

**Introducing Spoken Word Audio Support  
For  
Consumer Electronics Audio Playback Devices**

**An Introduction to CEA-2003-C White Paper**

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## **Contents**

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<b>Contents .....</b>	<b>2</b>
<b>Introduction.....</b>	<b>2</b>
<b>Problems with previous options .....</b>	<b>2</b>
<b>The Solution, CEA-2003-C .....</b>	<b>3</b>
<b>Implementation and Enhancement Suggestions for Playback Devices ...</b>	<b>4</b>
<b>Implementation and Enhancement Suggestions for Content Providers ..</b>	<b>5</b>
<b>Summary .....</b>	<b>6</b>

## **Introduction**

Audio playback devices in all forms need to take advantage of the newest Consumer Electronics Association technical standards for spoken word audio playback. Audiobook revenue is growing, and interest in spoken word audio is at an all-time high. In a 2005 sales survey of audiobook publishers, the Audio Publishers Association (APA) estimates the size of the audiobook market at \$832 million. One in five American households listens to audiobooks, with the vast majority listening in their vehicles. As the adoption of new technologies increase, sales of digital formats such as MP3-CD and downloads are increasing dramatically.

## **Problems with previous options**

Most audio playback devices on the market today are designed with music album and song playback in mind. Until recently, spoken word audio was not considered as having distinct or separate needs for playback. Therefore, the listening experience has often been less than optimal.

Depending on the playback device or software, there are different default ways of handling audio files. This has hindered the content providers' ability to properly present the material for the optimal consumer experience.

For instance, one device may read a collection of MP3 files in the order in which they appear on a disc; another device may read in alphanumeric order, requiring the content provider to name all files in a sequential ordering system. Another program will group all files according to the "Album" ID3 tag, and further sort by alphanumeric order of "Song Title" ID3 tag. Reordering songs by title or artist is

typically not viewed as a problem for the music listener; hearing an audiobook in alphabetical order of chapter title can be annoying to someone who understands the process and can reorder their files, and purely impossible and aggravating for a consumer who has no idea why the book is ‘wrong’.

Another very real problem for audiobook listeners is the lack of an auto-resume feature, or lack of understanding on the consumer’s part as to the need to set auto-resume as the default if listening to an audiobook. If a consumer is listening to a music album in a vehicle and does not reach the end of the album before shutting off the player, playback that restarts from the beginning of the media is not generally a big issue. However, if a consumer is listening to a 15-hour audiobook, resuming play from the beginning of the media on restart is a very frustrating issue.

### **The Solution, CEA-2003-C**

#### ***CEA-2003-C – Digital Audiobook File Format and Player Requirements***

The Consumer Electronics Association and the Audiobook Publishers Association combined forces to develop a way to solve these challenges unique to spoken word audio. The first revision of the standard, CEA-2003, addressed physical media and the well-known MP3 codec exclusively. Based on the Optical Storage Technology Association’s (OSTA) MultiAudio specification, CEA-2003 developed an audiobook extension set to further enhance audiobook table of contents

and summary information. This binary file enables playback devices to quickly retrieve the table of contents without the time-consuming disc initialization that can occur while the player identifies all the files on a disc.

CEA-2003-B, published in December, 2004, retained backwards compatibility with the binary file format on compressed file discs, but introduced the audiobook extension set to OSTA’s MPV-Music specification. The XML-based specifications enabled quick information retrieval and a straightforward navigational structure. CEA-2003-C, expected publication date August 2006, introduces a richer, multi-level navigational structure and further enhances the capabilities of playback devices by enabling exchange and playback of collections of digital audio, photos and videos among various playback devices and media. The CEA-2003-C extension set for audiobooks operates independently as a fast and easy way to enable playback of audiobooks, and can also be combined with the core MPV specifications and other extension sets to create diverse and unique playback experiences.

A logo program is jointly sponsored by CEA and APA, and participation is strongly encouraged for both content providers and CE device manufacturers. The “Audiobook Format” logo for content and the “Audiobook Compatible” logo for playback devices are provided through CEA’s self-certification program. For more information on obtaining a logo for your product, please visit the audiobooks’ initiative page at CEA’s website, [www.ce.org/audiobooks](http://www.ce.org/audiobooks).



## Implementation and Enhancement Suggestions for Playback Devices

There are surprisingly few steps necessary to provide a pleasant playback experience for the audiobook consumer. In its simplest form, implementing support for CEA-2003-C is a matter of recognizing the table of contents file exists on the media, reading the time offset markers that reside within the table of contents file, and displaying the level name and point of play.

The basic two-level navigation gives the consumer a choice in display and navigation of the file level or a time offset within the file; typically a chapter (file) and page (60 second audio increment). Displaying the information and allowing navigation from chapter to chapter and/or page to page gives the consumer a point of reference and information on how to resume playback if the media is transferred to a different device. A very simple, low-memory device can effectively navigate these two levels without the need to enumerate and index file information, thereby increasing the speed on startup and when navigating through multiple files and directories.

Although not required to conform to the standards, there are several small enhancements to providing an improved listening experience. When the *CEA/APA Audiobook Format* is identified by the player, auto-resume feature should be automatically invoked, whether it is a default setting or not. Providing fast forward and fast reverse through a file is very important for an

enhanced listening experience. The table of contents file holds additional information regarding the audiobook, such as title, author, total playing time of the audiobook, narrator, etc. A way to easily view this information and catalog multiple playlists based on audiobook information is an enhancement the spoken word audio aficionado relishes.

A “ReRead” feature is especially useful for portable media devices. A phrase or sentence missed due to outside distractions can be easily heard again by a quick button push, which can move the playback point in reverse for a few seconds on each push. Playback then resumes with no other intervention by the listener.

New in CEA-2003-C are two optional additions; the ‘roundtrip bookmark’ feature, which enables the player to save and transfer multiple bookmarks and/or the auto-resume point, and level “unit” and “context” identifiers, which enables playback devices to provide a more customized handling of levels.

The ‘roundtrip bookmark’, or *bmark.aub* file, is an XML file separate from the table of contents file that is written and read by the playback device. By recording user bookmarks and the auto-resume point in a separate file, this would enable the transfer of such information between *Audiobook Compatible* devices and locations. An example of this usage would be the consumer listening to an audiobook in their automobile with a portable media device hooked through the car stereo. When the playback is stopped, the portable media device would record the stopping point in the *bmark.aub*. The portable media device is then synchronized with the consumer’s home entertainment unit, either through a wired or wireless connection, and transmits

the `bmark.aub` with other information. The home entertainment unit would read the information and resume playback at the point the audiobook was stopped previously.

A specialty audio playback device designed for audio versions of a daily newspaper and monthly special editions could make use of the level identifiers and provide more specific playback and display options. For instance, a subscription service that delivers the audio versions of a daily newspaper and periodic “special editions” wirelessly to the *Audiobook Compatible* player could include category identifiers to the player within the table of contents files. If the category is identified as a Periodical, and the units are identified as Columns, a preset display could be utilized to present the information to the consumer without need to read and display each level’s description individually.

### **Implementation and Enhancement Suggestions for Content Providers**

Content providers should incorporate the table of contents file generation in their production methods. For audio-only device playback, a simple two-level structure and basic information regarding the spoken audio will be a welcomed and enhanced experience for the consumer. Providing a basic MPV-core file in addition to the MPV-audiobook file will increase the compatibility in the case of an MPV-music-aware player that is not *Audiobook Compatible*.

For backward compatibility, it is suggested that digital audiobook files are named in alphanumeric order to ensure that even the lowest-memory devices will present the audiobook in the order in which it was intended. If adding metadata to a file, such as an MP3 ID3 tag, fill the Album tag with the title of the book in order to group all files together in the display. If file names or chapter numbering is used, make certain to use alphanumeric naming conventions for file names as well as the Title tag. Don’t forget the leading zeros – otherwise, you may find your audiobook presented and heard in an undesirable order - Chapter 1, Chapter 11, Chapter 12, Chapter 2, Chapter 21, and so on.

Remember that the table of contents file is just that – a navigational structure with some key information regarding the audiobook. Provide a simple, easy to use and understand system of navigating through the audiobook, knowing at which point one stopped listening, and how to get back to that or another one, depending on the content. A fiction novel can be easily presented and understood with simple two-level navigation: Chapter and Page are familiar references to the listener. A periodical or podcast may be best presented with differently named level displays; CEA-2003-C provides the way to communicate the content provider’s method of navigation in a straightforward, understandable and easy-to-implement way.

The technical standards provide ease of use and relatively simple navigation, but can be combined with other extension sets of the MPV specification to create a rich multimedia experience. These extension sets and playlists can be combined to include photo presentation during an audio presentation of a newspaper, for instance, or

display the text of a book as the audio is being played. There are a variety of opportunities for enhanced-value, multimedia experiences. There are also digital audiobook service companies that will provide standards-compliant table of contents files and other digital audiobook formatting services for a fee. Contact the APA for more information on service company contacts.

### **Summary**

As noted, spoken word audio requires very few, but very specific and unique enhancements for the consumer listening experience. The technical standards document CEA-2003-C outlines an easy, affordable solution to CE companies and content providers. The CEA/APA Audiobook logo program provides a way to communicate this value-added enhancement, and an easy way for the consumer to know what devices work best with their content.

There are resources to help both content providers and device manufacturers test and deploy the standards. The technical standards workgroup for spoken word audio has posted several helpful samples at the CEA website and on SourceForge.net. There one can find use case and example summaries, samples of XML and binary table of contents files, the source code for a web-based application to produce a simple two-level navigation table of contents file, and source code for a validator for the XML table of contents files.

Beyond the basics, the technical standards provide for unlimited creativity and enhancement options for presenting spoken word audio. The OSTA organization's MPV specifications have other media extensions already in place, and allow opportunities for media providers to create their own extension sets. Multiple extension sets can be combined in order to present synchronized playback of audio with graphics, video or other additions, without hindering the spoken word audio experience in audio-only players.

For more detailed technical information and to purchase the complete standard, please contact CEA, or visit [www.ce.org/audiobooks](http://www.ce.org/audiobooks) for more information.