Deliverable

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D3.6. Integration and Testing Report

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Abstract:
This document describes the integration and testing work done for the ImAc project. We describe a methodology for integration and system testing based on standard software engineering approaches. This allows us to examine the different components of the ImAc platform (as described in the Technical Architecture - D3.1) and describe how each of these components are integrated. We also perform a full testing evaluation against the user requirements gathered in D2.3.

REVISION HISTORY

Revision	Date	Author	Organization	Description
0.1	01-12-2017	Chris Hughes	USAL	Template and ToC
0.2	21-06-2018	Chris Hughes	USAL	Written Methodology and Testing Plan
0.3	04-08-2018	Chris Hughes	USAL	Added a structure for the test results
1.0	12-11-2018	Chris Hughes	USAL	Version 1
2.0	16-03-2019	Chris Hughes	USAL	Template and ToC - Version 2
2.1	01-05-2019	Chris Hughes	USAL	Updated Integration
2.2	14-06-2019	Chris Hughes	USAL	Added Test Results
2.2.5	04-08-2019	Chris Hughes	USAL	Updated Test Results and Integration
2.3	07-08-2019	Chris Hughes	USAL	Integrated Partner Input

EXECUTIVE SUMMARY

This document has been published in two iterations to match the development cycle of the ImAc project. In this document we describe the integration and testing results for the ImAc project at the end of the second development cycle. We describe a methodology for integration and system testing based on standard software engineering approaches.

The system components are defined in the Technical Architecture (D3.1), and thoroughly described in their associated deliverables (D2.2 User Requirements, D3.1 Architecture Design, D3.2 Accessibility Content Manager, D3.3 Content Packaging and Distribution, D3.4 Accessibility Interface and D3.5 Player) and this document describes how each of these components are integrated, as well as the current status of this development. This document also defines a testing strategy based on the user requirements gathered (D2.3).

Chapter 1 provides an overview of this document, describes the objectives and scope of the integration and testing report, and details how it fits into the larger ImAc project.

Chapter 2 describes our approach to testing, discuses the theory of system integration testing and provides the methodology that we employ for testing the ImAc platform.

Chapter 3 describes specific integration points within the ImAc project, the activities that they relate to as well as an Integration and Testing plan which identifies current constraints within the system and the strategy for testing these points.

Chapter 4 details the data streams and metadata exchanged at the integration points.

Chapter 5 provides the results of acceptance testing of the ImAc platform in order to meet the prove that the system meets the user requirements defined in D2.3.

Chapter 6 concludes the document with a summary of the current status of the software and provides a clear indication of the current status of the ImAc development.

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LIST OF ACRONYMS

Acronym	Description
ACM	Accessibility Content Manager
AD	Audio Description
AST	Audio Subtitles
AWS	Amazon Web Services
CM	Content Manager
ST	Subtitles
SL	Sign Language
HUR	Home User Requirement
PUR	Professional User Requirement
HMD	Head Mounted Display
FOV	Field of View
CDN	Content Delivery Network

1. INTRODUCTION

1.1. Purpose of this document

The final goal of WP3 is to define and implement a platform integrating different components of the production chain, including accessible content management, packaging and distribution, customisation of the experience, and display of immersive and adapted content. The design will be fed by requirements gathered in WP2 (T2.2. and T2.3). This includes:

- To design the architecture of a robust platform capable to integrate all the components developed in the project.
- To design and implement the content management component facilitating access to multiple content formats and its storage.
- To adapt and integrate a real-time process to effectively encode multiple streams from inclusive content (i.e. subtitles, audio description and sign language) into full omnidirectional video.
- To design and implement a delivery chain that can process the input from Production (especially for the Accessibility and Immersive sides) and make them available accurately to the player using standard technologies.
- To design and implement a player (including clients and libraries) required to display omnidirectional video across devices (TV, second screen and HMD) maintaining coherence, synchronization, and enabling interaction and personalisation features.
- Validate development in semi-open pilots and large-scale pilots.
- Disseminate and communicate the WP outcomes among other researchers and industry stakeholders.

This document provides the integration and testing report, which describes the verification that the software meets the goals of the Technical Architecture (D3.1)

1.2. Scope of this document

This document provides a detailed description of the overall testing process of the ImAc system. This is described in 4 main sections:

- Chapter 2: Approach, Theory and Methodology
- Chapter 3: Integration
- Chapter 4: Data
- Chapter 5: Acceptance Testing

1.3. Status of this document

This is the second and final version version of D3.6 with delivery foreseen in M20. A revised version of this document will likely be delivered once all development has completed and a final round of testing completed.

1.4. Relation with other ImAc activities

The PERT diagram illustrates the relation between D3.6 and the other ImAc activities. The Architecture design is built based upon the findings of D3.1 Platform Architecture and it feeds into the implementation of both the Accessibility Services and the Immersive Platform.

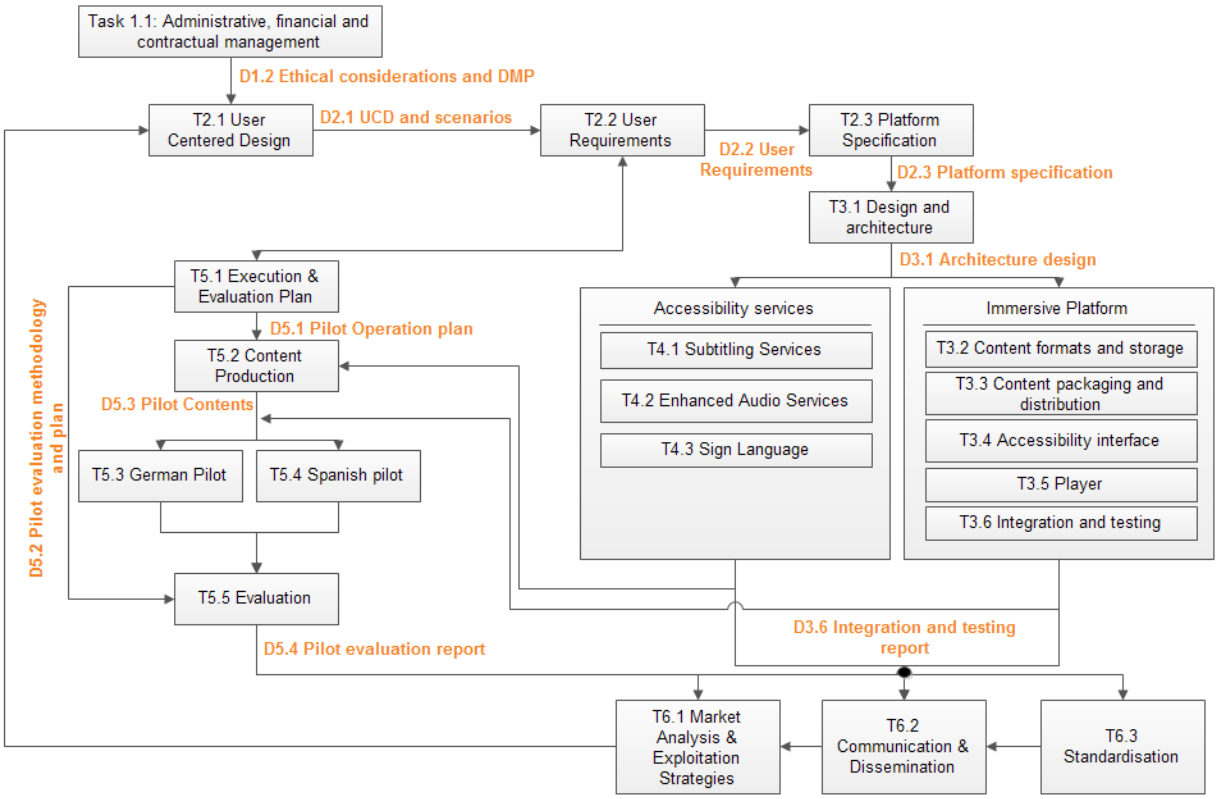

Figure 1 - PERT Diagram illustrating the relationship between D3.6 and other ImAc activities.

2. Approach, Theory and Methodology

2.1. Continuous Delivery

The ImAc project is following a process of continuous integration. This is a common approach when multiple developers from different physical sites regularly integrate their code into a shared repository. This enables a single deployment point where integration can be tested and verified on a regular basis. This allows errors to be identified quickly and easily fixed as changes between versions are typically small and, therefore, allows the specific changes that have introduced errors to be easily identified.

The success of continuous integration relies heavily on version control as each component must be tested with a known version and any identified errors must be repeatable with the specific software versions. A four step testing process is followed as shown in figure 2:

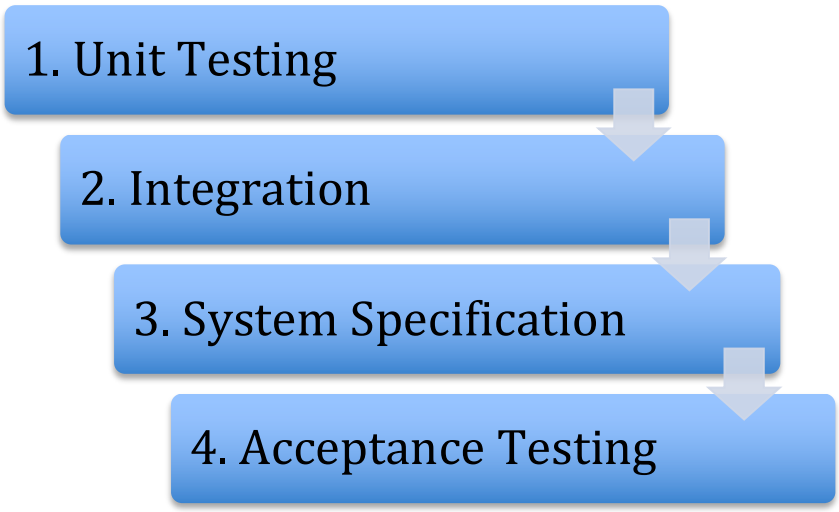

Figure 2 - Continuous Delivery

2.2. Unit Testing

After development each software component is broken down into the smallest testable component, or unit. Each of these is then tested independently to validate each unit of software performs as designed. Each development partner has been responsible for the unit testing of their own software components in isolation and must therefore be satisfied that the software behaves as expected before being integrated with the ImAc platform.

2.3. Integration

Next each component is committed to the shared project repository. This allows each individual unit to be combined and tested as a group. The purpose of this level of testing it to expose the faults in the interaction between each integrated unit, particularly where units are being developed by individual sites.

2.4. System Specification

The entire system is then tested against the key sizing and timing requirements, which were defined in the Technical Architecture (D3.1). This enables the systems compliance with the specified requirements to be evaluated.

2.5. Acceptance Testing

Finally, the software is tested for acceptability. This is done by evaluating the software against the requirements (D2.3) and assess whether the software is acceptable to the user by satisfying their requirements and proving that the system is acceptable for deployment.

3. INTEGRATION

The overview system architecture defined in the Architecture Design document (D3.1) is presented in Figure 3. This architecture was developed in order to satisfy each of the user requirements and shows both the key components of the system and the five main integration points within the ImAc Project. These are described in more detail below.

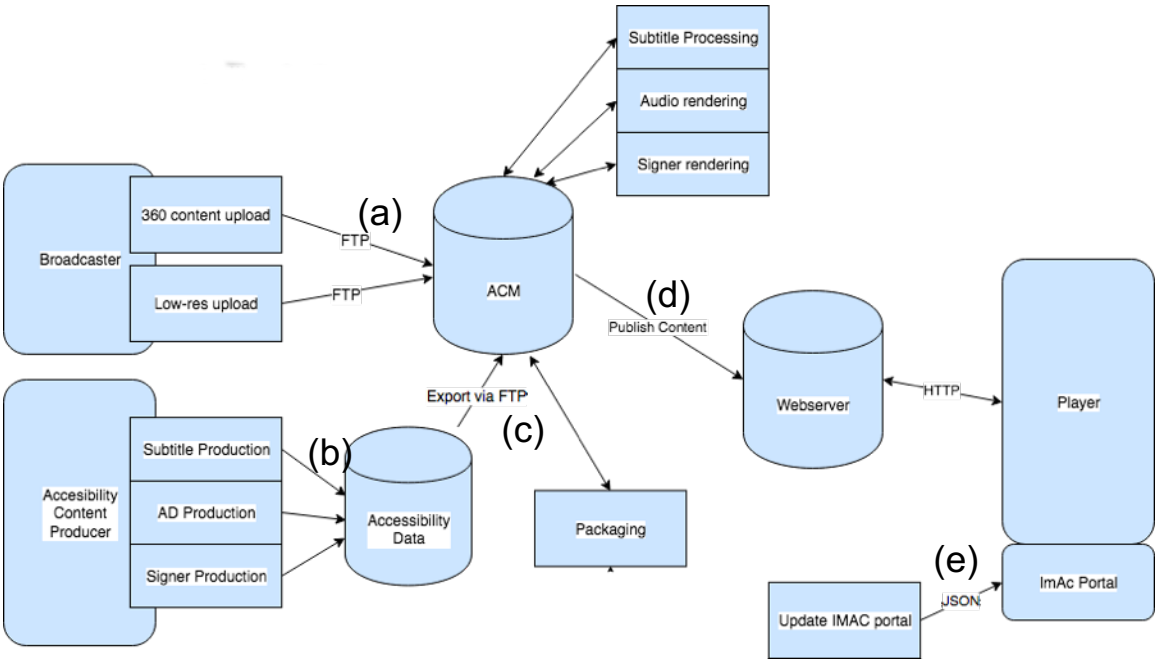

Figure 3 – Key Integration points within the ImAc project

3.1. 360-degree content upload

Integration Point	Between the Broadcaster and ACM as shown in figure 2(a)
Interface	Broadcaster (CCMA, RBB) either: 1) Uploads HQ content in FTP. This FTP has a folder named “Input”. The name of the file uploaded is taken as the ID of the content and this ID will be used through the workflow. 2) Uploads the video content through the web ACM
Result	● HQ content is available on FTP server. ● Program ID is defined (by the file name). ● The upload is triggered by the upload of a signature file.
Testing Details	Server SFTP: imac.gpac-licensing.com User: imac Pwd: (hidden) HQ content includes 360 video and one (or more) main audio mixes. Supported format(s) video: H.264 360º Equirectangular (ideally with 4K or

	superior resolution, althouth lower resolutions are supported.) Supported format(s) audio: AAC or WAV with FOA (= First Order Ambisonics), Binaural (stereo),

3.2. Preview (Low Resolution) Upload

Integration Point	Between the Broadcaster and ACM as shown in figure 2(a)
Interface	A low resolution preview video is automatically generated by the ACM
Result	• Low-res content is available in ACM. • Program in ACM is linked to HQ content on ftp • New file with the suffix "_lowres".
Testing Details	lowres content includes 360 video and one main audio mixes. Format video: mp4/h264 Format audio: aac, stereo

3.3. Accessibility Content Production

3.3.1. Subtitle Production

Integration Point	Between the Accessibility Content Producer and the Accessibility Content Database as shown in figure 2(b)
Interface	Multiple steps: 1) Broadcaster (CCMA, RBB) assigns subtitling work to one or more subtitlers from the CM interface (from the subtitling edit dialogue of the asset that appears on the right side of the screen when clicking the icon  on the asset). 2) Subtitlers access to the ED interface (straight after logging to ACM when they only have subtitler permission or by clicking the ED icon from the CM interface when they also have permission on the CM interface). 3) Subtitler clicks on one of his/her pending subtitling works. 4) The web subtitling editor opens with the subtitling work and the corresponding video. 5) The subtitler can create the subtitling and click the save button to

	save it to the ACM. 6) When the subtitler has finished working on the file, the subtitler can change the work status to "finished", so that the Broadcaster can verify the file. 7) Once the subtitling file is in the "finished" status, the Broadcaster must check it and either reject it or verify it.
Result	Subtitles are available in ACM.
Testing Details	ACM access: http://imac.gpac-licensing.com/acm/ user: test pw: test

3.3.2. Audio Description Production[1]

Integration Point	Between the Accessibility Content Producer and the Accessibility Content Database as shown in figure 2(b)
Interface	Multiple steps: 1) Broadcaster (CCMA, RBB) assigns AD work to audio descriptors from the CM interface. 2) Audio descriptors access to the ED interface (straight after logging to ACM when they only have audio descriptor permission or by clicking the ED icon from the CM interface when they also have permission on the CM interface). 3) Audio descriptor clicks on one of his/her pending AD works. 4) The web AD editor opens with the AD work and the corresponding video. 5) The audio descriptor can create the AD and click the save button to save it to the ACM. 6) When the Audio Describer has finished working on the file, they can change the work status to "finished", so that the Broadcaster can verify the file. 7) Once the Audio Description file is in the "finished" status, the Broadcaster must check it and either reject it or verify it.
Result	

[1] Note: A similar process is followed for Audio recorded AST

	AD assets are available in ACM.
Testing Details	ACM access: http://imac.gpac-licensing.com/acm/ user: test pw: test

3.3.3. Signer Production

Integration Point	Between the Accessibility Content Producer and the Accessibility Content Database as shown in figure 2(b)
Interface	Multiple steps: 1) Broadcaster (CCMA, RBB) assigns SL work to signer from the CM interface. 2) Signer access to the ED interface (straight after logging to ACM when they only have signer permission or by clicking the ED icon from the CM interface when they also have permission on the CM interface). 3) Signer clicks on one of his/her pending SL works. 4) The web SL editor opens with the SL work and the corresponding video. 5) The signer can create the SL and click the save button to save it to the ACM. 6) When the Signer has finished working on the file, the Signer can change the work status to "finished", so that the Broadcaster can verify the file. 7) Once the Sign Language file is in the "finished" status, the Broadcaster must check it and either reject it or verify it.
Result	Signer file package is available in ACM.
Testing Details	ACM access: http://imac.gpac-licensing.com/acm/ user: test pw: test

3.4. Accessibility data export to FTP

Integration Point	Between the Accessibility Database and the ACM as shown in figure 2(c)

Interface	When all accessibility content has been created, Broadcaster (CCMA, RBB) goes to ACM and triggers export of all accessibility data to the FTP. ACM will take care of copying files and trigger conversion processes. There is a folder named “output” where all files shall be copied into. 1) Subtitle files are copied to the FTP. 2) For AD see 3.4.2 3) For Signer see 3.4.3
Result	● Accessibility files are available on FTP. ● Metadata about accessibility files is made available for packaging (to MSE)

3.4.1. Subtitle Processing

Currently this is kept as a blank placeholder as there is no subtitle processing module.

3.4.2. Audio Rendering

Integration Point	Between the Accessibility Database and the ACM as shown in figure 2(c)
Interface	Multiple steps: 1) ACM (ANGLA) triggers audio rendering from ACM. 2) Audio renderer (IRT) processes audio. 3) Audio renderer copies pre-mixed audio streams (also main mix without AD) to either FTP, an S3 bucket (the cloud storage service provided by AWS) or other http accessible resource. 4) The audio rendering report to ACM states where the files are located, so that the user or the Packager can download them.
Result	Pre-mixed AD audio streams are available on FTP.
Testing Details	Rendering can be triggered with HTTP-request. Renderer will get all AD audio snippets with accompanying metadata and the main audio mix in a zip-package. Json-file is used for setting renderer parameters (incl. output path, naming convention)

3.4.3. Signer Rendering / Processing

Integration Point	Between the Accessibility Database and the ACM as shown in figure 2(c)
Interface	The signer content will be automatically uploaded from the ACM
Result	The Sign language videos will be available directly from the ACM, once produced by SL Editor. There is still a pending discussion about the processing of this videos in order to create a metadata file will all necessary information (angles, speakers' id text…) and a continuous video, but this will be dealt with at the Publishing phase.

3.5. Publish Content

Integration Point	Between the ACM and content webserver as shown in figure 2(d)
Interface	Broadcaster (CCMA/RBB) initiate the process from the ACM
Result	Publishing process is triggered.

3.6. Packaging

Integration Point	Between the Packager and ACM as shown in figure 2(c)
Interface	When a new asset is ready for publishing, from the metadata and assets provided, the packager (MSE) automatically segments and packages all files and create an MPD file.
Result	All files are packaged, MPD is created. Files are on the server, ready for playback.

3.7. Update ImAc portal

Integration Point	Between the ACM and the ImAc portal as shown in figure 2(e)
Interface	A .json file describing the 360^{o} video file and Subtitle assets is created and the URLs needed to list all contents on the ImAc portal. When new contents are published, this file is update with their associated info, so the new contents are also listed on the portal.
Result	Program is published and can be played back via the ImAc portal.

3.8. Integration Summary

During the first phase of ImAc development the focus was on fully developing the key components, such as the player, the ACM and subtitle editor at which time many of the behind the scenes processes were manual processes. During the second phase of development work was done to automate these remaining processes, such as publishing content, packaging and updating the ImAc portal.

This approach has allowed the first prototype of the platform to be demonstrated and piloted in order to achieve valuable user feedback. During the second phase of the project the user requirements were revisited, in order to satisfy the feedback from the first user studies. This has led to a more complete and refined platform.

4. STREAMS AND METADATA

This section describes the data being transported via the integration points. Firstly, sub-section 4.1 summarizes the data being sent between the hosted content and the player. Secondly, , sub-section 4.2 contains a reference to the metadata that is being transported within these streams. This information is provided in this deliverable as it is key for achieving a successful integration between all components, but for more detailed descriptions, and rationale for the decisions made, readers are referred to D4.4.

4.1. Data Stream Summary

4.1.1 Video Streams

No	Title	Projection type	Encoding params	Notes	Cardinality
1	Main 360 video	equirectangular	AVC, MP4, fps and bitrate configurable	Quality Level 1 (720p = 1280 x 720)	1
2	Main 360 video	equirectangular	AVC, MP4, fps and bitrate configurable	Quality Level 2 (1080p = 1920 x 1080 pixels)	0..1
3	Main 360 video	equirectangular	AVC, MP4, fps and bitrate configurable	Quality Level 3 (1440p = 2560 x 1440 pixels)	0..1
…	Main 360 video	equirectangular	AVC, MP4, fps and bitrate configurable	Quality Level 4 (4K or 2160p = 3840 x 2160 pixels)	0..1
	Signer stream continuous	Plain, 2D	4:2:0 chroma sampling, 8 bit colors, and use of High level 3.1 profile, progressive	Only one, continuous or multi-period signer can be present.	0..1
	Signer stream multi-period 1	Plain, 2D	4:2:0 chroma sampling, 8 bit colors, and use of High level 3.1 profile, progressive	Only one, continuous or multi-period signer can be present.	0..1
	Signer stream multi-period 2	Plain, 2D	4:2:0 chroma sampling, 8 bit colors, and use of High level 3.1 profile, progressive		0..1
…	Signer stream multi-period n	Plain, 2D	4:2:0 chroma sampling, 8 bit colors, and use of High level 3.1 profile, progressive		0..1

4.1.2 Audio Streams

No	Title	Projection type	Encoding params	Cardinality
1	Stereo	Main mix	AAC, 2 channels	0..1
2	Stereo	Main mix + AD	AAC, 2 channels	0..1
3	Stereo	Main mix + AD	AAC, 2 channels	0..1
4	Stereo	Main mix + AD	AAC, 2 channels	0..1
5	FOA	Main mix + AD	AAC, 4 channels, ...	0..1
6	FOA	Main mix + AD	AAC, 4 channels, ...	0..1
7	FOA	Main mix + AD	AAC, 4 channels, ...	0..1
8	FOA	Main mix + AD	AAC, 4 channels, ...	0..1
9	FOA	Main mix + AD	AAC, 4 channels, ...	0..1
10	FOA	Main mix + AD	AAC, 4 channels, ...	0..1
11	FOA	Main mix + AD	AAC, 4 channels, ...	0..1
12	FOA	Main mix + AD	AAC, 4 channels, ...	0..1
13	FOA	Main mix + AD	AAC, 4 channels, ...	0..1
14	5.1	Main mix		0..1

4.1.3 Audio Subtitle Streams

No	Title	Projection type	Encoding params	Cardinality
1	Stereo	Only AST	AAC, 2 channels	0..1
2	FOA	Only AST	AAC, 4 channels	0..1
3	FOA	Only AST	AAC, 4 channels	0..1

4.1.4 Subtitle Streams

No	Title	Projection type	Encoding params	Cardinality
1	IMSC1.0.1	Spanish	Plain XML file	0..1
2	IMSC1.0.1	German	Plain XML file	0..1
3	IMSC1.0.1	Spanish	Plain XML file	0..1
4	IMSC1.0.1	German	Plain XML file	0..1

4.2. Metadata Summary

This section provides a summarising overview of the signalling and metadata elements that are used in ImAc. A detailed description will be given in D4.4. The media distribution in ImAc is based on MPEG DASH and follows the standard as far as possible. Some of the metadata can be signalized in different layers (e.g. subtitle language), as described in in detail in D3.4. The column “Data carried in” in the tables below, indicates the format/layer that is used by the ImAc player to retrieve the particular information.

4.2.1 Metadata required in ImAc for the subtitling service

Title	Short description	Data carried in
Subtitle presence	Indicate presence of a subtitle track	MPEG DASH
Language	Language of the subtitle track	MPEG DASH
Target (role)	Differ between subtitle types “hard of hearing” and "translation"	MPEG DASH
Easy-to-read	Indicate subtitle service as easy-to-read	MPEG DASH (custom extension)
Text colour	Colour of the subtitle text	IMSC
Style attributes	Style attributes of the subtitle (except colour), mainly: font family, font size, horizontal and vertical alignment, subtitle style (background box and outline)	Player implementation* & user preferences**
Region (safe area)	Part of the visual field where subtitles may be rendered	User preferences
Speaker identificator	Indicator to differ between the ImAc modes for speaker identification: "simple", "arrow", "positioned"	User preferences
Speaker position	Direction of subtitle’s speaker (or audio source) in 360° scene.	IMSC (custom extension)

* player implementation: No information from the content stream is used, instead, the ImAc player provides a default value that cannot be changed.

** user preferences: No information from the content stream is used, instead the value is set by the user through a settings menu.

4.2.1 Metadata required in ImAc for the audio description service

Title	Short description	Data carried in
AD presence	Indicate presence of an AD track	MPEG DASH
Audio Language	Language of the audio/AD track	MPEG DASH
Role	Indicate broadcast mix (track contains main audio plus AD)	MPEG DASH
AD mode	Indicate AD mode (ImAc feature) of the track	MPEG DASH (custom extension)
AD gain	Volume level of AD (in relation to main audio, ImAc feature)	MPEG DASH (custom extension)
Audio properties	Various information about audio stream (codec, bitrate, number of channels, etc.)	MPEG DASH
Audio channel description	Audio channels/format: Indicate binaural stereo or Ambisonics	MPEG DASH (custom extension)

4.2.1 Metadata required in ImAc for the audio subtitles service

Title	Short description	Data carried in
AST presence	Indicate the presence of an AST track	MPEG DASH (custom extension)
Language	Language of the AST track	MPEG DASH
Role	Indicate receiver side mix (track contains AST only)	MPEG DASH
Related main audio	Indicate the dependency of a main audio track and refers to it	MPEG DASH
AST mode	The audio mode that the track contains	MPEG DASH (custom extension)

Note: typically, audio (or "spoken") subtitles are created in the receiver device from a subtitle track using a synthetic speaker (by means of a text-to-speech engine). In ImAc the audio subtitles were pre-recorded for test purposes (in some tests real speakers recorded AST). The pre-recorded audio for the AST was delivered as a separate audio track that the player can mix to the main audio (receiver side mix).

4.2.1 Metadata required in ImAc for the signer service

Title	Short description	Data carried in
Signer presence	Indicate the presence of a signer video	MPEG DASH
Language	Indication of signer language	MPEG DASH
Stream parameters	Various information about signer stream (codec, bitrate, etc.)	MPEG DASH
Position on screen	Position of the signer video on the screen (i.e. in the current field of view)	User preferences*
Speaker position	Direction of the speaker (or audio source) in 360° scene	*Not defined yet **

Speaker identification	Indicate speaker or colour or emoji or non-speech info	*Not defined yet ** *

* User preferences: No information from the content stream is used, instead the data is set by the user through a settings menu.

** Not defined yet: For pilot actions in the project, a workaround solution has been implemented to support this metadata. But the solution is not in line with existing standards and not suggested as an implementation. A suggestion for an actual implementation will be given in D4.4 [2].

5. Acceptance Testing

Each of the components developed in phase 2 have been tested against the updated requirements, defined in D2.2. The following table shows which of the components from the user requirements where implemented at the time of testing.

Production Editors	1	Production of New Subtitles	Mainly Implemented
	2	Production of Audio Description	Mainly Implemented
	3	Production of Sign Language	Partially Implemented
Accessibility Content Manager	4	Content Manager	Mainly Implemented
	5	Preview Player	Mainly Implemented
Player	6	Consumption of media contents	Mainly Implemented

The acceptance tests evaluate the tools against the user requirements to establish whether the component provides an acceptable solution to satisfying the requirement. For each of the key requirements ('must', 'should') a test process was developed where each step used to test the requirement was defined in order to make the test repeatable.

Each test is broken into a setup phase, testing phase, and a teardown phase, and a colour coding system is used to define the results of each step and overall outcome of a test, as shown in figure 4. Some components could not be tested in a lab setup because external processes were needed (such as annual steps at other partners) and therefore these are colored yellow. These are assumed to be working correctly as internally tested by the developer.

Pass	Could not be tested in a lab environment	The task could be completed with some adaption	Failed or not implemented

Figure 4 – The colour coding system used throughout the tests.

5.1. Acceptance Test summary

The overall summary of results from the acceptance testing is shown below:

5.1.1 Accessibility Content Manager

Test ID	Req. ID	Version	Description	Status
1	PUR.3.1.0	ACM (46)	[Accessing content for ImAc enrichment] The user uses a GUI for accessing omnidirectional (video) and ImAc content files (ST, SL video, AD) for selecting and uploading/downloading files.	Pass
2	PUR.3.12.0	ACM (46)	[Web interface for high-resolution file upload] The user can access a simple web interface to provide metadata about high-res content that he/she uploaded to the SFTP. This metadata will trigger the automatic generation of low-res content on ACM.	Pass
3	PUR.3.3.0	ACM (46)	[Assigning content for ImAc enrichment] The user is able to assign ImAc files to omnidirectional media files	Pass
4	PUR.3.13.0	ACM (46)	[Assign users to edit ImAc files] The user can assign one or more subtitlers at a time to edit ImAc files.	Pass
5	PUR.3.2.0	ACM (46)	[Checking content for ImAc enrichment] The user is able to check ImAc media regarding: file name, file size, content type, integrity, assignment	Pass
6	PUR.1.15.0	ACM (46)	[Create a new ImAc file] It is possible to create a new accessibility file by using an existing accessibility file as template	There is no specific mechanism for using templates. It is perfectly possible however to use an existing file as a start point.
7	PUR.1.7.0	ACM (46)	[File operations] The user is able to perform file operations such as import or export files (video and ImAc files)	Pass
8	PUR.3.6.0	ACM (46)	[Locally retrieving the packaging result] The user is able to direct the packaged ImAc result as local retrieval.	Individually tested by developer
9	PUR.3.7.0	ACM (46)	[Directing the packaging result to a different resource] The user is able to direct the packaged ImAc result forwarded to a different remote resource.	Individually tested by developer
10	PUR.3.4.0	ACM (46)	[Triggering content packaging and distribution] The user is able to trigger and monitor the packaging of open and closed ST, SL and AD enhanced media items	Individually tested by developer

11	PUR.3.5.0	ACM (46)	[Checking state of content packaging and distribution] The user is able to check the state of packaging of enhanced media items.	Individually tested by developer
12	PUR.3.8.0	ACM (46)	[Configure the signalization of ImAc services] The user is able to configure signalization of ImAc content for distribution and playback.	Individually tested by developer
13	PUR.3.9.0	ACM (46)	[Monitor the signalization of ImAc services] The user is able to monitor signalization of ImAc content for distribution and playback.	Individually tested by developer
14	PUR.1.17.0	ACM (46)	[Edit and preview mode for ImAc files] There are two different modes for editing and previewing ImAc content. The preview mode allows a few editing options.	Individually tested by developer
15	PUR.1.16.0	ACM (46)	[Edit shortcuts] The user can change the shortcuts used in the editor tools for the ImAc content	Individually tested by developer

5.1.2 Audio Description Editor

Test ID	Req. ID	Version	Description	Status
16	PUR.1.30.0	ACM (46)	[Define fading level of main audio] The user can choose between several levels of fading for the main audio	Pass
17	PUR.1.11.0	ACM (46)	[Add AD preview audio to video] The user is able to add a text-to-speech AD result to a video as additional audio asset.	Pass
18	PUR.1.13.0	ACM (46)	[Add audio description] The user is able to add a number of simultaneous audio descriptions to different sections of the visual scene.	Pass
19	PUR.1.29.0	ACM (46)	[Monitor recording of AD] The user gets a visual feedback on the start and stop of the recording of an audio file	Pass
20	PUR.1.10.0	ACM (46)	[Create AD preview content] The user is able to feed a written AD script and start a text-to-speech process.	Pass
21	PUR.3.10.0	ACM (46)	[Defining speaker location indicator options] The user is able to define the speaker location indicator options which are offered to the home user	This is not possible in the editor, but the consumer is able to select all of the options for any content, as a personalization feature.
22	PUR.1.26.0	ACM (46)	[Edit audio description script] The user can split and merge AD script files	Not implemented

23	**PUR.3.15.0**	**ACM (46)**	**[Export AD script as text file] The user is able to export an AD script as text file**	It is only possible to export the Audio Description asset as IMAC Audiodescription, Fingertext Audiodescription or ESEF Audiodescription files.
24	**PUR.1.14.0**	**ACM (46)**	**[Pre-listen 3D audio content] The user is able to pre-listen immersive audio content together with immersive AD**	It is only possible to preview the audio in stereo.

5.1.3 Sign Language Editor

Test ID	Req. ID	Version	Description	Status
25	**PUR.1.9.0**	**ACM (46)**	**[Add sign language video] The user is able to add sign language video with the following ordered steps: 1) separating specific SL segments if necessary 2) defining timecode 3) defining viewing angle position of speaker (given as horizontal angle)**	**The editor is currently very limited**
26	**PUR.1.9.1**	**ACM (46)**	**[Add sign language video] The user is able to create SL segments that are not related to a specific angle**	**Pass**
July19	**PUR.1.9.3**	**ACM (46)**	**[Add sign language video] The user is able to add missing spatial information to legacy SL videos, which were imported**	**Pass**
28	**PUR.1.9.4**	**ACM (46)**	**[Add sign language video] The user is able to define frames in which the automatic speaker location indicator will change the field of view (this is typically done when a new scene starts or a speaker changes his position)**	**Not implemented**
29	**PUR.1.9.2**	**ACM (46)**	**[Add sign language video] The user is able to define the width of a "security angle" that covers a speaker. The speaker location indicators only disappear once the center of the FoV is within the security angle. The center of this security angle is the position of the speaker defined as the viewing angle.**	**Not implemented**

5.1.4 Subtitle Editor

Test ID	Req. ID	Version	Description	Status
30	PUR.1.8.0	ACM (46)	[File operations] The user is able to produce subtitle texts by (1) inserting text with keyboard, (2) symbols from a library and adding it all to the video with the following ordered steps: 1) defining vertical and horizontal position and font size 2) defining timecode and duration 3) defining font color 4) defining viewing angle position of speaker (given as horizontal angle)	Pass
31	PUR.1.8.1	ACM (46)	[Add subtitle text] The user is able to create ST frames that are not related to a specific angle	Pass
32	PUR.1.8.3	ACM (46)	[Add subtitle text] The user is able to add missing spatial information to legacy subtitles, which were imported	Pass
33	PUR.1.19.0	ACM (46)	[Add subtitle text] The user can monitor the reading speed via numeric display	Pass
34	PUR.1.20.0	ACM (46)	[Add subtitle text] The user can monitor the number of characters per line via a numeric display	Pass
35	PUR.1.8.4	ACM (46)	[Add subtitle text] The user is able to define frames in which the automatic speaker location indicator will change the field of view (this is typically done when a new scene starts or a speaker changes his position)	Not implemented
36	PUR.1.25.0	ACM (46)	[Add subtitle text] The user can create subtitle frames with overlapping timecode	Pass
37	PUR.1.8.2	ACM (46)	[Add subtitle text] The user is able to define the width of a "security angle" that covers a speaker. The speaker location indicators only disappear once the center of the FoV is within the security angle. The center of this security angle is the position of the speaker defined as the viewing angle.	Currently handled by the player but with a fixed security angle.
38	PUR.1.21.0	ACM (46)	[Add subtitle text] The user has the option to activate an automatic separation of subtitle frames by a defined amount of video frames	Pass
39	PUR.3.11.0	ACM (46)	[Speaker introduction] Each speaker is introduced in the subtitles (e.g. by name or "man"/"woman") when speaking for the first time	This can be done by adding the speaker name as text to the subtitles.
40	PUR.1.7.1	ACM (46)	[File operations] The user is able to import subtitle files (STL, WebVTT (later on), EBU-TT-D (Phase 1))	Not all File Formats are supported.

5.1.5 Preview

Test ID	Req. ID	Version	Description	Status
41	PUR.1.1.0	ACM (46)	[Watch low-res preview content] The user is able to watch the preview content in low quality as flat folded or flat unfolded view	Pass
42	PUR.1.3.0	ACM (46)	[Navigate preview content by angle] The user is able to watch content and to navigate around it with the help of keyboard shortcuts, scroll wheel and input fields by angle.	Pass
43	PUR.1.4.0	ACM (46)	[Navigate preview content by frame] The user is able to watch content and to navigate around it with the help of keyboard shortcuts, scroll wheel and input fields by frame number.	Pass
44	PUR.1.5.0	ACM (46)	[Navigate preview content by time] The user is able to watch content and to navigate around it with the help of keyboard shortcuts, scroll wheel and input fields by time code.	Pass
45	PUR.1.5.1	ACM (46)	[Navigate preview content by time] The user can add and subtract a given amount of time to the input field for timecode	Pass
46	PUR.1.24.0	ACM (46)	[Visual display of audio content] The user can monitor the main audio content via a visual display of the sound wave	Pass
47	PUR.1.2.0	ACM (46)	[Watch hi-res preview content] The user is able to watch the preview content in high quality as HMD view	Not implemented
48	PUR.1.6.0	ACM (46)	[Navigate preview content by audio] The user is able to hear 360° audio together with graphical elements that inform about the orientation of the current view	Not implemented
49	PUR.1.22.0	ACM (46)	[Navigate preview content by defined number of frames] The user is able to navigate content by a customizable amount of frames for forward/backward jump	Pass
50	PUR.1.1.1	ACM (46)	[Watch low-res preview content] The user is able to watch the preview content in low quality as flat unfolded view	Not implemented
51	PUR.1.12.0	ACM (46)	[Preview video and AD audio] The user is able to preview the video together with the added speech-to-text AD asset.	Pass

52	PUR.3.14.0	ACM (46)	[Define thumbnail for display of omnidirectional media] The user can define the thumbnail shown in the GUI as preview for an omnidirectional media file in the list of files.	Pass

5.1.6 Player

Test ID	Req. ID	Version	Description	Status
53	HUR.3.2.0	July19	[Accessibility interface for subtitles - notices for dramaturgically-significant sounds] The user gets written translations of dramaturgically-significant sounds which are important for the plot.	Pass
54	HUR.3.9.0	July19	[Sign Language Service] Body shift that is traditionally used by signers to indicate a change of speaker is avoided because it makes no sense for 360° content	Pass
55	HUR.2.42.1	July19	[Presentation mode for Audio Description] AD anchored to soundscape (1st person past tense) - the AD sitting next to you (left or right)	Pass
56	HUR.2.40.1	July19	[Presentation mode for Audio Description] AD placed on the action (privilege of sound) - AD moves were the action is	Pass
57	HUR.3.7.1	July19	[Different voices for main and secondary actions] The main AD track keeps playing and as the user moves their head secondary AD tracks can be played depending on the direction the user is looking. These tracks would not overlap and should use different voices for the main and secondary audio tracks.	Not implemented
58	HUR.3.11.0	July19	[Suppression of speaker location indicator - Subtitles] If a the duration of a subtitle frame is below a given amount of time (threshold to be specified) the speaker location indicator for that frame is suppressed automatically by the player	Not implemented
59	HUR.3.12.0	July19	[Suppression of speaker location indicator - Signer] If a the duration of a signer segment is below a given amount of time (threshold to be specified) the speaker location indicator for that segment is suppressed automatically by the player	Not implemented
60	*HUR.3.3.0 (Deprecated after pre-pilot 2)*	*July19*	*[immersive subtitle Icons list] A list of icons proposal to illustrate non-speech information would help production to standardize and use the same icons for different productions.*	*Not implemented*

61	**HUR.3.6.0**	**July19**	**[Playback of 3D audio] Audio is presented as "3D audio". This may be e.g.: via a suitable surround sound speaker system (preferably including height speakers) or via a binaural signal played back via headphones**	**Pass**
62	**HUR.2.8.0**	**July19**	**[Subtitles always on Main Screen] Subtitles are always presented on the main screen, i.e. users do NOT want the subtitles to be delivered on an additional (companion) screen when accessing content**	**Pass**
63	***HUR.2.7.0 (Depricated)***	***July19***	***[Consumption of signer video in HoloLense] The user is able to use the signer in the HoloLens synchronized to the video content on the TV.***	***Not implemented***
64	**HUR.2.6.0**	**July19**	**[Multiplatform player for desktop, mobile phone (cardboard supported, gyroscope sensor based), TV, head mounted display] The user can start, pause, resume, forward or rewind the omnidirectional media with a graphical user interface.**	**Pass**
65	**HUR.2.16.0**	**July19**	**[Switch on/off signer] The user has the possibility to switch on/off the signer with a graphical user interface.**	**Pass**
66	**HUR.2.18.0**	**July19**	**[Accessibility interface signer - basic presentation mode] There is one basic presentation mode for the signer, which is always available for the user on any device. This mode presents it as follows: The signer video has a fixed position on the bottom right area of the field of view and the user decides what direction he/she wants to look.**	**Pass**
67	**HUR.2.19.0**	**July19**	**[Accessibility interface signer - position in viewing field] The user can select between a predefined set of different horizontal and vertical positions for the signer in the "basic presentation mode".**	**Pass**
68	**HUR.2.24.0**	**July19**	**[Switch on/off subtitles] The user has the possibility to switch on/off subtitles with a graphical user interface.**	**Pass**
69	**HUR.2.25.0**	**July19**	**[Select subtitle tracks] The user has the possibility to select different subtitle tracks with a graphical user interface.**	**Pass**
70	**HUR.2.26.0**	**July19**	**[Selection of Personalization options for subtitles] The user has the possibility to activate and deactivate different personalization options with a graphical user interface.**	**Pass**

71	**HUR.2.July19.0**	**July19**	**[Accessibility interface for subtitles - basic presentation mode] The subtitles are always visible in the user's field of view in the middle slightly below eye line, two-lined and each speaker has its own color.**	**Pass**
72	**HUR.2.28.0**	**July19**	**[Accessibility interface for subtitles - position in viewing field] The user can select between a predefined set of positions in the viewing field (top, bottom) with a graphical user interface.**	**Pass**
73	**HUR.2.36.0**	**July19**	**[Switch on/off audio description and audio subtitles] The user has the possibility to switch on/off audio description and/or audio subtitling (see also requirements to HUR.02.10.0, HUR.02.11.0 and HUR.02.12.0).**	**Pass**
74	**HUR.2.37.1**	**July19**	**[Selection of Personalization options for audio description] The user has the possibility to select different languages of the service and different audio description modes (see also requirements HUR.2.40.1, HUR 3.42.1 and HUR.3.8.0)**	**Pass**
75	**HUR.2.51.0**	**July19**	**[Switch on/off audio subtitling] The user has the possibility to switch on/off audio subtitling (see also requirements to HUR.02.10.0, HUR.02.11.0 and HUR.02.12.0) in parallel or separately to audio description.**	**Pass**
76	**HUR.2.53.0**	**July19**	**[Selection of Personalization options for audio subtitling] The user has the possibility to select different languages of the service**	**Pass**
77	**HUR.2.54.0**	**July19**	**[Volume control of interface] The user can control the volume of the main content with a graphical user interface.**	**Pass**
78	**HUR.2.57.0**	**July19**	**[Personalization options for interface] The user can activate/deactivate different personalization settings with a graphical user interface.**	**Pass**
79	**HUR.2.58.0**	**July19**	**[Language selection for interface] The user can select the language of the graphical user interface (categories, options, icons/abbreviations for accessibility services).**	**Pass**
80	**HUR.2.60.0**	**July19**	**[Accessibility interface signer - language] The user has the possibility to select different languages of the signer**	**Pass**
81	**HUR.2.63.0**	**July19**	**[Access to interface] The user is informed how to open the interface via a banner display once a video starts playing**	**Pass**

82	**HUR.2.17.0**	**July19**	**[Selection of personalization options for signer] The user has the possibility to activate and deactivate different personalization options with a graphical user interface.**	**Pass**
83	**HUR.2.21.0**	**July19**	**[Accessibility interface signer - position notices icons speaker location indicator] The signer is always positioned in the user's field of view according to personalization settings and an arrow under the signer window and/or the name or description of the speaker indicates the position of the current speaker, so that the user can turn around towards the speaker.**	**Pass**
84	**HUR.2.31.1**	**July19**	**[Accessibility interface subtitles- position notices icons speaker location indicator] The subtitles are always positioned in the user's field of view according to personalization settings and an arrow left or right indicates the position of the current speaker. It will disappear as soon as the user has changed her/his orientation to the speaker.**	**Pass**
85	**HUR.2.31.2**	**July19**	**[Accessibility interface subtitles- position notices icons speaker location indicator] The subtitles are always positioned in the user's field of view according to personalization settings and a compass/radar interactively indicates the position of the speaker by positioning a dot inside the radar field in relation to the viewer's orientation. It will disappear as soon as the user has changed her/his orientation to the speaker.**	**Pass**
86	***HUR.2.31.3 (Deprecated after pre-pilot 2)***	***July19***	***[Accessibility interface subtitles- forced perspective speaker location indicator] The subtitles are always positioned in the user's field of view according to personalization settings. When a speaker talks for the first time in a scene, the field of view is automatically changed towards that speaker by the video player ("forced perspective" "automatic speaker location indicator"). Afterwards the user can change the direction he/she wants to look.***	***Pass***
87	**HUR.2.49.0**	**July19**	**[Accessibility interface for signer - comfort field of view] Users have the possibility to personalize the comfort field of view according to their preferences. Recommended are three levels (50%, 60%) in a 16:9 area according to the pre-pilot tests.**	**Pass**
88	**HUR.2.49.1**	**July19**	**[Accessibility interface for signer - comfort field of view] The user gets a visual feedback (dotted line) when selecting a new comfort field of view**	**Pass**

89	**HUR.2.50.0**	**July19**	**[Accessibility interface for subtitles - comfort field of view] Users have the possibility to personalize the comfort field of view according to their preferences. Recommended are three levels in a 16:9 areas (50%, 60% according to the pre-pilot tests.**	**Pass**
90	**HUR.2.50.1**	**July19**	**[Accessibility interface for subtitles - comfort field of view] The user gets a visual feedback (dotted line) when selecting a new comfort field of view**	**Pass**
91	**HUR.2.4.1**	**July19**	**[Access to Audio Description] The user can use a visual menu to access the service. It should be large, with a black background and white text for the highest possible contrast. Yellow will be used to highlight the choice of the user.**	**Pass**
92	**HUR.2.29.0**	**July19**	**[Accessibility interface for subtitles - size] The user can select between a predefined set of sizes (small, medium, and large) with a graphical user interface.**	**Pass**
93	**HUR.2.30.0**	**July19**	**[Accessibility interface for subtitles - background] The user can select between a predefined set of backgrounds (semi-transparent box, outline, scaled down video area with ST below) with a graphical user interface.**	**Pass**
94	**HUR.2.52.0**	**July19**	**[Access to Audio Subtitling] The user can use a visual menu to access the service. It should be large, with a black background and white text for the highest possible contrast. Yellow will be used to highlight the choice of the user.**	**Pass**
95	**HUR.2.38.0**	**July19**	**[Interface adapted to user device] The user interface is adapted to the device used by the user**	**Pass**
96	**HUR.2.55.0**	**July19**	**[Volume control of audio description] The user can control the volume of the AD (independently of the main volume) with a graphical user interface.**	**Pass**
97	**HUR.2.56.0**	**July19**	**[Volume control of audio subtitling] The user can control the volume of the AST (independently of the main volume) with a graphical user interface.**	**Pass**
98	**HUR.2.59.0**	**July19**	**[Voice commands] The user can control all interface settings with voice commands.**	**Pass**

99	HUR.2.21.2	July19	[Accessibility interface signer - forced perspective speaker location indicator] The signer is always positioned in the user's field of view according to personalization settings and a compass/radar interactively indicates the position of the speaker by positioning a dot inside the radar field in relation to the viewer's orientation. It will disappear as soon as the user has changed her/his orientation to the speaker.	Not implemented
100	HUR.2.61.0	July19	[Accessibility interface - speaker location indicator] When using the radar speaker location indicator, the user has the possibility to return to the main action of the video by clicking on a specific point on the radar icon.	Pass (In VR Mode Only)
101	HUR.2.9.0	July19	[Playback of audio description] The player enables the audio description to be synchronized with the main audio track	Pass
102	HUR.2.62.0	July19	[Progress bar] The user can monitor the progress of the video via a progress bar and can jump to a specific point in time by clicking on that point in the progress bar	Pass
103	HUR.2.10.1	July19	[Player support for "screen reader functionality"] The user can control the volume of the spoken feedback	Pass
104	HUR.2.45.1	July19	[Accessibility interface for Audio Description - identify position] When there is an interesting secondary AD utterance the player places an audio beacon (beep) in that direction. Pressing the pause or "listen to beacon" button pauses the main audio and plays the AD for that object.	Not implemented (Planned implementation for Pilot 2)
105	HUR.2.10.0	July19	[Player support for "screen reader functionality"] The player provides spoken feedback of playback all interface controls (play, pause, skip forward, skip backward and stop) and of main volume and audio description volume controls.	Pass
106	HUR.2.13.0	July19	[User settings persistence and transfer between devices] The player retains user preferences between users and application interface customization are transferred within different user devices (personal and non-personal devices for example TV in hotel).	Partially implemented
107	HUR.3.1.0	July19	[Sign Language Service] Sign Language Service must also be considered, appearing simultaneously to the person speaking.	Pass

108	**HUR.3.5.0**	**July19**	**[Immersive Subtitles information] Subtitles are always visible somewhere on the screen, whether the object they represent is visible on the screen or not.**	**Pass**

5.2. Acceptance Tests

The full testing processes are provided for the Professional user tests:

5.2.1 Accessibility content manager

Test ID	Requirement ID	Version	Description	Reproduction				
1	PUR.3.1.0	ACM (46)	**[Accessing content for ImAc enrichment] The user uses a GUI for accessing omnidirectional (video) and ImAc content files (ST, SL video, AD) for selecting and uploading/downloading files.**	Step		Action	Description	Result
				Setup	1.1	Login to the ACM	Open the web browser and open ACM (https://imac.gpac-licensing.com). Log in with the username ‘test' and the password 'test'	The ACM opens and the user is presented with the home screen.
					1.2	Create new Asset from video	Click on the '+' symbol to create a new blank asset.	A new blank asset is created.
				Testing	1.3	Upload a video Asset though the ACM GUI	In the new asset pane the user can initiate the upload of a new video file either by dragging a video file into the upload box, or clicking on the upload box brings up a file selector dialog box.	A graphical representation of the video file being uploaded is displayed along with a progress bar.
					1.4	Testing with unsupported files	A non video file is uploaded.	an 'Unsupported video file' error is presented to the user.
					1.5	Preview of video file	Once the video file is uploaded and saved, the user clicks on the video tab to preview the video file.	A video player is presented with both a thumbnail preview and the 360 interface.
					1.6	Playing video	The user can play the video using the play and pause buttons.	The video plays and pauses
					1.7	Advancing video position	The user can skip forward and backwards in the video using either the skip forward / backwards buttons, or dragging the position bar.	The video moves to the appropriate position.
					1.8	Manipulation of 360 video	The user can drag the preview video to display the full 360 video.	The video viewpoint moves with the mouse drag.

				Teardown	1.9	Delete the test asset	Select the video and click 'move to the bin'.	The test asset is removed.

Test ID	Requirement ID	Version	Description	Reproduction				
2	**PUR.3.12.0**	**ACM (46)**	**[Web interface for high-resolution file upload] The user can access a simple web interface to provide metadata about high-res content that he/she uploaded to the SFTP. This metadata will trigger the automatic generation of low-res content on ACM.**	Setup	1.1	Login to the ACM	Open the web browser and open ACM (https://imac.gpac-licensing.com). Log in with the username ‘test' and the password 'test'.	The ACM opens and the user is presented with the home screen.
				Testing	1.2	Import new Asset from FTP	Click on the 'Import from FTP' button to create a new asset and drag and drop a video file to the right hand pane to upload.	A dialog box is presented asking for the metadata for the file uploaded via FTP.
					1.3	New asset is created	The user completes the Title, Language details and specifies the video file and audio file.	A dialog alerts the user that the new video asset is being created. When complete the new video asset is available in the ACM.
				Teardown	1.4	Delete the test asset	Select the video and click 'move to the bin'.	The test asset is removed.

Test ID	Requirement ID	Version	Description	Reproduction				
3	**PUR.3.3.0**	**ACM (46)**	**[Assigning content for ImAc enrichment] The user is able to assign ImAc files to omnidirectional media files**	Setup	1.1	Login to the ACM	Open the web browser and open ACM (https://imac.gpac-licensing.com). Log in with the username ‘test' and the password 'test'	The ACM opens and the user is presented with the home screen.
					1.2	Create new Asset from video	Click on the '+' symbol to create a new asset and drag and drop a video file to the right hand pane to upload.	A new blank asset is created and replaced by the uploaded video.
				Testing	1.3	Upload a Subtitle File	With the video asset selected the user click on the subtitle instances tab. They then either drag a subtitle file into the upload box, or click on the box to be presented with a file upload dialog box.	A subtitle instance is created and editable.

					1.4	Upload a AD File	With the video asset selected the user click on the AD instances tab. They then either drag an Audio Description file into the upload box, or click on the box to be presented with a file upload dialog box.	An AD instance is created and editable.
					1.5	Upload a Signer File	With the video asset selected the user click on the Signer instances tab. They then either drag a sign language file into the upload box, or click on the box to be presented with a file upload dialog box.	A sign language instance is created and editable.
				Teardown	1.6	Delete the test asset	Select the video and click 'move to the bin'.	The test asset is removed.

Test ID	**Requirement ID**	**Version**	**Description**	**Reproduction**				
4	**PUR.3.13.0**	**ACM (46)**	**[Assign users to edit ImAc files] The user can assign one or more subtitlers at a time to edit ImAc files.**	Setup	1.1	Login to the ACM	Open the web browser and open ACM (https://imac.gpac-licensing.com). Log in with the username ‘test' and the password 'test'	The ACM opens and the user is presented with the home screen.
					1.2	Create new Asset from video	Click on the '+' symbol to create a new asset and drag and drop a video file to the right hand pane to upload.	A new blank asset is created and replaced by the uploaded video.
					1.3	Upload a Subtitle File	With the video asset selected the user click on the subtitle instances tab. They then either drag a subtitle file into the upload box, or click on the box to be presented with a file upload dialog box.	A subtitle instance is created and editable.
				Testing	1.4	Add a new subtitler	The user clicks on the 'Add subtitler' button and selects a participant from the list.	The new subtitler is added to the list.
					1.5	Add multiple subtitlers	The user clicks on the 'Add subtitler' button and selects a multiple participants from the list.	The new subtitlers are all added to the list.

					1.6	Add a duplicate subtitler	The user attempts to add a subtitler who already exists.	The existing subtitlers are not available on the list.
					1.7	Remove the first subtitler	The user clicks on the cross to remove the first subtitler.	The first subtitler is removed.
					1.8	Remove the second subtitler	The user clicks on the cross to remove the remaining subtitlers.	All subtitlers are removed.
				Teardown	1.9	Delete the test asset	Select the video and click 'move to the bin'.	The test asset is removed.

Test ID	**Requirement ID**	**Version**	**Description**	**Reproduction**				
5	**PUR.3.2.0**	**ACM (46)**	**[Checking content for ImAc enrichment] The user is able to check ImAc assets regarding: file name, file size, content type, integrity, assignment**	Setup	1.1	Login to the ACM	Open the web browser and open ACM (https://imac.gpac-licensing.com). Log in with the username ‘test' and the password 'test'	The ACM opens and the user is presented with the home screen.
					1.2	Create new Asset from video	Click on the '+' symbol to create a new asset and drag and drop a video file to the right hand pane to upload.	A new blank asset is created and replaced by the uploaded video.
					1.3	Upload a Subtitle File	With the video asset selected the user click on the subtitle instances tab. They then either drag a subtitle file into the upload box, or click on the box to be presented with a file upload dialog box.	A subtitle instance is created and editable.
					1.4	Upload a AD File	With the video asset selected the user click on the AD instances tab. They then either drag an Audio Description file into the upload box, or click on the box to be presented with a file upload dialog box.	An AD instance is created and editable.
					1.5	Upload a Signer File	With the video asset selected the user click on the Signer instances tab. They then either drag a Sign Language file into the upload box, or click on the box to be presented with a file upload dialog box.	A sign language instance is created and editable.

				Testing	1.6	Check General Details	The user selects the video asset and clicks on the 'General' tab.	The video type is displayed and the filename for each component is displayed.
					1.7	Check Video Content	The user selects the video asset and clicks on the 'Video' tab.	The video file size is displayed. There is no integrity check information for the video file.
					1.8	Check Subtitle Content	The user selects the video asset and clicks on the 'Subtitle' tab, then ‘Run Editor with File’ button.	The subtitle file size is displayed on the subtitle tab and it is clear to see which users the file has been assigned to. The integrity of the file is checked when loading the editor.
					1.9	Check AD content	The user selects the video asset and clicks on the 'Audio description' tab, then ‘Run Editor with File’ button.	The Audio Description file size is displayed and it is clear to see which users the file has been assigned to on the Audio Description Tab. The integrity of the file is checked when loading the editor.
					1.10	Check Signer Contents	The user selects the video asset and clicks on the 'Sign Language' tab, then ‘Run Editor with File’ button.	The Sign Language file size is displayed and it is clear to see which users the file has been assigned to on the Sign Language Tab. The integrity of the file is checked when loading the editor.
				Teardown	1.11	Delete the test asset	Select the video and click 'move to the bin'.	The test asset is removed.

Test ID	Requirement ID	Version	Description	Reproduction

6	**PUR.1.15.0**	**ACM (46)**	**[Create a new ImAc file] It is possible to create a new accessibility file by using an existing accessibility file as template**	Setup	1.1	Login to the ACM	Open the web browser and open ACM (https://imac.gpac-licensing.com). Log in with the username ‘test' and the password 'test'	The ACM opens and the user is presented with the home screen.
					1.2	Create new Asset from video	Click on the '+' symbol to create a new asset and drag and drop a video file to the right hand pane to upload.	A new blank asset is created and replaced by the uploaded video.
				Testing	1.3	Upload a Subtitle File as a Template	With the video asset selected the user click on the subtitle instances tab. They then either drag a subtitle file into the upload box, or click on the box to be presented with a file upload dialog box.	There is no specific mechanism to use an existing subtitle file as a template. However, it is possible to create a template file which can be edited.
					1.4	Upload an Audio Description File as Template	With the video asset selected the user click on the AD instances tab. They then either drag an Audio Description file into the upload box, or click on the box to be presented with a file upload dialog box.	There is no specific mechanism to use an existing audio description file as a template. However, it is possible to create a template file which can be edited.
					1.5	Upload a Sign Language File as a Template	With the video asset selected the user click on the Signer instances tab. They then either drag a Sign Language file into the upload box, or click on the box to be presented with a file upload dialog box.	There is no specific mechanism to use an existing sign language file as a template. However, it is possible to create a template file which can be edited.
				Teardown	1.6	Delete the test asset	Select the video and click 'move to the bin'.	The test asset is removed.

Test ID	**Requirement ID**	**Version**	**Description**	**Reproduction**				
7	**PUR.1.7.0**	**ACM (46)**	**[File operations] The user is able to perform file operations such as import or export**	Setup	1.1	Login to the ACM	Open the web browser and open ACM (https://imac.gpac-licensing.com). Log in with the username ‘test' and the password 'test'	The ACM opens and the user is presented with the home screen.

			files (video and ImAc files)		1.2	Create new Asset from video	Click on the '+' symbol to create a new asset and drag and drop a video file to the right hand pane to upload.	A new blank asset is created and replaced by the uploaded video.
				Testing	1.3	Upload a Subtitle File	With the video asset selected the user click on the subtitle instances tab. They then either drag a subtitle file into the upload box, or click on the box to be presented with a file upload dialog box.	A subtitle instance is created and editable.
					1.4	Edit Subtitle File	The user clicks on the 'Run Editor with File' button and verifies that the file is imported correctly.	The subtitle file is displayed correctly in the editor and is fully editable.
					1.5	Export new Subtitle File	The user returns to the ACM and presses the 'download subtitle file' button. The test is repeated in both IMSC format and EBU-TTD Format.	A dialog box is presented asking the user to specify which file format to download. The subtitle file is downloaded in both file formats successfully.
					1.6	Upload Audio Description File	With the video asset selected the user click on the Audio Description instances tab. They then either drag an Audio Description file into the upload box, or click on the box to be presented with a file upload dialog box.	An AD instance is created and editable.
					1.7	Edit Audio Description File	The user clicks on the 'Run Editor with File' button and verifies that the file is imported correctly.	The Audio Description file is displayed correctly in the editor and is fully editable.
					1.8	Export New Audio Description File	The user returns to the ACM and presses the 'download Audio Description file' button. The test is repeated in IMAC Audiodescription, Fingertext Audiodescription and ESEF Audio Description formats.	A dialog box is presented asking the user to specify which file format to download. The AD file file is downloaded successfully.

					1.9	Upload a Sign Language File	With the video asset selected the user click on the Signer instances tab. They then either drag a Sign Language file into the upload box, or click on the box to be presented with a file upload dialog box.	A sign language instance is created and editable.
					1.10	Edit Sign Language File	The user clicks on the 'Run Editor with File' button and verifies that the file is imported correctly.	The Sign Language file is displayed correctly in the editor and is fully editable.
					1.11	Export new Sign Language File	The user returns to the ACM and presses the 'download Sign Language file' button. There is only one option for file format.	The user is asked to wait while a Sign Language file is generated. The sign language file is downloaded successfully.
				Teardown	1.12	Delete the test asset	Select the video and click 'move to the bin'.	The test asset is removed.

Test ID	**Requirement ID**	**Version**	**Description**	**Reproduction**		
8	**PUR.3.6.0**	**ACM (46)**	**[Locally retrieving the packaging result] The user is able to direct the packaged ImAc result as local retrieval.**	Setup	1.1	Could not be tested.

Test ID	**Requirement ID**	**Version**	**Description**	**Reproduction**

9	**PUR.3.7.0**	**ACM (46)**	**[Directing the packaging result to a different resource] The user is able to direct the packaged ImAc result forwarded to a different remote resource.**	Setup	1.1	Could not be tested.

Test ID	**Requirement ID**	**Version**	**Description**	**Reproduction**		
10	**PUR.3.4.0**	**ACM (46)**	**[Triggering content packaging and distribution] The user is able to trigger and monitor the packaging of open and closed ST, SL and AD enhanced media items**	Setup	1.1	Could not be tested.

Test ID	**Requirement ID**	**Version**	**Description**	**Reproduction**		
11	**PUR.3.5.0**	**ACM (46)**	**[Checking state of content packaging and distribution] The user is able to check the state of packaging of enhanced media items.**	Setup	1.1	Could not be tested.

Test	**Requiremen**	**Versio**	**Description**	**Reproduction**

ID	t ID	n				
12	**PUR.3.8.0**	**ACM (46)**	**[Configure the signalization of ImAc services] The user is able to configure signalization of ImAc content for distribution and playback.**	Setup	1.1	Could not be tested.

Test ID	Requirement ID	Version	Description	Reproduction		
13	**PUR.3.9.0**	**ACM (46)**	**[Monitor the signalization of ImAc services] The user is able to monitor signalization of ImAc content for distribution and playback.**	Setup	1.1	Could not be tested.

Test ID	Requirement ID	Version	Description	Reproduction		
14	**PUR.1.17.0**	**ACM (46)**	**[Edit and preview mode for ImAc files] There are two different modes for editing and previewing ImAc content. The preview mode allows a few editing options.**	Setup	1.1	Could not be tested.

Test ID	Requirement ID	Version	Description	Reproduction

15	**PUR.1.16.0**	**ACM (46)**	**[Edit shortcuts] The user can change the shortcuts used in the editor tools for the ImAc content**	Setup	1.1	Could not be tested.

5.2.1 Audio Description Editor

Test ID	Requirement ID	Version	Description	Reproduction				
16	**PUR.1.30.0**	**ACM (46)**	**[Define fading level of main audio] The user can choose between several levels of fading for the main audio**	Setup	1.1	Login to the ACM	Open the web browser and open ACM (https://imac.gpac-licensing.com). Log in with the username ‘test' and the password 'test'	The ACM opens and the user is presented with the home screen.
					1.2	Create new Asset from video	Click on the '+' symbol to create a new asset and drag and drop a video file to the right hand pane to upload.	A new blank asset is created and replaced by the uploaded video.
					1.3	Create a new audio description file	Click on the 'Audio Description instances' tab of the asset properties pane and then the '+' button to create a new instance. In the pop-up dialog select an arbitrary language and classic mode.	A blank Audio Description instance is created.
					1.4	Open the Editor	On the asset properties plane click the 'run editor with file button'	The audio description editor is opened.
					1.5	Allow Microphone	When prompted by the web browser allow it access to the internal Microphone.	The Web browser displays an indicator that your microphone is in use.
				Testing	1.6	Create a segment with no dipping of main audio	Create a new audio description segment. First define the text in the text entry box - 'Hello this is a test audio description'. Then push the record button and read the text using the internal microphone. Press the 'short test' button and the recorded AD should be played back over the video.	The recorded audio is played back over the video.
					1.7	Create a segment with Low dipping of main audio	Click the 'set low dipping level to main audio' button and repeat the test using the 'long test' button and observing the audio level as it is played.	It can be observed that there is a low level of dipping in the main audio.
					1.8	Create a segment with High dipping of main audio	Click the 'set high dipping level to main audio' button and repeat the test using the 'long test' button and observing the audio level as it is played.	It can be observed that there is a high level of dipping in the main audio.

					1.9	Change the values of high and low in the settings	In the settings panel values can be provided for the low and the high dipping level as well as the option of resetting these values to default. Change the values and repeat the tests.	The editor behaved as expected.
				Teardown	1.10	Close the Editor and delete the test asset	Close the editor window returning to the Content manager. Select the video and click 'move to the bin'	The test asset is removed.

Test ID	**Requirement ID**	**Version**	**Description**	**Reproduction**				
17	**PUR.1.11.0**	**ACM (46)**	**[Add AD preview audio to video] The user is able to add a text-to-speech AD result to a video as additional audio asset.**	Setup	1.1	Login to the ACM	Open the web browser and open ACM (https://imac.gpac-licensing.com). Log in with the username ‘test' and the password 'test'	The ACM opens and the user is presented with the home screen.
					1.2	Create new Asset from video	Click on the '+' symbol to create a new asset and drag and drop a video file to the right hand pane to upload.	A new blank asset is created and replaced by the uploaded video.
					1.3	Create a new audio description file	Click on the 'Audio Description instances' tab of the asset properties pane and then the '+' button to create a new instance. In the pop-up dialog select an arbitrary language and classic mode.	A blank Audio Description instance is created.
					1.4	Open the Editor	On the asset properties plane click the 'run editor with file button'	The audio description editor is opened.
					1.5	Allow Microphone	When prompted by the web browser allow it access to the internal Microphone.	The Web browser displays an indicator that your microphone is in use.
				Testing	1.6	Define an audio description segment with no recorded audio.	Create a new audio description segment. Define the text in the text entry box - 'Hello this is a test audio description'.	A new AD segment is created.
					1.7	Use text to speech to create a preview for the segment.	The user clicks on the record button and reads the text.	The audio segment is recorded.
				Teardown	1.8	Close the Editor and delete the test asset	Close the editor window returning to the Content manager. Select the video and click 'move to the bin'	The test asset is removed

Test ID	Requirement ID	Version	Description	Reproduction				
18	**PUR.1.13.0**	**ACM (46)**	**[Add audio description] The user is able to add a number of simultaneous audio descriptions to different sections of the visual scene.**	Setup	1.1	Login to the ACM	Open the web browser and open ACM (https://imac.gpac-licensing.com). Log in with the username ‘test' and the password 'test'	The ACM opens and the user is presented with the home screen.
					1.2	Create new Asset from video	Click on the '+' symbol to create a new asset and drag and drop a video file to the right hand pane to upload.	A new blank asset is created and replaced by the uploaded video.
					1.3	Create a new audio description file	Click on the 'Audio Description instances' tab of the asset properties pane and then the '+' button to create a new instance. In the pop-up dialog select an arbitrary language and classic mode.	A blank Audio Description instance is created.
					1.4	Open the Editor	On the asset properties plane click the 'run editor with file button'	The audio description editor is opened.
					1.5	Allow Microphone	When prompted by the web browser allow it access to the internal Microphone.	The Web browser displays an indicator that your microphone is in use.
				Testing	1.6	Create an AD segment	Create a new audio description segment. First define the text in the text entry box - 'Hello this is a test audio description'. Then push the record button and read the text using the internal microphone. Press the 'short test' button and the recorded AD should be played back over the video.	The recorded audio is played back over the video.
					1.7	Create a second AD segment at the same time	Create a second audio description segment. First define the text in the text entry box - 'Hello this is a second test audio description'. Then push the record button and read the text using the internal microphone. Press the 'short test' button and the recorded AD should be played back over the video. Set the TC in to the same as the first AD segment.	It is possible to create two segments that overlap.
					1.8	Preview the video	Enter preview mode to test the video.	The video plays back successfully
				Teardown	1.9	Close the Editor and delete the	Close the editor window returning to the Content manager. Select the video	The test asset is removed

						test asset	and click 'move to the bin'	

Test ID	Requirement ID	Version	Description	Reproduction				
19	**PUR.1.29.0**	**ACM (46)**	**[Monitor recording of AD] The user gets a visual feedback on the start and stop of the recording of an audio file**	Setup	1.1	Login to the ACM	Open the web browser and open ACM (https://imac.gpac-licensing.com). Log in with the username ‘test' and the password 'test'	The ACM opens and the user is presented with the home screen.
					1.2	Create new Asset from video	Click on the '+' symbol to create a new asset and drag and drop a video file to the right hand pane to upload.	A new blank asset is created and replaced by the uploaded video.
					1.3	Create a new audio description file	Click on the 'Audio Description instances' tab of the asset properties pane and then the '+' button to create a new instance. In the pop-up dialog select an arbitrary language and classic mode.	A blank Audio Description instance is created.
					1.4	Open the Editor	On the asset properties plane click the 'run editor with file button'	The audio description editor is opened.
					1.5	Allow Microphone	When prompted by the web browser allow it access to the internal Microphone.	The Web browser displays an indicator that your microphone is in use.
				Testing	1.6	Create an AD segment	Create a new audio description segment. First define the text in the text entry box - 'Hello this is a test audio description'. Then push the record button and read the text using the internal microphone. Press the 'short test' button and the recorded AD should be played back over the video.	The recorded audio is played back over the video.
					1.7	Create the timings for the segment.	Set the start time to for the segment to 00:01:01:00 and the end time to 00:01:06:00.	A total time for the segment of 5 seconds is displayed.

					1.8	Start recording	Click on the record button to start recording and observe the indicator.	The video starts playing from 1 second before the segment start time. A yellow bar indicated that the audio describer should prepare to start describing. At the correct start time the bar turns red, and gives a visual indication of the time left to speak.
					1.9	Complete recording	Observe the indicator when the segment time is complete and push the button to stop recording.	When the segment time has completed the indicator bar flashes red. And the describer can complete the recording by pressing the record button again.
				Teardown	1.10	Close the Editor and delete the test asset	Close the editor window returning to the Content manager. Select the video and click 'move to the bin'	The test asset is removed

Test ID	**Requirement ID**	**Version**	**Description**	**Reproduction**				
20	**PUR.1.10.0**	**ACM (46)**	**[Create AD preview content] The user is able to feed a written AD script and start a text-to-speech process.**	Setup	1.1	Login to the ACM	Open the web browser and open ACM (https://imac.gpac-licensing.com). Log in with the username ‘test' and the password 'test'	The ACM opens and the user is presented with the home screen.
					1.2	Create new Asset from video	Click on the '+' symbol to create a new asset and drag and drop a video file to the right hand pane to upload.	A new blank asset is created and replaced by the uploaded video.
					1.3	Import a script to create a new audio description instance	Select the appropriate import option to create a new AD instance from a script	An Audio Description instance is created.
					1.4	Start the generate AD using text to speech	The user presses the record button and reads each of the text segments	Each text segment is converted to speech.
				Teardown	1.5	Close the Editor and delete the test asset	Close the editor window returning to the Content manager. Select the video and click 'move to the bin'	The test asset is removed

Test ID	Requirement ID	Version	Description	Reproduction				
21	**PUR.3.10.0**	**ACM (46)**	**[Defining speaker location indicator options] The user is able to define the speaker location indicator options which are offered to the home user**	Setup	1.1	Login to the ACM	Open the web browser and open ACM (https://imac.gpac-licensing.com). Log in with the username ‘test' and the password 'test'	The ACM opens and the user is presented with the home screen.
					1.2	Create new Asset from video	Click on the '+' symbol to create a new asset and drag and drop a video file to the right hand pane to upload.	A new blank asset is created and replaced by the uploaded video.
					1.3	Create a new audio description file	Click on the 'Audio Description instances' tab of the asset properties pane and then the '+' button to create a new instance. In the pop-up dialog select an arbitrary language and classic mode.	A blank Audio Description instance is created.
					1.4	Open the Editor	On the asset properties plane click the 'run editor with file button'	The audio description editor is opened.
					1.5	Allow Microphone	When prompted by the web browser allow it access to the internal Microphone.	The Web browser displays an indicator that your microphone is in use.
				Testing	1.6	Define which location indication options are offered to home user	The user specifies which location indicator options are available to the end user.	This is not possible in the editor. The consumer is able to select all of the options for any content.
				Teardown	1.7	Close the Editor and delete the test asset	Close the editor window returning to the Content manager. Select the video and click 'move to the bin'	The test asset is removed

Test ID	Requirement ID	Version	Description	Reproduction				
22	**PUR.1.26.0**	**ACM (46)**	**[Edit audio description script] The user can split and merge AD script files**	Setup	1.1	Login to the ACM	Open the web browser and open ACM (https://imac.gpac-licensing.com). Log in with the username ‘test' and the password 'test'	The ACM opens and the user is presented with the home screen.
					1.2	Create new Asset from video	Click on the '+' symbol to create a new asset and drag and drop a video file to the right hand pane to upload.	A new blank asset is created and replaced by the uploaded video.

					1.3	Upload an Audio Description File.	With the video asset selected the user click on the AD instances tab. They then either drag an Audio Description file into the upload box, or click on the box to be presented with a file upload dialog box.	A new Audio Description instance is created.
				Testing	1.4	Split the Audio Description File	The user splits the Audio description file into two separate files.	Not implemented.
					1.5	Merge with a second Audio Description File	The User merges a second Audio description file with the existing user	Not implemented.
				Teardown	1.6	Close the Editor and delete the test asset	Close the editor window returning to the Content manager. Select the video and click 'move to the bin'	The test asset is removed

Test ID	**Requirement ID**	**Version**	**Description**	**Reproduction**				
23	**PUR.3.15.0**	**ACM (46)**	**[Export AD script as text file] The user is able to export an AD script as text file**	Setup	1.1	Login to the ACM	Open the web browser and open ACM (https://imac.gpac-licensing.com). Log in with the username ‘test' and the password 'test'	The ACM opens and the user is presented with the home screen.
					1.2	Create new Asset from video	Click on the '+' symbol to create a new asset and drag and drop a video file to the right hand pane to upload.	A new blank asset is created and replaced by the uploaded video.
					1.3	Upload an Audio Description File.	With the video asset selected the user click on the AD instances tab. They then either drag an Audio Description file into the upload box, or click on the box to be presented with a file upload dialog box.	A new Audio Description instance is created.
				Testing	1.4	Export the Audio Description Script as a text file.	The user exports the Audio Description Script as a text file.	It is only possible to export the Audio Description asset as IMAC Audiodescription, Fingertext Audiodescription or ESEF Audiodescription files.
				Teardown	1.5	Close the Editor and delete the test asset	Close the editor window returning to the Content manager. Select the video and click 'move to the bin'	The test asset is removed

Test ID	Requirement ID	Version	Description	Reproduction				
24	**PUR.1.14.0**	**ACM (46)**	**[Pre-listen 3D audio content] The user is able to pre-listen immersive audio content together with immersive AD**	Setup	1.1	Login to the ACM	Open the web browser and open ACM (https://imac.gpac-licensing.com). Log in with the username ‘test' and the password 'test'	The ACM opens and the user is presented with the home screen.
					1.2	Create new Asset from video	Click on the '+' symbol to create a new asset and drag and drop a video file to the right hand pane to upload.	A new blank asset is created and replaced by the uploaded video.
					1.3	Upload an Audio Description File as Template	With the video asset selected the user click on the AD instances tab. They then either drag an Audio Description file into the upload box, or click on the box to be presented with a file upload dialog box.	A new Audio Description instance is created.
				Testing	1.4	Preview the immersive audio together with the Immersive AD.	The user previews the video with 3d audio for the Audio Description.	It is only possible to preview the audio in stereo.
				Teardown	1.5	Close the Editor and delete the test asset	Close the editor window returning to the Content manager. Select the video and click 'move to the bin'	The test asset is removed

5.2.1 Sign Language Editor

Test ID	Requirement ID	Version	Description	Reproduction				
25	**PUR.1.9.0**	**ACM (46)**	**[Add sign language video] The user is able to add sign language video with the following ordered steps: 1) separating specific SL segments if necessary 2) defining dimensions of SL video 3) defining vertical and horizontal position 4) defining timecode 5) defining viewing angle position of speaker (given as horizontal angle)**	Setup	1.1	Login to the ACM	Open the web browser and open ACM (https://imac.gpac-licensing.com). Log in with the username ‘test' and the password 'test'	The ACM opens and the user is presented with the home screen.
					1.2	Create new Asset from video	Click on the '+' symbol to create a new asset and drag and drop a video file to the right hand pane to upload.	A new blank asset is created and replaced by the uploaded video.
					1.3	Create a new sign language file	Click on the 'Sign Language instances' tab of the asset properties pane and then the '+' button to create a new instance. In the pop-up dialog select an arbitrary language and classic mode.	A blank Sign Language Instance instance is created.
					1.4	Open the Editor	On the asset properties plane click the 'run editor with file button'	The Sign Language editor is opened.
				Testing	1.5	Create new Sign Language Segment	The user enters the script for a new segment. The record button is then pushed and the sign language captures.	An error occurs while uploading the video.
					1.6	Define dimensions of Sign Language Segment	The user specifies a size for the sign language segment.	There is no mechanism to do this.
					1.7	Define Vertical and Horizontal position	The user defines a vertical and horizontal position for the segment.	There is no mechanism to do this.
					1.8	Define Timecode and duration	The time code for the sign language can be set in several ways. Either by typing a new timecode directly into the segment properties in the segment list or by clicking on the 'in' and 'out' buttons when the video is at the correct position.	Both methods correctly update the timecode for the Sign Language.
					1.10	Define Viewing Angle	The preview video is rotated to align with a character. The 'Set this angle' button is pressed.	A dot appears on the screen to illustrate the fixed location for the subtitle. A value is also provided for the FoV Angle in the segment editor.

				Teardown	1.11	Close the Editor and delete the test asset	Close the editor window returning to the Content manager. Select the video and click 'move to the bin'	The test asset is removed.

Test ID	Requirement ID	Version	Description	Reproduction				
26	**PUR.1.9.1**	**ACM (46)**	**[Add sign language video] The user is able to create SL segments that are not related to a specific angle**	Setup	1.1	Login to the ACM	Open the web browser and open ACM (https://imac.gpac-licensing.com). Log in with the username ‘test' and the password 'test'	The ACM opens and the user is presented with the home screen.
					1.2	Create new Asset from video	Click on the '+' symbol to create a new asset and drag and drop a video file to the right hand pane to upload.	A new blank asset is created and replaced by the uploaded video.
					1.3	Create a new sign language file	Click on the 'Sign Language instances' tab of the asset properties pane and then the '+' button to create a new instance. In the pop-up dialog select an arbitrary language and classic mode.	A blank Sign Language Instance instance is created.
					1.4	Open the Editor	On the asset properties plane click the 'run editor with file button'	The Sign Language editor is opened.
				Testing	1.5	Create new Sign Language Segment	The user enters the script for a new segment.	The new segment is displayed with the 'no angle' checkbox selected.
					1.6	Define Viewing Angle	The preview video is rotated to align with a character. The 'Set this angle' button is pressed.	A dot appears on the screen to illustrate the fixed location for the subtitle. The 'No Angle' checkbox is no longer selected.
					1.7	Remove Viewing Angle	The user ticks the 'no angle' checkbox.	The new segment is displayed with the 'no angle' checkbox selected.
				Teardown	1.8	Close the Editor and delete the test asset	Close the editor window returning to the Content manager. Select the video and click 'move to the bin'	The test asset is removed.

Test ID	Requirement ID	Version	Description	Reproduction

July19	**PUR.1.9.3**	**ACM (46)**	**[Add sign language video] The user is able to add missing spatial information to legacy SL videos, which were imported**	Setup	1.1	Login to the ACM	Open the web browser and open ACM (https://imac.gpac-licensing.com). Log in with the username ‘test' and the password 'test'	The ACM opens and the user is presented with the home screen.
					1.2	Create new Asset from video	Click on the '+' symbol to create a new asset and drag and drop a video file to the right hand pane to upload.	A new blank asset is created and replaced by the uploaded video.
					1.3	Upload a Sign Language File	With the video asset selected the user click on the sign language tab. They then either drag a sign language file into the upload box, or click on the box to be presented with a file upload dialog box.	A subtitle instance is created and editable.
					1.4	Open the Editor	On the asset properties plane click the 'run editor with file button'	The sign language editor is opened.
				Testing	1.5	Select each sign language segment in the file to identify that it is set to the default angle.	The user clicks on each segment in the segment list.	Each segment is displayed with the 'no angle' checkbox selected.
					1.6	Define Viewing Angle for each segment	Each segment is selected. The preview video is rotated to align with a character. The 'Set this angle' button is pressed.	A dot appears on the screen to illustrate the fixed location for each segment The 'No Angle' checkbox is no longer selected.
				Teardown	1.7	Close the Editor and delete the test asset	Close the editor window returning to the Content manager. Select the video and click 'move to the bin'	The test asset is removed.

Test ID	**Requirement ID**	**Version**	**Description**	**Reproduction**				
28	**PUR.1.9.4**	**ACM (46)**	**[Add sign language video] The user is able to define frames in which the**	Setup	1.1	Login to the ACM	Open the web browser and open ACM (https://imac.gpac-licensing.com). Log in with the username ‘test' and the password 'test'	The ACM opens and the user is presented with the home screen.
					1.2	Create new Asset from video	Click on the '+' symbol to create a new asset and drag and drop a video file to the right hand pane to upload.	A new blank asset is created and replaced by the uploaded video.

			automatic speaker location indicator will change the field of view (this is typically done when a new scene starts or a speaker changes his position)		1.3	Create a new sign language file	Click on the 'Sign Language instances' tab of the asset properties pane and then the '+' button to create a new instance. In the pop-up dialog select an arbitrary language and classic mode.	A blank Sign Language Instance instance is created.
					1.4	Open the Editor	On the asset properties plane click the 'run editor with file button'	The Sign Language editor is opened.
				Testing	1.5	Define which frames the automatic speaker location will change	The user defines each frame where the automatic speaker location will change.	Not implemented.
				Teardown	1.6	Close the Editor and delete the test asset	Close the editor window returning to the Content manager. Select the video and click 'move to the bin'	The test asset is removed.

Test ID	**Requirement ID**	**Version**	**Description**	**Reproduction**				
29	**PUR.1.9.2**	**ACM (46)**	**[Add sign language video] The user is able to define the width of a "security angle" that covers a speaker. The speaker location indicators only disappear once the center of the FoV is within the security angle. The center of this security angle is the**	Setup	1.1	Login to the ACM	Open the web browser and open ACM (https://imac.gpac-licensing.com). Log in with the username ‘test' and the password 'test'	The ACM opens and the user is presented with the home screen.
					1.2	Create new Asset from video	Click on the '+' symbol to create a new asset and drag and drop a video file to the right hand pane to upload.	A new blank asset is created and replaced by the uploaded video.
					1.3	Create a new sign language file	Click on the 'Sign Language instances' tab of the asset properties pane and then the '+' button to create a new instance. In the pop-up dialog select an arbitrary language and classic mode.	A blank Sign Language Instance instance is created.
					1.4	Open the Editor	On the asset properties plane click the 'run editor with file button'	The Sign Language editor is opened.
				Testing	1.5	Create a segment	Enter the following phrase: 'Lorem ipsum dolor sit amet consectetur adipiscing elit sed' (9 words) set the in time to 0s and the out time to 6s	A new segment is created
					1.6	Define a security angle	The user defines a security angle which defines the known area through which the speaker moves.	Not implemented.

			position of the speaker defined as the viewing angle.	Teardown	1.7	Close the Editor and delete the test asset	Close the editor window returning to the Content manager. Select the video and click 'move to the bin'	The test asset is removed

5.2.1 Subtitle Editor

Test ID	Requirement ID	Version	Description	Reproduction				
30	**PUR.1.8.0**	**ACM (46)**	**[File operations] The user is able to produce subtitle texts by (1) inserting text with keyboard, (2) symbols from a library and adding it all to the video with the following ordered steps: 1) defining vertical and horizontal position and font size 2) defining timecode and duration 3) defining font color 4) defining viewing angle position of speaker (given as horizontal angle)**	Setup	1.1	Login to the ACM	Open the web browser and open ACM (https://imac.gpac-licensing.com). Log in with the username ‘test' and the password 'test'	The ACM opens and the user is presented with the home screen.
					1.2	Create new Asset from video	Click on the '+' symbol to create a new asset and drag and drop a video file to the right hand pane to upload.	A new blank asset is created and replaced by the uploaded video.
					1.3	Create a new subtitle file	Click on the 'Subtitle instances' tab of the asset properties pane and then the '+' button to create a new instance. In the pop-up dialog select an arbitrary language and classic mode.	A blank Subtitle instance is created.
					1.4	Open the Editor	On the asset properties plane click the 'run editor with file button'	The audio subtitle editor is opened.
				Testing	1.5	Create new subtitle	In the new blank subtitle box enter the text 'Lorem ipsum dolor sit amet consectetur adipiscing elit sed' (9 words) with a line break in the middle	The new subtitle is displayed in the preview window in white text
					1.6	Define Vertical and Horizontal position	The vertical and horizontal positions are defined by assigning a Region (R1, R2, R3 etc.) to the subtitle. The regions can be edited to move the subtitle a percentage of the screen or new regions can be created. The user selects R2 and edits its properties to being 50% from the top 2% from the left, extending 95% width and 40% height.	The subtitle is moved to the center of the preview window
					1.7	Define font size	The font size is defined for each character (C1, C2, C3 etc.). Each user can be edited or new users created. The user sets the character to C3 and then changes the font size property to 50px.	The subtitle is colored cyan (the default for C3) and the font size is increased to 50px.
					1.8	Define Timecode and duration	The time code for the subtitle can be set in several ways. Either by typing a new timecode directly into the subtitle properties in the subtitle list or by clicking on the 'stopwatch' icon when	Both methods correctly update the timecode for the subtitle.

							the video is at the correct position.	
					1.9	Define Font Colour	The font colour is defined for each character (C1, C2, C3 etc.). Each user can be edited or new users created. The user sets the character to C4 and then changes the font colour property to '#0055ff'.	The font colour changes to blue and the font size reduces to the default size for C4.
					1.10	Define Viewing Angle	The preview video is rotated to align with a character. The 'Set this angle to speakers angle' button is pressed.	A blue dot appears on the screen to illustrate the fixed location for the subtitle. A value is also provided for the FoV Angle in the subtitle editor.
				Teardown	1.11	Close the Editor and delete the test asset	Close the editor window returning to the Content manager. Select the video and click 'move to the bin'	The test asset is removed.

Test ID	**Requirement ID**	**Version**	**Description**	**Reproduction**				
31	**PUR.1.8.1**	**ACM (46)**	**[Add subtitle text] The user is able to create ST frames that are not related to a specific angle**	Setup	1.1	Login to the ACM	Open the web browser and open ACM (https://imac.gpac-licensing.com). Log in with the username ‘test' and the password 'test'	The ACM opens and the user is presented with the home screen.
					1.2	Create new Asset from video	Click on the '+' symbol to create a new asset and drag and drop a video file to the right hand pane to upload.	A new blank asset is created and replaced by the uploaded video.
					1.3	Create a new subtitle file	Click on the 'Subtitle instances' tab of the asset properties pane and then the '+' button to create a new instance. In the pop-up dialog select an arbitrary language and classic mode.	A blank Subtitle instance is created.
					1.4	Open the Editor	On the asset properties plane click the 'run editor with file button'	The audio subtitle editor is opened.

				Testing	1.5	Create new subtitle	In the new blank subtitle box enter the text 'Lorem ipsum dolor sit amet consectetur adipiscing elit sed' (9 words) with a line break in the middle	The new subtitle is displayed in the preview window in white text. The default angle is set to 0,0.
					1.6	Define Viewing Angle	The preview video is rotated to align with a character. The 'Set this angle to speakers angle' button is pressed.	A blue dot appears on the screen to illustrate the fixed location for the subtitle. A value is also provided for the Speaker Location Angle in the subtitle editor.
					1.7	Remove Viewing Angle	The user removes the values from the Speakers location parameter	The blue dot disappears and the specific angle has been defaulted back to 0,0.
				Teardown	1.8	Close the Editor and delete the test asset	Close the editor window returning to the Content manager. Select the video and click 'move to the bin'	The test asset is removed.

Test ID	**Requirement ID**	**Version**	**Description**	**Reproduction**				
32	**PUR.1.8.3**	**ACM (46)**	**[Add subtitle text] The user is able to add missing spatial information to legacy subtitles, which were imported**	Setup	1.1	Login to the ACM	Open the web browser and open ACM (https://imac.gpac-licensing.com). Log in with the username ‘test' and the password 'test'	The ACM opens and the user is presented with the home screen.
					1.2	Create new Asset from video	Click on the '+' symbol to create a new asset and drag and drop a video file to the right hand pane to upload.	A new blank asset is created and replaced by the uploaded video.
					1.3	Upload a Subtitle File	With the video asset selected the user click on the subtitle instances tab. They then either drag a subtitle file into the upload box, or click on the box to be presented with a file upload dialog box.	A subtitle instance is created and editable.
					1.4	Open the Editor	On the asset properties plane click the 'run editor with file button'	The audio subtitle editor is opened.
				Testing	1.5	Select each subtitle in the file to identify that it is set to the default	The user clicks on each subtitle in the subtitle list.	Each subtitle has a default angle of 0,0.

						angle.		
					1.6	Define Viewing Angle for each subtitle	Each subtitle is selected. The preview video is rotated to align with a character. The 'Set this angle to speakers angle' button is pressed.	A dot appears on the screen to illustrate the fixed location for each subtitle. A value is also provided for the Speaker Location Angle in the subtitle editor.
				Teardown	1.7	Close the Editor and delete the test asset	Close the editor window returning to the Content manager. Select the video and click 'move to the bin'	The test asset is removed.

Test ID	**Requirement ID**	**Version**	**Description**	**Reproduction**				
33	**PUR.1.19.0**	**ACM (46)**	**[Add subtitle text] The user can monitor the reading speed via numeric display**	Setup	1.1	Login to the ACM	Open the web browser and open ACM (https://imac.gpac-licensing.com). Log in with the username ‘test' and the password 'test'	The ACM opens and the user is presented with the home screen.
					1.2	Create new Asset from video	Click on the '+' symbol to create a new asset and drag and drop a video file to the right hand pane to upload.	A new blank asset is created and replaced by the uploaded video.
					1.3	Create a new subtitle file	Click on the 'subtitle instance' tab of the asset properties pane and then the '+' button to create a new instance. In the pop-up dialog select an arbitrary language.	A blank Subtitle instance is created.
					1.4	Open the Editor	On the asset properties plane click the 'run editor with file button'	The subtitle editor is opened.
				Testing	1.5	Create a 90wpm subtitle	Enter the following phrase: 'Lorem ipsum dolor sit amet consectetur adipiscing elit sed' (9 words) set the in time to 0s and the out time to 6s	The Thermometer shows a green bar and shows 90wpm as the reading speed.
					1.6	Create a 260wpm subtitle	Enter the following phrase: 'Lorem ipsum dolor sit amet do eiusmod tempor incididunt consectetur adipiscing elit sed' (13 words) set the in time to 6s and the out time to 9s	The Thermometer shows a green bar up to 155wpm and then changes to red to indicate too fast. It also shows

								260wpm as the reading speed.
					1.7	Modify the subtitle to 200wpm	words are removed from the second subtitle changing it to: 'Lorem ipsum sit amet do consectetur adipiscing elit sed' (9 words)	The Thermometer correctly changes to green and shows 200wpm.
					1.8	Change the subtitle duration to 150wpm	Change the end time of the second subtitle to 10s	The Thermometer correctly adjusts to 150wpm
				Teardown	1.9	Close the Editor and delete the test asset	Close the editor window returning to the Content manager. Select the video and click 'move to the bin'	The test asset is removed

Test ID	**Requirement ID**	**Version**	**Description**	**Reproduction**				
34	**PUR.1.20.0**	**ACM (46)**	**[Add subtitle text] The user can monitor the number of characters per line via numeric display**	Setup	1.1	Login to the ACM	Open the web browser and open ACM (https://imac.gpac-licensing.com). Log in with the username ‘test' and the password 'test'	The ACM opens and the user is presented with the home screen.
					1.2	Create new Asset from video	Click on the '+' symbol to create a new asset and drag and drop a video file to the right hand pane to upload.	A new blank asset is created and replaced by the uploaded video.
					1.3	Create a new subtitle file	Click on the 'subtitle instance' tab of the asset properties pane and then the '+' button to create a new instance. In the pop-up dialog select an arbitrary language.	A blank Subtitle instance is created.
					1.4	Open the Editor	On the asset properties plane click the 'run editor with file button'	The subtitle editor is opened.
				Testing	1.5	Create a 58 character subtitle	Enter the following phrase: 'Lorem ipsum dolor sit amet consectetur adipiscing elit sed' (58 characters)	The characters remaining display reduces from the default 75 to 17 whilst typing.
					1.6	Change the value for maximum characters	In the general setting reduce the value for 'Max characters for subtitle' to 50.	The characters remaining display reduces from the to -8 alerting the user that t he subtitle is too long.

				Teardown	1.7	Close the Editor and delete the test asset	Close the editor window returning to the Content manager. Select the video and click 'move to the bin'	The test asset is removed.

Test ID	*Requirement ID*	*Version*	*Description*	*Reproduction*				
35	*PUR.1.8.4 (Depricated)*	*ACM (46)*	***[Add subtitle text] The user is able to define frames in which the automatic speaker location indicator will change the field of view (this is typically done when a new scene starts or a speaker changes his position)***	*Setup*	*1.1*	*Login to the ACM*	*Open the web browser and open ACM (https://imac.gpac-licensing.com). Log in with the username 'test' and the password 'test'*	*The ACM opens and the user is presented with the home screen.*
					1.2	*Create new Asset from video*	*Click on the '+' symbol to create a new asset and drag and drop a video file to the right hand pane to upload.*	*A new blank asset is created and replaced by the uploaded video.*
					1.3	*Create a new subtitle file*	*Click on the 'subtitle instance' tab of the asset properties pane and then the '+' button to create a new instance. In the pop-up dialog select an arbitrary language.*	*A blank Subtitle instance is created.*
					1.4	*Open the Editor*	*On the asset properties plane click the 'run editor with file button'*	*The subtitle editor is opened.*
				Testing	*1.5*	*Define which frames the automatic speaker location will change*	*The user defines each frame where the automatic speaker location will change.*	*Not implemented.*
				Teardown	*1.6*	*Close the Editor and delete the test asset*	*Close the editor window returning to the Content manager. Select the video and click 'move to the bin'*	*The test asset is removed.*

Test ID	**Requirement ID**	**Version**	**Description**	**Reproduction**				
36	**PUR.1.25.0**	**ACM (46)**	**[Add subtitle text] The user can create subtitle frames with overlapping timecode**	Setup	1.1	Login to the ACM	Open the web browser and open ACM (https://imac.gpac-licensing.com). Log in with the username 'test' and the password 'test'	The ACM opens and the user is presented with the home screen.
					1.2	Create new Asset from video	Click on the '+' symbol to create a new asset and drag and drop a video file to the right hand pane to upload.	A new blank asset is created and replaced by the uploaded video.

					1.3	Create a new subtitle file	Click on the 'subtitle instance' tab of the asset properties pane and then the '+' button to create a new instance. In the pop-up dialog select an arbitrary language.	A blank Subtitle instance is created.
					1.4	Open the Editor	On the asset properties plane click the 'run editor with file button'	The subtitle editor is opened.
				Testing	1.5	Create a first subtitle	Enter the following phrase: 'Lorem ipsum dolor sit amet consectetur adipiscing elit sed' (9 words) set the in time to 0s and the out time to 6s	A new subtitle is created
					1.6	Create a second subtitle	Enter the following phrase: 'Lorem ipsum dolor sit amet do eiusmod tempor incididunt consectetur adipiscing elit sed' (13 words) set the in time to 3s and the out time to 9s	A second subtitle is created
					1.7	Play the preview video	The user plays the preview video	The subtitles are displayed with overlapping time and can be styled, positioned differently.
				Teardown	1.8	Close the Editor and delete the test asset	Close the editor window returning to the Content manager. Select the video and click 'move to the bin'	The test asset is removed

Test ID	**Requirement ID**	**Version**	**Description**	**Reproduction**				
37	**PUR.1.8.2**	**ACM (46)**	**[Add subtitle text] The user is able to define the width of a "security angle" that covers a speaker. The speaker location indicators only disappear once the center of**	Setup	1.1	Login to the ACM	Open the web browser and open ACM (https://imac.gpac-licensing.com). Log in with the username ‘test' and the password 'test'	The ACM opens and the user is presented with the home screen.
					1.2	Create new Asset from video	Click on the '+' symbol to create a new asset and drag and drop a video file to the right hand pane to upload.	A new blank asset is created and replaced by the uploaded video.
					1.3	Create a new subtitle file	Click on the 'subtitle instance' tab of the asset properties pane and then the '+' button to create a new instance. In the pop-up dialog select an arbitrary language.	A blank Subtitle instance is created.
					1.4	Open the Editor	On the asset properties plane click the 'run editor with file button'	The subtitle editor is opened.

			the FoV is within the security angle. The center of this security angle is the position of the speaker defined as the viewing angle.	Testing	1.5	Create a subtitle	Enter the following phrase: 'Lorem ipsum dolor sit amet consectetur adipiscing elit sed' (9 words) set the in time to 0s and the out time to 6s	A new subtitle is created
					1.6	Define a security angle	The user defines a security angle which defines the known area through which the speaker moves.	Not implemented.
				Teardown	1.7	Close the Editor and delete the test asset	Close the editor window returning to the Content manager. Select the video and click 'move to the bin'	The test asset is removed

Test ID	**Requirement ID**	**Version**	**Description**	**Reproduction**				
38	**PUR.1.21.0**	**ACM (46)**	**[Add subtitle text] The user has the option to activate an automatic separation of subtitle frames by a defined amount of video frames**	Setup	1.1	Login to the ACM	Open the web browser and open ACM (https://imac.gpac-licensing.com). Log in with the username ‘test' and the password 'test'	The ACM opens and the user is presented with the home screen.
					1.2	Create new Asset from video	Click on the '+' symbol to create a new asset and drag and drop a video file to the right hand pane to upload.	A new blank asset is created and replaced by the uploaded video.
					1.3	Create a new subtitle file	Click on the 'subtitle instance' tab of the asset properties pane and then the '+' button to create a new instance. In the pop-up dialog select an arbitrary language.	A blank Subtitle instance is created.
					1.4	Open the Editor	On the asset properties plane click the 'run editor with file button'	The subtitle editor is opened.
				Testing	1.5	Create a subtitle	Enter the following phrase: 'Lorem ipsum dolor sit amet consectetur adipiscing elit sed' (9 words).	A new subtitle is created with a default in time of 00:05 and an out time of 01:04
					1.6	Create a second subtitle	Enter the following phrase: 'Lorem ipsum dolor sit amet do eiusmod tempor incididunt consectetur adipiscing elit sed' (13 words)	A second subtitle is created with a default in time of 01:09 and an out time of 02:09. The default separation of 5 seconds has been applied
					1.7	Change the default separation time	In the general settings, change the default separation time to 10s.	The default time separation is updated.

					1.8	Create a third subtitle	Enter the following phrase: 'Lorem ipsum dolor sit amet do eiusmod tempor incididunt consectetur adipiscing elit sed' (13 words)	the third subtitle is created with a default in time of 02:19 and an out time of 03:19. The default separation of 10 seconds has been applied
				Teardown	1.10	Close the Editor and delete the test asset	Close the editor window returning to the Content manager. Select the video and click 'move to the bin'	The test asset is removed

Test ID	Requirement ID	Version	Description	Reproduction				
39	**PUR.3.11.0**	**ACM (46)**	**[Speaker introduction] Each speaker is introduced in the subtitles (e.g. by name or "man"/"woman") when speaking for the first time**	Setup	1.1	Login to the ACM	Open the web browser and open ACM (https://imac.gpac-licensing.com). Log in with the username ‘test' and the password 'test'	The ACM opens and the user is presented with the home screen.
					1.2	Create new Asset from video	Click on the '+' symbol to create a new asset and drag and drop a video file to the right hand pane to upload.	A new blank asset is created and replaced by the uploaded video.
					1.3	Create a new subtitle file	Click on the 'subtitle instance' tab of the asset properties pane and then the '+' button to create a new instance. In the pop-up dialog select an arbitrary language.	A blank Subtitle instance is created.
					1.4	Open the Editor	On the asset properties plane click the 'run editor with file button'	The subtitle editor is opened.
				Testing	1.5	Create a subtitle	Enter the following phrase: 'Lorem ipsum dolor sit amet consectetur adipiscing elit sed' (9 words) and sets the Character to C2.	A new subtitle is created with a default colour of yellow.
					1.6	Set the character name	The user specifies the character name so that it can be displayed first time.	Not implemented – however the speaker name can be added as part of the text.
				Teardown	1.7	Close the Editor and delete the test asset	Close the editor window returning to the Content manager. Select the video and click 'move to the bin'	The test asset is removed

Test ID	Requirement ID	Version	Description	Reproduction

40	**PUR.1.7.1**	**ACM (46)**	**[File operations] The user is able to import subtitle files (STL, WebVTT (later on), EBU-TT-D (Phase 1))**	Setup	1.1	Login to the ACM	Open the web browser and open ACM (https://imac.gpac-licensing.com). Log in with the username ‘test' and the password 'test'	The ACM opens and the user is presented with the home screen.
					1.2	Create new Asset from video	Click on the '+' symbol to create a new asset and drag and drop a video file to the right hand pane to upload.	A new blank asset is created and replaced by the uploaded video.
				Testing	1.3	Upload a Subtitle File (EBU-TT) Format	With the video asset selected the user click on the subtitle instances tab. They then either drag a subtitle file into the upload box, or click on the box to be presented with a file upload dialog box.	A subtitle instance is created and editable.
					1.4	Upload a Subtitle File (STL) Format	With the video asset selected the user click on the subtitle instances tab. They then either drag a subtitle file into the upload box, or click on the box to be presented with a file upload dialog box.	File format not supported.
					1.5	Upload a Subtitle File (WebVTT) Format	With the video asset selected the user click on the subtitle instances tab. They then either drag a subtitle file into the upload box, or click on the box to be presented with a file upload dialog box.	File Format not supported.
				Teardown	1.6	Close the Editor and delete the test asset	Close the editor window returning to the Content manager. Select the video and click 'move to the bin'	The test asset is removed

6. CONCLUSIONS

This document contains the final iteration of the integration and testing report for the ImAc platform. It aims to evaluate the system as defined in the Technical Architecture (D3.1) and describes how each of these components are integrated as well as the current status of this their integration. It also holds the platform accountable to the requirements gathered in D2.3.

Although not every requirement has yet been (fully) satisfied, this does not detract from a highly functional and successful implementation. Some development tasks within the project are still ongoing to complete the components that have not yet been fully integrated. Priority was also placed on the requirements which were essential to the pilot studies and it was ensured that all of the functionality required for the pilot evaluation was complete and working successfully before the tests began. As the project development continues, the tests defined within this document will be repeated and updated.

In Chapter 2 we described our approach to the methodology that we employ for testing the ImAc platform. There we described how each component would be initially tested independently by each developers in isolation (unit testing). The methodology also describes the workflow and integration of each of the components and their current status. Finally, we described how the system would be held to account against the initial user requirements in terms of acceptance testing.

In Chapter 3 we described the workflow of the platform and identify the Integration points within the ImAc project. This showed the current status of each component, which components have currently been implemented, which are implemented, which steps are (still) manual and which components will continue to be developed.

In Chapter 4 we detailed the data streams and metadata that are used at the integration points.

Chapter 5 provides the results of acceptance testing of the available components from the platform. Although the user requirements have evolved significantly and features have changed, our first acceptance testing shows that the components required for the first round of user testing are fit for purpose and work in line with the initial user requirements. Moving into the next phase of the project the current work flow and integration structure will be used to re-develop the Architecture design, and update the testing plan to meet the updated set of user requirements.