ITU-T   Technical Paper

TELECOMMUNICATION
STANDARDIZATION SECTOR
OF ITU

(23 October 2015)

FSTP.ACC-RemPart
Guidelines for supporting remote participation
in meetings for all

International
Telecommunication
Union

Summary

This document outlines the requirements for ensuring that meetings are accessible to remote participants, including those with disabilities and those using assistive technologies. Remote participants are those who are not present at the physical location of the meeting but who are taking part via audiovisual communication. This can be done via the Internet and also by using traditional telephone conferencing methods.

Keywords

Remote participation, access, accessibility, assistive technology.

Change Log

This document contains Version 1 of the ITU-T Technical Paper on "*Guidelines for supporting remote participation in meetings for all*" approved at the ITU-T Study Group 16 meeting held in Geneva, 12-23 October 2015.

Editors:	Andrea Saks	Tel: +44 1242 820 800
	G3ict	Fax: +44 1242 650 392
	Untied States	Email: andrea.saks@ties.itu.int
	Pilar Orero	Tel: +34-622-751-958
	Universitat Autònoma de Barcelona	Fax:
	Spain	Email: pilar.orero@uab.cat

CONTENTS

Technical Paper ITU-T FSTP.ACC-RemPart

Guidelines for supporting remote participation in meetings for all

1   Scope

This document outlines the requirements for ensuring that meetings are accessible to remote participants, including those with disabilities and those using assistive technologies. It complements the guidance found in [ITU-T A.Sup4]. Remote participants are those who are not present at the physical location of the meeting but who are taking part via audiovisual communication. This can be done via the Internet and also by using traditional telephone conferencing methods.

The requirements do not cover the following aspects of meetings access, although the importance of addressing these is stated in the section 'Outline checklist of other issues, not covered in detail'.

– Physical meetings attendance.

– Local meetings access.

– Communication and working procedures between meetings.

– Accessibility of public and working documents, other than those required for accessing meetings or used within meetings.

– Choice between open standards and proprietary solutions.

2   References

[ITU-T F.791]	ITU-T F.791 (2015), *Accessibility terms and definitions*.
[ITU-T A.Sup.4]	Supplement 4 to the A-series Recommendations (2015), *Guidelines for remote participation*.
[W3C WCAG 2.0]	WCAG 2.0 (2008), W3C Web Content Accessibility Guidelines (WCAG) 2.0. <http://www.w3.org/TR/2008/REC-WCAG20-20081211>
[ISO 32000-1:2008]	ISO 32000-1 (2008), *Document management – Portable document format – Part 1: PDF 1.7*.

3   Definitions

Terms defined in [ITU-T F.791] apply here. In case of conflict, the terms defined in [ITU-T F.791] have precedence over those here. This Technical Paper defines the following terms:

Assistive Technology[F.ACC-TERM]**:** Is an umbrella term that includes assistive, adaptive, and rehabilitative devices used by a person with disabilities to prevent, compensate, relieve, or neutralize any resulting impairment. AT is an interface to an ICT device to allow access to technology. It also includes the process used in selecting, locating, and using ICTs. The use of AT and AT devices promotes greater independence by enabling people to perform tasks that they were formerly unable to accomplish, or had great difficulty accomplishing, by providing enhancements to or changed methods of interacting with the technology. It provides 'indirect access' and is supported by Universal Design. An example would be a screen reader that enables persons who are blind to read printed text.

Presentation Software Application: It is an application that displays information with a variety of slides with text, graphics, audio and video (e.g., Microsoft PowerPoint, OpenOffice Impress, Apple Keynote, etc.)

Keyboard emulator [F.ACC-TERM]**:** Hardware/software input device that emulates the key press outputs of an alphanumeric keyboard. Used by individuals who are unable physically to enter text using a keyboard.

Pixelation [F.ACC-TERM]**:** The display of a bitmap or a section of a bitmap at such a large size those individual pixels become visible, making the image 'jagged' and more difficult to decipher.

Platform accessibility features [F.ACC-TERM]**:** Accessibility functionality provided as standard on a particular hardware/software platform. For example, screen magnification or 'zoom' functionality provided within an operating system.

Remote participation [ITU-T A.Sup.4]**:** Participation in a meeting from a separate geographical location, using communication technologies.

Screen magnification software[F.ACC-TERM]**:** Software application used by a person with low vision to magnify a portion of the text and/or graphics displayed on a video screen sufficiently to enable reading and comprehension.

Screen reader software [F.ACC-TERM]**:** Software application used by a person who is blind or otherwise 'print impaired' to identify and interpret what is being displayed on a video display and read aloud using speech synthesis.

Sign Language [F.ACC-TERM]**:** A sign language (also called signed language or simply visual signing) is a natural language which, instead of acoustically conveyed sound patterns, uses manual communication with the hands and body language to convey meaning.

NOTE – As any language, they will have their own distinct grammar and syntax. There is a different sign language for every spoken language, and dialects are found within each country just like any spoken languages. There does not exist an international sign language per se but Deaf individuals who use different signed languages adapt their signing to communicate with each other and make themselves understood. This has led some to misconstrue that there exists a single uniform signed language understood by all deaf persons. This is in fact an incorrect assumption. International Sign Language as a distinct language does not exist, but what does exist is a form of very basic signs with a limited vocabulary that does not include specific terminology and is used to communicate between Deaf persons who used different signed languages and that is referred to as International Sign Language. It is constantly changing and adapting to the specific needs of participants in specific situations. It is used primarily within the international deaf community to have a language that most can understand without having to resort to having so many different national sign languages present at a large international meeting for persons who are from many different countries, However many Deaf people do not use or know any form of International Sign Language and it is interpreted differently in every country. It can be used under certain circumstances when no other choice is available but not in detailed technical discussions. There is no equivalent spoken language translation. Thus, a real true understandable International Sign Language is not standardized or consistent as explained above.

Sign Language Interpretation[F.ACC-TERM]**:** Real time video services or showing of an interpreter who uses hand gestures, facial expression and body language to convey the main audio content and dialogue to people who use sign language and also to some lip readers who can combine lip-reading with sign language. This is also done live when an interpreter is physically present.

4   Abbreviations and acronyms

This document uses the following abbreviations and acronyms:

DVD	Digital Versatile Disk
HTML	Hyper Text Markup Language.
ICT	Information and Communication Technology
PC	Personal Computer
PDF	Portable Document Format.

PWD   Person with disabilities

SMS   Short message service

WCAG   Web Content Accessibility Guidelines

W3C   World-Wide Web Consortium

5 Guidelines for ensuring accessible remote participation in meetings

This section lists the functional requirements for enabling effective remote participation in meetings for all and provides guidance on how to achieve them. For each functional requirement, it states:

–   *what the requirement is;*

–   *why this is a requirement;*

–   *who is affected and how;*

–   *what needs to be achieved;* and

–   *how this can be done.*

These requirements cover technological capabilities, required configurations and set-ups, behaviour of presenters and participants, meeting management procedures.

5.1 Priority 1 requirements: Essential

5.1.1 Ensure that information and registration processes are accessible to all

All information concerning the meeting and any registration procedures should be accessible to all potential participants, including people with disabilities and users of assistive technologies.

How this can be achieved

All web-based content and functionality such as announcement e-mails, online registration forms, online agendas, discussion documents in Portable Document Format (PDF) [ISO 32000-1:2008] (accessible PDF only) or other formats should adhere to the W3C Web Content Accessibility Guidelines [W3C WCAG 2.0].

NOTE – Level AA is the recommended level of compliance to [W3C WCAG 2.0], while level A compliance would be acceptable as a transitional measure.

There should be a place on all registration forms for participants to request any accessibility accommodations. There should be contact information available where the participant can communicate directly with the staff member responsible for accessibility accommodations. Under no circumstance should be anything on the registration forms that requires any person to declare he is a person with disability.

5.1.2 Provide real-time captioning

Any audio information presented at the meeting, including all spoken presentations and announcements, audio tracks of audiovisual presentations and questions from the audience, should be captioned in real time into a synchronous text transcript (real-time captions).

Why this is a requirement

A synchronous text version of audio content is essential for any participant who has difficulty hearing the audio sufficiently to understand it. This can occur for a number of different reasons. For example:

–   One or more participants are deaf or hard of hearing and rely on text to replace or supplement audio.

- One or more participants are not proficient in understanding the official language of the meeting and must rely on text to replace or supplement the spoken words.

- Captioning is also required if the speech of the speaker is unclear due to a distinct regional accent, making them more difficult to understand for the general audience. This is particularly important when listening through a remote audio link.

- If the audio stream is of low quality, or suffers intermittent drop-outs or breaks completely captioning usually still can operates at lower bandwidth thus allowing participants not to lose the content of the meeting. Technical problems can occur to a single participant or to everyone, depending on what is the technical problem.

- A participant may not be able to follow the meeting the entire time. This could be due to outside activities or a loss of concentration for whatever reason or technical interference. These circumstances can apply to either remote or physically present participants.

- It is also important that the speaker identifies him or herself clearly and accurately as to name or country represented each time he or she takes the floor. If the speaker's name is unusual it is also required that the speaker spell the name for the captioner to record accurately. The chairman may need to remind speakers to do this from time to time.

Since any or all of these situations might arise during any meeting, real time captioning is always essential and must include the ability of the participants to scroll backwards for any missed content. This can be easily done if the participant is utilizing the URL that is utilised by the captioning company. This URL should be made available to all participants on the web announcement of the meeting, before and during.

What needs to be achieved

Real time captioning should be synchronised with the speaker's speech to allow real time participation by those who are totally reliant on captioning. In addition to the scrolling feature mentioned above, the permanent electronic record of the captioning should be turned into accessible transcript for all participants upon request or posted on the web. This provides access to a permanent record of the meeting for those who missed the meeting or missed portions of it.

This allows participants to re-read things they have missed or catch up after an interruption, which often occurs for remote participants. A transcript that appears like television captions, i.e. only one or two lines at a time, does not allow this. A full transcript also provides a permanent record of the meeting content that can be accessed after the meeting by anyone who missed all or part of it.

How this can be achieved

It should be possible to hire a reliable firm who uses certified captioners that meet certain requirements that enable the captioner to provide actual real time text. A professional live transcription service may be used to produce real-time text. The remote participation tools should include a facility to transmit this text in real time to remote participants.

It is important to provide the captioner with any background material that provides terminology, acronyms, participant names, etc. to enable the captioner to pre-programme any hardware or software mechanisms so that they can provide accurate real time text. The background material ideally should be provided at least seven days in advance, but the timing and the nature of the materials required may be negotiated with the captioners.

This can come in the form of speeches, participants lists, written out outlines (e.g. agendas), any documents that will be discussed or access to specific websites that can provide pertinent information. It is also important for people who chair meetings to have training, so they can instruct all participants to announce either the full name or country before speaking. This is so that speakers can be identified later in the transcript that will be made available to participants. It is also important for all participants to speak at a reasonable speed so that not only captioners can

understand, but interpreters can understand and interpret accurately. When someone speaks in a different language, than the language of the captioning, it is important that an audio stream of the oral interpreter who speaks the language of the captioning is transmitted to the captioner transparently. These instructions should be announced at the beginning to the meetings and chairmen should remind participants when they speak.

5.1.3   Provide audio streaming from the meeting room

Any audio information presented at the meeting, including all spoken presentations and announcements, audio tracks of audiovisual presentations and questions from the audience, should be made available in real time to remote participants through an audio stream of sufficient quality to ensure that remote participants can understand what is being spoken. Audio description should also be provided to describe any unspoken visual aspect of any presentation. If this has not been done in advance it should be a requirement that the presenter verbally describe the unspoken visual aspect.

Why this is a requirement

Audio streaming will always be required since the spoken word is always a main (in addition to real time captioning) way that information is communicated and understood in meetings. Presentations may also include the use of audiovisual materials with visual content that needs to be described orally.

The quality of streaming audio is very important to ensure that remote participants can understand what is being spoken. Streaming audio can often have variable sound quality, excessive background noise, and frequent drop-outs or even complete breakdown. This effectively closes the meeting to most remote participants unless it is agreed to rely on caption and chat boxes until the audio stream can be re-instated.

How this can be achieved

The remote participation tools may include a facility to transmit audio in real time to remote participants. The audio setup in the meeting room should allow all audio sources to be inputted into this stream. This will include the chairman and facilitators' microphones, the presenters' microphones, the audio output from any hardware or software used for presentations or demonstrations, any roving microphones used for members of the audience to ask questions or make contributions and the audio contributions of remote participants.

A meeting administrator or technology support person should monitor the quality of all remote audio streams and quickly fix any problems that arise.

Individual remote participants should have a way to report problems immediately to a facilitator or technician who should determine where the cause lies and take remedial action or offer advice as appropriate.

To prevent interference of background noises from remote connections, the chairman may remind remote participants to mute their microphones until they want to contribute. Participants might, in some case, fail to do this or be unable to, so the meeting administrator should also have the possibility to mute individual participants until they are to speak.

5.1.4   Provide sign language interpretation when needed

Participants with disabilities who are profoundly deaf or deaf blind and whose first or preferred language is a sign language, should have sign language interpreters (always need to have two for each language) available to interpret speech into sign and sign into speech.

NOTE – As there are many different sign languages, PWDs could be consulted on contact information for interpreters of choice.

It is a requirement that all interpreters for each language work in pairs so that appropriate breaks can be taken. This is also required for sign language interpreters for each language. Sign language is necessary for communication between PWDs and the other participants in real time in both directions. The interpreters must be able to interpret the PWDs signing into speech so that all participants and the captioners can capture the content of the speaker's sign language in text. The interpreters should have access as early as possible to as much material and information that will be presented at the meeting. This should include spoken content of audio tracks of any audiovisual presentations. The interpreters should also be provided in advance, when possible, all written material for background information including all names of all participant as these have to be specially interpreted by a method called finger spelling in which the proper names and nouns are alphabetically spelt out using the fingers in manner that recognizes the alphabet. . In the case of a participant who is presenting with sign language or making a comment or asking questions; the participant requires that their own signing is interpreted by a sign language interpreter into speech or text (i.e., captioning) and made available to all participants in real time.

Why this is a requirement

Sign language interpretation is essential for participants who are profoundly deaf or deaf blind and who's first or preferred language is a sign language. It is also possible that these persons will not be fluent in reading and writing a textual language. PWDs require interpretation in their own identified sign language, e.g. in French sign language for French speaking participants and English sign language for the English language participants. There are many different sign languages for each spoken language. There are different French or English sign languages as there are countries. There is Swiss French Sign language (SFSL) which is different from French Sign Language (FSL) for the country of France. In fact Switzerland has three sign languages, as there is one also for Swiss German and Swiss Italian. The same applies to English language based sign. Some countries have identified a specific sign language such as in the United Kingdom with British Sign language (BSL) as a recognized true language or as in the USA as American Sign Language (ASL). However many countries have not recognized a national sign language because there are too many dialects for the different spoken languages used within a single country. This is especially true of developing countries and an example is in Egypt where attempts are being made to nationalize a sign language for education.

There is no true international sign language, though there is an inter-sign language between different sign languages that is used between persons who are deaf and deaf blind amongst themselves and that is called loosely "international sign language". It is often ad-hoc and not understood by all deaf sign language users internationally. The vocabulary is variable and inconsistent between users and is not suitable for technical discussions, as it is often lacking in key technical words and phrases. It should not be used if it is possible to have interpreters in the sign language of choice. This might mean that there are several sign language interpreters of different languages present. Captioning should be used whenever possible to aide sign language interpretation. When more than one language is being used audibly, captioners should be able to listen to the oral interpretation channel of the language to be captioned. Similarly, sign language interpreters should be able to listen to the language channel that most appropriate to the sign language being interpreted.

How this can be achieved

In the remote participation tools, there should be at least two communication channels available but not restricted to just two. One is video and the other is audio. One to enable the participant to communicate with the interpreters and vice versa. One also to enable the interpreter to communicate with all other participants to translate the sign in spoken words and this is audio. Both these channels should allow two-way communication. In some cases a third or more channels may be useful i.e. one that enables the participant to communicate directly in sign language (not through an

interpreter) with other participants who are deaf and use the same language. This provides for better communication for remote participants both those who are PWD's and those who are not.

For two-way communication between the PWD participant and the interpreter, the interpreter may (1) be located either at the meeting venue or (2) with the remote participant or (3) in another remote location. These three different scenarios have very different implications technically.

1. If the interpreter is at the meeting and the participant is not:

    The interpreter's signing should be delivered to the remote participant via streaming video. However, a single interpreter can sign in only one sign language at a time, so if more than one remote participant requires signing and they use different sign languages, the meeting will need to provide more than one interpreter (remembering that sign language interpreters come in pairs) and more than one video stream.

    To make contributions using signing, remote participants will need to be able to stream the video of their own signing to the interpreter at the meeting.

2. If the interpreter is located with the participant:

    In this case, the interpreter and the participant can see each other sign without the need for any video link. Only two-way audio and text communication (captioning) for the interpreter with the participant is required.

3. If the interpreter is in another remote location:

    In this case, additional equipment is necessary to allow both the remote participant and the remote sign language interpreter to appropriately follow all interactions at the meeting. For example: (a) additional screens to allow the remote participant to see the remote interpreter; or (b) both remote participants and remote sign language interpreter may need up to three screens each to allow viewing the captioning, the remote participation tool and the interpretation screens between them.

The best solution will depend on how many remote sign language users there are, which sign languages they use, and whether two way video links are available. The costs also play a part in providing the various requirements and it is advisable to set up what is needed with as much advance notice as possible.

5.1.5 Provide a way for remote participants to ask to make a comment or ask a question

Remote participants should be able to let the chairman know when they have a comment or to ask a question. There should be a remote participation moderator to assist the chairman as well, monitoring the remote conferencing tool.

Why this is a requirement

All participants should have the same opportunity to participate fully in the meeting by making comments and asking questions. Participants who are physically at the meeting place can signal the chairman by raising their hand or using some other discreet method of communication. Remote participants also need to be able to do the same. The chairman will then need to be able to invite the remote participant to comment at the appropriate time.

How this can be achieved

Remote participation tools often provide a 'hand raising' function. If they do not have one, or if this function is not accessible to some participants (e.g. participants who are blind using screen reader software), then an alternative procedure will be required. For example, the chairman could choose an appropriate time to individually invite each remote participant to make a comment by saying their name. Also the remote participation moderator can check the chat box and hand raising mechanism for other remote participants to who wish comment and advise the chairman.

5.1.6 Allowing interventions by voice

Remote participants should have an audio facility that allows them to speak and be heard by all other participants and this includes remote sign language interpreters speaking for participants who are deaf when translating their respective sign language.

Why this is a requirement

All participants should have the same opportunity to participate fully in the meeting by making interventions. In most meetings, most participants, including those who are remote, will intervene using speech rather than by written text which can be more time consuming.

How this can be achieved

It may be done by using either a voice chat feature built into the remote participation tools or a separate facility, such as a telephone conference call facility.

5.1.7 Allowing interventions by text

Remote participants who are unable to communicate by voice should have a text communication facility that enables them to enter text which can be seen on the conferencing tool and/that will be read out by the remote participation moderator.

Why this is a requirement

This is useful for those who cannot use the audio facility for any reason and therefore, written text might be the preferred or only way for them to communicate effectively with the other meeting participants. Most remote participation conferencing tools have and should have an interactive text box that allows text interventions. This is useful for persons with different specific needs and also useful when the audio fails. The remote participation moderator should monitor both the requests for audio and text box interventions and signal the chairman when such interventions are requested.

A text facility also provides a valuable backup to the audio link should it fail because it is generally more reliable and less likely to experience technical problems.

How this can be achieved

Remote participation tools should include a facility for making interventions by text. This facility is sometimes called a chat box. A secondary text chat box might also be available in the captioning URL and that can be used for back up in the case that the connection to the primary tool is interrupted. This secondary chat box in the captioning URL (separate from the caption pod in the remote participation tool), needs to be requested in advance.

5.1.8 Enable communication directly with the remote participation moderator and/or technical support

Individual remote participants should have a facility to report any problems they encounter immediately to the remote participation moderator and or technician who is in a position to investigate the cause and take remedial action. This includes technical problems with the remote participation tools. Sometimes the problems are with the access that the remote participant is experiencing with their own equipment and their own access. This can include the problems of the remote presenters being difficult to hear or presentation materials being inaccessible, etc. Technical support should be able to work with remote participants and give guidance and explain the typical access problems. They therefore should be trained in that area of support. Remote participation moderators are not always the person designated as the technical support. If there are two, both parties should be trained in a procedure to rectify basic problems and to be able to diagnose and communicate with remote participants.

Remote meeting participants often experience on-going or intermittent problems which prevent them from accessing or understanding the meeting content and participating fully. There could be a number of causes for this, often occurring in combination. Low capacity or unreliable telecommunications technologies, lack of expertise and experience with remote meetings, lack of awareness of the problems faced by remote participants, poor presentation skills. Persons with disabilities can have unique but solvable problems of access. This can result in the meeting becoming permanently or intermittently inaccessible to some or all remote participants.

How this can be achieved

Remote participation tools should include a chat facility (e.g., chat box in an application being used for remote sharing of information) that can be used to report problems as they occur. If this is only the main chat box used by all, it should allow a private chat facility that can be directed to a specific participant. The issue can be then directly addressed to the remote participation moderator and or technical support. In addition, the remote participation moderator and/or technical support personnel may also monitor an external chat forum regarding the said fault with a dedicated messaging service, text message (SMS), e-mail discussion, or use a specific telephone number to facilitate the reinstatement of the service and or the repair of the faults.

However the troubleshooting is organized, the methods used for communication should be able to be accessible so that at least one of the communication methods can be accessed by all remote participants including persons with disabilities.

5.1.9   Provide information in advance on how to participate remotely

Information about the remote participation options and tools and how to make use of them, should be made available to all participants in advance of the meeting.

Why this is a requirement

Participants will be unaware of remote participation options unless they are told. Some might find the remote access tools difficult to use and might need help or support. Certain accommodations, such as sign language interpretation, and captioning may be available only on request. The ability to request accessible accommodations should be noted on all registration forms both hard copy and electronic so that participants can request them when registering.

How this can be achieved

A document or web page on "*How to participate remotely*" should be provided in a universally accessible format. It should include at least the following content or direct participants to further accessible documentation that includes this content:

–   What tools are required for remote participation and how to download, install and run them.

–   How to access the meeting and any access codes that are needed.

–   The options available for receiving audio, video and text (i.e., chat box and captioning), and how to access them.

–   How to make an intervention from a remote location, including the explanation of how to use the 'hand raising' procedure to request the floor and the acknowledgment that some screen readers are not able to recognize this feature in some remote participation tools.

–   How to request beforehand accessible options that are available only on request, e.g. language interpretation both verbal and in sign language, captioning and requests for access to the meeting remotely when screen readers cannot access remote participation tools.

–   An explanation of the different functions that are provided by the remote participation tools.

– Contact details for further information, special requests, or additional technical support. This could include the mobile phone number for sending text messages (SMSs) to the moderator.

– Instructions to participants and captioners on how to switch audio channel when multiple languages are being used.

This information should be made available in advance via the meeting web page and by any other means that are used to distribute meeting documents. All information should be available in accessible forms, adhering to [W3C WCAG 2.0].

NOTE – Level AA is the recommended level of compliance to [W3C WCAG 2.0], while level A compliance would be acceptable as a transitional measure.

5.1.10 Ensure that the remote participation tools are accessible and available to as many persons with specific needs as possible including persons with disabilities.

All remote participation tools should be accessible to participants, including persons with disabilities and those persons who use assistive technologies, (i.e., any tools that remote participants need to use for access):

By accessible it is meant the ability to access:

– the audio stream, video stream, presentation slides, text transcript, and captioning etc.;

– to make interventions via voice, text or other means;

– to be able to communicate with the meeting chairman, remote participation moderator, technical support and other participants.

Why this is a requirement

Some remote participation tools present accessibility barriers that make them unusable by people with disabilities and incompatible with assistive technologies. Among the most common problems are:

– controls that can only be operated using a mouse, making them inaccessible to participants who are blind or physically disabled who use a keyboard or keyboard emulator;

– visual controls with no text alternatives which are invisible or incomprehensible to participants who are blind using assistive technology, such as screen reader software;

– lack of control over the size and colour of on screen text and the dimensions of text windows, making the text difficult to read for people with low vision and users of screen magnification software;

– non-recognition of platform accessibility features and settings; i.e. non universal recognisable icons

– unavailability of user interfaces in the participant's language;

– instructions and training resources in inaccessible formats.

What needs to be achieved

Software applications, web-based tools and content and functionality delivered through these tools should adhere to [W3C WCAG 2.0].

NOTE – Level AA is the recommended level of compliance to [W3C WCAG 2.0], while level A compliance would be acceptable as a transitional measure.

How this can be achieved

Some remote participation tools have been designed to be accessible. Tools should be assessed for accessibility against the guidelines and tested before being deployed by using them in realistic

demonstration meetings attended remotely by participants with disabilities using assistive technologies.

Adaptations to procedure to minimize inaccessible access should be deployed, e.g. calling participants who are blind and cannot connect via a screen reader.

5.1.11 Ensure access to contents of presentations for participants with vision impairments

Audiovisual presentations should be available in formats that are accessible to participants with visual impairments using assistive technologies (e.g. using audio description). If it is not possible, then the presenter must describe or readout the presentation text and describe the images. It is also helpful if presentations can be posted in advance.

Why this is a requirement

Participants with vision impairments might require presentations in a format that can be read with screen reader software or refreshable braille displays, magnified without pixelating or displayed in an alternative colour scheme. Remote participation tools often send presentations as a video stream, making this impossible.

How this can be achieved

Some remote participation tools convert presentations in common slide show formats to structured mark-up language (e.g., HTML), which is more accessible to PWDs using assistive technologies. However, because well-made visual presentations can be more interesting, understandable and impactful for sighted participants, other accessible formats may be provided as a supplement.

5.1.12 Ensure that meeting documents are accessible and available to as many persons with specific needs as possible including persons with disabilities

Documents that are to be used by participants either in preparation for the meeting or during the meeting should be available in accessible formats in advance on the meeting website

What needs to be achieved?

The documents and the website should adhere to the [W3C WCAG 2.0].

NOTE – Level AA is the recommended level of compliance to [W3C WCAG 2.0], while level A compliance would be acceptable as a transitional measure.

It is also possible for the meeting organizers to send upon request other accessible document formats to those participants who require them.

How this can be achieved

Document authors should be made aware of accessibility authoring guides for the particular format they intend to produce. It is also important to have documents assessed by PWDs using assistive technologies and authoring tools in the system. For example, vendors provide accessibility tutorials for their PDF and presentation applications. Good tutorials are also available on third party websites such as WebAIM (cf. http://webaim.org/techniques/word/). Some tools also contain built-in accessibility checking tools that can be used to assess documents.

5.2 Priority 2 requirements: Important

5.2.1 Ensure that speakers can be clearly understood

The speech and audio transmission of all speakers and interpreters should be clear enough that all remote participants are able to fully understand what is said. However captioning can often help persons without disabilities understand heavily accented speech. Persons who use screen readers can also access captioning if it is also published on a separate URL in addition to the captioning pod

on the remote participation tool. Speaking clearly is important so that sign language interpreters can accurately sign what is said.

Why this is a requirement

If the audio quality is poor or if there isn't a video to allow lip reading, remote participants might find speakers difficult or impossible to understand.

All microphones should be tested in advance. Speakers need sometimes to be reminded to hold the microphone close enough to their mouths and to be careful not to turn away from the microphone or start to speak before they are given a working microphone.

How this can be achieved

Speakers, including those in the audience, should always be given a working microphone before they start speaking.

The meeting chairman should encourage all participants to announce their names and affiliations slowly and clearly not only for the participant who can hear but also for the captioners.

Captioners and interpreters should be given prior information about the names and affiliations of speakers. It is helpful to use large clear nameplates in front of attendees, positioned so that everyone can read them.

A live streaming video feed showing the current speaker, should be close enough for the audience to see their face clearly. This will facilitate lip reading.

5.2.2   Ensure that presenters are aware of the needs of all the audience

Presenters should be made aware that there are people participating remotely and that some of them might have sensory or other impairments, e.g. persons who rely on sign language need time to communicate back and forth before the sign language interpreter speaks for the participant.

Why this is a requirement

If presenters are not aware of the needs of remote participants, including those with disabilities, they might present information in ways that may not be understandable to some participants. There are other reasons that the content of the meeting might be unclear to some participants:

–   The participant is participating remotely and the audio stream is of low quality.

–   The participant is deaf and relies on a sign language interpreter who might have difficulty interpreting rapid, unclear or jargon-filled speech.

–   The participant is hard of hearing and relies on clear enunciation or captioning.

–   The participant is not proficient in understanding the speaker's language and relies on clear enunciation and uncomplicated language.

Participants might have difficulty understanding the audiovisual presentation, due to any or all of the following reasons:

–   The participant is participating remotely and the video presentation is too small on the screen, and of low quality or missing entirely.

–   The participant is blind and relies on audio descriptions of the visual elements.

–   The participant is vision impaired and has difficulty reading small text in the presentation.

–   The participant is deaf or hard of hearing and relies on captioning to understand the audible aspects.

How this can be done

The meeting chairman should pay attention to whether presenters are communicating in a way that meets the needs of all participants and should be prepared to interrupt presenters and remind them of the need for this. The chairman or remote participants should also inform the remote participation moderator or technical support team that the video is not large enough or clear. This action also applies to informing that the text of the captioning is not large or in an appropriate font.

The remote participation tools should be as easy to use as possible and the remote participation moderator and or technical support should be available for assistance.

Why this is a requirement

A problem of complexity can arise if the tools required for remote participation are not well integrated. The remote participant might have to switch between or simultaneously attend to a number of different outputs, such as audio and video streams, a captioning URL, an audiovisual presentation viewer, other viewers for documents that are being discussed and who is remote and on the chat box. The remote participant might also have to operate a number of different inputs, such as an audio input for making interventions, like the hand raising tool, or the chat box facility for communicating the remote participation moderator and or other participants, etc.

This multifunction complexity can make the experience of remote participation very difficult, particularly for users of assistive technologies. The effort and cognitive load required to operate all of these tools can divert the participant's attention from the content of the meeting. If the tools are particularly difficult to use, the participant might find it impossible to operate some of them and might be unable to follow the meeting or intervene at all.

How this can be achieved

It is important to look for a remote participation tool that integrates as many of the essential functions into one package allowing the users to configure their own profiles on the screen.

Remote participation tools should be tested before being deployed by using them in realistic demonstration meetings. Participants with disabilities using assistive technologies should be included in any testing. Testing can also provide a useful opportunity for remote participants to become familiar with the tools and deal with any particular difficulties.

5.2.4   Allow remote participants to control layout and the presentation of their screens

Individual remote participants should be able to control the positions of the pods and sizes of the fonts, colour and background of texts information and other various functional elements on their screens.

Why this is a requirement

Individual remote participants can have very diverse sensory abilities and preferences for how they accessibly make use of the available screen space. For example, participants who are deaf or hard of hearing might rely very heavily on the text chat box and want that to take up the majority of the viewing area. Participants who are visually impaired might want to increase the size of the font at will.

How this can be achieved

At present there are few tools that allow the recipient to alter the placement of pods or the font of the text on the screen remotely. Usually, the remote participation moderator or the technical support can adjust these features. The designers and manufacturers of conferencing tools need to be encouraged to re-design their tools to accommodate these accessibility functionalities.

5.3   Priority 3 requirements: Additional information

5.3.1   Additional information to help with access to contents of presentations for persons with disabilities

All videos should be captioned for participants who are deaf.

Audiovisual presentations should be available in formats that are accessible to participants with visual impairments using assistive technologies.

If the content of the presentation is essential and is not described by the presenter, both points above become Priority 1 (essential).

Why this is a requirement

Participants with vision impairments might require presentations in a format that can be read with screen reader software or refreshable braille display, magnified without pixelating or displayed in an alternative colour scheme. An example would be a picture or photograph in a slide set that has been copied and pasted into the document; in this case, it is not possible for the person who is using a screen reader to identify the meaning of this image without a descriptive text tag. Remote participation tools often send presentations as a video stream. In this case, alternate text or audio descriptions are lost and the presentation is not accessible.

Participants who are deaf might find it difficult to look at a slide and read the incoming text or signing at the same time. It is not acceptable to use the real time captioning for the meeting as substitute for a properly captioned video. Persons who are deaf might find it difficult to look at a video on one screen and read real time captioning on another screen or follow sign language interpretation at the same time etc. Also positions of all three aspects video pod, sign language pod, and captioning pod must be placed on the conferencing tool in a way that it is easy to view.

How this can be achieved

Some remote participation tools convert presentations in common slide show formats to a structured mark-up language (e.g., HTML), which is more accessible to people with disabilities using assistive technologies. However, because well-made visual presentations can be more interesting, understandable and impactful for sighted participants, other accessible formats can be provided in addition as an alternative, not as a replacement.

It can be extremely helpful to provide participants who have disabilities and who request, to be given any written materials electronically in accessible format in advance if available before the meeting

5.3.2   Avoid timing discrepancies

Synchronization of the captioning with the speech in all videos is important. Short delay in the delivery of real time captioning for the meeting is important. Delay in transmitting any content to the remote participants should be as short as possible.

Why this is a requirement

Lack of synchronisation between different elements of a presentation can hinder understanding. Understanding is only possible if the video is synchronised with the audio and the captioning is synchronized with the speech.

Any delay in the audio, video or text communication (chat box captioning) between the meeting room and the remote participants can make it more difficult for remote participants to engage in a real time conversation with people in the meeting room.

How this can be achieved

The technical support and remote participation moderator should run tests at least 30 minutes in advance to make sure the Internet connection is as reliable as possible and has as much bandwidth as possible. All components should be tested in advance, including videos, sound, captioner's connectivity and communication with remote participants. Sometimes the remote recipient will not have good Internet connectivity and this cannot be controlled. In this case, alternate methods (e.g. text in the chat box instead of voice) may have to be used. It is important that technical support establishes the best possible methods depending on the capabilities of the conferencing tool in communicating directly with the remote participants.

5.3.3   Ensure that remote participants feel that they are part of the meeting

Take steps to make remote participants feel welcome, visible and valued by introducing or allowing physical participant to know who the remote participants are. This also may encourage physical present participants to join the remote participants on the remote tool and communicate directly privately via the private chat tool on the chat box. Whenever possible, the remote participant could, depending upon the remote participation tool, be shown by name or video.

Why this is a requirement

Because they are not physically present with those in the meeting room, remote participants might feel they are viewing a meeting rather than participating in it. This feeling will increase if their presence is not clearly perceptible to other participants, if presenters seem to be unaware of their needs or if they are not explicitly invited to contribute.

How this can be achieved

The presence of remote participants can be acknowledged by the chairman at the start of the meeting

Making it possible for remote participants to communicate with others, for instance by using a text chat facility, creates a group feeling and enhances the overall quality of the meeting.

A video feed of the meeting room will allow remote participants to see the chairman, the presenters and the other people in the meeting room, giving a greater sense of being there.

If possible, two-way video links with remote participants will allow them to be seen when they are making an intervention or contribution thus making them seem more present.

The participants list should be published and may be available online so all participants, remote and physical, can have the information of the meeting.

[ITU-T A.Sup.4] specifies generic guidelines for the organization and handling of meetings with remote participation.

6   Preparation and management

Meeting the above functional requirements involves staff (i.e. remote participation moderator and technical support) the remote conferencing tool and procedures as outlined in this documents. To ensure success, it is essential that both the tools and the procedures are prepared and tested well in advance of the meeting and that they are carefully managed during the meeting

6.1   Budget for accessible remote participation

Budget for remote participation tools should include access services to allow participation.

6.2 Find out about remote participants' needs

The registration form should find out about participants' requirements, such as the need for sign language interpretation, captioning and other requirements.

6.3 Publish information for participants in advance

When the meeting is announced together with a draft agenda, information on how to participate remotely should be published and distributed in accessible formats.

6.4 Provide training to meeting chairmen

Chairmen should be trained in the use of the remote participation tools to be used for the meeting and in awareness of the needs of persons with disabilities and their specific needs on how they can participate with dignity and respect. If a separate remote participation moderator and/or technical support personnel are used, they should receive similar training.

Further training is required by the meeting chairman and/or remote participation moderator to ensure that they monitor remote participation tools, to ensure that remote participants know what is taking place in the meeting and allow remote participants to contribute actively in making interventions.

6.5 Provide instructions to presenters

Guidelines should be created and distributed in advance on how to provide accessible presentations. Organizations such as the World Blind Union provide how-to guides on preparing accessible presentations..

6.6 Run test sessions before the meeting

Participants should be invited to a test session or tutorial when possible before each meeting to run through the tools and procedures of the meeting. This should cover the whole process, including registration, attendance, use of tools, and all aspects of participation. This should be offered and arranged upon request.

6.7 Start the meeting with clear rules

If possible start the online meeting 5-10 minutes earlier to make sure everybody is familiar with the tool. Descriptions of the room and participants will add to the success of the meeting. The chairman should encourage participants to use chat facilities to communicate any problems during the meeting unless the participant is blind and needs to have the chairman communicate with him or her directly for interventions. This is due to the fact that many screen readers are not able to recognize the "raise hand" facility asking for the floor to speak. The chairman should emphasize that all participants give their name and affiliation when they speak. This is not only for the remote participants and those in the room to know, but for the real-time captioners to record who is speaking. The chairman may have to remind participants to do this.

6.8 Active encouragement to comment

After every presentation ask for comments from remote participants. It is an added value if there can be inputs and presentations from the remote participants as well. However the remote participation moderator should signal the chairman if any intervention is requested,

6.9 Post the transcript of the real time captioning

Make sure that the real time captioning is available to everyone not just the remote participants after the meeting. Encourage feedback and use it to improve the next meeting

_____