ASPREX Fact Sheet

Closed captioning display (CC)

Digital technology (also called video captions, or subtitles), that decodes, on demand, in real time speech and transcribes it to text, displayed on a screen (e.g. on a TV, a computer, a mobile phone, or a tablet).

Possible configuration variants concern the display software (which may also be hardware, in a form of a special hand held, seat mounted or fixed display for subtitles or video captions), the real time decoding (which may also be hardware or software systems that allow captioning in advance; or integrated), the on-demand function (which may also be automatic, or included as a fixed option on the screen), the activation of the captioning display (which may also be a special key on the remote control), the speech decoding (which can also be decoding of sound effects, relevant musical cues, and other relevant audio information when sound is unavailable or not clearly audible), and the language of the transcript text (which may be also different from the spoken language, e.g. a subtitle in another language).

Additional features include the options of the displayed text (which may also be edited, re-read and memorized), the aspect of the displayed text (which may also be enlarged, and the color of the font and the background can be modified), and the possibility to increase the accuracy of the voice-to-text recognition process with the support of machine learning.

- Product Classification
  - APL (WHO Assistive Product Priority List): 7 (Closed captioning displays)
  - ISO 9999:2022: 221821 (Decoders for videotext and text television)
- Possible configuration variants
  - Possibility to connect to electronic Braille displays.
  - Possibility to enlarge captioning.
- Possible accessories or optional components

  None specified.
- Product goals

  Activities or functions the product is mainly intended to support, according to WHO ICF Classification:
  - Listening [d115].
  - Understanding spoken words [d310].
  - Learning to read [d140].
  - Acquiring an additional language [d133].
- Indicated impairments

  Difficulties the product is mainly intended to address, according to the WHO ICF Classification:
  - Seeing [b210]. *Only if used with variants: Possibility to connect to electronic Braille displays*
  - Hearing [b230].
- Contraindicated impairments

  Difficulties for which the product may be inappropriate:
  - Difficulty in reading (such as illiteracy or dyslexia).
  - Difficulty in understanding written language (decoding written messages to obtain the meaning).
  - Severe vision loss. *Unless used with variants: Possibility to enlarge captioning*
  - Blindness. *Unless used with variants: Possibility to connect to electronic Braille displays*
  - Deafblindness. *Unless used with variants: Possibility to connect to electronic Braille displays*

- Indicated environments

  Specific environments in which the product should be used:
  - Environment where the audio is difficult to hear or is intentionally muted.
- Contraindicated environments

  Environments in which the product may be inappropriate:
  - Noisy places (the accuracy of voice-to-text recognition may be difficult in noisy environments, or when more people are temporarily talking, and depends on the quality and on the intensity of the speaker's voice).
- Other indicated factors

  Other factors or situations the product is intended to address:
  - Helping comprehension of literal and implied meanings of messages in spoken language (such as understanding that a statement asserts a fact or is an idiomatic expression).
- Other contraindicated factors

  Other factors or situations in which the product may be inappropriate:
  None specified.
- Points to be considered in product selection
  - Ensure that the user reads and understands written texts.
  - Ensure that the voice-to-text feature is available in the user's language.
  - A mobile real time voice-to-text technology is suitable for people who want to communicate with a talking person out of their home (e.g., in the marketplace, workplace, schools, health care facilities, and civic centers).
  - In case of cloud-based systems and mobile use, make sure that the place where you want to use your mobile device with real time closed captioning is covered by wireless internet access.
  - Speech-to-text technologies are recommended if the user can read and understand written texts; free apps are easily available, also in different languages.
  - In case of video or telecommunication, select a software or device (ISO code 222424, telecommunication, and telematics software) with integrated voice-to-text translation and transcription (closed captioning) into the language the user can read and understand.
- Points to be considered in product fitting
  - In case of mobile devices for voice-to-text conversion, ensure that the software is correctly installed.
  - Ensure that the user can activate the closed captioning display.
  - Ensure that the user can correctly see the text on the display, if not, modify and adapt the aspect of the text (font size and color, contrast between text and background, and background color) to the user preferences.
  - In case of real time voice-to-text to receive communication, check if the translation is accurate, if not, reduce the environmental noises, bring the device microphone nearer to the speaker, increase the microphone sensibility, and ask the speaker to speak louder, slower and one at a time.
  - In case of voice-to-text technology to receive communication, check if the translation is accurate; if not, manually modify the misinterpretation and add the new words to your personal device system.
- Points to be considered in product use
  - If the real time voice-to-text technology is not working perfectly, try to change environmental factors to increase the functionally of the system.
  - If possible, continue to correct the misinterpretations and teach the system to make it work more accurately.
  - If you change your device on which you have installed the closed captioning display, make sure that all your personal adaptations will be transferred to the new device.
  - For mobile use, ensure that your device is charged.
- Points to be considered in product maintenance / follow-up
  - Frequent up-date of the software is recommended.
  - Frequently up-date and back up your personal adaptations of your closed caption display.
  - In case of mobile devices, keep batteries charged.
- Examples of products available on the market
  - Live product search in the EASTIN website https://www.eastin.eu/en/searches/products/list?iso=221821

Source

This Fact Sheet was compiled in 2021 by an international team of experts, to provide the initial knowledge base for a project ("An online system to assist the selection of assistive product") supported by the World Health Organization in 2020-2021 within the GATE Initiative (Global collaboration on Assistive Product). Fact Sheets were compiled for each of the 50 types of products included in the WHO APL (Assistive Product Priority List).

The team was composed of Renzo Andrich (Italy, group leader), Natasha Layton (Australia), Stefan von Prondzinski (Italy), Jerry Weisman (USA), Silvana Contepomi (Argentina) and Hasan Minto (Pakistan).

The project led to a prototype online tool called ASPREX (ASsistive PRoduct EXplorer). At the end of the project, it was transferred to a WHO collaborating center (the Global Disability Hub in the UK), in view of possible future developments.