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Technical Specification

Broadcast and On-line Services: Search, select, and rightful use of content on personal storage systems ("TV-Anytime"); Part 1: Benchmark Features

European Broadcasting Union



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Foreword

This Technical Specification (TS) has been produced by Joint Technical Committee (JTC) Broadcast of the European Broadcasting Union (EBU), Comité Européen de Normalisation ELECTrotechnique (CENELEC) and the European Telecommunications Standards Institute (ETSI).

NOTE: The EBU/ETSI JTC Broadcast was established in 1990 to co-ordinate the drafting of standards in the specific field of broadcasting and related fields. Since 1995 the JTC Broadcast became a tripartite body by including in the Memorandum of Understanding also CENELEC, which is responsible for the standardization of radio and television receivers. The EBU is a professional association of broadcasting organizations whose work includes the co-ordination of its members' activities in the technical, legal, programme-making and programme-exchange domains. The EBU has active members in about 60 countries in the European broadcasting area; its headquarters is in Geneva.

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The present document is part 1 of a multi-part deliverable covering Broadcast and On-line Services: Search, select and rightful use of content on personal storage systems ("*TV-Anytime*"), as identified below:

- Part 1: "Benchmark Features";**
- Part 2: "System description";
- Part 3: "Metadata";
- Part 4: "Content referencing";
- Part 5: "Rights Management and Protection (RMP)";
- Part 6: "Delivery of metadata over a bi-directional network";
- Part 7: "Bi-directional metadata delivery protection";
- Part 8: "Phase 2 - Interchange Data Format";
- Part 9: "Phase 2 - Remote Programming".

Introduction

The present document is based on a submission by the *TV-Anytime* forum (<http://www.tv-anytime.org>).

"*TV-Anytime*" (TVA) is a full and synchronised set of specifications established by the *TV-Anytime* Forum. TVA features enable the search, selection, acquisition and rightful use of content on local and/or remote personal storage systems from both broadcast and online services.

The present document and TS 102 822-2 [1] set the context and system architecture in which the standards for Metadata, Content referencing, Bi-directional metadata and Metadata protection are to be implemented in the *TV-Anytime* environment. The present document provides benchmark business models against which the *TV-Anytime* system architecture is evaluated to ensure that the specification enable key business applications. TS 102 822-2 [1] presents the *TV-Anytime* System Architecture. These two documents are placed ahead of the others for their obvious introductory value. These first two documents are largely informative, while the remainder of the series is normative.

The features are supported and enabled by the specifications for Metadata (TS 102 822-3 sub-parts 1 [2], 2 [3], 3 [4] and 4 [5]), Content Referencing (TS 102 822-4 [6]), Rights Management (TS 102 822-5 sub-parts 1 [7] and 2 [8]), Bi-directional Metadata Delivery (TS 102 822-6 sub-parts 1 [9], 2 [10] and 3 [11]) and Protection (TS 102 822-7 [12]), Interchange Data Format (TS 102 822-8 [13]) and Remote Programming (TS 102 822-9 [14]).

This list of Features is to be used as guidance to manufacturers, service providers and content providers regarding the implementation of the Phase 1 and Phase 2 *TV-Anytime* specifications.

1 Scope

The present document lists and defines the *TV-Anytime* Phase 1 and Phase 2 evolutionary range of features which describe PDR (Personal Digital Recorder) usage models that the *TV-Anytime* standards facilitate.

The features are supported and enabled by the specifications for Metadata (TS 102 822-3 sub-parts 1 [2], 2 [3], 3 [4] and 4 [5]), Content Referencing (TS 102 822-4 [6]), Rights Management (TS 102 822-5 sub-parts 1 [7] and 2 [8]), Bi-directional Metadata Delivery (TS 102 822-6 sub-parts 1 [999], 2 [10] and 3 [11]) and Protection (TS 102 822-7 [12]), Interchange Data Format (TS 102 822-8 [13]) and Remote Programming (TS 102 822-9 [14]).

These specifications enable search, selection, acquisition and rightful use of content on local and/or remote personal storage systems from both broadcast and online services.

2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication and/or edition number or version number) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies.

Referenced documents which are not found to be publicly available in the expected location might be found at <http://docbox.etsi.org/Reference>.

- [1] ETSI TS 102 822-2: "Broadcast and On-line Services: Search, select, and rightful use of content on personal storage systems ("TV-Anytime"); Part 2: System description".
- [2] ETSI TS 102 822-3-1: "Broadcast and On-line Services: Search, select, and rightful use of content on personal storage systems ("TV-Anytime"); Part 3: Metadata; Sub-part 1: Phase 1 - Metadata schemas".
- [3] ETSI TS 102 822-3-2: "Broadcast and On-line Services: Search, select, and rightful use of content on personal storage systems ("TV Anytime"); Part 3: Metadata; Sub-part 2: System aspects in a uni-directional environment".
- [4] ETSI TS 102 822-3-3: "Broadcast and On-line Services: Search, select, and rightful use of content on personal storage systems ("TV-Anytime"); Part 3: Metadata; Sub-part 3: Phase 2 - Extended Metadata Schema".
- [5] ETSI TS 102 822-3-4: "Broadcast and On-line Services: Search, select, and rightful use of content on personal storage systems ("TV-Anytime"); Part 3: Metadata; Sub-part 4: Phase 2 - Interstitial metadata".
- [6] ETSI TS 102 822-4: "Broadcast and On line Services: Search, select, and rightful use of content on personal storage systems ("TV-Anytime"); Part 4: Content referencing".
- [7] ETSI TS 102 822-5-1: "Broadcast and On-line Services: Search, select, and rightful use of content on personal storage systems ("TV-Anytime"); Part 5: Rights Management and Protection (RMP) Sub-part 1: Information for Broadcast Applications".
- [8] ETSI TS 102 822-5-2: "Broadcast and On-line Services: Search, select, and rightful use of content on personal storage systems ("TV-Anytime"); Part 5: Rights Management and Protection (RMP) Sub-part 2: RMPI binding".
- [9] ETSI TS 102 822-6-1: "Broadcast and On-line Services: Search, select, and rightful use of content on personal storage systems ("TV Anytime"); Part 6: Delivery of metadata over a bi-directional network; Sub-part 1: Service and transport".

- [10] ETSI TS 102 822-6-2: "Broadcast and On-line Services: Search, select, and rightful use of content on personal storage systems ("TV-Anytime"); Part 6: Delivery of metadata over a bi-directional network; Sub-part 2: Phase 1 - Service discovery".
- [11] ETSI TS 102 822-6-3: "Broadcast and On-line Services: Search, select, and rightful use of content on personal storage systems ("TV-Anytime"); Part 6: Delivery of metadata over a bi-directional network; Sub-part 3: Phase 2 - Exchange of Personal Profile".
- [12] ETSI TS 102 822-7: "Broadcast and On-line Services: Search, select, and rightful use of content on personal storage systems ("TV-Anytime Phase 1"); Part 7: Bi-directional metadata delivery protection".
- [13] ETSI TS 102 822-8: "Broadcast and On-line Services: Search, select, and rightful use of content on personal storage systems ("TV Anytime"); Part 8: Phase 2 - Interchange Data Format".
- [14] ETSI TS 102 822-9: "Broadcast and On-line Services: Search, select, and rightful use of content on personal storage systems ("TV-Anytime"); Part 9: Phase 2 - Remote Programming".

3 Definitions and abbreviations

3.1 Definitions

For the purposes of the present document, the following terms and definitions apply:

advertiser: entity that promotes or drives sales for their products or services

advertising: content that is intended to promote or drive sales for products or services

application: specific set of functions running on the PDR

NOTE: Some applications use metadata, either automatically or under consumer control.

bi-directional: two way flow of content and/or information buffering

EXAMPLE: The ability to start watching a programme before it has finished recording on a disc.

broadcaster: entity that aggregates and distributes audio/video content

capture: transfer to a personal storage device of audio-visual streams and or data files

content: anything the consumer would like to access and that can be stored on a PDR

content item: entity that can be acquired as a single unit

EXAMPLE: AV file, Audio stream.

content package: collection of content items, which may be consumed as a whole or individually

content reference: pointer to a specific content item

content provider: entity that acts as the agent for and is the prime exploiter of the content

content reference identifier: identifier for content that is independent of its location

fragment: self-consistent atomic portion of a metadata description

free to air: broadcast content that is free at the point of consumption

interactive TV: television that includes additional information and/or applications related to content and which takes advantage of a return path

interstitial: material shown between programme elements in a linear stream

NOTE: Interstitials can comprise advertising, station idents, promotional material graphics etc. (See "spot".)

interstitial break: (UK) group of spots shown together

NOTE Also known as pod.

metadata: generally, data about content, such as the title, genre, and summary of a television programme

NOTE: In the context of *TV-Anytime*, metadata also includes personal profile and history data.

metadata schema: expression of the data model that is compliant with the XML schema specification

metadata system: set of rules describing the syntax and semantics of metadata

pay per view: content for which the consumer has had to pay a one off fee

personal profile: data that represents the interests and preferences of the consumer

pod: set of spots that forms a break in or between programmes

NOTE: Also known as an interstitial break.

programme: editorially coherent piece of content

NOTE: Typically, a programme is acquired by the PDR as a whole.

programme group: one or more programmes that are grouped together

NOTE: *TV-Anytime* defines several types of programme groups such as "series" and "programme compilation".

provider: entity that delivers content or services to the PDR

return path: part of a bi-directional distribution system over which data flows from the consumer to the service provider

segmentation: logical division of content into different parts (e.g. scenes)

service provider: aggregator and supplier of content which may include gateway and management roles

spot: individual content item within a pod

targeting: process which allows providers to deliver relevant content to specific individuals or groups of individuals

telescope advert: long form advertising spot that is linked to from a shorter spot

TV-Anytime devices: components that comply with *TV-Anytime* specifications and requirements

3.2 Abbreviations

For the purposes of the present document, the following abbreviations apply:

CRID	Content Reference IDentifier
FTA	Free To Air
NDR	Network Digital Recorder
PDR	Personal Digital Recorder
PPV	Pay Per View
RMPI	Rights Management Protection Information
TLS	Transport Layer Security
URL	Uniform Resource Locator
VOD	Video On Demand

4 Key Phase 1 Business Models

Table 1

KEY BUSINESS MODELS PHASE 1	
BM1 001	A consumer will want to be able to capture and play back content on a PDR.
BM1 002	A consumer will want to pause live incoming content on a PDR so that they can "resume" later and continue to watch the content in time shift mode.
BM1 003	A consumer will want to view an on-screen menu of content already captured.
BM1 004	A consumer will want to view a schedule of forthcoming items so they can choose content to record.
BM1 005	A consumer will want to choose whether a new recording of content replaces existing content that is out of date or is added alongside old content on the PDR.
BM1 006	A consumer will want to be able to decide whether to capture single or multiple episodes of a series or other programme groupings.
BM1 007	A consumer will want to amend the list of items "cued" for capture.
BM1 008	If the device is already tuned to a particular source and has been buffering that content in memory, then a consumer will want to be able to record the content of the buffer and continue recording so the entire content is captured. If their device was not tuned to that output they may also want to indicate that they wish to capture it at its next availability.
BM1 009	A consumer will want to set up and manage multiple personal profiles on their PDR associated with one or more service providers.
BM1 010	A consumer will want to be able to manage the storage space on their PDR system or give an appropriate provider(s) permission to do so e.g. items to be deleted next, permanently stored, etc.
BM1 011	A consumer will want to allow the PDR to automatically capture content based on their viewing behaviour (profiling).
BM1 012	Consumers may allow their profile to be captured so it can be aggregated and analysed for targeting purposes.
BM1 013	A consumer may allow the insertion of pre-captured advertisements or promotions into live/broadcast content based on their viewer profile.
BM1 014	A consumer may allow the insertion of pre-captured advertisements or promotions into content being played back based on their viewer profile.
BM1 015	A consumer may allow a service provider to remotely control the functionality of their PDR system (e.g. to capture settings, profile settings, etc.).
BM1 016	The consumer may want to be able to select segments of programmes for recording based on information provided by the service or content provider.
BM1 017	The consumer may want functionality that enables them to view content stored on a PDR system in a similar way to viewing content on a DVD - e.g. with index points and a playlist enabling "passive" highlight or other playback modes.
BM1 018	The consumer may want to navigate and explore content segments using provider indexes (e.g. step through, short/long form, etc.).
BM1 019	The consumer may want the PDR system to create single personalized programmes from individual "personally linked" segments.
BM1 020	The consumer will want to be able to create separate profiles for each member of the household (separate recorded content menus, profiling, parental control, etc.).
BM1 021	To enable the capture of high value premium content, service/content providers will require flexible usage rules (limited viewing windows for example) so that consumers can view their content on the PDR system.
BM1 022	To enable the capture of high value premium "content on demand", service/content providers will require flexible pricing information so that consumers can select the content of their choice within a selection of commercial offers.
BM1 023	Consumers (on a bi-directional PDR system) will want to be able to store their "personal" content on network storage devices. (e.g. if their disk is full).
BM1 024	Consumers will want to be able to move their personal profiles to different PDRs or PDR systems in other physical locations. (e.g. when they upgrade their devices or while viewing in a hotel when on holiday).
BM1 025	3 rd parties or service/content providers can provide recommendations, content referencing and resolution of content potentially from many other providers.
BM1 026	Service/content providers can force download "premium/PPV" content to the PDR system (i.e. Local VOD).

5 Elements comprising the Phase 1 *TV-Anytime* specification (Tool Box)

Table 2

Tool	Description of tool	Document reference
Classification schemes	<i>TV-Anytime</i> specifies sets of controlled terminology. These comprise simple- and multi-level, multi-axis labels that can be applied to a particular piece of content (such as its genre or atmosphere).	TS 102 822-3-1 [2]
Content description metadata	<i>TV-Anytime</i> - specific information defining, describing and detailing content items (such as a programme's synopsis).	TS 102 822-3-1 [2]
CRID	A location independent identifier used to identify content or groups of content. Additionally it is used as the key to associate metadata with the content or group of content.	TS 102 822-4 [6]
CRID resolution	The process of finding the constituent parts of a group of content or the locations of the content identified by the CRID.	TS 102 822-4 [6]
Fragment encoding	The ability to compress and represent the data forming a fragment so that it can be passed from device to device efficiently.	TS 102 822-3-2 [3]
Fragment encapsulation	The ability to identify and associate versioning information with one or more fragments together in a single wrapper called a container (e.g. a receiver will know when a fragment has been updated).	TS 102 822-3-2 [3]
Fragment indexing	The ability to efficiently locate metadata fragments having a specific or range of field values within a unidirectional environment where the fragments are carouselled (e.g. the ability to easily find a small amount of relevant data in a large data set).	TS 102 822-3-2 [3]
Instance description metadata	<i>TV-Anytime</i> specific information that defines a particular occurrence of a multimedia element (such as a programme's location in a schedule).	TS 102 822-3-1 [2]
Metadata authentication	<i>TV-Anytime</i> metadata authentication uses a Transport Layer Security (TLS) based secure transport mechanism for metadata. During the TLS handshake the metadata server is authenticated using a digital certificate. After the handshake all metadata delivered to the user's device is cryptographically authenticated. This prevents unauthorized changes being made to metadata during the transfer and prevents unauthorized sources delivering metadata to the device.	TS 102 822-7 [12]
Metadata encryption	Transport Layer Security (TLS) based secure transport mechanism for metadata. During the TLS handshake a metadata server can optionally specify to the users device that metadata will be encrypted. In that case all metadata delivered to the users device is encrypted with the negotiated algorithm. Metadata may be encrypted to prevent non-subscribed users obtaining the same metadata.	TS 102 822-7 [12]
Metadata service capability description	Allows a client to flexibly query a metadata service, without making requests that will not be supported by that metadata service.	TS 102 822-6-1 [9]
Metadata service discovery	The process by which a client establishes a URL where a <i>TV-Anytime</i> metadata service can be found.	TS 102 822-6-2 [10]
Query and response format	<i>TV-Anytime</i> specific information that describes the content of the metadata queries from end-user device and responses from metadata service providers.	TS 102 822-6-1 [9]
Segmentation metadata	<i>TV-Anytime</i> specific information that describes elements of a whole piece of content in a way that allows it to be broken up (such as indexing stories in a news programme by subject thereby allowing only preferred stories to be viewed).	TS 102 822-3-1 [2]
Transport protocol - encapsulation of metadata	The ability to transfer <i>TV-Anytime</i> metadata information over IP networks.	TS 102 822-6-1 [9]

Tool	Description of tool	Document reference
Transport protocol - encoding of metadata	The ability to compress and represent the data so that it can be passed from device to device efficiently.	TS 102 822-6-1 [9]
Usage history metadata	<i>TV-Anytime</i> specific information generated in a device that describes the actions by a consumer while interacting with that device.	TS 102 822-3-1 [2]
User preference metadata	<i>TV-Anytime</i> specific information that describes a user's profile which has either been entered by themselves or generated by their <i>TV-Anytime</i> device (such as the consumer's demographic data).	TS 102 822-3-1 [2]
Rights Management and Protection Information for Broadcast Applications	The minimum set of <i>TV-Anytime</i> specified usage rules and conditions required to enable protection of broadcast digital television content within a <i>TV-Anytime</i> rights Management and protection compliant domain.	TS 102 822-5-1 [7] TS 102 822-5-2 [8]

6 Key Phase 2 Business Models

Table 3

KEY BUSINESS MODELS PHASE 2	
	Description
BM2 001	A consumer will want to capture content onto their portable device over a wired or wireless network and transfer that content with associated metadata to their home device and other mobile devices.
BM2 002	A consumer will want to make available some of their recordings, and information about them, to another users home network or to a friend through an external transmission path, or any removable exchange medium available.
BM2 003	A consumer will want their PDR to capture a complete interactive package such as interactive TV that contains applications, data, text, graphics, video and audio files and links to other online content.
BM2 004	A consumer will want to be able to move between a free to air and pay per view environment when a broadcaster transmits both FTA and PPV content that are linked.
BM2 005	A consumer will want their PDR to be able to record elements of content (such as games) from trusted content providers and be told the best order in which to consume this content.
BM2 006	A consumer will want to request, by setting manual preferences, that all their mobile PDR content contain mostly audio or television programmes containing audio description.
BM2 007	A consumer travelling abroad will want to set preferences that allow them to capture content relevant to their home location preferences or personal preferences.
BM2 008	A consumer will want their personal preferences to be available to them when using rented TV-Anytime equipment, and that equipment will record content of interest to them, regardless of location.
BM2 009	The consumer will want to be able to capture enhancing content in advance of a broadcast event so that when the main element is broadcast, those enhanced features are available on the TV-Anytime device for synchronous playback.
BM2 010	A consumer will want to be able to play complex games that include pre recorded content and links to broadcast programming.
BM2 011	A consumer will want their PDR to seamlessly and automatically update time sensitive content (such as news and advertising) recorded on their device.
BM2 012	A consumer will want to be able to pre-record programme associated content such as subtitles, captions and additional textual information so that during a subsequent live broadcast programme their PDR can offer them alternative, synchronized subtitles, captions and background textual information.
BM2 013	A consumer will want to capture a multi-stream offering in such a way that when they play the content at a later date the different streams remain synchronous.
BM2 014	A consumer will want to set their preference between using content off their PDR devices in "subtitle text" mode rather than audio streams.
BM2 015	A consumer will want to be certain that any content they search for is playable on their device.
BM2 016	A consumer who subscribes to content service providers will want to be sure that the content they receive is appropriate to each or all of their devices.
BM2 017	A consumer will want to be able to acquire content while on the move, and for their TV-Anytime service to know the terminal capabilities before delivering content.
BM2 018	An advertiser will want to ensure that any replacement of advertising spots complies with national, regional advertising rules and regulations.
BM2 019	A provider of a premium service wants to ensure that the consumer is charged for content only after they have watched more than the 'free element' of that content.
BM2 020	A consumer will want to make purchases from their TV-Anytime device after seeing promotional or advertising features downloaded to their device.

KEY BUSINESS MODELS PHASE 2	
	Description
BM2 021	A consumer will want to be able to choose what to record using 3 rd party metadata services, whether on their device or available on the web. They will also want these services to be able to update their PDR recordings if the schedules relating to their requests change.
BM2 022	A consumer will want to be able to programme their PDR and query it remotely from a mobile device or device connected to the internet.
BM2 023	A broadcaster will want to prevent a competitor from substituting elements of their content with competing content.
BM2 024	A consumer will want be able to set preferences on their device that allow it to capture subtitles or audio description in their native language when programmes are transmitted in a foreign language.
BM2 025	A consumer will want the broadcaster to be able to deliver generic metadata to their PDR where the content is not yet fully established (e.g. a series of sporting events with a flexible timing schedule) They will want their device to record the whole event, and then discard unwanted elements when the broadcasters updates the metadata.
BM2 026	A consumer will want to be able to select content to record depending on its broadcast characteristics such as broadcast quality, aspect ratio etc.
BM2 027	A consumer may want to be able to capture more streams than their home device is capable of recording. In this instance they will want to be able to 'book' a recording on a service provided outside their home on a 'Network Digital Recorder' which can then be transferred to their home device when it is free to receive it.
BM2 028	Broadcasters, content producers and 3 rd party metadata providers will all want to be able to provide information about content in a way that can be identified by the consumer as to its source and protected from alteration by others in the value chain.
BM2 029	A consumer who time-shifts viewing of content will want to see relevant, timely interstitials (commercials and promos). Where such content is out of time they will want that content replaced with more appropriate material.
BM2 030	Where a consumer has a special interest in a piece of content and the broadcaster or advertiser as made available additional material (a telescope advert for instance) they will want to be able to pause what they are watching, view the additional content, and then resume the original material from where they paused.
BM2 031	An advertiser who has paid a premium price for a spot in a pod will wish to ensure they are the only people capable of changing it.
BM2 032	A consumer may wish to choose from a variety of payment models when viewing content that presents them with different amounts of interstitial content depending on the price they paid.
BM2 033	An advertiser will want to ensure that commercials for similar brands are not shown close to their own spots.
BM2 034	Where national compliance rules for the showing of commercials apply, these rules should over-ride any other targeting rules.
BM2 035	A consumer will not want to see a commercial more than a certain number of times. Advertisers will want therefore to set upper limits for each advertisement to prevent negative brand impressions.
BM2 036	An advertiser will want to ensure their commercials are only seen in areas where their products or services are available.
BM2 037	A consumer will want to set a preference to see a specific product or range of products depending on their purchasing needs or habits or interests (for instance they may be about to buy a car).
BM2 038	A consumer will want to set a preference to block specific products or range of products based on their purchasing needs, habits of lifestyles (for instance they could be strict vegetarians).
BM2 039	A consumer may be prepared to pay a premium to replace advertising pods in certain events (such as live sport) with relevant editorial programme content.
BM2 040	Advertisers and broadcasters will, on replay of recorded content, want to replace interstitial material with more relevant interstitials based on parameters such as time of viewing, environmental triggers (such as weather, season etc) and number of times seen.
BM2 041	Broadcasters, advertisers and service operators will want demographic data (un-attributable, or, with permission, attributable) to be returned from the consumers device.
BM2 042	An advertiser will want to replace expired content with the latest content without having to keep track of the content items that have already been distributed.
BM2 043	Advertisers will want to ensure their commercials are only seen by the appropriate audience. Where, for instance, a minor is replaying content, a commercial for an alcoholic beverage should be skipped.
BM2 044	A broadcaster will want to sell the interstitial placement in their content based on live or recorded viewing, replacing interstitials based on flexible business rules.
BM2 045	A consumer will want to print text, images and other associated assets that broadcasters make available as enhancements to their programmes.

7 Elements comprising the Phase 2 *TV-Anytime* specification (Tool Box)

Table 4

Tool	Description of tool/functionality	Document reference
Packaging	<i>TV-Anytime</i> framework for the association of disparate elements of content that are intended to be consumed as a whole.	TS 102 822-3-3 [4]
Targeting	<i>TV-Anytime</i> specific information that allows the matching and delivery of relevant content based on a consumers profile.	TS 102 822-3-3 [4]
Remote programming	<i>TV-Anytime</i> protocol that enables communication with a TVA compliant device remotely using the messaging core format. Control of an NDR in a TVA compliant way.	TS 102 822-9 [14]
Interstitials	<i>TV-Anytime</i> framework for the replacement of interstitials during playback depending on specific criteria.	TS 102 822-3-4 [5]
E-Flyer/Coupon	<i>TV-Anytime</i> specific way of attaching pricing and discount information to content.	TS 102 822-3-3 [4]
Terminal capabilities	<i>TV-Anytime</i> description of the capabilities of an end user terminal that enables appropriate content to be captured and consumed.	TS 102 822-3-3 [4]
New content types	<i>TV-Anytime</i> specific information describing and detailing content types other than audio and video such as stills, text, games and applications.	TS 102 822-3-3 [4]
User profile sharing	<i>TV-Anytime</i> specific way of exchanging user profile information.	TS 102 822-6-3 [11]
Educational metadata	<i>TV-Anytime</i> specific information describing and detailing content types that relate to educational content.	TS 102 822-3-3 [4]
Data broadcast	<i>TV-Anytime</i> specific description of non AV content.	TS 102 822-3-3 [4]
Messaging core format	<i>TV-Anytime</i> specific data format that allows the exchange of <i>TV-Anytime</i> metadata and content referencing information from different sources.	TS 102 822-8 [13]

History

Document history		
V1.1.1	October 2003	Publication
V1.2.1	October 2004	Publication
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