

An overview of JPEG and MPEG and their IP guidelines

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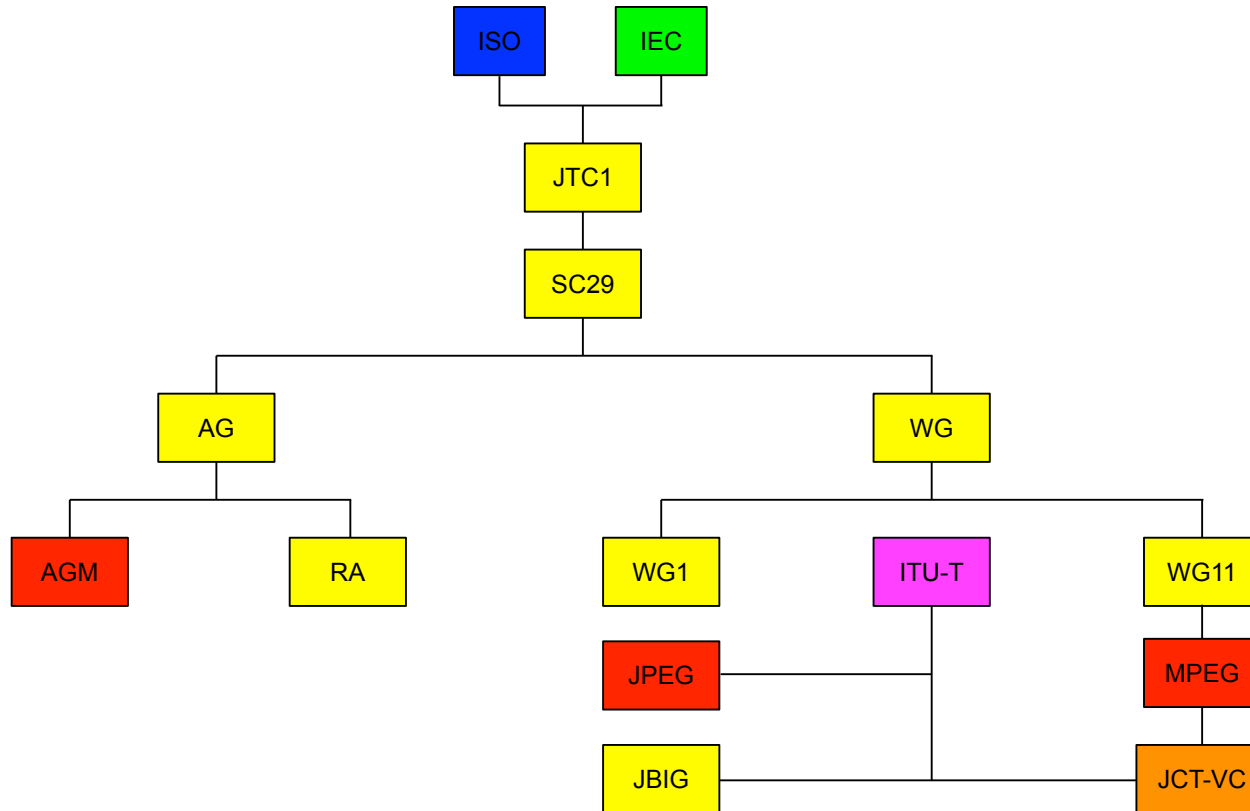


Multimedia Signal Processing Group
Swiss Federal Institute of Technology, Lausanne

Standardization workshop
December 15th, 2010
Gent, Belgium



A big happy family



- Coding of Audio, Picture, Multimedia and Hypermedia Information
- Area of work
 - ▶ Standardization of coded representation of audio, picture, multimedia and hypermedia information - and sets of compression and control functions for use with such information
 - ▶ Excluded: character coding
- Chairman: Kohtaro Asai (Japan)



- The Advisory Group on Management (AGM)
 - ▶ advises SC 29 and its WGs on matters of management that affect their work
 - ▶ studies issues of management
 - ▶ compiles information
 - ▶ identifies problem areas
 - ▶ makes recommendations to SC29
- Convener: Touradj Ebrahimi (Switzerland)



- Development of international standards for the compression, decompression, processing, and coded representation of digital still pictures, in order to satisfy a wide variety of applications
- Subgroups (SG)
 - ▶ **Joint Photographic Experts Group (JPEG)**
 - *Rapporteur: Daniel Lee*
 - ▶ **Joint Bi-level Experts Group (JBIG)**
 - *Rapporteur: Fumitaka Ono*
- WG1 Convener: Daniel Lee (USA)



- Projects:
 - ▶ **JPEG**: versatile image compression solution
 - ▶ **JPEG-LS**: efficient lossless image compression
 - ▶ **JPEG 2000**: image compression system with various functionalities
 - ▶ **JPEG XR**: compression for high dynamic range images
 - ▶ **JPSearch**: Image annotation, search and retrieval
 - ▶ **AIC**: Advanced image compression solution



- Development of international standards for compression, decompression, processing, and coded representation of moving pictures, audio, and their combination, in order to satisfy a wide variety of applications
- Subgroups (SG)
 - ▶ **Requirements** - Rapporteur: Joern Ostermann
 - ▶ **Systems** - Rapporteur: Young-Kwon Lim
 - ▶ **Video** - Rapporteurs Jens-Reiner Ohm, Gary Sullivan, Associate Rapporteurs: Ajay Luthra, Thomas Wiegand
 - ▶ **Audio** - Rapporteur - Rapporteur: Schuyler Quackenbush
 - ▶ **3D Graphics Compression** - Rapporetur: Marius Preda
 - ▶ **Test** - Rapporteur: Vittorio Baroncini
- WG11 Convener: Leonardo Chiariglione (Italy)



- Projects

- ▶ **MPEG-1:** Video CD, MP3, ...
- ▶ **MPEG-2:** Digital TV, Digital HDTV, DVD, DVB, ...
- ▶ **MPEG-4:** Multimedia for fixed and mobile web
- ▶ **MPEG-7:** Description and search of audio and visual content
- ▶ **MPEG-21:** Multimedia framework
- ▶ **MPEG-A:** Application-specific formats by integrating multiple MPEG technologies
- ▶ **MPEG-B:** Collection of Systems specific standards
- ▶ **MPEG-C:** Collection of Video specific standards
- ▶ **MPEG-D:** Collection of Audio specific standards
- ▶ **MPEG-E:** M3W, a support for download and execution of multimedia applications
- ▶ **MPEG-H:** HEVC, a significantly increased video compression standard
- ▶ **MPEG-M:** MXM, for packaging and reusability of MPEG technologies
- ▶ **MPEG-U:** standard for rich-media user interface
- ▶ **MPEG-V:** standard for interchange with virtual worlds



IP, or not IP - That is the question!

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- Specifications are non-binding; their objective is to ensure compatibility of technologies and systems on a worldwide basis. To meet this objective, which is in the common interests of all those participating, it must be ensured that specifications, their applications, use, etc. are accessible to everybody
- ISO/IEC/ITU-T do not rule out establishment of specifications with patent rights
- But:
 - ▶ preference is given to specifications that are either patent-free or royalty-free and license-fee free
 - ▶ if the above is not possible, then reasonable and non-discriminatory terms may be considered
 - ▶ establishment of a common patent policy by ITU-T/ITU-R/ISO/IEC as a code of practice



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- Technical experts are normally not familiar with the complex issue of patent law, therefore a simple procedure is created
 - ▶ form with a simple checklist to be filled by potential patent owners, covering one of three cases
 - ▶ case 1: licensing free of charge
 - ▶ case 2: licensing based on reasonable and non-discriminatory terms
 - ▶ case 3: none of the above, in which case the specification shall be revised not to include it

- SC 29 affirms and supports Common Patent Policy for ITU-T/ITU-R/ISO/IEC that requires a party that submits a technology contribution for proposed inclusion in any SC 29 standard to disclose to the WG the existence of patents or published pending patent applications, hereafter referred to as "IP rights", of which the party is personally aware and which the party considers to cover any item of its contribution.



- Any party participating in the work of the Organizations should, from the outset, draw their attention to any known patent or to any known pending patent application, either their own or of other organizations



- Only consider for inclusion in a standard (unless the ISO Council authorizes an exception) technology that is either 1) free of IP rights, or 2) available to all implementers of the standard without a royalty or license fee and under other reasonable and non-discriminatory ("RAND") terms and conditions, or 3) available to all implementers of the standard for a reasonable royalty/ license fee and under other RAND terms and conditions.
- Negotiations regarding specific licensing terms and conditions are left to the parties concerned and are performed outside of SC 29.

- JPEG
 - ▶ gives strong preference to royalty-free license-free standard for their base-line specifications
 - ▶ allows RAND conditions for extensions built on top of base-line specifications
- MPEG
 - ▶ generally allows RAND conditions for its specifications
 - ▶ however has recently started exploration and discussions for potential license-free, and royalty-free specifications



Thank you for your attention !!
Any questions ?

