

In a recent "Editor's Message" we suggested that GI was planning eventually to convert the U.S. cable/satellite market to DigiCipher. While some industry powers-that-be have flatly and vehemently rejected such a scenario, we think it's becoming clearer every month that GI has no choice but to go that route after it has exhausted the VideoCipher cow's cash.

Furthermore, GI *has* to do everything it can to hold on to its de facto encryption/DBS authorization center monopoly. If it doesn't, as John Grayson makes abundantly clear, GI starts dying. Forstmann Little & Co. certainly doesn't want to watch its \$1.6 billion investment diminish in value, so look for a lot of aggressive action on the encryption front from GI in the months to come, all of it designed to protect GI's interests, first and foremost.

Postscript

No sooner had we written the above than GI announced its "bold and unprecedented Consumer Security Protection Program." Coming more than two weeks after its DigiCard announcement, which raised hackles all over the TVRO industry, it guarantees that, for three years af-

Please turn to page 45

Satellite TV collapsed when program services began scrambling their signals. Its revival has bred one clear winner so far.

The General

By Alex Ben Block

NEARLY 2 million satellite TV receiving dishes were sold in the early 1980s; an awful lot of them to folks who figured they were buying the right, in perpetuity, to grab more than a hundred different channels' worth of programming out of the sky for free. Then, in January 1986, Time Inc.'s Home Box Office movie channel began scrambling its signal,

some two dozen programmers followed suit, and the party was over.

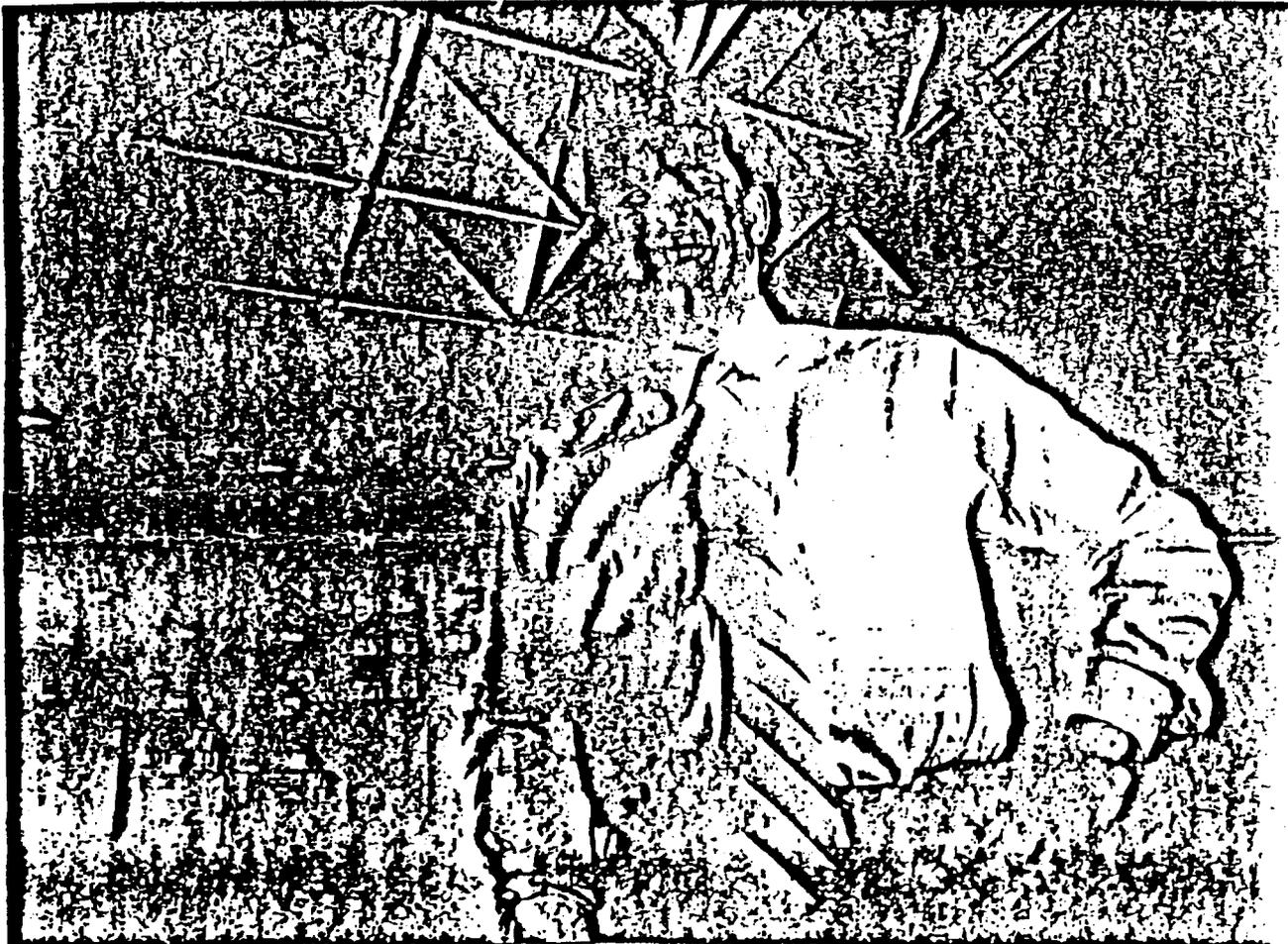
Satellite dish sales fell from over 740,000 units in 1985 to below 240,000 in 1986. Equipment manufacturers fell in droves, dropping from an estimated 70 at the beginning of last year to maybe two dozen at the end.

But now the numbers and the industry are beginning to creep back, and sales this year could hit 350,000. Equipment prices have come down as

quality has gone up. Cheap systems were going for about \$10,000 eight years ago. Today \$2,000 to \$4,000 gets you digital sound, an automatic aiming motor and sometimes even a built-in unscrambler.

Viewers, too, are getting used to paying those monthly movie channel fees. HBO, for example, is selling a steady 3,000 new satellite TV subscriptions a week at \$12.95 a month. And there remains a market yet to be tapped. There are still, for example, maybe 22 million rural homes in this country that will never be served by standard cable TV.

All of which has the folks at New York City-based General Instrument Corp. smiling and rubbing their hands gleefully. General Instrument owns VideoCipher II, the only scrambling and decoding equipment used by the satellite television industry. It is, in fact, the industry standard, meaning that the General, as the company is called, has a monopoly on the decoder business. And it is a monopoly that has little chance of being broken up anytime soon because of proprietary patents and the industry's need for a single decoding device that can handle all the different scrambled programming services in the sky.



J. Laurence Dunham, executive vice president and general manager of General Instrument's VideoCipher division. For a couple of years at least, holding some fairly secure high ground.

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**DECTEC FILES INFRINGEMENT CHARGES AGAINST GI; SEEKS
PERMANENT INJUNCTION PROHIBITING GI FROM SELLING
"SMART CARD" DESCRAMBLERS**

On June 14, 1991 before the Canadian Federal Court in Toronto, Ontario, DECTEC International Inc. filed charges against General Instrument Corporation stating General Instrument illegally appropriated proprietary trade secrets covering DECTEC's 'smart card' system. The lawsuit also states that General Instrument's proposed "Renewable Security" system and other 'smart card' based upgrades to its Videocipher II and PLUS models infringe DECTEC's technology.

"The actions of General Instrument and its affiliates in manipulating the Canadian Federal Court in order to gain access to our technology, clearly violates our rights and makes a mockery of our legal system," states John Grayson, CEO of DEC-TEC International. "Even after the court ordered GI to return the documents and diskettes that they had taken from our offices, the disks taken by GI containing sensitive and proprietary data on the operation of our Secure Universal Norm scrambling system were not returned and instead handed over to engineers at the Videocipher Division in San Diego."

"It is now time to expose GI's charade of legitimacy," explains Mr Grayson.

The lawsuit says General Instrument obtained DECTEC's technology to produce and market a 'smart card' update to its Videocipher II and II PLUS system by

stealing and infringing the proprietary technology developed by DECTEC for the S.U.N. scrambling system. The lawsuit also claims that over 90% of all VCII's in Canada are pirate devices and "GI is highly dependent upon the continual sale of retrofitted VCII's for use by pirates."

In the filing, DECTEC states that at present, most Canadian programmers are using GI, Scientific Atlanta, and Oak Industries systems, with the result that a subscriber may require three or more separate descrambling devices attached to his television system. The SUN descrambling system is designed to be able to replace all of these or other new systems with one device.

According to the charges, "GI has attempted to obtain (DECTEC's) technology by various means. It has attempted to reverse engineer the device, thereby extracting its proprietary information; it has attempted to obtain the technology from (DECTEC's) trade suppliers; and has succeeded in obtaining access to the technology by having its employees seize (DECTEC's) computer programs and documents pursuant to the order of Mr Justice Dube.

"The order of Mr Justice Dube was not only used to obtain (DECTEC's) technology, but also to seize (DECTEC's) inventory of devices in the course of manufacture so as to cripple their (DECTEC's) ability to sell their devices in competition with those of GI.

"Having thus obtained (DECTEC's) technology, (GI and its affiliates) will be able to produce devices of their own which can be sold and distributed in competition with the . . . SUN system."

The lawsuit filed by DECTEC International seeks damages in the amount of \$20 million and asks the Court for a permanent injunction to restrain General Instrument, "its clients, directors, officers, employees, agents or otherwise from using, producing, re-producing or infringing" on DECTEC's 'smart card' technology.

DECTEC also demands from GI "a declaration that the Videocipher descrambling system is designed to be primarily useful for obtaining the use of telecommunications services without paying the lawful charge therefor."

Each year, the satellite broadcasting industry suffers from the effect of unlawful receipt of programming. Such losses represent a serious erosion of profitability for both system and program owners. DECTEC International has introduced its Secure Universal Norm Scrambling System as the first functionally secure satellite scrambling system in North America.

DECTEC is a research and development firm with offices in Sidney British Columbia. DECTEC specializes in the design and development of sophisticated digital communications products. DECTEC also offers security systems for MMDS, wireless cable, and business television.

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DECTEC INTRODUCES NEW UNIVERSAL DECODER

SIDNEY, BRITISH COLUMBIA, CANADA (November 2, 1990) - DECTEC International announces its SUN scrambling system. Based on a high-density complex logic structure, the Secure Universal Norm (SUN) is an industry first. Tapping into the power of field-programmable gate arrays, the SUN system can be configured to emulate a variety of existing scrambling technologies and offer for the first time a compatible, multi-format satellite programming decoder.

Over 500 SUN units have been delivered to a handful of receiver distributors for testing throughout Canada. The units, which have been programmed to emulate the Videocipher II system are configured in the fixed authorization mode which means they can tune in non-subscription Videocipher services such as PBS.

Within the next 30 days, DECTEC will begin shipment of its first consumer version, VCDN 1.0, into Canada. By year's close, a later version will be available in the United States.

"This is an industry first," explains John Grayson, president of DECTEC International. "The Sun system has been under development for four years. Our focus was to produce an industry standard. A product so versatile and so flexible that it can be easily reprogrammed overnight to accept one or several encryption schemes."

The SUN system offers the first open architecture scrambling system. Aside from offering an interface to existing and future scrambling formats, the SUN

system can instantaneously switch between several scrambling modes which are present in a SUN decoder, including its own unique encryption scheme. As well, the system can operate in several transmission environments.

"Government agencies, the U.S. Congress, and consumers are concerned that satellite viewers will be saddled with several decoders on top of their television set in order to pick up satellite services using incompatible scrambling technologies," says Grayson. "SUN is the interface. In Canada, for example, we have two scrambling systems: Oak Orion and Videocipher. At the request of a Canadian programmer the SUN could be configured into a dual Oak/VCII system, both with digital stereo. It would then be possible for a consumer to subscribe to BCTV which is scrambled with the Oak Orion system, and to subscribe to CNN coming over the Videocipher system. Two scrambling systems. One decoder."

Grayson continued: "Essentially, we can supply whatever combination of systems the programmer wants, as long as it is cost effective for the programmer."

Going one step beyond the dedicated microprocessor and highly integrated VLSI firmware used in existing technology, the engineers at DecTec have applied advanced field programmable gate arrays to television encryption. DecTec has also created the SUN system around "off-the-shelf" devices to reduce the time and cost involved in custom development.

The SUN system offers the perfect interim technology. As we await standards in compression, definition, and encryption, SUN makes it possible for industry to move ahead immediately without the concern that new developments will make current technologies obsolete.

DECTEC is a research and development firm located in Sidney, British Columbia. Funded through private investors, DECTEC has developed products for wireless cable and has served as technical consultant to companies worldwide and agencies within Canada.

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DECTEC ESTABLISHES AUTHORIZATION SYSTEM FOR SUN DECODERS

NOVEMBER 27, ANAHEIM, CALIFORNIA. DECTEC International Inc. announces construction of a universal subscriber control facility which will authorize SUN decoder units and provide satellite programmers with complete control over their own authorization process.

While the first release of SUN system VCDN 1.0 has been configured to emulate the Videocipher scrambling system, authorization of the Secure Universal Norm decoders is handled independent of the present Videocipher network. Where programmers use the General Instrument DBS Center to flow-through all VCII authorization commands, the SUN decoders have been designed not to accept VCII authorizations in order to secure the product from the security flaws inherent in VCII.

Instead SUN decoders must receive their authorization from a separate system. The authorization system designed by DECTEC for SUN decoders offers satellite programmers the control necessary to maintain separate and independent channel integrity. With the SUN system, satellite programmers may authorize subscribers through a private in-house authorization facility, or the programmer can use a centralized DECTEC Universal TeleportTM.

"This is where the SUN system proves that it can be customized to meet a programmers specific requirements," says John Grayson, president of DECTEC International. "We spoke with several programmers since we announced the

SUN system earlier this month, and we found that where some programmers wanted complete control of their own authorization, others didn't have the staff or facilities to operate a complete backroom authorization service."

The DECTEC Universal TeleportTM will be fully operational following an extensive field testing period scheduled for completion by the close of this year. The design of the facility is based on giving programmers direct control over their own scrambling network.

In conventional scrambling environments, a general common working key is utilized by all programmers. That is, if a single programmer leaks a working key, all programming services would be compromised. But DECTEC has designed SUN to provide each programmer with complete and independent control of his own property: for each and every channel scrambled by the programmer, there is a separate unique key. The unique key which controls the security of each independent service is created by the programmer as a randomly generated 16 digit number. Only the programmer knows the number, and the programmer is able to create a new key at his own discretion.

Through a DECTEC designed Universal TeleportTM, a programmer can maintain control over his unique key while calling upon the centralized facility to handle the authorization process. Whether a programmer chooses to handle the entire encryption and authorization procedures in-house or pass through authorizations to a central or shared teleport, the SUN system treats each channel independently as if each service was a pay per view channel. This approach affords programmers greater security, maximum control, and the flexibility to offer in-the-clear previews and relay customer messages on-demand.
