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Patents & Standards
12 NOV 98

Patent Search Results

www.uspto.gov

Boolean Searches were executed using combinations of the following keywords: MPEG, audio decode, audio encode, and psychoacoustic model. Over a hundred patents were returned about various nuances of audio encoding and decoding, most of which are too specific for our purposes at the present stage of our project. Attached are five of the many matches. These seem to be the most general and most applicable to our project. The bibliography and cross-references listed on these patents will probably prove to be more useful than the patent contents.

Standards Search Results

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Document Number: ISO/IEC 11172-1, -2, -3, -4-1992

Title: Coding of Moving Pictures and Associated Audio for Digital Storage Media at rates up to 1.5M bits per second

Scope: Specifies representation of audio data in MPEG format for communication and storage. This standard describes MPEG 1-Layers I-III audio/video encoding and decoding processes, bitframe structure, and bit allocation. Data compression methods, rates, and options are also discussed.

Document Number: IEC 60645-3 Ed. 1.0 b

Title: Audiometers - Part 3: Auditory test signals of short duration for audiometric and neuro-otological purposes

Scope: Specifies means of describing the physical characteristics of audiometric test and reference signals of short duration and methods for their measurement. The standard also specifies a psychoacoustic method of determining the level of the test signal in terms of hearing level. Requirements for the information to be given in an instruction manual are also included.

Document Number: ISO/IEC 13818-2-1996

Title: Information Technology Ð Generic Coding of Moving Pictures and Associated Audio
Information: Video
(new standard)

Scope: Specifies the coded representation of picture information for digital storage media and digital video communication and specifies the decoding process. The representation supports constant bitrate transmission, variable bitrate transmission, random access, channel hopping, scalable decoding, bitstream editing, as well as special functions such as fast forward playback, fast reverse playback, slow motion, pause and still pictures. This standard is forward compatible with ISO/IEC 11172-2 and upward or downward compatible with EDTV, HDTV, SDTV formats. It is primarily applicable to digital storage media, video broadcast and communication. The storage media may be directly connected to the decoder, via communications means such as busses, LANs, or telecommunications links.

References

Brandenburg, K. "ISO-MPEG-1 Audio: A Generic Standard for Coding of High-Quality Digital Audio." J. Audio Eng. Society. **42**: #10. October 1994. pp 780-792.

Konstantinicles, K. "Fast Subband Filtering in MPEG." IEEE Signal Processing Letters. **1**: #2. February 1994 pp. 26.

Liu, C. & Lee, W. "The Design of a Hybrid Filter Bank for the Psychoacoustic Model in ISO/MPEG Phases 1,2 Audio Encoder." IEEE Transactions on Consumer Electronics. **43**: #3. August 1997 pp 586.

Pan, Davis. "A Tutorial on MPEG/Audio Compression." IEEE Multimedia Journal. Summer 1995.

Princen, J.P. "Analysis/Synthesis Filter Bank Design Based on Time Domain Alias Cancellation." IEEE Transactions on Acoustics, Speech, and Signal Processes. **34**: #5. October 1986 pp 1153.

Zwicker, E. & Fastl, H. Psychoacoustics: Facts & Models. Springer-Verlag. Berlin: 1990.

References on the Internet

www.sv.philips.com/mpeg

A site managed by the Philips company who specializes in sound coding. They offer single-chip decode and encode algorithms for the Motorola 56000 DSP series according to the MUSICORE standard.

www.mpeg.org/MPEG/mp3.htm

A page full of other pages with MPEG 1 Layer III information.

www.mp3bench.com/

A private site that explains audio compression in general and answers many questions about the MPEG standard and processes.

www.mp3.com

A page dedicated to MPEG 1 Layer III news releases, sound files, and a little bit of technical information. It includes a message board with software and hardware categories that provide up-to-date information and opinions about the industry.
