**Leitfaden zur automatisierten Prüfung nach EN 301 549 – Guideline for automated Testing**

Im Folgenden eine Auflistung von Evaluationskriterien mit einsetzbaren Analyse- und Testtools. Die Auflistung basiert auf der Tabelle A.2 aus dem Entwurf zu EN 301 549 in der Version V3.2.1 und wurde von dem Europäischen Institut für Telekommunikationsnormen (ETSI) in Zusammenarbeit mit dem Europäischen Komitee für Normung (CEN) und dem Europäischen Komitee für elektrotechnische Normung (CENELEC) veröffentlicht (ETSI, 2020).Ist kein Analyse-Tools bekannt, welches das Kriterium automatisiert überprüfen kann, ist das Feld leer. Ideen für eine automatisierte Prüfung sind mit einem Asterisk (\*)gekennzeichnet.

| **Evaluation Criteria** | **Useful analysis and automated testing tools** |
| --- | --- |
| **5.2 Activation of accessibility features** |  |
| **5.3 Biometrics** |  |
| **5.4 Preservation of accessibility information during conversion** |  |
| **5.5.1 Means of operation** |  |
| **5.5.2 Operable parts****discernibility** |  |
| **5.6.1 Tactile or auditory status** |  |
| **5.6.2 Visual status** |  |
| **5.7 Key repeat** |  |
| **5.8 Double-strike key****acceptance** |  |
| **5.9 Simultaneous user actions** |  |
| **6.1 Audio bandwidth for speech (informative recommendation)** |  |
| **6.2.1.1 RTT communication** |  |
| **6.2.1.2 Concurrent voice and text** |  |
| **6.2.2.1 Visually distinguishable display** |  |
| **6.2.2.2 Programmatically determinable send and receive direction** |  |
| **6.2.2.3 Speaker identification** |  |
| **6.2.2.4 Visual indicator of Audio** |  |
| **6.2.3 Interoperability** |  |
| **6.2.4 Real-time text responsiveness** |  |
| **6.3 Caller ID** |  |
| **6.4 Alternatives to voice-based services** |  |
| **6.5.2 Resolution item a)** |  |
| **6.5.3 Frame rate item a)** |  |
| **6.5.4 Synchronization between audio and video** |  |
| **6.5.5 Visual indicator of audio****with video** |  |
| **6.5.6 Speaker identification with****video (sign language)****communication** |  |
| **7.1.1 Captioning playback** |  |
| **7.1.2 Captioning synchronization** |  |
| **7.1.3 Preservation of captioning** |  |
| **7.1.4 Captions characteristics** |  |
| **7.1.5 Spoken subtitles** |  |
| **7.2.1 Audio description playback** |  |
| **7.2.2 Audio description synchronization** |  |
| **7.2.3 Preservation of audio description** |  |
| **7.3 User controls for captions and audio description** |  |
| **10.1.1.1 Non-text content** |  |
| **10.1.2.1 Audio-only and video-only (pre-recorded)** |  |
| **10.1.2.2 Captions (pre-recorded)** |  |
| **10.1.2.3 Audio description or media alternative (pre-recorded)** |  |
| **10.1.2.5 Audio description (pre-recorded)** |  |
| **10.1.3.1 Info and relationships** |  |
| **10.1.3.2 Meaningful sequence** |  |
| **10.1.3.3 Sensory characteristics** |  |
| **10.1.3.4 Orientation** |  |
| **10.1.3.5 Identify input purpose** |  |
| **10.1.4.1 Use of colour** |  |
| **10.1.4.2 Audio control** |  |
| **10.1.4.3 Contrast (minimum)** |  |
| **10.1.4.4 Resize text** |  |
| **10.1.4.5 Images of text** |  |
| **10.1.4.10 Reflow** |  |
| **10.1.4.11 Non-text contrast** |  |
| **10.1.4.12 Text spacing** |  |
| **10.1.4.13 Content on hover or focus** |  |
| **10.2.1.1 Keyboard** |  |
| **10.2.1.2 No keyboard trap** |  |
| **10.2.1.4 Character key shortcuts** |  |
| **10.2.2.1 Timing adjustable** |  |
| **10.2.2.2 Pause, stop, hide** |  |
| **10.2.3.1 Three flashes or below threshold** |  |
| **10.2.4.2 Document titled** |  |
| **10.2.4.3 Focus order** |  |
| **10.2.4.4 Link purpose(in context)** |  |
| **10.2.4.6 Headings and labels** |  |
| **10.2.4.7 Focus visible** |  |
| **10.2.5.1 Pointer gestures** |  |
| **10.2.5.2 Pointer cancellation** |  |
| **10.2.5.3 Label in name** |  |
| **10.2.5.4 Motion actuation** |  |
| **10.3.1.1 Language of page**  |  |
| **10.3.1.2 Language of parts** |  |
| **10.3.2.1 On focus** |  |
| **10.3.2.2 On input** |  |
| **10.3.3.1 Error identification** |  |
| **10.3.3.2 Labels or instructions**  |  |
| **10.3.3.3 Error suggestion** |  |
| **10.3.3.4 Error prevention (legal, financial, data)** |  |
| **10.4.1.1 Parsing** |  |
| **10.4.1.2 Name, role, value** |  |
| **10.4.1.3 Status messages** |  |
| **11.1.1.1.1a Non-text content for Controls (open functionality)** | Accessibility Scanner (partially)* Detects missing content descriptions
* Cannot determine if the description is meaningful

axe for Android (partially)* Detects missing content descriptions
* Cannot determine if the description is meaningful

Microsoft Accessibility Insights (partially)* Detects missing content descriptions
* Cannot determine if the description is meaningful

Lint (partially)* Detects missing content descriptions
* Cannot determine if the description is meaningful

Espresso and ATF (partially)* Detects missing content descriptions
* Cannot determine if the description is meaningful

Inspector A11y (support)* Content description is displayed
* Evaluation must be done manually

\*UI-Test use Image Captioning to create content description and compare available and created description for overlapping |
| **11.1.1.1.1b Non-text content for Images (open functionality)** | Accessibility Scanner (partially)* Detects missing content descriptions for **clickable** views
* Cannot determine if the description is meaningful

axe for Android (partially)* Detects missing content descriptions for **clickable** views
* Cannot determine if the description is meaningful

Microsoft Accessibility Insights (partially)* Detects missing content descriptions for **clickable** views
* Cannot determine if the description is meaningful

Lint (partially)* Detects missing content descriptions for **all** views
* Cannot determine if the description is meaningful

Espresso and ATF (partially)* Detects missing content descriptions for **clickable** views
* Cannot determine if the description is meaningful

Inspector A11y (support)* Content description is displayed
* Evaluation must be done manually

\*UI-Test use Image Captioning to create content description and compare available and created description for overlapping |
| **11.1.2.1.1 Audio-only and video-only (pre-recorded - open functionality)** |  |
| **11.1.2.2 Captions (pre-recorded)**  |  |
| **11.1.2.3.1 Audio description or media alternative (pre-recorded - open functionality)** |  |
| **11.1.2.5 Audio description(pre-recorded)** |  |
| **11.1.3.1.1 Info and relationships (open functionality)** | Inspector A11y (support)* ‘labelFor’-value is shown
 |
| **11.1.3.2.1 Meaningful sequence (open functionality)**  | Inspector A11y (support)* Elements are numbered in the order in which they would be read by a screen reader.
* Based on the numbering check whether programmatic sequence corresponds to visual sequence.
 |
| **11.1.3.3 Sensory characteristics** |  |
| **11.1.3.4 Orientation**  | \*change Screen-Orientation programmatically (e.g. espresso UI-test) and check if all elements are accessible |
| **11.1.3.5.1 Identify input purpose (open functionality)** |  |
| **11.1.4.1 Use of colour** |  |
| **11.1.4.2 Audio control** |  |
| **11.1.4.3 Contrast (minimum)** | Accessibility Scanner* **Note:** does not distinguish between normal and bold typeface

axe for Android (partially)* Evaluation must be done manually between 3:1 and 4.5:1
 |
| **11.1.4.4.1 Resize text (open functionality)** |  |
| **11.1.4.5.1 Images of text (open functionality)** |  |
| **11.1.4.6 Contrast (enhanced) Note: AAA – not in List A.2** | Accessibility Scanner* **Note:** Contrast must be adjusted in the settings
 |
| **11.1.4.10 Reflow**  |  |
| **11.1.4.11 Non-text contrast** | Accessibility Scanner |
| **11.1.4.12 Text spacing** |  |
| **11.1.4.13 Content on hover or focus** |  |
| **11.2.1.1.1 Keyboard (open functionality)** |  |
| **11.2.1.2 No keyboard trap** |  |
| **11.2.1.4.1 Character key shortcuts (open functionality)** |  |
| **11.2.2.1 Timing adjustable** |  |
| **11.2.2.2 Pause, stop, hide** |  |
| **11.2.3.1 Three flashes or below threshold** |  |
| **11.2.4.3 Focus order** |  |
| **11.2.4.4 Link purpose (in context)** |  |
| **11.2.4.6 Headings and labels**  |  |
| **11.2.4.7 Focus visible** |  |
| **11.2.5.1 Pointer gestures** |  |
| **11.2.5.2 Pointer cancellation**  |  |
| **11.2.5.3.1 Label in name (open functionality)** |  |
| **11.2.5.4 Motion actuation** |  |
| **11.2.5.5 Target Size****Note: AAA – not in List A.2** | Accessibility Scanneraxe for AndroidMicrosoft Accessibility InsightsEspresso and ATF (partially)* No switches
 |
| **11.3.1.1.1 Language of software (open functionality)**  |  |
| **11.3.2.1 On focus** |  |
| **11.3.2.2 On input** |  |
| **11.3.3.1.1 Error identification (open functionality)** |  |
| **11.3.3.2 Labels or instructions**  | axe for Android |
| **11.3.3.3 Error suggestion** |  |
| **11.3.3.4 Error prevention (legal, financial, data)** |  |
| **11.4.1.1.1 Parsing (open functionality)** |  |
| **11.4.1.2.1 Name, role, value (open functionality)** |  |
| **11.4.1.3.1 Status messages (open functionality)** |  |
| **11.5.2.3 Use of accessibility services** |  |
| **11.5.2.5 Object information**  |  |
| **11.5.2.6 Row, column, and headers**  |  |
| **11.5.2.7 Values**  |  |
| **11.5.2.8 Label relationships**  |  |
| **11.5.2.9 Parent-child relationships**  |  |
| **11.5.2.10 Text**  |  |
| **11.5.2.11 List of available actions** |  |
| **11.5.2.12 Execution of available actions** |  |
| **11.5.2.13 Tracking of focus and selection attributes** |  |
| **11.5.2.14 Modification of focus and selection attributes** |  |
| **11.5.2.15 Change notification**  |  |
| **11.5.2.16 Modifications of states and properties** |  |
| **11.5.2.17 Modifications of values and text** |  |
| **11.6.2 No disruption of accessibility features**  |  |
| **11.7 User preferences** |  |
| **11.8.1 Content technology**  |  |
| **11.8.2 Accessible content creation** |  |
| **11.8.3 Preservation of accessibility information in transformations** |  |
| **11.8.4 Repair assistance** |  |
| **11.8.5 Templates** |  |
| **12.1.1 Accessibility and compatibility features** |  |
| **12.1.2 Accessible documentation** |  |
| **12.2.2 Information on accessibility and compatibility features** |  |
| **12.2.3 Effective communication**  |  |
| **12.2.4 Accessible documentation** |  |