RECOMMENDATION ITU-R BT.1378*

Basic requirements for multimedia-hypermedia broadcasting

(Question ITU-R 13/6)

(1998)

The ITU Radiocommunication Assembly,

considering

a) that digital broadcasting systems will provide the opportunity for broadcasting multimedia with hypermedia capability in addition to linear programming;

b) that, just as is the case for video and audio coding and compression for linear programming, benefits will accrue from the use of agreed syntaxes and structures for multimedia-hypermedia;

c) that, in future, the broadcasting of multimedia-hypermedia services may become of greater significance with the use of various storage systems in receivers;

d) that an important step toward agreement on common systems can be taken if there is agreement on the requirements for multimedia-hypermedia broadcasting,

recommends

1 that Annex 1 should be taken as the initial basis for multimedia-hypermedia broadcasting requirements.

ANNEX 1

Requirements	Functionality	Mandate/ Optional
(1) Integrity of multimedia-hypermedia data	Various kinds of coded mono-media information (video including HDTV, sound, graphics, text, computer software, etc.) can be combined and identified as multimedia-hypermedia data to be handled with the identical process in multimedia-hypermedia applications	M
	Multimedia presentation control data and interaction control data such as buttons and sliders are also included in this data structure for the integrity of data handling	M
(2) Spatial, temporal and hierarchical multimedia representation control	Each mono-media component has a property of spatial position and size for playback in the receiver. The relationship among all components or final format representation (designation of layout on display coordinates) can be designated and controlled	M
	Each mono-media component has a property of temporal position and duration for playback in the receiver. The relationship among all components, for example audiovisual synchronization, can be designated and controlled	M
	If overlap of multiple presentation information exists, their layered relationship for presentation can be designated and controlled	M

* Radiocommunication Study Group 6 made editorial amendments to this Recommendation in 2002 in accordance with Resolution ITU-R 44.

Requirements	Functionality	Mandate/ Optional
(3) Links	Multimedia hyperlinks, that is, linkage between a part of coded information and another, can be described explicitly and included in this data structure. This includes hypertext links (i.e. links between strings and other coded information)	M
	Links to the SI components inside and/or outside the relevant channel are possible	O
	Links to the recorded programs in the in-home storage are possible	O
	Links to the Internet resources are possible	O
(4) User interaction	The control methods, conditions and effects of user interaction can be described explicitly and included in this data structure	M
	Graphical user interfaces and their functions can be included in this data structure for user interaction	O
(5) Real-time processing	Delay time due to processing of this data structure can be minimized and acceptable for viewers. The range of this acceptability depends on the requirements of the applications	M
	Real-time streams can be handled with this data structure	M
(6) Retrieval	Additional information (e.g. indices and tags), which describes the contents of the relevant multimedia-hypermedia information and enables this information to be looked up by a search mechanism, can be included in this data structure	O
(7) Editing	Received multimedia-hypermedia information can be editable for some kinds of applications	O
(8) Copyright	Copyright information can be included in this data structure to indicate copyright ownership of the relevant multimedia-hypermedia contents	M
	Copyright control information can be included in this data structure	O
(9) Descriptive information	Descriptive information can be included in this data structure to provide additional information about the relevant multimedia-hypermedia contents	M
(10) Extensibility	User-defined multimedia-hypermedia data can be included in this data structure	M
(11) Interoperability	Portability of multimedia-hypermedia contents within various information media can be ensured. Or, if required, conversion of multimedia-hypermedia data structure between broadcasting and other information media can be easily achieved. Multimedia-hypermedia contents from the Internet and other telecommunication services are also available without imposing significant requirements on the receiver	M

APPENDIX 1

TO ANNEX 1

GLOSSARY

Multimedia	A package of elements of moving images, still images, graphics, text and sound which collectively constitute a viewing experience. Multimedia is often used in interactive applications. Multimedia elements often need to be synchronized to appear at the right time.
Multimedia page	The collection of multimedia content intended to be experienced as a single entity.
Hypermedia	The package of coded information that provides the mechanism for moving from one set of multimedia elements (page) to another. Words or objects may contain embedded and unseen codes which give the address of the new page. Selecting the word or object displayed in the current page takes the viewer to the new page.
Monomedia	The individual elements of multimedia. The degree to which visual and sound elements have flexibility is different. Visual elements are defined on-screen, in terms of their position and size, whereas sound elements can be defined by characteristics such as width of sound image, apparent location of sound source, etc.
Multimedia applications	A collection of multimedia content and computer software which runs or can be run once downloaded into the receiver, and thus provide a multimedia viewing experience.
Applet	An application of small size.
SI	Service Information, or information which describes the elements of a service, such as channel name, title of programme, etc.
Interoperability	The capacity of one or more elements intended for use via one delivery media to be also used for other delivery media, or be passed on without modification to other systems.
Executable content	Another name for "multimedia" application (term not used in this Recommendation).
Search mechanisms	Tools for finding multimedia or multimedia application from an archive or data base, or from content stored in the receiver.
Hyperlink	The link which performs the move from one multimedia page to another.
Hypertext	Hypermedia, where the "media" used is a word.
Strings	A collection of connected data.
Indices and tags	Labelling codes which specify the content or type of data to which it refers.