

Background

The National Library Service for the Blind and Physically Handicapped (NLS), Library of Congress, administers a free library service to eligible residents of the United States and American citizens living abroad who cannot hold, handle, or read standard print media because of a temporary or permanent visual or physical limitation.

Using federal funds, NLS annually publishes approximately two thousand books and seventy in magazines in audio and braille formats. Titles are selected to appeal to a wide variety of interests. Books and magazines are narrated and duplicated to a high professional standard. The number of copies produced of any title is dependent on anticipated reader demand.

Playback machines and their accessories are designed to facilitate convenient use by blind and physically handicapped people, provide maximum reliability under environmental conditions that are sometimes harsh, and survive handling that may be technically unsophisticated or inadvertently abusive. The equipment plays program materials in a special format compatible with NLS machines. All materials and equipment in the program can be sent to users and returned to libraries postage free.

A cooperating network of fifty-seven regional libraries and seventy-five subregional libraries circulates recorded and braille materials to a readership of some seven hundred thousand adults and children out of a potential eligible population of three million. Magazine subscriptions are provided on a direct-mail basis from the producers. Users must generally deal with service centers in distant cities and communicate by mail, e-mail, or phone with little or no personal contact. All materials come and go through a mail-order system. Fifty percent of the users are more than sixty-four years old and depend on the NLS program for their major source of entertainment and their connection with the print world; ninety-five percent read recorded materials, five per cent read braille.

Users are informed about new books, magazines, and services through two bimonthly publications, annual catalogs, web-based catalogs, and subject bibliographies produced by NLS, as well as various publications produced and circulated by the regional and subregional libraries.

User Materials

Contractors who consider submission of a bid to produce books, equipment, or other program products should be cognizant of the consumer-responsive nature of the program, and that the specifications for these products have been developed to meet the special need of readers in the program. Materials are produced with those needs foremost in mind and improved through constant monitoring and consumer input. Contractors are expected to familiarize themselves with the equipment-handling practices of blind and physically handicapped clientele and ensure that the equipment they produce will stand up under this type of use. A high degree of quality workmanship and product reliability is mandated by the product specification.

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1. Scope and significance

1.1 Scope

This document describes requirements for recording digital audio masters of magazines that are intended for duplication and distribution using analog audio cassettes. It also describes the following:

- a. Distribution source files for review and distribution copies of magazines originated by network libraries
- b. Review copies from distribution source files of magazines originated by network libraries
- c. Qualification of blank recordable compact discs used to produce review copies of magazines originated by network libraries

1.2 Significance

When a magazine originated by a network library is intended for use only by the library, this document may be considered a technical guideline. However, when a magazine originated by a network library is submitted to be reviewed for acceptance by the Multi State Center East (MSCE) Quality Assurance program for distribution by NLS, this document shall be considered a technical specification.

2. Reference materials

2.1 Reference documents

The following documents and publications form a part of this guideline. In the event of conflict between the publications referenced in this document and the content of this guideline, the content of this guideline shall be considered a superseding requirement.

2.1.1 International Electrotechnical Commission (IEC)

IEC 908
“Compact Disc Digital Audio System”

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The document cited above is available from:

- International Electrotechnical Commission
<http://webstore.iec.ch/>
- Global Engineering Documents
15 Inverness Way East
Englewood, CO 80112
<http://www.global.ihs.com>

2.1.2 **International Standards Organization (ISO)**

ISO 9660 Information processing – Volume and file structure of CD-ROM for information interchange

ISO/IEC 13490-2 Information technology – Volume and file structure of read-only and write-once compact-disk media for information interchange. Part 2: Volume and file structure
(This publication is also referred to as the Orange Book.)

The documents cited above are available from:

- International Standards Organization
<http://www.iso.org>
- Global Engineering Documents
15 Inverness Way East
Englewood, CO 80112
<http://www.global.ihs.com>

2.1.3 **Microsoft Corporation**

Waveform - Audio File Format

The specification is contained in:

- “Multimedia Programming Interface and Data Specification v1.0” as issued by IBM and Microsoft, 1991.
- Microsoft Software Developers Kit, Multimedia Standards Update, rev 3.0, 15 April 1994.”

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- Reprinted and annotated in appendix 1 of:

“EBU Technical Specification 3285 - Specification of the Broadcast Wave Format (BWF) - Version 1 - first edition”

http://www.ebu.ch/CMSimages/en/tec_doc_t3285_tcm6-10544.pdf

See also:

<http://www.digitalpreservation.gov/formats/fdd/fdd000001.shtml>

2.1.4 National Library Service for the Blind and Physically Handicapped (NLS)

NLS Specification 202: Cassette Book Duplication

NLS Advisory Document
Speaking Written Text

NLS Reference Section Publication
Facts: Magazines Produced by Network Libraries (latest edition)

The documents cited above are available from:
National Library Service for the Blind and Physically Handicapped,
Library of Congress
1291 Taylor Street, NW
Washington, DC 20542
<http://www.loc.gov/nls/specs>
<http://www.loc.gov/nls/networkdocs>

2.1.5 National Institute for Standards and Technology

NIST Special Publication 500-252
Care and Handling of CDs and DVDs —A Guide for Librarians and Archivists
<http://www.itl.nist.gov/div895/carefordisc/>

2.1.6 Publications for pronunciation

American Heritage Dictionary

Columbia Lippincott Gazetteer of the World

Merriam-Webster’s Collegiate Dictionary, Eleventh Edition
<http://www.m-w.com>

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New Century Cyclopedia of Names
The Random House Dictionary of the English Language

Webster's Biographical Dictionary

Webster's Geographical Dictionary

Webster's New International Dictionary, second and third editions

2.2 **Definitions of Terms**

The definitions of information processing and technology terms used in this document are those terms that are defined in ISO publications 9660 and ISO/IEC 13490-2. The following terms are not defined in the ISO publications cited above, but are applicable to this document.

- a. **Distribution source file (DSF)** – The digital audio file, or files, of a complete magazine that has been narrated and recorded in the NLS designated style and is the source of all review copies and all distribution copies.
- b. **Master recording** – The original source file, or files, that have been reviewed and corrected. The terms “Master recording” and “original source file” have the same meaning and may be used interchangeably.
- c. **Review copy** – The composite of all review files needed to make a complete magazine.
- d. **Review file** – A file copied from the distribution source file to a recordable compact disc. Each review file represents one complete side of an NLS standard 4-track, 15/16 ips cassette magazine.
- e. **WAV file** – a file containing linear pulse code modulation (PCM) samples of an audio signal encapsulated into the waveform audio file format.

n.b. WAV files can contain audio material other than as PCM samples, however in the context of this document, the term “WAV file” implies only a file with the <wFormatTag> field of the <fmt-ck> is set to WAVE_FORMAT_PCM.

3. Requirements

3.1 Narration of the master recording

3.1.1 The narrator

3.1.1.1 Characteristics

Voice, speech, language, and narration skill shall demonstrate those characteristics cited in the NLS publication "Speaking Written Text."

3.1.1.2 Selection of the narrator

- a. No person shall narrate a recording of a magazine originated by network libraries unless that person is an established network library narrator, or a narration audition for the person has been submitted to, and approved in writing by, the network library studio director.
- b. The narrator selected for each magazine should possess, as much as possible, the vocal personality, vocal qualities, and vocal style that are most suited to the content of the magazine.

3.1.1.3 Multiple narrators

Multiple narrators may be use for recording a publication. A narrator selected to record an article must record the entire article..

3.1.2 The narration

3.1.2.1 Characteristics

Important characteristics of narration include, but are not restricted to:

- a. Delivering the narration in a conversational manner
- b. Conveying the sense of the text
- c. Conveying the appropriate emotional levels of the text
- d. Using emphasis, inflection, phrasing, stress, timing, and other appropriate speech art skills, to distinguish narrative from dialog

and characters from each other without calling undue attention to the manner of delivery

- e. Ensuring that, if character voices are used, the voice of each character possesses the same ease, flow, and vocal range as the normal narrative voice and is appropriate to the text
- f. Avoiding a delivery that is stilted, mechanical, or monotonous, unless one or more of these characteristics is an artistic necessity for specific sections of the text
- g. Avoiding strained, unclear, inconsistent, or overplayed character interpretations, dialects, and accents
- h. Avoiding narration characteristics that might become a distraction during extended periods of listening
- i. Using appropriate conventions for speaking written language
- j. Accomplishing the narration at a pace that enables the narrator to most naturally convey the energy, mood, sense, and style of the text

3.1.2.2 Accuracy of narration

Final authority for judging accuracy of narration shall rest with the studio director. The criteria for judging accuracy of narration include, but are not restricted to, the following:

- a. Narration shall conform to the print edition. The exceptions to speaking the written text as it is printed are those situations in which established convention for speaking written language takes precedence over adherence to the written text. Errors in the written text identified during the recording process may be corrected, but only after consultation with the studio director.

Narration shall be word perfect for the following texts, or citations from:

- 1. Sacred texts of any religion, e.g. the Bible, the Torah, the Koran, and others

2. Historical documents, e.g. the Declaration of Independence, the Constitution, and others
3. Poems
4. Direct quotations

3.1.2.3 **Correct pronunciation**

The criteria for judging correct pronunciation include, but are not restricted to, the following:

- a. Pronunciation shall be appropriate to the context in which the word is used and to the style and period of the text.
- b. Pronunciation of proper names, foreign-language words, and foreign-language phrases shall be accomplished with extreme accuracy and care, but without sounding “extremely careful.”
- c. The publications in section 2.1.6 of this document shall be the first sources consulted for general vocabulary pronunciation and usage. The narrator shall be responsible for all research necessary to ensure correct pronunciation if these publications in section 2.1.6 do not provide needed guidance. Specialized reference works (music, law, medicine, British speech, etc.) may be used as needed.

3.1.3 **Speaking the written text**

3.1.3.1 **Reading Notes**

- a. When notes are read within the article, they shall be read as near as is practicable to the point in the written text where they occur. Notes shall normally be read at the end of a sentence, provided the nature of the written text makes it practical, but always in a manner that least interrupts the flow of spoken text.
- b. Notes shall generally be set off from the text by saying “Note: ... end of note.” In situations where this is not appropriate, the narrator shall consult the studio director.

3.1.3.2 Location of typographical elements

Typographical elements located throughout the written text, such as captions, charts, graphs, illustrations, etc., may be relocated in the spoken text, provided they are not necessary for clarity of the spoken text at the point where they occur in the written text. These elements may be relocated individually or read as a group at the end of each article, whichever is most appropriate to the specific article. Relocation of elements within an article shall be consistent.

3.1.3.3 Elements in the written text that may be omitted

Unless otherwise directed by written instructions from the studio director, the following elements in the written text may be omitted from the spoken text:

- a. Elements that label, credit, or list visual materials without giving additional information
- b. Index and index references
- c. Sources

3.1.4 Special instructions

The studio director will provide any special instructions in writing to the narrator when there are requirements for a magazine that are not covered in this document. The narrator may request changes in special instructions that will improve clarity of narration or usefulness of the magazine.

3.2 Announcements

3.2.1 Magazines for adults

3.2.1.1 Beginning announcements for side one

The following announcements shall be recorded at the beginning of side one, in the order stated:

- a. "Side one."
- b. Title of the magazine as printed on the title page.

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- c. Date of issue.
- d. “Copyright (date and holder or holders).”
- e. Read by (name of narrator or narrators).” Give all names of narrators in order of appearance.
- f. “This magazine contains (number) pages on (number) sides.”
- g. “This magazine is tone indexed. The beginning of each article will be indicated by a beep audible when your cassette player is in fast-forward or rewind. If you would like to skip over any remaining announcements or introductory material, place your cassette player in fast-forward until a beep is heard. Stop at that point to hear the table of contents, or at the second beep to locate the beginning of the magazine.”
- h. The appropriate announcements shall be used for the following situations:
 - 1. When only advertising has been omitted: “This recorded edition contains the entire text of the print edition, except for advertising.”
 - 2. When the originating library provides special instructions to also omit other items: “This recorded edition contains the entire text of the print edition except for advertising and (name of item, or items) omitted by instruction of the (name of originating library).”
- i. “This magazine was produced for the (name of originating library).”
- j. Table of contents.

The table of contents shall be recorded at this point in the sequence of beginning announcements for side one, regardless of its location in the print edition. The spoken table of contents shall list articles in the order of their appearance in the body of the magazine, regardless of the order of their appearance in the written table of contents. Exceptional circumstances related to magazine structure (such as unusual layout, no written table of contents, primary

composition consisting of untitled short articles, etc.) can affect how the spoken table of contents is created. In such instances, the most appropriate spoken table of contents may be constructed and judged on a case by case basis. The spoken table of contents shall give the following information in the order listed:

1. The title of each article or section.
2. The name of the author (or authors) of the article.
3. The number of the page on which the article appears.
4. The side on which each article begins.
5. The number of the index tone which identifies each article in the sound track, referenced from the beginning of the side in which the article begins.
6. The approximate reading time in minutes of the article, e.g., "(number) minutes."

3.2.1.2 **Beginning announcements for subsequent sides**

The following announcements shall be recorded at the beginning of all sides, except side one, in the order stated:

- a. "Side (number)."
- b. Title of magazine.
- c. Date of issue.
- d. "This side contains (title of each article beginning on that side, the number of the index tone which identifies each article, referenced from the beginning of that side, and the approximate length of time of each article)."
- e. "Continuing with (title of article)", or, "Beginning with (title of article)."

3.2.1.3 **Duration of articles**

At the beginning of each article or section (e.g., Letters to the Editor, Book Reviews, Coming Events, etc.), following the title of the article or section (and author, if name of author is given), insert the approximate reading time as follows:

“Reading time (number) minutes.”

3.2.1.4 **Ending announcements for odd sides**

The following announcements shall be recorded at the end of each odd-numbered side, except the last side, in the order stated:

- a. “End of side (1, 3, 5, 7, etc.).”
- b. “To continue, turn the cassette over.”

3.2.1.5 **Ending announcements for even sides**

The following announcements shall be recorded at the end of each even-numbered side, except the last side, in the order stated:

- a. “End of side (2, 4, 6, 8, etc.)”
- b. “Sides 2, 6, 10, 14, etc. – "To continue, change side selector switch and turn the cassette over.”
- c. Sides 4, 8, 12, 16, etc. – “Change side selector switch. This magazine is continued on the next cassette.”

3.2.1.6 **Ending announcements for last side**

The following announcements shall be recorded on the last side at the end of the text, in the order stated:

- a. “End of (title of the magazine), for (date of issue).”
- b. “Recorded in the studios of (name of originating library), (month and year).”
- c. “Monitored by (name of monitor or monitors).”

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- d. “Reviewed by (name of reviewer or reviewers).”
- e. “Published by: (Publisher's name and address as it appears in the print edition). Further reproduction or distribution in other than a specialized format is prohibited.”
- f. The appropriate announcement shall be used for the following situations:
 - 1. Magazines with only one cassette: “If you found the cassette in this magazine to be defective, please place a rubber band or piece of string around it, and place it in the front of the container.”
 - 2. Magazines with more than one cassette: “If you found any cassette in this magazine to be defective, please place a rubber band or piece of string around that cassette for identification. Place it in the container on top of the front stack of cassettes.”

3.2.2 Magazines for children

3.2.2.1 Beginning announcements

The following announcements shall be recorded at the beginning of side one, in the order stated:

- a. “Side one.”
- b. Title of the magazine as printed on the title page.
- c. Date of issue.
- d. “Copyright (date and holder or holders).”
- e. “Read by (name of narrator or narrators).” Give all names of narrators in order of appearance.
- f. “This magazine contains (number) pages on one side.”
- g. “This magazine is tone indexed. The beginning of each (name of item) will be marked by a beep that you can hear when your

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cassette player is in fast-forward or rewind. If you would like to skip ahead, put your cassette player in fast-forward until you hear a beep. Stop at that point to hear the table of contents, or at the second beep to find the beginning of the magazine.”

- h. The appropriate announcements shall be used for the following situations:
 - 1. When only advertising has been omitted: “This recorded edition contains the entire text of the print edition, except for advertising.”
 - 2. When the originating library provides special instructions to also omit other items: “This record.”
- i. Table of contents

The spoken table of contents shall list articles in the order of their appearance in the body of the magazine, regardless of the order of their appearance in the written table of contents. The spoken table of contents shall give the names of the articles, the number of the page on which each article appears, and the number of the index tone which identifies each article in the sound track, referenced from the beginning of the side.

3.2.2.2 Ending announcements

The following announcements shall be recorded at the end of the text, in the order stated:

- a. “End of (title of magazine) for (date of issue).”
- b. “Recorded in the studios of (name of originating library), (month and year).”
- c. “Monitored by (name of monitor or monitors).”
- d. “Reviewed by (name of reviewer or reviewers).”
- e. “Published by: (Publisher's name and address as it appears in the print edition). Further reproduction or distribution in other than a specialized format is prohibited.”

- f. “If you found the cassette in this magazine to be defective, please place a rubber band or piece of string around it, and place it in the front of the container.”

3.3 Technical

3.3.1 Technical characteristics of review copies

3.3.1.1 Conversion from analog prohibited

Conversion of analog recordings to digital format under this guideline is not permitted.

3.3.1.2 The Disc on which the review file is copied

Each review file shall be copied on a new blank recordable compact disc (CD-R). Rewritable compact discs (CD-RW) are not acceptable. Each recordable compact disc shall be a 700 megabyte disc that is manufactured with the following properties:

- a. A maximum disc eccentricity not greater than plus or minus 50 microns
- b. Silver or gold reflective layer
- c. Phthalocyanine dye
- d. An opaque surface

3.3.2 Technical characteristics of review files

3.3.2.1 Producing the review copy

- a. There shall be no sample rate conversion, data compression, or alteration of any kind when the review copy is copied from the distribution source file.
- b. To minimize the risk of information transfer errors, writing to the CD-R must be a single session recording procedure according to ISO 9660 level 2 standard (see section 6, note 1).
- c. Over burned or fixated-for-append discs are not acceptable.

3.3.2.2 Configuration

- a. Each review file shall be written to a CD-R as linear PCM data in WAV file format.
- b. Each review file shall be written at a sample rate of 44,100 samples per second, single channel with 16 bits per sample.
- c. Each CD-R shall contain only one review file.

3.3.2.3 Duration

All sound tracks shall have a duration of not more than 88.0 minutes, nor less than 87.0 minutes. The exceptions to this requirement are when the entire recorded text requires less than 88 minutes, or the last side of a title requires less than 88 minutes.

3.3.2.4 Signal level for the spoken text

Recording level for the spoken text shall be adjusted for minimum headroom, provided the signal does not clip at any time. Signal levels shall be consistent within each sound track and from sound track to sound track. The average RMS signal level for the spoken text shall be not less than -26 dB FS, nor greater than -18 dB FS. A typical wave form is shown in section 6, note 2.

3.3.2.5 Date and time stamp

Each file in the distribution source file shall have a date and time stamp that shows when each file was finalized to produce the review copy. The stamp shall have month, day, year, and time. If a review file requires correction, the distribution source file from which it came shall be corrected and the new version shall carry the date and time stamp of the corrected file.

3.3.3 Audible characteristics of sound tracks

When the master recording or review copy of a magazine issue is reviewed, certain acoustical characteristics should not be audible in the recording. Examples of such characteristics include, but are not restricted to the following:

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- a. Clipping
- b. Distortion
- c. Hum
- d. Background noise in the narration environment
- e. A difference between a section of sound track that has a correction and any other section of the same sound track
- f. Gaps, seams, or transients in edits
- g. Effects caused by sound processing devices (such as automatic gain controls, compressors, equalizers, etc.)
- h. Radio frequency interference (RFI) or electromagnetic interference (EMI)

3.3.4 Acoustical quality and speech intelligibility

When the master recording or review copy of a magazine issue is reviewed, it shall be judged for acoustical quality and speech intelligibility.

A master recording or review copy may be considered unsatisfactory because:

- a. The recording is judged to have a muffled, bassy, or tinny quality.
- b. The recording exhibits an objectionable degree of sibilance.
- c. The recording has other undesirable acoustical characteristics judged to be audible to an objectionable degree.
- d. The spoken text has poor clarity or high background noise.

3.3.5 Tone Indexing

3.3.5.1 Frequency and recording level for index tones

- a. A single tone shall have a frequency of 50 Hertz.
- b. Each tone in a double tone sequence shall have a frequency of 50 Hertz.

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- c. The first tone in a split tone sequence shall have a frequency of 50 Hertz, and the second tone in a split tone sequence 65 Hertz.
- d. All index tones shall be recorded at minus 26 dB FS, plus or minus 2 dB.

3.3.5.2 Duration of index tones

- a. A single tone shall have a duration of not less than five seconds but not more than eight seconds.
- b. Each tone in a double tone sequence shall have a duration of not less than five seconds but not more than six seconds. The interval of silence between the two tones shall be not less than 2.5 seconds but not more than 3.5 seconds.
- c. Each tone in a split tone sequence shall have a duration of not less than five seconds but not more than six seconds. The interval of silence between the two tones shall be not less than 2.5 seconds but not more than 3.5 seconds.

3.3.5.3 Placement of index tones

- a. A single tone shall be recorded simultaneously with the voice within the last ten seconds of the material preceding each indexed section.
- b. Double tones shall be recorded simultaneously with the voice within the last fifteen seconds of the material preceding each indexed section.
- c. Split tones shall be recorded simultaneously with the voice within the last fifteen seconds of the material preceding each indexed section.

4. Quality Assurance

4.1 Monitoring the narration

- a. All narration of digital audio master recordings for magazines originated by network libraries shall be accomplished with a production team that consists of a narrator and a monitor. The monitor shall be fluent in

reading and speaking the language in which the text is printed, and shall have an identical copy of the text used by the narrator.

- b. The monitor shall control all technical operations during a recording session and shall be responsible for detecting any element that may affect the accuracy or consistency of narration, or the acoustical quality of the sound track. When such elements are detected, the monitor shall stop the recording session and take appropriate corrective measures.

4.2 **Review**

A review copy of each source file for the magazine shall be proofread in its entirety by a reviewer who was not involved with narration or monitoring of the magazine being reviewed. The reviewer shall be fluent in reading and speaking the language in which the text is printed and shall use the same print copy of the text that was used by the monitor. Each review copy shall be reviewed for adherence to requirements cited in this document.

5. **Labeling and storage**

5.1 **Labeling**

5.1.1 **Labeling the disc**

Discs may be labeled with one of the following processes:

- a. Labeling the disc by printing the label information directly on the disc with an ink-jet printer
- b. Labeling the disc by printing the label information directly on the disc with a thermal printer
- c. Labeling the disc by applying a paper label after the label information has been printed on the label

All review copy discs that constitute an issue of a magazine must be labeled with the same labeling process.

5.1.1.1 **Disc label information**

The print for each label shall be 14-point Times New Roman font in black ink. No writing with any type of marking pen is permitted on either the

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disc or paper label. The label shall contain the following information in the order listed, with items a and b appearing above the center cutout and items c and d appearing below the center cutout.

- a. Magazine title (Title may be abbreviated. For a list of currently used abbreviations, see NLS Reference Section publication "Magazines Produced by Network Libraries" cited in section 2.1.4 of this document.)
- b. Issue of magazine (e.g., January, 2005. This may be abbreviated as "Jan05.")
- c. Disc number of total number of discs in issue of magazine (e.g., Disc 1 of 6, 2 of 6, etc. This may be abbreviated "disc 1-6, 2-6, etc.")
- d. File name with extension. The file name shall consist of the abbreviated name of magazine and issue plus the letter "s" and the two-digit number of the side (e.g., c-ijan05s01.wav). (For a list of currently used abbreviations, see NLS Reference Section publication "Magazines Produced by Network Libraries" cited in section 2.1.4 of this document.)

5.1.1.2 Use of paper labels

When paper labels are used, the labels shall be of white paper stock and conform to the following requirements:

- a. Each label shall be a circular label that has a center cutout. The diameter of the label shall be a nominal 116 millimeters and the diameter of the center cutout shall be a nominal forty six millimeters.
- b. The label must adhere firmly and uniformly to the label area without any bubbling, slipping, or peeling.
- c. The label shall not be distorted, off center, or misaligned.
- d. The label may not interfere with disc playback in any manner.

5.1.2 Labeling the disc storage container

The label shall be of white card stock. It shall be positioned behind the transparent overlay so that label information is displayed on the spine of the container. The printing on each label shall be 14-point Times New Roman font in black ink, and provide the following information in the order listed:

- a. Magazine title (Title may be abbreviated. For a list of currently used abbreviations, see NLS Reference Section publication “Magazines Produced by Network Libraries” cited in section 2.4 of this document.)
- b. Magazine issue (e.g., January, 2005. This may be abbreviated “Jan05.”)
- c. Range of discs in box and total number of discs in magazine issue (e.g., 1-4 of 4; or, 1-2 of 3, 3-3 of 3, etc.)
- d. Box number of total number of boxes in magazine issue (e.g., Box 1 of 1; or, Box 1 of 2, Box 2 of 2, etc.)

Following is an example of label layout for the spine label of a disc storage container for a network originated magazine:

MWH3 Sp05 1-4 of 4 Box 1 of 1

5.2 Storage of review copies

- a. Review copies must be stored in a manner that will provide a high degree of protection against light, heat, and humidity during long-term storage. Conditions of temperature and humidity considered comfortable for people, such as those in an office environment, are usually considered suitable for CD storage, provided that discs are well protected against light. (Consult reference document: *Care and Handling of CDs and DVDs —A Guide for Librarians and Archivists.*)
- b. Disc storage containers should be made of opaque material to protect review copy discs from light. Disc storage containers made of transparent material should not be used.
- c. When a disc storage container makes use of protective storage sleeves, each review copy disc shall be enclosed in its own protective sleeve. The sleeve shall be fabric lined and have a flap.

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- d. Only one disc shall be put in a sleeve. Each disc shall be positioned in a sleeve so that when the flap is folded down the disc label shall be facing the flap and the disc shall be fully covered. The disc shall be oriented in the sleeve so that the label can be read through the flap.

6. Notes

Note 1. Error rate in review copies

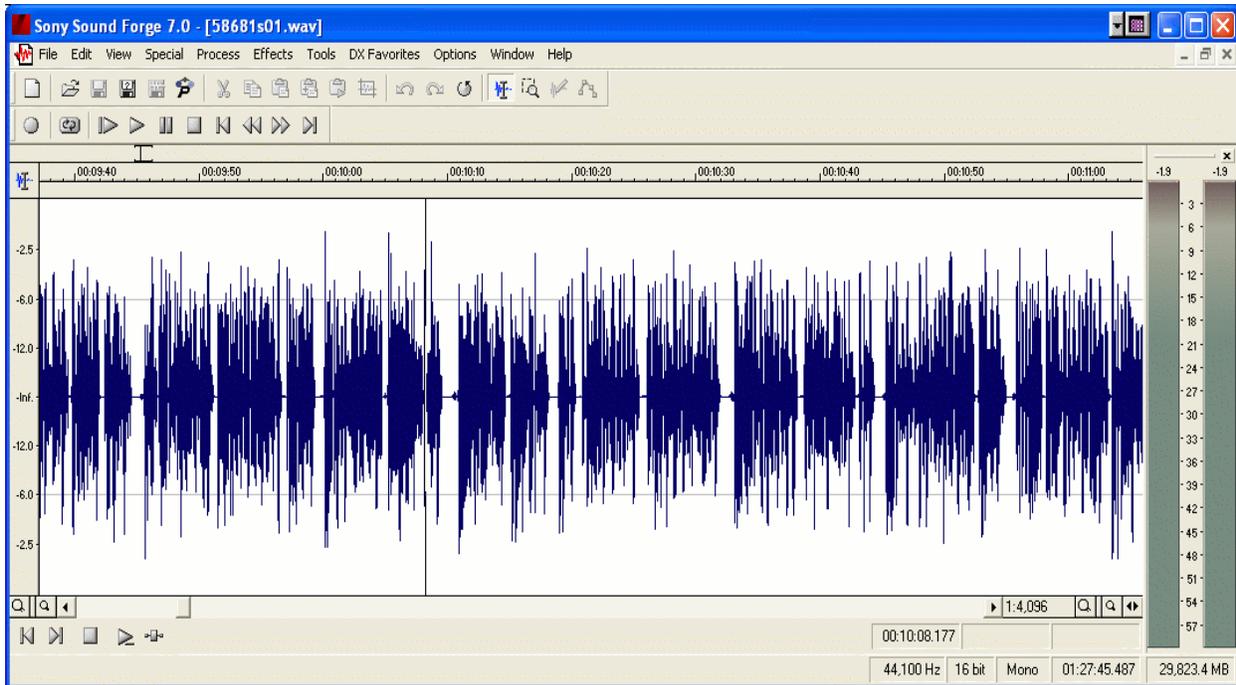
Data written to a CD-R in the IEC 908 standard uses Cross-Interleaved Reed-Solomon Code (CIRC) encoding. This encoding has two layers of error correction designated C1 and C2.

1. The CD-R shall be written as a single session recording, and all discs burned as review copies must be checked for C1 and C2 errors.
2. The block error rate (BLER) is the rate of blocks per second that contain any errors (E11, E21, or E31) at the C1 level. The block error rate throughout the disk occurring at the C1 level shall not exceed 100 errors per second (averaged over 10 seconds).
3. There shall be no C2 errors (i.e., no E22 or E32 errors). Any review copy discs that have uncorrectable errors shall be unacceptable and shall be discarded.

C1 and C2 error checks can be accomplished by using a disc drive/software combination that is designed to detect errors at the C1 and C2 stages of the disc drive's internal decoder.

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Note 2. **Typical waveform for spoken text**



Average level for this example is -19.7 dB RMS