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Action: INTRODUCED BY MR. DeCONCINI

By Mr. DECONCINI:

S. 2358. A bill entitled the "Digital Audio Tape Recorder Act of 1990"; to the Committee on Commerce, Science, and Transportation.

DIGITAL AUDIO TAPE RECORDER ACT

● Mr. DECONCINI. Mr. President, I rise today to introduce the Digital Audio Tape Recorder Act of 1990. By introducing this legislation, we hope to bring to an end the controversy surrounding introduction of this new technology into the U.S. consumers across the country should have the opportunity to enjoy this technological advancement in sound recording.

I am including in the RECORD today a section-by-section description of the bill. I am including along with it a technical reference document that sets forth certain standards and specifications mandated by the legislation. At this point, I thought it would be helpful to describe this technology and the need for this legislation.

A digital audio tape recorder [DAT] is a tape recorder that records information in digital form, similar to the compact tape disc player except on tape. In a digital recording, music is converted into electronic pulses for coding, in the same way a computer stores information—in contrast, a conventional analog tape recorder records music in the form of the sound waves that constitute music. These digital pulses are then "read" and converted back into music. Proponents of this type of recording claim that it has several advantages over conventional methods of recording. These purported advantages include that the dynamic range of the music—the difference between the loudest and softest portions—and the signal-to-noise ratio are superior to most analog methods; the recording process itself does not add any noise; and "wow" and "flutter"—mechanical errors induced in some analog recordings—are virtually eliminated.

Last Congress, Congressman ROBERT KASTENMEIER and I chaired joint hearings of our respective subcommittees on the problems presented by the introduction of this new technology. At that hearing, one of the main concerns voiced by recording industry representatives was that, by using a DAT to tape a compact disc, a consumer would be able to obtain a "digital master" or a "digital clone" every bit as good as the record producer's own digital master and that this recording could then be reproduced repeatedly in that form. Representatives of the consumer electronics industry testified that they had voluntarily configured the devices to prevent digital-to-digital cloning.

The focus of the hearing, however, was on a proposed technological addition to the DAT technology that would render the devices incapable of recording encrypted prerecorded software. This technology, called the copy-code scanner, was demonstrated by both the recording industry, who developed it, and the electronics industry. The results of the two demonstrations were markedly different. While the copy-code scanner demonstrated by the recording industry resulted in no discernible degradation in sound quality, the one utilized in the electronics industry presentation, however, obviously did adversely affect the quality. The committees were not able to determine which demonstration was more accurate and subsequently asked the National Bureau of Standards to test the copy-code scanner to determine its affect on DAT recorders. In addition, the two chairmen asked the Recording Industry Association and the Electronics Industry Association to try to resolve the dispute between themselves. The legislation I am introducing today represents the agreement that has been reached by the two long-term adversaries.

In fashioning this legislation, we have not included a surcharge provision to compensate artists and copyright holders for the possibility of loss of compensation that the sale of the machines may promote. The recording industry and others in the worldwide music community have long supported the imposition of a surcharge on blank tapes and recording devices. The consumer electronics industry, retail dealers and consumers have consistently opposed these efforts in the United States. In agreeing to recommend legislation to Congress, the industry representatives have put aside these differences. I applaud both sides for their efforts and for their willingness to compromise.

I am aware that there are groups who oppose the agreement represented by this legislation. These groups continue to believe that the only fair solution to the perceived problem of displaced sales is a distribution of moneys collected through the surcharge system. These parties also believe that the agreement sets a bad precedent by acknowledging for the first time in the copyright law, the existence of home taping. I have never supported the placing of such a surcharge on either software or hardware, but if this legislation is referred to my subcommittee, I will give this idea a fair hearing during consideration of the bill. In addition, language has been included in the legislation to clarify that Congress does not intend in adopting this approach to address the legality or appropriateness of home taping in general.

In agreeing to recommend SCMS, the industry representatives now seek

to enable consumers to make digital-to-digital copies of prerecorded music, but to restrict the extent to which digital-to-digital copies of the copies can be made.

Under SCMS, the circuitry which controls the functions of a DAT will be programmed to read certain coding information accompanying the source material and, based on the particular combination of codes it reads, will permit unrestricted copying, permit copying but label the copy with a code to restrict further digital-to-digital copying, or disallow such copying. Under this system, a DAT will not be prevented from making first-generation digital-to-digital copies of original prerecorded music and other material from compact discs, prerecorded DAT cassettes, digital broadcasts, and other digital sources entering through a digital input, but will be unable to make second-generation digital-to-digital copies of the copies. In recognition of the fact that a DAT at present is unable to determine whether original prerecorded music or other material entering through an analog input has been coded for copyright protection, a DAT will be able to make a first-generation and a second-generation digital-to-digital copy of the source material, but will not be permitted to make a third-generation digital copy of the second-generation copy. In the event that technological developments permit the circuitry of a DAT to identify copyrighted material entering through an analog input, the same limitation on digital copies of copies should apply, but there will be no limitation on serial digital copying of analog material not coded for copyright protection.

The serial copy management system does not require any action by the consumer. No additional buttons or controls will complicate the recording process. Implementation of SCMS also will not require any changes to existing compact disc players or compact discs.

Home taping on conventional analog tape recorders will not be subject to SCMS. Thus, home taping on analog tape recorders will remain unaffected by this legislation. Moreover, the codes imbedded in digital sources to allow SCMS to work will not affect in any way the ability of analog tape recorders to record digital sources of music.

In my view, it is important that the DAT technology be available for American consumers. Therefore, the benefits of implementing SCMS for DAT's will be significant for consumers, the recording industry, the consumer electronics industry, and others in the United States. In furtherance of our goal of putting past controversy behind us, we introduce this legislation today. We look forward to the support of our Senate colleagues in moving this bill quickly.

I ask unanimous consent that the bill and the accompanying documents be inserted in the RECORD.

There being no objection, the materials were ordered to be printed in the RECORD, as follows:

S. 2358

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. SHORT TITLE.

This Act may be referred to as the "Digital Audio Tape Recorder Act of 1990".

SEC. 2. FINDINGS.

(a) FINDINGS.—The Congress finds that—

(1) the Congress has been expressly granted the power under article 1, section 8, of the Constitution to promote the progress of science and the useful arts;

(2) representatives of the consumer electronics and recording industries have jointly studied possible recommendations to governments about the functions of digital audio tape (hereinafter in this section referred to as "DAT") recorders;

(3) taking into account concerns raised in the worldwide music community regarding copyright protection, the industry representatives announced a worldwide agreement in 1989 to make joint recommendations to governments, including the United States Government, with respect to DAT technology;

(4) the industry representatives agreed to recommend for government implementation worldwide the serial copy management system (hereinafter in this section referred to as "SCMS"), a technical system for controlling so-called "serial" copying on DAT recorders;

(5) under SCMS, the circuitry which controls the functions of a DAT recorder will be programmed to read certain coding information accompanying the source material and, based on the particular combination of codes it reads, will not prevent unrestricted copying, will not prevent copying but label the copy with a code to restrict further digital-to-digital copying, or will disallow such copying;

(6) under SCMS, a DAT recorder will not be prevented from making first-generation digital-to-digital copies of original copyright-protected prerecorded music and other material from compact discs, prerecorded DAT cassettes, digital broadcasts, and other digital sources entering through a digital input, but will be prevented from making second-generation digital-to-digital copies of the copies;

(7) under SCMS, in recognition of the fact that a DAT recorder at present will be unable to determine whether original prerecorded music or other material entering through an analog input has been coded for copyright protection, a DAT recorder will not be prevented from making first-generation and second-generation digital-to-digital copies of the source material, but will be prevented from making third-generation digital-to-digital copies of the second-generation copies;

(8) in the event that technological developments permit the circuitry of a DAT recorder to identify copyrighted material entering through an analog input, equivalent limitations on digital copies of copies should apply, but there will be no limitation on serial digital copying of analog material not coded for copyright protection;

(9) home taping on conventional analog tape recorders will not be subject to SCMS and thus will remain unaffected;

(10) the benefits of implementing SCMS for DAT recorders will be significant for consumers, the recording industry, the consumer electronics industry, and others in the United States;

(11) in furtherance of the realization of those benefits and to encourage other governments to act accordingly, this Act implements SCMS for DAT recorders and provides mechanisms for regulatory implementation of solutions with respect to future issues and technological developments;

(12) representatives of the consumer electronics and music industries are expected to discuss copyright issues resulting from new technologies, including recordable and erasable compact disc players, and to study possible approaches, and to make recommendations to governments, including the United States Government, for applying SCMS or another system with greater copying restrictions than SCMS to these new technologies;

(13) this Act does not address or affect the legality of private home copying under the copyright laws;

(14) the enactment of this Act shall not prejudice consideration of whether or not royalties should be levied for private home copying of copyrighted music; and

(15) the enactment of this Act will promote the progress of science and the useful arts by encouraging the development of new technologically advanced products while providing copyright-related protection for creators of artistic works.

SEC. 3. DIGITAL AUDIO TAPE RECORDERS AND PHONORECORDS.

(a) PROHIBITION ON MANUFACTURE OR DISTRIBUTION.—(1) No person shall manufacture or distribute any digital audio tape recorder or digital audio interface device which does not conform to the standards and specifications to implement the serial copy management system that are either—

(A) set forth in the technical reference document; or

(B) established under an order by the Secretary of Commerce under section 4(b)(1) or (2).

(2) If the Secretary of Commerce approves standards and specifications under section 4(b)(3), then no person shall manufacture or distribute any digital audio tape recorder or digital audio interface device which does not conform to such standards and specifications.

(b) PROHIBITION ON CIRCUMVENTION OF SERIAL COPY MANAGEMENT SYSTEM.—No person shall manufacture or distribute any device, or offer or perform any service, the primary purpose or effect of which is to avoid, bypass, remove, deactivate, or otherwise circumvent any program or circuit which implements, in whole or in part, the serial copy management system in a digital audio tape recorder or digital audio interface device.

(c) EXCEPTION FOR PROFESSIONAL MODELS.—(1) Notwithstanding subsections (a) and (b), the requirements of those subsections shall not apply to a professional model digital audio tape recorder. For purposes of this Act, the term "professional model digital audio tape recorder" means a digital audio tape recorder—

(A) which is capable of sending a digital audio interface signal in which the channel status block flag is set as a "professional" interface, in accordance with the standards and specifications set forth in the technical reference document or established under an order issued by the Secretary of Commerce under section 4;

(B) which is clearly, prominently, and permanently marked with the letter "P" or the word "professional" on the outside of its packaging, and in all advertising, promotional, and descriptive literature, with respect to the recorder, that is available or

provided to persons other than the manufacturer, its employees, or its agents; and

(C) which is designed, manufactured, marketed, and intended for use by recording professionals, in the ordinary course of a lawful business.

(2) The capability in a digital audio tape recorder described in paragraph (1)(A), or the marking of a digital audio tape recorder described in paragraph (1)(B), shall not create any presumption that the recorder is a professional model digital audio tape recorder.

(3) In determining whether a digital audio tape recorder meets the requirements of paragraph (1)(C), factors to be considered shall include—

(A) whether it has features used by recording professionals in the course of a lawful business, including features such as—

(i) a data collection and reporting system of error codes during recording and playback;

(ii) a record and reproduce format providing "read after write" and "read after read";

(iii) a time code reader and generator conforming to the standards set by the Society of Motion Picture and Television Engineers for such readers and generators; and

(iv) a professional input/output interface, both digital and analog, conforming to standards set by audio engineering organizations for connectors, signaling formats, levels, and impedances;

except that the presence or absence of features referred to in this subparagraph shall not create any presumption as to whether or not a digital audio tape recorder is a professional model digital audio tape recorder;

(B) the nature of the promotional materials used to market the digital audio tape recorder;

(C) the media used for the dissemination of the promotional materials, including the intended audience;

(D) the distribution channels and retail outlets through which the recorder is disseminated;

(E) the manufacturer's price for the recorder as compared with the manufacturer's price for digital audio tape recorders implementing the serial copying management system;

(F) the relative quantity of manufacture of the recorder as compared to the size of the manufacturer's market for professional digital audio tape recorders;

(G) the occupations of the purchasers of the recorder; and

(H) the uses to which the recorder is put.

(d) ENCODING OF INFORMATION ON PHONORECORDS.—(1) No person shall encode a phonorecord of a sound recording with inaccurate information relating to the category code, copyright status, or generation status of the source material so as to improperly affect the operation of the serial copy management system.

(2) Nothing in this Act requires any person engaged in the manufacture or assembly of phonorecords to encode any such phonorecord with respect to its copyright status.

(e) INFORMATION TO ACCOMPANY TRANSMISSION IN DIGITAL FORMAT.—Any person who transmits or otherwise communicates to the public any sound recording in digital format shall not be required under this Act to transmit or otherwise communicate the information relating to the copyright status of the sound recording; except that any such person who does transmit or otherwise communicate such copyright status information shall transmit or communicate such information accurately.

(f) DEFINITION.—For purposes of this section, the term "manufacture or distribute" means to manufacture, assemble, sell, resell, lease, or distribute in commerce, or to offer for sale, resale, lease, or distribution in commerce.

SEC. 4. SERIAL COPY MANAGEMENT SYSTEM.

(a) PUBLICATION OF TECHNICAL REFERENCE DOCUMENT.—Within 10 days after the date of the enactment of this Act, the Register of Copyrights shall cause the technical reference document to be published in the Federal Register.

(b) ORDERS OF SECRETARY OF COMMERCE.—The Secretary of Commerce, upon petition by an interested party and after consultation with the Register of Copyrights, may issue an order to implement the serial copy management system set forth in the technical reference document as follows:

(1) The Secretary may issue such order for the purpose of permitting in commerce devices that do not conform to all of the standards and specifications set forth in the technical reference document, if the Secretary determines that such devices possess the same functional characteristics with respect to regulation of serial copying as, and are compatible with the, prevailing method for implementation of, the serial copy management system set forth in the technical reference document.

(2) The Secretary may issue such order for the purpose of permitting in commerce devices that do not conform to all of the standards and specifications set forth in the technical reference document, if the Secretary determines that the standards and specifications relating generally to digital audio tape recorders and digital audio interface devices have been or are being revised or otherwise amended or modified such that the standards and specifications set forth in the technical reference document are not or would no longer be applicable, and that such devices conform to such new standards and specifications and possess the same functional characteristics with respect to regulation of serial copying as the serial copy management system set forth in the technical reference document.

(3) The Secretary may issue such order for the purpose of approving standards and specifications for a technical method implementing in a digital audio tape recorder the same functional characteristics as the serial copy management system so as to regulate serial copying of source material in the analog format in an equivalent manner as source material in the digital format.

SEC. 5. REMEDIES.

(a) CIVIL ACTIONS.—Any aggrieved person or the Attorney General of the United States may bring a civil action in an appropriate United States district court against any person for a violation of section 3.

(b) POWERS OF THE COURT.—In an action brought under subsection (a), the court—

(1) consistent with the limitation set forth in subsection (e), may grant temporary and final injunctions on such terms as it may deem reasonable to prevent or restrain violations of section 3;

(2) shall award damages under subsection (c);

(3) shall direct the recovery of full costs, including awarding reasonable attorney's fees, by an aggrieved person, other than the United States, who prevails; and

(4) may grant such other equitable relief as it may deem reasonable.

(c) DAMAGES.—(1) An aggrieved person shall be entitled to recover damages for violations of section 3, which shall be computed, at the election of the aggrieved person at any time before final judgment is rendered, in accordance with one of the following, but in no event shall the judgment exceed a total of $1,000,000:

(A) The aggrieved person may recover the actual damages suffered by him or her as a result of the violation and any profits of the violator that are attributable to the violation which are not taken into account in computing the actual damages. In determining the violator's profits, the aggrieved person is required to prove only the violator's gross revenue, and the violator is required to prove his or her deductible expenses and the elements of profit attributable to factors other than the violation.

(B) The aggrieved person may recover an award of statutory damages for each violation of subsection (a) or (b) of section 3 in the sum of not less than $1,000 nor more than $10,000 per device involved in such violation or per device on which a service prohibited by section 3(b) has been performed, as the court considers just.

(C) The aggrieved person may recover an award of statutory damages for each violation of subsection (d) of section 3 in the sum of not less than $10 nor more than $100 per phonorecord involved in such violation, as the court considers just.

(D) The aggrieved person may recover an award of statutory damages for each transmission or communication that violates subsection (e) of section 3, in the sum of not less than $10,000 nor more than $100,000, as the court considers just.

(2) In addition to making an award of damages under paragraph (1), in any case in which the court finds that a violation of section 3 was committed willfully and for purposes of direct or indirect commercial advantage or private financial gain, the court in its discretion may increase the award of damages, whether actual or statutory, by an additional amount of not more than $5,000,000.

(3) In any case in which the court finds that the violator was not aware and had no reason to believe that his or her acts constituted a violation of section 3, the court in its discretion may reduce the total award of damages to a sum of not less than $250.

(d) IMPOUNDING OF ARTICLES.—At any time while an action under this section is pending, the court may order the impounding, on such terms as it may deem reasonable, of any device or phonorecord that is in the custody or control of the alleged violator and that the court has reasonable cause to believe does not comply with, or was involved in a violation of, section 3.

(e) LIMITATION REGARDING PROFESSIONAL MODELS.—Unless a court finds that the labeling and distribution of a digital audio tape recorder as a professional model by a manufacturer, given the factors set forth in subsection (c) of section 3, were without a reasonable basis or not in good faith, the court shall not grant a temporary or preliminary injunction against the distribution of such devices by the manufacturer.

(f) REMEDIAL MODIFICATION AND DESTRUCTION OF ARTICLES.—As part of a final judgment or decree finding a violation of section 3, the court shall order the remedial modification, if possible, or the destruction of any device or phonorecord that does not comply with, or was involved in a violation of, section 3 that is in the custody or control of the violator or that has been impounded under subsection (d) of this section.

(g) DEFINITION.—For purposes of this section, the term "device" does not include a phonorecord.

SEC. 6. DEFINITIONS.

(a) IN GENERAL.—As used in this Act—

(1) the term "aggrieved person" means—

(A) any person engaged in the manufacture or assembly of any digital audio tape recorder or any phonorecord;

(B) any person who is a copyright owner of any work embodied in a phonorecord; and

(C) any association, representative, or agent of any person described in subparagraph (A) or (B);

(2) the term "commerce" means commerce between or among any of the States, or between any of the States and any foreign nation;

(3) the term "digital audio interface device" means any machine or device, whether or not developed as of the date of the enactment of this Act, and whether or not included with or as part of some other device, that supplies a digital audio signal through a "non-professional interface," as the term "non-professional interface" is used in the Digital Audio Interface Standard in part I of the technical reference document or in an order of the Secretary of Commerce under section 4(b) (1) or (2);

(4) the term "digital audio tape recorder" means any device, whether or not developed as of the date of the enactment of this Act, and whether or not included with or as a part of some other device, that is intended or marketed for the primary purpose of making a sound recording in a digital format on magnetic tape;

(5) the term "interested party" means any person engaged in the manufacture or assembly of any digital audio tape recorder or any phonorecord, or any association, representative, or agent of such person;

(6) the term "person" includes "anyone" as that term is used in section 501(a) of title 17, United States Code;

(7) the term "serial copy management system" means the system for regulating serial copying by digital audio tape recorders that is set forth in the technical reference document or in an order of the Secretary of Commerce under section 4;

(8) the term "State" means any of the several States, the District of Columbia, and any commonwealth, territory, or possession of the United States;

(9) the term "technical reference document" means the document entitled "Technical Reference Document for Digital Audio Tape Recorder Act of 1990", as such document appears under the proceedings of the Senate in the Congressional Record for March 28, 1990; and

(10) the terms "analog format", "copyright status", "category code", "generation status", and "source material" mean those terms as they are used in the technical reference document.

(b) COPYRIGHT DEFINITIONS.—Except as otherwise provided, all terms used in this Act shall have the same meanings as those terms are given in title 17, United States Code.

SEC. 7. EFFECT ON OTHER LAW.

This Act does not affect any right or remedy, or any limitation on such right or remedy, held by or available to any person under title 17, United States Code. Nothing in this Act creates or affords any greater or lesser rights with respect to private home copying of a copyrighted work than any rights afforded under title 17, United States Code.

SEC. 8. AMENDMENT TO TITLE 17, UNITED STATES CODE.

(a) IN GENERAL.—Chapter 5 of title 17, United States Code, is amended by adding at the end the following:

"§ 511. Effect of Digital Audio Tape Recorder Act of 1990

"The Digital Audio Tape Recorder Act of 1990 does not affect any right or remedy, or any limitation on such right or remedy, held by or available to any person under this title. Nothing in the Digital Audio Tape Recorder Act of 1990 creates or affords any greater or lesser rights with respect to private home copying of a copyrighted work than any rights afforded under this title.".

(b) CONFORMING AMENDMENT.—The table of sections at the beginning of chapter 5 of title 17, United States Code, is amended by adding at the end the following:

"511. Effect of Digital Audio Tape Recorder Act of 1990.".

SEC. 9. EFFECTIVE DATE.

This Act shall take effect on the date of the enactment of this Act, but shall not apply to any device or phonorecord manufactured or assembled before such date.

SECTION-BY-SECTION DESCRIPTION OF THE DIGITAL AUDIO TAPE RECORDER ACT OF 1990

Section 1 sets forth the title of the bill.

Section 2 sets forth certain findings that help put the legislation in perspective. Most of the findings describe the development of the serial copy management system (SCMS) for digital audio tape (DAT) recorders and how this system works. Other findings indicate that—

Enactment of the legislation will fulfill the constitutional power of Congress to promote the progress of science and the useful arts by encouraging the development of new technologically advanced products while providing protection for creators of copyrighted works;

Congress expects representatives of the consumer electronics and music industries to discuss copyright issues resulting from new technologies, including recordable and erasable compact disc players, to study possible approaches, and to make legislative recommendations for applying SCMS or another system with greater copying restrictions than SCMS to these new technologies; and

Enactment of the legislation will not address or affect the legality of private home copying under copyright law and will not prejudice consideration of whether or not royalties should be levied for private home copying of copyrighted music.

As a group, the findings provide background helpful for interpreting the SCMS standards and specifications mandated for DAT recorders and help put congressional consideration of the legislation into context.

Under SCMS, the circuitry which controls the functions of a DAT recorder will be programmed to read certain coding information accompanying the source material and, based on the particular combination of codes it reads, will not prevent unrestricted copying, will not prevent copying but label the copy with a code to restrict further digital-to-digital copying, or disallow such copying. Under this system, a DAT recorder will not prevent the making of first-generation digital-to-digital copies of original prerecorded music and other material from compact discs, prerecorded DAT cassettes, digital broadcasts, and other digital sources entering through a digital input, but will prevent the making of second-generation digital-to-digital copies of the copies. In recognition of the fact that a DAT recorder is presently unable to determine whether original prerecorded music or other material entering through an analog input has been coded for copyright protection, a DAT recorder will not prevent the making of a first-generation and a second-generation digital-to-digital copy of the source material, but will prevent the making of a third-generation digital-to-digital copy of the second-generation copy. In the event that technological developments permit the circuitry of a DAT recorder to identify copyrighted material entering through an analog input, equivalent limitations on digital copies of copies should apply, but there will be no limitation on serial digital copying of analog material not coded for copyright protection.

Home taping on conventional analog tape recorders will not be subject to SCMS. Thus, home taping on analog tape recorders will remain unaffected by this legislation.

Section 3 governs the manufacture and distribution of DAT recorders and phonorecords. Subsection (a)(1) provides that no person may manufacture or distribute a DAT recorder or digital audio interface device that does not conform to the standards and specifications to implement SCMS set forth in the technical reference document or established under an order by the Secretary of Commerce. (For purposes of this section, "manufacture or distribute" is defined broadly in subsection (f) to mean to manufacture, assemble, sell, resell, lease, or distribute in commerce, or to offer to do any of these in commerce.)

Subsection (a)(2) provides that, if the Secretary of Commerce approves standards and specifications under section 4(b)(3) to implement SCMS for source material in the analog format, then no person may manufacture or distribute a DAT recorder or digital audio interface device that fails to conform to such standards and specifications. At present, a DAT recorder is unable to determine whether original prerecorded music or other material entering through an analog input has been coded for copyright protection. Industry representatives are at work, studying the technical feasibility of implementing a system that would carry the copyright code in the analog, as well as the digital, format. If they develop a technical solution and if the Secretary then makes the required determination, future models of DAT recorders will have to implement the new technology before they may be sold in the United States.

Subsection (b) proscribes circumvention of SCMS. It provides that no person may manufacture or distribute a device, or offer to perform a service, the primary purpose or effect of which is to avoid, bypass, remove, deactivate, or otherwise circumvent any program or circuit that implements, in whole or in part, SCMS in DAT recorders. Thus, the legislation is aimed at the sale of so-called "black boxes" and computer programs that will defeat the system, as well as at persons operating a service to circumvent the system.

Subsection (c) exempts professional model DAT recorders from the coverage of the legislation. This subsection contains a number of criteria for determining whether a particular device qualifies as a professional model. The intent is threefold: to ensure that recording professionals, such as musicians, recording studio engineers, broadcasters, and cable operators, may purchase DAT recorders that are not limited in their recording ability; to provide manufacturers with guidance for designing and marketing models for use by recording professionals; and to ensure that this exception does not become a loophole by which the unscrupulous seek to market "professional" models to consumers through traditional consumer outlets.

Subsection (d) provides that no person may encode a phonorecord of a sound recording with inaccurate information relating to the category code, copyright status, or generation status of the source material so as to improperly affect the operation of SCMS. This provision, however, does not require any person to encode a phonorecord so as to claim copyright protection. That remains a decision for each copyright holder to make.

Subsection (e) provides that a person who transmits or otherwise communciates to the public in digital form the copyright status of a sound recording must do so accurately. This provision does not require broadcasters or cable operators to transmit sound recordings in a particular digital format or to otherwise transmit information about the category code, copyright status, or generation status of a sound recording. Rather, it only requires that information about the copyright status of a sound recording be accurate if it is transmitted or otherwise communicated.

Section 4 sets forth the mechanisms for implementing SCMS in DAT recorders and digital audio interface devices. Subsection (a) provides that within 10 days following enactment of the legislation, the Register of Copyrights must publish the technical reference document in the Federal Register. The proposed text of this document is attached to this section-by-section description. It is a technical reference document that adopts certain of the standards proposed to the International Electrotechnical Commission (IEC) in "IEC 958: Digital Audio Interface" and "IEC XXX Part 6: Serial copy management system for consumer audio use DAT recorders." Irrespective of how the proposals are treated by the IEC, the standards and specifications set forth in the technical reference document are intended to the determinative for purposes of defining the technical requirements of this legislation.

The technical reference document establishes two sets of standards and specifications. The first set governs the composition of digital audio signals being sent to and received by a DAT recorder, known as the "Digital Audio Interface Standard." The second set governs the recording functions of consumer model DAT recorders, to be known as the "Serial Copy Management System Standard" or the "SCMS Standard."

Subsection (b) contains three "safety valve" mechanisms, all triggered upon petition of an interested party, to implement SCMS differently than provided for in the technical reference document. Upon receipt of a petition and before issuing an order under this provision, the Secretary of Commerce must consult with the Register of Copyrights. The first mechanism provides the Secretary with the authority to issue an order permitting in commerce DAT recorders that possess the functional characteristics of SCMS and are compatible with SCMS as prescribed under the technical reference document, but which do not meet all of the standards and specifications set forth in the technical reference document. The intent is to have a mechanism by which the Secretary can remedy any technical problems that develop in implementing SCMS using the technical reference document and to permit other technologies which may be developed which implement SCMS in some other way. The second provision gives the Secretary the authority to issue an order permitting in commerce DAT recorders that meet a new set of standards and specifications to implement SCMS, in the event that the overall standards for DAT recorders or digital audio interface devices are no longer applicable and are revised in the future. The third provision provides the Secretary with the authority to approve standards and specifications for applying SCMS to source material in the analog format in an equivalent manner as source material in the digital format.

Section 5 establishes remedies for violations of the legislation. Subsection (a) provides that an aggrieved person or the Attorney General may bring a civil action to redress a violation of section 3. Subsection (b) provides the court with authority to grant injunctions, award damages, direct the recovery of costs, and grant such other equitable relief as it may deem reasonable.

Subsection (c) sets forth mechanisms for calculating damages, subject to a limit of $1 million per judgment as established under paragraph (1). An aggrieved person has the option of recovering actual damages or statutory damages, subject to this limit. Paragraph (2) provides the court with the authority to make an additional award of damages, up to a maximum of an additional $5 million, if it determines that a violation of section 3 was committed willfully and for purposes of direct or indirect commercial advantage or private financial gain. Paragraph (3) gives the court the discretion to lower the damage award to $250 if it finds that the violator was not aware and had no reason to believe that his or her acts constituted a violation of section 3.

Subsection (d) provides the court with authority to impound devices that the court has reasonable cause to believe do not comply with section 3.

Subsection (e) limits the authority of a court to issue a temporary or preliminary injunction against the distribution of DAT recorders labeled as professional models. The court only may do so if it finds that the labeling and distribution of the devices by a manufacturer were without a reasonable basis or not in good faith. The intent is to permit a manufacturer to continue to distribute devices in commerce pending resolution of the case, unless it is clear that it could not reasonably or in good faith have labeled and distributed a device as a professional model.

Subsection (f) permits the court to order the remedial modification of any device or phonorecord that does not comply with section 3. The court also is given authority to order destruction of any device or phonorecord that does not comply with section 3.

Section 6 defines terms used in the legislation. Of these definitions, the most important one defines a DAT recorder. The intent is to limit the applicability of this legislation only to devices that are intended or marketed to consumers for the primary purpose of making a sound recording in a digital format on magnetic tape. The "primary purpose" test is intended to ensure that only those products expected to be used principally for making audio recordings contain the circuitry or program to implement SCMS. In addition, by stating that the legislation covers devices included with or as part of some other device, the bill is intended to cover devices like "boom boxes" and to ensure that the requirements of the legislation may not be avoided merely by incorporating a DAT recorder into another device.

The bill defines a digital audio interface device as any machine or device, whether or not developed as of the date of the enactment of the Act, and whether or not included with or as part of some other device, that supplies a digital audio signal through a "non-professional interface" as that term is used in the Digital Audo Interface Standard in Part I of the technical reference document or in an order of the Secretary of Commerce pursuant to section 4(b) (1) or (2).

For drafting simplicity, the bill refers to the "technical reference document," the document appearing in the CONGRESSIONAL RECORD that sets forth the standards and specifications for implementing SCMS in DAT recorders and digital audio interface devices.

Finally, this section states that all other terms in the bill have the same meanings as those set forth in the Copyright Act of 1976, as amended. Such terms as "phonorecord" and "sound recording" appear throughout the bill. These and other terms have developed particular meanings through statutory amendments to the law and through judicial precedent. This provision preserves the interpretations developed under the Copyright Act.

Section 7 provides that the legislation is not intended to affect any right or remedy, or any limitation on any such right or remedy, held by or available to any person under the Copyright Act of 1976, as amended. Section 7 also provides that nothing in the legislation creates or affords any greater or lesser rights with respect to private home copying of a copyrighted work than any rights afforded under the Copyright Act.

Section 8 amends the Copyright Act to include the language set forth in section 7 in statutory form.

Finally, section 9 of the bill establishes the date of enactment as the effective date for the legislation, but specifies that the requirements for implementing SCMS do not apply to devices or phonorecords manufactured or assembled prior to that date. Thus, all devices and phonorecords currently in the hands of consumers or in the chain of distribution prior to enactment of the legislation will not be subject to it.

TECHNICAL REFERENCE DOCUMENT FOR THE DIGITAL AUDIO TAPE RECORDER ACT OF 1990

INTRODUCTION

This Technical Reference memorandum is provided to facilitate the implementation of legislation relating to digital audio tape ("DAT") recorders, known as the "Digital Audio Tape Recorder Act of 1990" (the Act").

This Technical Reference memorandum adopts those standards proposed to the International Electrotechnical Commission ("IEC") in "IEC 958: Digital Audio Interface" and "IEC XXX Part 6: Serial copy management system for consumer audio use DAT recorders", that are necessary to implement the Serial Copy Management System under the Act. However, compliance with the standards and specifications set forth herein may require adherence to additional IEC standards and specifications with respect to digital audio signals and/or DAT recorders. Regardless of whether the standards and specifications set forth in this or any other document are subsequently adopted or amended by the IEC, the mandatory standards and specifications set forth herein, as they may be amended pursuant to an order of the Secretary of Commerce under Section 4(b) of the Act, shall be considered determinative for the purposes of United States law.

Two sets of standards and specifications are established by this memorandum. The first set governs the composition of digital audio signals being sent to or by a DAT recorder via a nonprofessional interface, referred to hereinafter as the "Digital Audio Interface Standard." The second set governs the recording and play-back functions of non-professional model DAT recorders, referred to hereinafter as the "Serial Copy Management System Standard" or the "SCMS Standard."

PART I.—DIGITAL AUDIO INTERFACE STANDARD

Many devices are capable of producing digital audio signals. For example, compact disc players, DAT recorders, analog-to-digital converters and electronic musical instruments currently can issue digital audio signals; future devices may include digital video cassette recorders and digital microphones, among others. To enable communication between these different types of devices and a DAT recorder, it is necessary

and desirable to establish a common protocol or "interface" that mandates the location and significance of particular bits of information in the digital audio output signal of each device. Such a standard already has been established in the document IEC 958.

Under IEC 958, inaudible information, known as "channel status data", accompanies a digital audio signal being sent to or by a DAT recorder. Like all digital data, channel status data consist of numerical information encoded as a series of zeros and ones. Each zero or one constitutes a "bit" of data in which both zero and one may impart information concerning the composition of the audio signal being sent to or by a DAT recorder. Bits represented in this memorandum as "X", rather than as zero or one, indicate that those bits may be either zero or one without affecting the standards set forth herein.

Channel status data bits are organized into units of information, known as "blocks," relating to both the left and right stereo audio channels. Each block contains 192 bits of information, numbered consecutively from 0 to 191. Most of these 192 bits currently are reserved for future use. Those channel status bits that are significant to the implementation of the Digital Audio Interface Standard and the Serial Copy Management System are included within channel status bits 0 through 15, as set forth in the remaining sections of this Part I.

A. Summary of mandatory digital audio interface standard

According to IEC 958, there are two basic types of interfaces for digital audio signals that can be sent by or by a DAT recorder. A "professional interface" is a digital audio signal that contains particular types of channel status data for such DAT recorders as would be used by recording professionals as contemplated by the Act ("professional model" DAT recorders). A "non-professional interface" is a digital audio signal that contains different types of channel status data. The channel status data sent in a non-professional interface are incompatible with the channel status data in a professional interface. Hence, a non-professional DAT recorder cannot record digital audio signals sent in a professional interface. Whether a digital audio interface is professional or non-professional is indicated by the setting of Bit 0, known as the "Channel Status Block Flag", as set forth below.

This Digital Audio Interface Standard applies only to machines having a non-professional interface. To the extent that a professional model DAT machine also may have a non-professional interface, such a professional model DAT machine must send channel status data via its non-professional inteface in accordance with the standards set forth herein. However, nothing in this Digital Audio Interface Standard shall be interpreted to prevent a professional model DAT recorder having a non-professional interface from permitting such channel status data bits to be set in accordance with the needs of a professional user.

This Digital Audio Interface Standard requires that all devices having a digital audio output capable of supplying a digital audio signal to a DAT recorder through a non-professional interface must implement five types of codes located between Channel Status Bits 0 and 15. Under the Digital Audio Interface Standard, Channel Status Bits 0 through 15 are supplied in a digital audio output signal, and are read by a DAT recorder. Those bits that are mandated under this Digital Audio Interface Standard are as follows:

1. Bit 0.—Bit 0 (the "Channel Status Block Flag"), one of the "Control" bits, shall identify whether the channel status bits are for a professional or non-professional interface. Where Bit 0 is set as "1", the signal contains the channel status data required for a professional interface. Where Bit 0 is set as "0", the channel status data is suitable for a non-professional interface. The remaining bit assignments under this Digital Audio Interface Standard are mandated only with respect to a non-professional interface, i.e., where Bit 0 is set as "0".

2. Bit 1.—Bit 1, another of the "Control" bits, shall identify whether the signal being sent to or by the DAT recorder is a digital audio or a digital data signal. Where Bit 1 is set as "0", the signal is a digital audio signal. Where Bit 1 is set as "1", the signal is a digital data signal.

3. Bit 2.—Bit 2 (the "C" Bit), another of the "Control" bits, shall identify whether copyright protection is asserted for the work being sent via the digital audio input signal. Where the C Bit is set as "0", copyright protection has been asserted over the material being sent to the digital audio input of the DAT recorder. Where the C Bit is set as "1", either that material is not protected by copyright or no copyright protection has been asserted by the owner of that material. For Digital Receivers (Category Codes 001XXXXL and 0111XXXL), the C Bit shall be set as "0", except that these devices shall send the C Bit as "1" only where the cable operator or broadcaster specifically transmits information indicating that no copyright protection has been asserted over the material. Where a device combines more than one digital audio input signal into one digital audio output signal (*e.g.*, in the case of a digital signal mixing device), and copyright protection has been asserted in the C Bit for at least one of the input signals, then the device must permit the assertion of copyright protection over the resulting digital audio output signal (i.e., set the C Bit as "0").

There is no existing legal requirement that a copyright owner must assert protection over its work (and, therefore, set the C Bit as "0"). However, except as provided herein with respect to Digital Receivers, a copyright owner may not set the C Bit as "0" for works that are not copyrighted or are in the public domain.

4. Bits 3-7.—These bits are sent to and read by a DAT recorder, but specific bit settings for Bits 3-7 are not necessary for the implementation of the SCMS Standard set forth in Part II.

5. Bits 8-14.—Bits 8-14 shall specify a "Category Code" that identifies the type of device that produces the digital audio signal sent to or by a DAT recorder. Using various combinations of zeros and ones, Bits 8-14 can define Category Codes for as many as 128 different devices that can provide digital audio signals to a DAT recorder. According to IEC 958, the first three to five Category Code bits (numbered Bits 8-10 through 8-12) describe general product groups, and the remaining Category Code bits specify particular devices within each product group. IEC 958 has assigned particular Category Codes to existing and anticipated product groups and devices, and has reserved additional Category Codes for future devices.

The Category Code issued by each particular device must reflect the most specific code applicable to that device. There is one exception in the case of digital signal processing and mixing products, which receive digital audio signals from one or more sources and either process or combine them with other incoming digital audio signals. If all incoming signals are from an analog-to-digital converter having a Category Code "01100XXX", these devices should issue the Category Code of that analog-to-digital converter rather than of the digital signal processing or mixing device. This will permit two generations of copies from present-day analog recordings, which otherwise is permitted under the SCMS Standard.

The relevance of these Category Codes to the SCMS Standard is described below in Part II.

6. Bit 15.—Bit 15 (the "L" Bit) shall indicate the "generation status" of the digital audio signals being sent to or by a DAT recorder. "Generation status" means whether the signal emanates from a source that has been produced or published by or with the authority of the owner of the material, such as commercially released pre-recorded compact discs or DAT tapes or a digital broadcast (referred to herein as "original"); or whether the signal emanates from a recording made from such "original" material. In the latter case, a recording made directly from an "original" source is known as a "first-generation" copy; a recording made from a first-generation copy is a "second-generation" copy; and so forth.

For most products, if the L Bit is set as "0", the source is a recording that is first-generation or higher. If the L Bit is set as "1", the source is "original." For digital audio output signals from a laser-optical product, however, the definitions of the L Bit are reversed (i.e., L Bit="0" for "original" material and L Bit="1" for first-generation or higher recordings). For Digital Broadcast Receivers (Category Codes 001XXXXL and 0111XXXL), the L Bit always shall be set as "0"); except in the case of receivers for Electronic Audio Software Delivery, in which case such receivers shall send the L Bit as "1" only where the cable operator or broadcaster specifically transmits information indicating that the material should be treated as if it were first-generation or higher.

For devices that combine more than one digital audio input signal into one digital audio output signal (such as digital signal processors or mixers), the L Bit of the output signal must reflect the highest generation status of any input signal over which copyright protection has been asserted. Thus, where one or more of the constituent input signals is a first-generation or higher copy over which copyright protection is asserted, then the device must reflect in the L Bit of the digital audio output signal the generation status for a first-generation or higher copy. In all other cases, the device shall reflect in the L Bit that the output signal is original.

B. Mandatory digital audio interface standards

The following bit assignments for channel status data, as referenced in the provisions of IEC 958 ¶4.2.2 "Channel status data format for digital equipment for consumer use", shall be mandatory:

1. Bits 0-2 of the "CONTROL" Bits:

a. Bit 0 (the "Channel Status Block Flag")—

Bit 0="0"—Non-professional interface.

Bit 0="1"—Professional interface.

b. Bit 1—

Bit 1 = "0"—Digital audio signals.

Bit 1 = "1"—Non-audio (data) signals.

c. Bit 2 (the "C" Bit):

i. Case 1—

Bit 2 = "0"—Copyright protection asserted.

Bit 2 = "1"—No copyright protection asserted or not under copyright.

Exception to Case 1

For Digital Receivers (Category Codes 001XXXXL and 0111XXXL), the C Bit shall indicate:

Bit 2 = "0"—Copyright information transmitted and protection asserted, or no copyright information transmitted,

Bit 2 = "1"—Copyright information transmitted and no copyright protection asserted.

ii. Case 2—

Where a single digital audio output signal results from the combination of more than one digital audio input signal:

Bit 2 = "0"—Copyright protection asserted over at least one of the constituent digital audio input signals,

Bit 2 = "1"—For all of the constituent digital audio input signals, no copyright protection asserted or not under copyright.

2. Bits 3-7:

Specific bit settings for Bits 3-7 are not necessary for the implementation of the SCMS Standard set forth in Part II.

3. Category Code Bits 8-15:

a. Bits 8-15—

The Category Codes that follow are established for particular product groups. Where Bit 15 is represented by "L" rather than a zero or one, Bit 15 (the "L" Bit) can be either a zero or one without affecting the Category Code. Where Bit 15 is represented by "X" rather than a zero or one, the device is not capable of issuing status information concerning the L Bit.

00000000—General. This category applies to products that are capable of sending channel status data but are not programmed to send such data in accordance with the specifications set forth in this Memorandum, because the products were manufactured before the implementation of this Digital Audio Interface Standard and the Serial Copy Management System Standard. This General Category Code shall not be used for products manufactured after the effective date of the Act.

0000001L—Experimental products not for commercial sale.

100XXXXL—Laser-optical products, such as compact disc players (including recordable and erasable compact disc players) and videodisc players with digital audio outputs.

010XXXXL—Digital-to-digital ("D/D") converters and signal processing products.

110XXXXL—Magnetic tape or disc based products, such as DAT players and recorders.

001XXXXL and 0111XXXL—Digital reception of digitally-encoded audio signals with or without video signals, including Digital Cable or Digital Broadcast Receivers.

101XXXXL—Musical instruments, microphones and other sources that create original digital audo signals.

01100XXX—Analog-to-digital ("A/D") converters for analog signals without status information concerning the C Bit and the L Bit ("Present A/D converters").

01101XXL—A/D converters for analog signals which include status information concerning the C Bit and the L Bit ("Future A/D converters").

0001XXXL—Solid state memory based products.

Particular devices within each product group defined above shall be assigned specific Category Codes in accordance with IEC 958. Manufacturers of any device that is capable of supplying a digital audio input to a DAT recorder must use the most specific Category Code applicable to that particular device. However, digital signal processing or digital signal mixing products in Category Code product group "010XXXXL" should issue the Category Code for Present A/D converters where all the input signals have the Category Code for a Present A/D converter.

b. Bit 15 (the "L" Bit):

The L Bit shall be used to identify the generation status of the digital audio input signal as emanating from an "original" work or from a first-generation or higher recording.

1. Case 1—

For all Category Codes (except as explicitly set forth below), the L Bit shall indicate:

Bit 15="0"—First-generation or higher recording,

Bit 15="1"—"Original" work, such as a commercially released pre-recorded DAT tape.

a. Exception (a) to Case 1—

The reverse situation is valid for laser optical products (100XXXXL). For this Category Code the L Bit shall indicate:

Bit 15="1"—First-generation or higher recording,

Bit 15="0"—"Original" recording, such as a commercially released pre-recorded compact disc.

b. Exception (b) to Case 1—

For Digital Receivers (Category Codes 001XXXXL and 0111XXXL), Bit 15 always shall be set as "0"; except for receivers for Electronic Audio Software Delivery, for which the L Bit shall indicate:

Bit 15="0"—Generation status information transmitted as original status material or no generation status information transmitted,

Bit 15="1"—Generation status information transmitted as for non-original material.

c. Exception (c) to Case 1—

The L Bit has no meaning for A/D converters for analog signals that do not include status information concerning the C Bit and the L Bit (*i.e.*, A/D converters in Category Code 01100XXX).

2. Case 2—

Where a single digital audio output signal results from the combination of more than one digital audio input signal:

Bit 15="0"—One or more of those constituent digital audio input signals over which copyright protection has been asserted is first-generation or higher.

Bit 15="1"—All other cases.

II.—SERIAL COPY MANAGEMENT SYSTEM FOR "NON-PROFESSIONAL MODEL" DAT RECORDERS

The Serial Copy Management System Standard applies only to digital audio tape recorders that are not professional model DAT recorders as defined under the Act.

The general intention of the SCMS Standard is to prevent non-professional model DAT recorders from making second-generation or higher digital recordings of "original" digital audio input signals over which copyright protection has been asserted via the channel status bits. The SCMS Standard does not prevent the making of a first-generation recording of such "original" digital audio signals. As future technologies permit, the SCMS Standard will limit the digital recording by a DAT recorder of analog audio signals over which copyright protection has been asserted to the making of only a first-generation digital copy. However, because present technology does not identify whether analog audio signals are protected by copyright, the SCMS Standard will not prevent the making of a first and second-generation digitial copy of such signals. The SCMS Standard will not restrict digital recording of material over which copyright protection has not been asserted via the channel status bits of the digital audio input signal.

A. Summary of mandatory serial copy management system standard

To implement the Serial Copy Management System, the SCMS Standard requires that a DAT machine must play-back and/or record specific inaudible data in a particular location on a digital audio tape. According to the IEC documents "IEC XXX part 1: Digital Audio Tape Cassette System (DAT) Dimensions and Characteristics" and "Part 6: Serial copy management system for consumer audio use DAT recorders," that particular location on the digital audio tape consists of two bits known as "subcode ID6 in the main ID in the main data area" ("ID6").

1. SCMS Operation When Playing a DAT Tape—

With respect to the play-back function, a DAT machine that is connected to another DAT recorder can provide digital audio output signals via a non-professional interface. In that circumstance, the DAT play-back machine functions as a digital audio interface device that must provide channel status data conforming to the Digital Audio Interface Standard set forth above in Part I. The SCMS Standard requires that when a digital audio tape is played back, the DAT play-back machine reads the information from ID6 on the tape and then sends the corresponding channel status data (concerning Bit 2 "the C Bit" and Bit 15 "the L Bit"), along with the Category Code for a DAT machine, in its digital audio output signal. The channel status data to be sent in response to the various settings of ID6 are as follows:

1. Where ID6 is set as "00", copyright protection has not been asserted over the material under the SCMS Standard. In response to ID6, the digital audio signal output of the DAT will provide the C Bit set as "1" and the L Bit set as "0".

2. Where ID6 is set as "10", copyright protection has been asserted over the material under the SCMS Standard and the recording is not "original". In response to ID6, the digital audio output signal of the DAT will provide the C Bit set as "0" and the L Bit set as "0".

3. Where ID6 is set as "11", copyright protection has been asserted over the material under the SCMS standard and the recording is "Original". In response to ID6, the digital audio output signal of the DAT will provide the C Bit set as "0" and the L Bit set as "1".

2. SCMS Operation When Recording on DAT Tape

With respect to the recording function, the SCMS Standard governs the circumstances and manner in which a DAT recorder may record a digital audio input signal. A DAT recorder implementing the SCMS Standard must be capable of acknowledging the presence or absence of specific channel status information being sent to the DAT recorder via its digital audio input. The DAT recorder then responds to that channel status information by either preventing or permitting the recording of that digital audio input signal. If recording is permitted, the DAT machine records specific codes in ID6 on the tape, so that when the tape is played back, the DAT machine will issue the correct channel status data in its digital audio output signal. The settings of ID6 to be recorded in response to particular channel status bit information are as follows:

1. Where the C Bit of the digital audio input signal is set as "0" (copyright protection asserted), the DAT recorder shall not record the input, expect in three circumstances: (1) where the input is original material (i.e., where the digital audio input signal comes from one of the products on the "Category Code White List" set forth below in section C); (b) where the digital audio input signal contains an undefined Category Code (in which case only one generation of recording in permitted); or, (c) where the digital audio input signal comes

from a product with a defined Category Code but the product currently is not capable of transmitting information regarding copyright protection (in which case, two generations of copying are possible). In circumstances (a) and (b) above, the DAT recorder will record "10" in ID6 to prevent further copying. In circumstance (c) above, the DAT recorder will record "11" in ID6 for the first-generation copy.

2. Where the C Bit of the digital audio input signal is set as "1" (no copyright protection asserted or not copyrighted), the DAT recorder will record "00" in ID6, and unlimited generations on copying will be permitted.

3. Where the C bit of the digital audio input signal fluctuates between "0' and "1" at a rate of between 4-10 Hz, the signal is coming from a recordable or erasable compact disc that is not an "original" and that contains material over which copyright protection has been asserted. The DAT recorder shall not record in this circumstance.

4. The condition "01" in ID6 has been assigned no meaning within the SCMS Standard. Therefore, to prevent circumvention of the SCMS Standard, the DAT recorder shall not record "01" in ID6 on the tape.

B. Mandatory standards for the serial copy management system

1. Mandatory Standards for Digital Audio Output Signals—

a. Category Code Bit 15 (the "L" Bit)—

All "non-professional mode" DAT recorders shall provide the Category Code "1100000L" in the channel status bits of the digital audio output signal. The status of the L Bit of the Category Code shall be provided in the digital audio output signal of the DAT recorder as follows, in accordance with the status of ID6:

When ID6 is "00", the digital audio output signal shall indicate in the L Bit of the Category Code that the output source is either a first-generation or higher DAT tape recorded from a "original" source, or an "original" commercially released prerecorded DAT tape of masterial over which copyright protection is not being asserted under the SCMS standard. In either of these cases, the L Bit shall be set as "0", and the complete Category Code would be "11000000".

When ID6 is "10" the digital audio output signal shall indicate in the L Bit of the Categorey Code that the output source is a first-generation or higher DAT tape recorded from an "original" source (*i.e.*, L bit = "0"). The complete Category Code in this case would be "11000000".

When ID6 is "11", the digital audio output signal shall indicate in the L Bit of the Category Code that the output source is an "original' source, such as a commercially released prerecorded DAT tape (*i.e.*, L Bit = "1"). The complete Category Code in this case would be "1100000I".

b. Bit 2 (the "C" bit—

All non-professional model DAT recorders shall provide an output code in the C bit in the channel status bits of a digital audio output signal. The C bit shall be applied in the digital audio output signal as follows, in accordance with the status of ID6:

When ID6 is "00", the C Bit shall be set as "1".

When ID6 is "10" or "11", the C Bit shall be set as "0".

2. Mandatory Standards for Recording Functions—

The SCMS Standard with respect to recording functions performed by a non-professional model DAT recorder receiving digital audio input signals shall be implemented as follows:

1. Digital audio input signals in which the C Bit is set as "0" shall not be recored, except for the cases specified below in paragraphs 2, 4 and 5.

2. A DAT recorder may record a digital audio input signal in which the C Bit is set as "0", where the Category Code of the signal is listed in the "Category Code White List" set forth below. The DAR recorder shall record "10" in ID6 on the tape in this case.

3. For digital audio input signals in which the C Bit is set as "1", the DAR recorder shall record "00" in ID6 on the tape except for those cases specified below in paragraphs 4 and 5.

4. For digital audio input signals that contain Category Code information that is not defined in this memorandum, the DAT recorder shall record "10" in ID6, regardless of the status of the C Bit or the L Bit.

5. For digital audio input signals originating from an A/D converter with the Category Code "01100XXL", or from other sources such as from A/D converters with the Category Code for "General" ("00000000"), the DAT recorder shall record "11" in ID6, regardless of the status of the C Bit or the L Bit. This requirement shall be applied to digital input signals that do not contain source information of the original signal before digitization, e.g., an A/D converter that does not deliver source information.

6. For digital input signals originating from an A/D converter with the Category Code "01101XXL", which can deliver original source information concerning the C Bit and L Bit even if the source is in analog format, the requirement stated above in paragraph 5 shall not be applied. The "Category Code White List" set forth below includes this Category Code.

7. A digital audio tape of "original" generation status over which copyright protection has been asserted shall contain "11" in ID6. A digital audio tape of "original" generation status over which no copyright protection as been asserted shall contain "00" in ID6.

8. A DAT recorder shall not record digital audio input signals where the C Bit alternates between "0" and "1" at a frequency of between 4 and 10 Hz and the Category Code is for a Compact disc digital audio signal ("10000000"), as in the case of digital audio input signals from recordable or erasable compact discs that are not "original" and that contain material over which copyright protection has been asserted.

9. A non-professional model DAT recorder shall not record digital audio input signals sent from a professional interface, i.e., where channel status Bit 0 is set as "1".

10. the condition "01" in ID6 is not to be used.

11. Category codes and the C Bit included in the channel status information of digital audio input signals being sent to or by a DAT recorder shall not be deleted or modified and shall be monitored continuously and acted upon accordingly.

C. "Category code white list"

100XXXX0—Laser optical product.

010XXXX1—Digital-to-digital converter and signal processing devices.

110XXXX1—Magnetic tape and disc based product.

001XXXX0 and 0111XXX0—Digital reception of digitally encoded audio signals with or without video signals, such as Digital Cable and Digital Broadcast Receivers.

101XXXX1—Musical instruments.

01101XX1—Future A/D converter (with status information concerning the C Bit and L Bit).

0001XXX1—Solid state memory based product.

00000011—Experimental products not for commercial sale.

PART III. APPLICATION OF THE DIGITAL AUDIO INTERFACE AND SCMS STANDARDS

The following charts apply and correlate those codes that are mandated by the Digital Audio Interface Standard and SCMS Standard under the Act, in those situations contemplated by these standards. The columns in each of these charts identify the following information:

The "Signal Source" column describes the type of product sending the digital audio signal to a DAT recorder.

The three columns under the heading "Digital Audio Input Signal" identify the correct channel status information in the C Bit, Category Code Bits 8-14 and the L Bit, respectively which correspond to each product. The "Digital Audio Input Signal" described below is the signal being sent to the DAT recorder.

The next three columns under the heading "DAT Recorder Response" identify the response of the DAT recorder to the corresponding digital audio input signal. The column "ID6" specifies the code that the DAT recorder will record on the tape in ID6 in response to the digital audio input signal. The last two columns set forth the correct channel status information in the C Bit and L Bit that are sent in the digital audio output signal of a DAT recorder in response to the setting of ID6.

Each of the appropriate codes is set forth in the cases described below:

CASE 1.—WHERE COPYRIGHT PROTECTION HAS BEEN ASSERTED OVER THE DIGITAL AUDIO INPUT, AND THE SOURCE OF THE INPUT IS "ORIGINAL" MATERIAL

(Only first-generation recording permitted)

Signal source	Digital audio input signal			DAT recorder response		
	C bit (Bit 2)	Category code (Bits 8–14)	L bit (Bit 15)	ID6	C bit (Bit 2)	L bit (Bit 15)
Laser optical	0	1000XXX	0	10	0	0
D/D converter	0	0100XXX	1	10	0	0
Magnetic prod	0	1100XXX	1	10	0	0
Musical instrum	0	1010XXX	1	10	0	0
Future A/D conv	0	0110100	1	10	0	0
Digital receiver	0	0010XXX	0	10	0	0
Digital receiver	0	0111XXX	0	10	0	0
Experimental	0	0000001	1	10	0	0
Solid state dev	0	0001XXX	1	10	0	0

CASE 2.—WHERE COPYRIGHT PROTECTION HAS NOT BEEN ASSERTED OVER THE DIGITAL AUDIO INPUT, AND THE SOURCE OF THE INPUT IS "ORIGINAL" MATERIAL

[First-generation and above recording permitted]

Signal source	Digital audio input signal			DAT recorder response		
	C bit (Bit 2)	Category code (Bits 8–14)	L bit (Bit 15)	ID6	C bit (Bit 2)	L bit (Bit 15)
Laser optical	1	100XXXX	0	00	1	0
D/D converter	1	010XXXX	1	00	1	0
Magnetic prod	1	110XXXX	1	00	1	0
Musical instrum	1	101XXXX	1	00	1	0
Future A/D conv	1	01101XX	1	00	1	0
Digital receiver	1	0011XXX	0	00	1	0
Digital receiver	1	0111XXX	0	00	1	0
Experimental	1	0000001	1	00	1	0
Solid state dev	1	0001XXX	1	00	1	0

CASE 3.—WHERE COPYRIGHT PROTECTION HAS BEEN ASSERTED OVER THE DIGITAL AUDIO INPUT, AND THE SOURCE OF THE INPUT TO THE DAT RECORDER IS NOT "ORIGINAL" MATERIAL

[No recording permitted]

Signal source	Digital audio input signal			DAT recorder response		
	C bit (Bit 2)	Category code (Bits 8–14)	L bit (Bit 15)	ID6	C bit (Bit 2)	L bit (Bit 15)
Laser optical	0	100XXXX	1	00	1	0
D/D converter	0	010XXXX	0	00	1	0
Magnetic prod	0	110XXXX	0	00	1	0
Musical instrum	0	101XXXX	0	00	1	0
Future A/D conv	0	01101XX	0	00	1	0
Experimental	0	0000001	0	00	1	0
Solid state dev	0	0001XXX	0	00	1	0

CASE 4.—WHERE COPYRIGHT PROTECTION HAS NOT BEEN ASSERTED OVER THE DIGITAL AUDIO INPUT, AND THE SOURCE OF THE INPUT TO THE DAT RECORDER IS NOT "ORIGINAL" MATERIAL

[Second-generation and above recording permitted]

Signal source	Digital audio input signal			DAT recorder response		
	C bit (Bit 2)	Category code (Bits 8–14)	L bit (Bit 15)	ID6	C bit (Bit 2)	L bit (Bit 15)
Laser optical	1	100XXXX	1	00	1	0
D/D converter	1	010XXXX	0	00	1	0
Magnetic prod	1	110XXXX	0	00	1	0
Musical instrum	1	101XXXX	0	00	1	0
Future A/D conv	1	01101XX	0	00	1	0
Experimental	1	0000001	0	00	1	0
Solid state dev	1	0001XXX	0	00	1	0

CASE 5.—WHERE THE DIGITAL AUDIO INPUT SIGNAL INCLUDES CATEGORY CODE INFORMATION, BUT CANNOT PROVIDE INFORMATION CONCERNING COPYRIGHT PROTECTION OF THE SOURCE

[First- and second-generation recording permitted]

Signal source	Digital audio input signal			DAT recorder response		
	C bit (Bit 2)	Category code (Bits 8–14)	L bit (Bit 15)	ID6	C bit (Bit 2)	L bit (Bit 15)
General	X	0000000	0	11	0	1
Present A/D Con	X	01100XX	X	11	0	1

CASE 6.—WHERE THE DIGITAL INPUT SIGNAL DOES NOT INCLUDE A DEFINED CATEGORY CODE

[First-generation recording permitted]

Signal source	Digital audio input signal			DAT recorder response		
	C bit (Bit 2)	Category code (Bits 8–14)	L bit (Bit 15)	ID6	C bit (Bit 2)	L bit (Bit 15)
Undefined	X		X	10	0	0

CASE 7.—WHERE COPYRIGHT PROTECTION HAS BEEN ASSERTED OVER THE DIGITAL AUDIO INPUT FROM A RECORDABLE OR ERASABLE COMPACT DISC THAT IS NOT AN "ORIGINAL" BY FLUCTUATING THE C BIT AT A RATE BETWEEN 4–10 HZ

[No recording permitted]

Signal source	Digital audio input signal			DAT recorder response		
	C bit (Bit 2)	Category code (Bits 8–14)	L bit (Bit 15)	ID6	C bit (Bit 2)	L bit (Bit 15)
CD Player	0/1	1000000	0	—	–	–

CASE 8.—WHERE THE DIGITAL SIGNAL TRANSMITTED TO A DIGITAL RECEIVER DOES NOT INCLUDE INFORMATION CONCERNING COPYRIGHT PROTECTION

[Only first-generation recording permitted]

Signal source	Digital audio input signal			DAT recorder response		
	C bit (Bit 2)	Category code (Bits 8–14)	L bit (Bit 15)	ID6	C bit (Bit 2)	L bit (Bit 15)
Digital receiver	0	001XXXX	0	10	0	0
Digital receiver	0	0111XXX	0	10	0	0

CASE 9.—WHERE THE DIGITAL SIGNAL TRANSMITTED TO A RECEIVER FOR ELECTRONIC AUDIO SOFTWARE DELIVERY PROVIDES GENERATION STATUS INFORMATION AS IF THE STATUS WERE FIRST-GENERATION OR HIGHER

[No recording permitted]

Signal source	Digital audio input signal			DAT recorder response		
	C bit (Bit 2)	Category code (Bits 8–14)	L bit (Bit 15)	ID6	C bit (Bit 2)	L bit (Bit 15)
Digital receiver	0	001XXXX	1	—	-	-
Digital receiver	0	0111XXX	1	—	-	-

CONGRESS MUST ACT TO PROTECT THE CREATORS OF AMERICA'S MUSIC

Mr. WILSON. Mr. President, the development of technology brings with it great opportunities: To produce more with less effort, to solve complex problems as diverse as mapping distant planets and mapping our own genetic makeup, and to even enjoy with startling reality the artistic endeavors of musicians.

As these opportunities present themselves, they often are accompanied by challenges, especially to those of us with the responsibility to amend our laws to keep pace—to ensure that as technology serves to benefit some it does not endanger the rights of others.

This is the very situation we face with the advent of a new technology that allows perfect reproduction of prerecorded music.

For all of us all who marvel at the creativity of musicians and those whose music they perform, digital technology—in the form of compact discs—has provided an opportunity to appreciate recorded music almost as though it is being performed in front of us.

Unfortunately, this same digital technology—now is the form of digital audio tape—is very much endangering the legitimate interests of those same composers and performers.

Ultimately, if these interests are not protected, we will all lose the opportunity to enjoy the rich diversity of America's music community.

Mr. President, the law must keep pace with technology, and it is our responsibility to see that it does.

Today, the Senator from Arizona, Senator DECONCINI, is introducing a bill that proposes a solution to the DAT problem. The Senator has shown great leadership on many intellectual property issues—such as bring to the floor legislation implementing the Berne Convention, revising our trademark laws, and promoting protecting of our biotechnology industry—so it is not surprising that he is sponsoring this remedial copyright legislation.

Mr. President, I commend Senator DECONCINI for his efforts, for he brings to the attention of the Senate a thoughtful proposal to protect the interests of all of those who create music for us to enjoy. Just as clearly, they are entitled to be compensated for their artistic endeavors.

Music is art, but is also a business, and Congress must not, through inaction, allow technology to run rampant over composers, musicians, and all of the others in the music industry.

That is why we need legislation.

Those in the music industry who support the DeConcini bill feel it is needed as a stopgap measure to slow the hemorrhaging that this currently draining the support that a vital music industry requires. Yet, there are others in the music industry who fear that an endorsement of the DeConcini proposal would indicate an abandonment of a justly deserved royalty system.

Mr. President, there is an absolute consensus in the music industry that Congress must act to respond to the threat posed by digital recording technology—today it is from digital audio tape, tomorrow it will be from recordable compact discs. Similarly, there is a full consensus that a royalty system should exist to compensate composers, artists, and the others who bring us recorded music for the harm they suffer from the copying of their works.

So, there is an overall consensus on what needs to be achieved. Unfortunately, there is not yet a similar consensus on the tactics to be used to reach this goal.

Mr. President, we need a royalty system. When negotiators for the music and electronics industries reached an agreement last year in Athens, they implicitly acknowledged the legitimacy of a royalty system—but only in Europe.

Mr. President, American consumers are certainly as willing as Europeans to support the arts. A royalty system is certainly as important for us to adopt in the United States as it is for the Europeans.

Indeed, with the long-overdue emphasis in the GATT on the need to protect intellectual property rights, once the Uruguay round ends one can only wonder how long it will be before Europeans file a trade complaint over our unwillingness to fairly compensate their creators of music with a royalty system.

Mr. President, Congress should have been ahead of the curve, or at least on top of it, by passing a royalty system for copyright holders whose works are regularly reproduced. The sad truth is that Congress is very much behind the curve.

Many are rightfully willing to come to the floor of the Senate and the House to chastise other countries for failing to protect the interests of U.S. intellectual property right holders. Yet, when we are devouring our own, the Congress is unable or unwilling to act.

Mr. President, we should demand of ourselves the same respect for intellectual property rights that we demand from others.

Mr. President, time is certainly of the essence. Already, DAT machines are being sold in this country—even in my own State, in Santa Monica. Therefore, action must be taken this year.

Mr. President, it is my understanding that the bill being introduced by the Senator from Arizona will be referred to the Commerce Committee. I urge that committee to begin hearings on this issue at the earliest possible time. It should take testimony from all interested parties—both from interested industries and from the public.

What is most important is that all parties should come forward, in good faith, to reach a consensus. To this end, the DeConcini bill, as well as alternative proposals, should be given fair and thorough consideration.

I urge the Commerce Committee to bring DAT legislation to the Senate this session. In this way the threat of technology can be dissipated while the opportunities it presents can be made available to the American public.

The bottom line is that we should find the best solution and put it in place this year. Every day that a workable solution is not in place is another day that America's composers and musical performers, and America's entire

music industry, are at risk. This serves no one's interests—not the music industry's and not the public's.