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

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OF CALIFORNIA

IN THE HOUSE OF REPRESENTATIVES

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Mr. WAXMAN. Mr. Speaker, printed below is the Technical Reference Document for the Digital Audio Tape Recorder Act of 1990. This document contains the standards and specifications for the serial copy management system [SCMS] in DAT recorders recommended by the recording and consumer electronics industries and mandated by H.R. 4096, the Digital Audio Tape Recorder Act of 1990.

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 non-professional 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 1. 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 videocassette 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 to 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, know 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 interface 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 Codes 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 higher 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. *Bit 0-2 of the "CONTROL" Bits:*

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

Bit 0= "0"—Non-professional interface.

Bit 0= "1"—Professsional 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 consistent 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 on, 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 of 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 audio signals.

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

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

0001XXXL—Solid 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 signal as emanating from an "original" work or from a first-generation or higher recording.

1. *Case 1.*

For all Category Code (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"—Gencration 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 digital 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 than 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, except in three circumstances: (a) 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 is 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 of 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

Mandatory Standards for Digital Audio Output Signals

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

All "non-professional model" 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 on higher DAT tape recorded from an "original" source, or an "original" commercially released prerecorded DAT tape of material 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 Category 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 "11000001".

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 recorded, 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 DAT 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 DAT 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 has 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—Digital reception of digitally encoded audio

and signals with or without video signals, such as

0111XXX0—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 Standards 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	100XXXX	0	10	0	0
D/D converter	0	010XXXX	1	10	0	0
Magnetic prod	0	110XXXX	1	10	0	0
Musical instrum	0	101XXXX	1	10	0	0
Future A/D conv	0	01101XX	1	10	0	0
Digital receiver	0	001XXXX	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	001XXXX	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	—	–	–
D/D converter	0	010XXXX	0	—	–	–
Magnetic prod	0	110XXXX	0	—	–	–
Musical instrum	0	101XXXX	0	—	–	–
Future A/D conv	0	01101XX	0	—	–	–
Experimental	0	0000001	0	—	–	–
Solid state dev	0	0001XXX	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	0010000	0	10	0	0
Digital receiver	0	0111000	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	0010000	1	—	—	—
Digital receiver	0	0111000	1	—	—	—