

TELEVISION DECODER CIRCUITRY
ACT OF 1990

Mr. HOLLINGS, from the Committee on Commerce, Science,
and Transportation, submitted the following

R E P O R T

OF THE

SENATE COMMITTEE ON COMMERCE,
SCIENCE, AND TRANSPORTATION

ON

S. 1974



JULY 25 (legislative day, JULY 10), 1990.—Ordered to be printed

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Mr. HOLLINGS, from the Committee on Commerce, Science, and Transportation, submitted the following

REPORT

[To accompany S. 1974]

The Committee on Commerce, Science and, Transportation, to which was referred the bill (S. 1974) to require new televisions to have built in decoder circuitry, having considered the same, reports favorably thereon with amendments and recommends that the bill as amended do pass.

PURPOSE OF THE BILL

The bill, as reported, will expand the accessibility of closed-caption technology to serve the needs of the deaf and hearing-impaired and others by requiring the installation of low-cost decoding circuitry in new television sets with screens 13 inches and larger. This circuitry will eliminate the need for separate decoding boxes to be purchased by individuals who desire access to closed captioning. This legislation will reduce significantly the cost to consumers to receive closed captioning, make closed captioning more widely available, and create market incentives for broadcasters to invest in and provide more closed-captioned programming. The bill also charges the Federal Communications Commission (FCC) with ensuring that closed-captioning services are available to the public as new technologies are developed.

BACKGROUND AND NEEDS

The potential audience for closed captioning includes 24 million deaf and hard-of-hearing citizens; 3 to 4 million people learning English as a second language; 27 to 29 million American adults who are functionally illiterate; and millions of children who are

learning to read. Studies submitted to the Committee show that captioned television programs can be beneficial to all of these persons. Annette Posell of the Caption Center at WGBH in Boston, MA, testified that her children who are not hearing-impaired, learned to read early from being exposed to captioned programs. (Posell statement; June 20, 1990; p. 3.) John Ball of the National Captioning Institute (NCI) testified that most of last year's decoder sales were to people learning English as a second language. (Ball statement; June 20, 1990; p. 3.) Access to closed captioning is clearly of critical importance.

THE DEVELOPMENT OF CLOSED CAPTIONING

Until the 1970s, deaf and hard-of-hearing persons had no access to television. Marlee Matlin, who is deaf and who testified at the hearing on this bill, described her experience:

As a little girl growing up in Chicago, I had dreams just like any other child . . . to be a policeman, a dancer, a teacher, an actress. I was always told: follow your dreams and be what you want to be. No dream was beyond my reach. But in many of my dreams, I just sat by and watched without understanding a single word of what was being said. As a child, only through my mother could I understand the antics of "The Electric Company"; only through my dad could I understand what Mannix said to his Girl Friday; and only through my brothers could I understand the laughter on "All in the Family." There was no such thing as captioned television, and those moments of dreaming were not open to me. (Matlin Statement; June 20, 1990; p. 1.)

In the 1970s, closed captioning was developed by the Public Broadcasting Service (PBS) with financial assistance from the Federal Government. Closed captions are included in a video signal as invisible data and are seen as decoded subtitles on the bottom of television screens only by users of special decoding devices. In 1976, the FCC reserved a portion of the vertical blanking interval, line 21, of the television broadcast signal for transmitting closed captions, but did not impose requirements for mandatory captioning.

In 1979, Congress created NCI, a non-profit corporation, to provide closed-captioning services to the television industry using line 21 technology. Since that time, with added funding from the private sector, the service has increased substantially. As a result of NCI's efforts and those of the private sector, the Commission on the Education of the Deaf (CED) reported that there were more than 125 hours of weekly closed-captioned programming at the end of 1987. In 1989, virtually all prime-time television programming and most major televised sports events were captioned. Today, captioned services are available when viewing cable television, videocassette movies, live events—such as news programs, Presidential speeches, and press conferences—and other special events.

The development of captioned television has made it possible for deaf and hard-of-hearing persons to understand what television has to say and, in effect, to join the mainstream of American society in an era of increased output of and reliance on information. Accord-

ing to the CED, "Captioning of television . . . is the most significant technological development for persons who are deaf." (The Commission on the Education of the Deaf, "Toward Equality"; 1988)

THE PROBLEM WITH EXISTING CLOSED-CAPTIONING SERVICE

Currently, the only way to receive captioned programs is through a separate decoder device, a TeleCaption II unit, which can be attached to television sets. TeleCaption II is capable of receiving both network and cable channels, but must be supplemented with a "descrambler" to receive "pay-TV" or "subscription" services, such as Home Box Office and Showtime. Since 1979, only 300,000 of these units have been sold (Ball Statement; June 20, 1990; p. 2), which means that millions of deaf and hard-of-hearing Americans and others who could use the decoder to learn the English language do not have access to closed-captioned services. The principal reasons for the small number of TeleCaption II units in use are: (1) cost; (2) stigma (especially for hard-of-hearing senior citizens); and (3) intimidation due to both the technology and difficulty in installing separate decoders.

The price of the TeleCaption II unit ranges from \$160 to \$200 and is tax deductible (Internal Revenue Service (IRS) Ruling #80-340). Notwithstanding the IRS ruling, the cost of this unit is often excessive for those persons that could be assisted by closed captioning. Sy Dubow, Legal Director of the National Center for Law and the Deaf at Gallaudet University, stated:

To many deaf and hard of hearing people, the purchase of a separate decoder at around \$200 is an economic hardship. A Lou Harris survey found that two-thirds of all disabled Americans between the ages of 16 and 64 are not working. Those disabled persons who are working are often in low paying jobs. Cost is also a deterrence to many senior citizens with a hearing loss, the majority of whom have annual incomes of less than \$25,000. (Dubow statement; June 20, 1990; p. 2; see also, Senator Harkin's statement; June 20, 1990; p. 3, quoting a letter of support for S. 1974 from the American Association of Retired Persons stating that "many older Americans find this cost [of decoders] prohibitive and simply do without the device.")

In addition, many deaf and hard-of-hearing people—primarily the elderly—choose not to purchase a separate decoder because of the stigma attached. Annette Posell of the Caption Center/WGBH testified that: "[B]ecause of the perceived stigma of assisting devices, these people suffer with unintelligible television. . . ." (Posell statement; June 20, 1990; p. 5.)

Finally, the installation of the separate decoders can be very complicated, thereby intimidating deaf or hard-of-hearing persons—again, primarily the elderly. This "technical barrier" has been another factor in the low numbers of separate decoders purchased. As Senator Harkin testified: ". . . surveys have shown that in addition to the high cost, many senior citizens and others are intimidated by the complex instructions for connecting the decoder to their televisions." (Harkin statement; June 20, 1990; p. 3.)

Howard "Rocky" Stone recounted an experience of one of his association's members:

One of our members, an intelligent, active person at age 70 told us, "I wasted \$98 on two servicemen trying to get my decoder number 3000 hooked up. The first one couldn't figure out the hook-up with all the TV attachments. The second got the VCR in backwards, so I couldn't record the captions. Finally, an electronics expert who is also my neighbor, got everything straightened out." This legislation would eliminate that kind of frustration and expense. (Stone statement; June 20, 1990; p. 2.)

According to a 1989 CED report, the low number of decoders purchased by consumers has resulted in a lack of commercial incentives for private funding of captioning services and has been one of the main impediments to a self-sustaining captioning industry. Additionally, it costs approximately \$2,500 and takes 20-30 man-hours to close-caption a one-hour program. (NCL, "FYI"; July 1987.) As a result, many non-prime time television programs are not closed-captioned. Of the 1,400 television stations in the United States, only 90 offer closed-captioned local news programs. Access to such local news can be critical to the hearingimpaired. Yet, during hurricane Hugo and the California earthquakes, local news broadcasts failed to provide captions to accompany their reports.

During the House Energy and Commerce Committee's Telecommunications and finance Subcommittee hearing of May 2, 1990, on H.R. 4267, a companion bill to S. 1974, an American Broadcasting Company (ABC) network executive stated that to maintain the current level of closed-captioned programming, approximately one million homes need to be able to receive closed-captioned broadcasts. (Testimony from House Telecommunications Subcommittee Hearing on H.R. 4267; May 2, 1990.) Neil Pilson, President of CBS Sports, wrote the following in a letter to Senator Harkin:

As a businessman and broadcaster, I am concerned about this imbalance between the cost of captioning programming and the very limited number of viewers. This gap makes it difficult to justify the expansion of captioning beyond those widely-viewed kinds of programming being captioned today. Furthermore, some in the industry who have demonstrated their growing support of captioning through funding may begin to re-evaluate their commitment and, I fear, gradually reduce that commitment. (Pilson letter to Senator Harkin; June 11, 1990; p. 2.)

Thus, the limited penetration of decoders into American homes, coupled with the high costs of providing closed-captioning services, threatens the long-term viability of the captioning industry.

DECODER CIRCUITRY AND S. 1974

Recommendation 42 of the 1989 CED report proposed that all new television sets be capable of receiving closed-captioned programming so that networks and other broadcasters would have a financial incentive to continue providing this service. S. 1974 is a response to that recommendation, but narrows the focus to television

sets with screens 13 inches or larger. Specifically, the legislation requires that these television sets be equipped with decoding circuitry that displays closed captions on the bottom of television screens.

The NCI has contracted with the ITT Corporation to develop, produce, and sell a decoder chip to television manufacturers for no more than \$5 per chip. (NCI "Update"; March 1990.) In addition, EEG Enterprises, Inc. has indicated that, based on moderate production quantities (typically 100,000), the projected cost of a decoder chip would be \$5. As to the effect that this cost will have on the retail price of television sets, the Sanyo Fisher Corporation and Zenith estimate the cost to be \$5 to \$15 per television set (Zenith has its own technology that will achieve the same goal). Both companies estimate that over time, however, the costs will decrease and eventually will be absorbed by, among other factors, reduced labor costs and decreased costs in chip production. (March 1, 1990 Letters to Sy Dubow, Legal Director, The National Center for Law and the Deaf.)

COMMITTEE RESPONSE

After holding hearings on this bill, the Committee believes there is a compelling need to require that most new television sets sold in the United States have built-in decoder circuitry. The requirement of built-in decoders in television sets will increase significantly the audience that can be served by closed-captioned television. Such an increased market will be an incentive to the television industry to provide more captioned programming, which will ensure a self-sustaining captioning service. According to ABC:

If decoders were more widely used and viewership to grow, the marketplace can be relied upon to increase captioning, because more viewers would be reached at a decreased per capita cost. Increased decoder ownership—not just more captioning—is required for a strong, self-sustaining captioning service. (The Commission on the Education of the Deaf, "Toward Equality"; 1988; p. 119.)

The Committee also recognizes the fact that the inclusion of decoding circuitry will affect the retail price of television sets. However, as Senator Inouye stated:

I believe that spreading costs over all or most buyers of TV sets has a sound basis. First, the cost is not that significant, especially when [the technology is] produced in mass quantities. Second, by increasing access to this service, it will help bring this very large segment of our society into the mainstream. And third . . . there are very many features on TV sets that are sold today that are used by only a small percentage of buyers, and yet, we all pay for them. (Opening statement of Senator Inouye; June 20, 1990.)

The Electronic Industries Association (EIA) opposes S. 1974. EIA Consumer Electronics Group Vice President, Tom Friel, suggested at the hearing that the Committee consider including decoding circuitry in only those television sets with screens 20 inches and larger. (Friel statement; June 20, 1990; p. 5). To this suggestion, Senator Inouye responded:

That would mean that less than 40 percent of the TV sets, and only the more expensive sets, would have the capability of receiving closed captioning, and this proposal would seem to defeat the purpose of this bill. (Opening statement of Senator Inouye; June 20, 1990.)

S. 1974 does not mandate a specific decoding technology to be installed in television sets. The Committee intends that this legislation encourage competition for the development of built-in decoder circuitry and that such competition will reduce the cost of the technology.

The Committee is committed to the continued goal of ensuring that all Americans have access to and can enjoy the benefits of what is a public benefit—our Nation's airwaves. S. 1974 is intended to promote this important goal.

LEGISLATIVE HISTORY

S. 1974 was introduced on November 21, 1989, by Senator Harkin and is co-sponsored by Senators McCain, Inouye, Simon, Dole, Hollings, Pressler, Kerry, Bentsen, Gore, Lieberman, Burns, Burdick, Heinz, and Kennedy. The Communications Subcommittee held a hearing on S. 1974 on June 20, 1990, and 10 witnesses testified.

At its June 27, 1990, executive session, the Committee in open session considered S. 1974 as introduced. Senators Inouye, Danforth, and Kasten offered a group of amendments which revised section 4 of the bill as introduced to clarify that as new video technologies develop, the FCC shall ensure that closed-captioning services are available to the public. The Committee adopted the amendments and without objection approved the bill as amended.

SUMMARY OF MAJOR PROVISIONS

S. 1974, as reported, requires the following:

(1) that all television sets with screens 13 inches or larger, manufactured or imported into the United States on and after October 1, 1992, have the ability to display closed-captioning television transmissions without the use of any external equipment (section 3); and

(2) that the FCC establish performance and display standards to ensure that the circuitry used to provide close captioning complies with the FCC's existing rules concerning the use of line 21 of the vertical blanking interval and take appropriate action to ensure that new video technologies are capable of providing closed captioning (section 4).

ESTIMATED COSTS

In accordance with paragraph 11(a) of rule XXVI of the Standing Rules of the Senate and section 403 of the Congressional Budget Act of 1974, the Committee provides the following cost estimate, prepared by the Congressional Budget Office:

U.S. CONGRESS,
CONGRESSIONAL BUDGET OFFICE,
Washington, DC, July 18, 1990.

HON. ERNEST F. HOLLINGS,
*Chairman, Committee on Commerce, Science, and Transportation
U.S. Senate, Washington, DC.*

DEAR MR. CHAIRMAN: The Congressional Budget Office has reviewed S. 1974, the Television Decoder Circuitry Act of 1990, as ordered reported by the Senate Committee on Commerce, Science, and Transportation, June 27, 1990. We estimate that implementation of this bill would result in annual costs to the federal government of \$80,000 to \$100,000 during fiscal years 1991 through 1995, assuming appropriation of the necessary amounts.

S. 1974 would require each apparatus that is designed to receive television pictures broadcast with sound and that meets certain specifications to contain built-in equipment to display closed-captioned television transmissions. This requirement would be effective on October 1, 1992. The bill would require the Federal Communications Commission (FCC) to prescribe rules establishing performance and display standards for the equipment within 180 days of enactment. In addition, S. 1974 would require the FCC to monitor standards for new technologies to ensure that closed-captioning service remains available.

Based on information from the FCC, CBO estimates that the FCC would incur costs of between \$80,000 and \$100,000 each year in fiscal years 1991 to 1995 to carry out the bill's requirements. We estimate that developing the rule and responding to requests for interpretation of the rule would impose costs of about \$75,000 in 1991, \$20,000 in 1992, and \$10,000 annually thereafter. In addition, it would cost the FCC about \$50,000 each year beginning in 1992 to test equipment to assure compliance with the standards. Finally, CBO estimates that the FCC would spend about \$20,000 annually beginning in 1991 to monitor standards for new technologies.

No costs would be incurred by state or local governments as a result of enactment of this bill.

If you wish further details on this estimate, we will be pleased to provide them. The CBO staff contact is Laura Carter, who can be reached on 226-2860.

Sincerely,

ROBERT D. REISCHAUER,
Director.

REGULATORY IMPACT STATEMENT

In accordance with paragraph 11(b) of rule XXVI of the Standing Rules of the Senate, the Committee provides the following evaluation of the regulatory impact of the legislation, as reported.

NUMBER OF PERSONS COVERED

The legislation requires that all televisions with 13 inches and larger screens be equipped with closed-caption decoding circuitry. This action would apply to 96 percent of the television sets sold in the United States.

If enacted, the legislation would affect approximately 24 million deaf and hard-of-hearing Americans (38 percent of whom are elderly); 27 million functionally illiterate Americans; nearly three million persons who are learning English as a second language; and young children who are learning to read. Additionally, because of the projected added retail costs, the legislation would initially affect consumers of television sets with screens 13 inches and larger.

ECONOMIC IMPACT

The Committee believes that the projected cost to manufacturers of the requirement that television sets with screens 13 inches or larger contain circuitry capable of decoding closed captioning will not exceed \$5 per television set. The subsequent increase in the retail cost of television sets is expected to be between \$5-\$15 per set, a cost that over time is expected to decrease as other manufacturing and production costs, such as parts and labor costs, are reduced.

PRIVACY

This legislation will not have any adverse impact on the personal privacy of the individuals affected.

PAPERWORK

This legislation requires the FCC to establish certain performance and display standards, which will result in a minimal amount of additional paperwork.

SECTION-BY-SECTION ANALYSIS

SECTION 1.—SHORT TITLE

This section states the short title of the bill, the "Television Decoder Circuitry Act of 1990."

SECTION 2.—FINDINGS

This section contains the findings of Congress that deaf and hearing-impaired persons should have access to television; closed captioning television enables deaf and hearing impaired persons to have access to television and to improve their lives; closed captioning will provide 24 million people access to information and entertainment; closed captioning will help the nearly 38 percent of older Americans who are hard-of-hearing; closed-captioning can help children and illiterate adults to learn to read; closed captioning can assist immigrants to learn English; to obtain closed captioning today, consumers must purchase a special decoder; television sets can now be manufactured with decoders built in for a low cost; and the inclusion of decoders in televisions will increase the audience served by closed captioning and provide an incentive for programmers to provide more closed-captioned programs.

SECTION 3.—REQUIREMENT FOR CLOSED-CAPTIONING EQUIPMENT

This section amends section 303 of the Communications Act of 1934 (Act) to require that all television sets with screens 13 inches

or larger, manufactured in or imported into the United States, have the ability to display closed-captioning television transmissions without the use of any additional or external equipment.

SECTION 4.—PERFORMANCE AND DISPLAY STANDARDS

This section amends section 330 of the Act by adding a new subsection (b) which requires the FCC to establish performance and display standards to ensure that the circuitry used to provide closed captioning in television sets complies with the FCC's existing rules concerning the use of line 21 of the vertical blanking interval set forth in the PBS engineering report (E-7709-C; May 1980), as amended by the TeleCaption II Decoder Module Specification published by NCI, November 1985, or the equivalent of the FCC rules. Conformity with these established signal and display specifications is critical to ensure that television viewers universally can receive and read closed captions. These display standards ensure that the intent of the program producer, captioning agency, and program distributor is conveyed properly to the viewer. The display standards define such elements as placement, color, font, and mode of the captions. These standards are essential to ensure that caption producers will be able to create captions that are readable regardless of which television or decoder circuitry is used. Any equivalent specifications must ensure that television viewers universally can receive and read closed captions with the same clarity and consistency, and to the same extent, as such viewers would be able to receive and read closed captions produced in accordance with the PBS engineering report, as amended.

The Committee recognizes that, with the advent of digital and "menu-driven" television receivers in recent years, the television manufacturing industry is developing the capability to incorporate a wide variety of performance features into televisions, including the capability to decode and display closed captions. The Committee also recognizes that American manufacturers of television sets have been encumbered by low selling margins and very low or negative profitability. Accordingly, it is not the intent of the bill to require, directly or indirectly, standardization of a specific decoding chip or specific decoding circuitry, but simply to mandate that televisions be capable of decoding and displaying adequately closed captions—i.e., the captions or subtitles which translate spoken words or sounds—transmitted by line 21 of the verbal blanking interval.

The Committee further recognizes that the degree of specificity in display standards may influence manufacturing costs. The Committee does not intend this bill to foreclose television manufacturers from developing cost-effective approaches to close-caption decoding which are an integral part of their market-driven design processes. Indeed, the Committee expects that, in developing display standards, the FCC will pay due regard to considerations of cost-effectiveness and evolving technical capability, as well as the benefits to the competitive process of allowing manufacturers latitude consistent with the purposes of the bill.

This section also requires the FCC to take appropriate action to ensure that as new video technologies are developed, closed-cap-

tioned programs continue to be accessible to the public. The Committee does not intend to mandate that FCC impose the same requirements on new technologies as those on older technologies if there are other means to achieve the objective of this legislation—to ensure that closed captioning continues to be widely available to consumers. For example, in the FCC's consideration of High Definition Television, the FCC should ensure that whatever standards are adopted provide for closed captioning of programming without the need for a separate decoder.

SECTION 5.—EFFECTIVE DATE

This section provide that this legislation shall go into effect on October 1, 1992.

SECTION 6.—RULES

This section requires the FCC to promulgate rules implementing this legislation within 180 days of enactment.

CHANGES IN EXISTING LAW

In compliance with paragraph 12 of rule XXVI of the Standing Rules of the Senate, changes in existing law made by the bill, as reported, are shown as follows (existing law proposed to be omitted is enclosed in black brackets, new material is printed in italic, existing law in which no change is proposed is shown in roman):

COMMUNICATIONS ACT OF 1934

Section 303 of that Act

GENERAL POWERS OF COMMISSION

SEC. 303. Except as otherwise provided in this Act, the Commission from time to time, as public convenience, interest, or necessity requires shall—

(a) through (t) * * *

(u) Require that apparatus designed to receive television pictures broadcast simultaneously with sound be equipped with built-in decoder circuitry designed to display closed-captioned television transmissions when such apparatus is manufactured in the United States or imported for use in the United States, and its television picture screen is 13 inches or greater in size.

Section 330 of that Act

PROHIBITION AGAINST SHIPMENT OF CERTAIN TELEVISION RECEIVERS

SEC. 330. (a) No person shall ship in interstate commerce, or import from any foreign country into the United States, for sale or resale to the public, apparatus described in paragraph (s) of section 303 unless it complies with rules prescribed by the Commission pursuant to the authority granted by that paragraph: *Provided*, That this section shall not apply to carriers transporting such apparatus without trading in it.

(b) No person shall ship in interstate commerce, manufacture, assemble, or import from any foreign country into the United States,

any apparatus described in section 303(u) of this Act except in accordance with rules prescribed by the Commission pursuant to the authority granted by that section. Such rules shall provide performance and display standards for such built-in decoder circuitry. Such rules shall further require that all such apparatus be able to receive and display closed captioning which have been transmitted by way of line 21 of the vertical blanking interval and which conform to the signal and display specifications set forth in the Public Broadcasting System engineering report numbered E-7709-C dated May 1980, as amended by the Telecaption II Decoder Module Performance Specification published by the National Captioning Institute, November 1985. As new video technology is developed, the Commission shall take such action as the Commission determines appropriate to ensure that closed-captioning service continues to be available to consumers. This subsection shall not apply to carriers transporting such apparatus without trading it.

[(b)] (c) For the purposes of this section **[and section 303(s)], section 303(s), and section 303(u)—**

(1) The term "interstate commerce" means (A) commerce between any State, the District of Columbia, the Commonwealth of Puerto Rico, or any possession of the United States and any place outside thereof which is within the United States, (B) commerce between points in the same State, the District of Columbia, the Commonwealth of Puerto Rico, or possession of the United States but through any place outside thereof, or (C) commerce wholly within the District of Columbia or any possession of the United States.

(2) The term "United States" means the several States, the District of Columbia, the Commonwealth of Puerto Rico, and the possessions of the United States, but does not include the Canal Zone.