
Audio recording techniques

Guidance from UKAAF

Why format quality matters

"When organisations send me information in formats that I can read myself it allows me to be independent, feel informed and appreciated - just like every other customer."

End-user

"Producing consistently high quality accessible formats helps us to maintain our reputation, to gain new customers and to retain existing ones."

Transcription agency

"We are committed to ensuring that our customers with print disabilities receive the same information, of the same quality, as everyone else."

Service provider

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Who is this guidance for?

This guidance from the UK Association for Accessible Formats (UKAAF) is primarily aimed at producers of audio formats. It will be particularly useful for people who are new to the area of producing audio materials for print-disabled people.

The guidance includes information on:

- The recording environment
- The reader/narrator
- Recording audio
- Troubleshooting
- Audio definitions (glossary)

Disclaimer

This guidance may include references to external websites, services or products for which UKAAF accepts no responsibility. This information is given without any representation or endorsement of those websites, services or products.

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1 Introduction

By obtaining these guidelines you are demonstrating your commitment to helping people with a print disability to read your materials if they find reading standard print materials difficult or impossible.

This guidance concentrates specifically on materials suitable for blind and partially sighted people - such as large print, audio, braille and electronic file formats. However, others with a print disability, for example with dyslexia or motor-difficulties, may also find such materials necessary.

The provision of accessible information is a key requirement of the Equality Act which service providers must follow, but good customer service and business practice includes communicating with your customers and staff in ways which meet their reading needs. By providing accessible format materials, you not only demonstrate your commitment to equality and inclusion, but also increase your reach and customer base. It therefore makes good business sense.

This guidance will help you and your organisation to incorporate good practice into your business and provide good quality accessible format materials in a timely and appropriate way.

2 About UKAAF

The UK Association for Accessible Formats (UKAAF) is the industry association whose mission is to set standards for accessible formats that meet end-user needs through:

- development, delivery and promotion of codes, standards, and best practice for the production and provision of accessible formats

- consultation and collaboration with transcribers, service providers and users of accessible formats.

Members of UKAAF include organisations and individuals with an interest in the provision of quality accessible formats, such as service providers, transcribers, educators, researchers, print services, publishers, and end-users.

Through its leadership and representation, standards-setting, and by fostering a spirit of cooperation between members, UKAAF ensures that the needs and requirements of end-users are understood by service providers and transcribers to help improve the quality of accessible formats.

Please see the section on "Where to get further help" towards the end of this document for more information about the benefits of being a member of UKAAF.

3 Definition of print disability

A print disabled person means a person who has a physical or mental impairment which prevents the person from enjoying a copyright work to the same degree as a person who does not have that impairment, and "disability" is to be construed accordingly. A person is not to be regarded as disabled by reason only of an impairment of visual function which can be improved, by the use of corrective lenses, to a level that is normally acceptable for reading without a special level or kind of light. Source: Statutory Instrument No. 1384. The Copyright and Rights in Performances (Disability) Regulations 2014.

4 Audio recording techniques

With the continued advances in audio recording technology and the general trend to move to digital audio recording equipment, the expectancy of the listener has heightened so much so that "bad" recordings will not be tolerated. Quality can be affected along a

line of activities from the preparation of the reader; the studio environment, editing, copying and indeed finally the equipment through which the listener listens to the material.

This guidance is aimed at individuals or organisations working on a voluntary or charitable basis, and offers practical advice on creating good quality audio recordings. For many of these organisations and individuals the use of a purpose built recording studio or concert hall, let alone having the use of sensitive recording equipment, is just not possible. However, as this guidance demonstrates, there are steps that can be taken that help to make good quality audio recordings.

These guidelines have been compiled by UKAAF members from their own experience in the hope that they might help others towards that goal to which we are all striving, a perfect recording - because format quality matters.

So please let UKAAF know if you have found these guidelines helpful, and tell us what points you would have liked covered which weren't - and please send in your own tips which can be considered for incorporation into a future version.

5 The recording environment

The building

If you want to record from a domestic house, flat or an office building where a specific room has been selected for recording audio, the construction of the selected building will have an influence on the recording process.

If possible avoid buildings that are located:

- Adjacent to a railway/underground
- Adjacent to a hospital, fire or police station (sirens)
- On a flight path

- Alongside a main road
- Near to industrial activity
- By a construction site
- Near to a school (playtime)

Remedies and improvements

The only positive barrier to external sound is mass. This occurs where there are solid brick walls and solid concrete floors, together with a double glazing system that incorporates a 10cm (4") space between the outer and inner pane of glass. In the situation being considered it will be very fortunate if all or even some of the above can be achieved. If you are considering offering audio transcription of commercial or high-profile publications, you may need to consider specialist building works to achieve the required quality.

The recording area or room

If there is a choice, select a location that is basically free from external noise that may produce a continuous background noise or cause you to periodically interrupt your recording. The room should be in as quiet a location as possible. The preferred location should be where there is the least possibility of any external noise penetrating the shell of the building.

In the recording area or room both furniture layout and finishes can affect the recording environment.

Certain steps can be taken to enhance the "studio" atmosphere:

- A small room with a normal height ceiling is best
- Use the ground floor if there is a solid floor
- Rooms can be enhanced if draped with sound-absorbent material

- Choose a small carpeted room with soft furnishings and as many sound absorbing materials as possible (e.g. curtains, rugs, upholstered furniture, books, wood panelling)
- Drawing the curtains can assist to reduce external noise
- Remove ornaments on shelves that may vibrate
- Place a cloth on the recording table, making sure it does not obstruct the recording equipment or any ventilation

If you are recording in a flat or similar property, neighbours may produce floor related noise. You could consider isolating this noise by placing rubber pads under the table legs.

Pitfalls and irritations

If you are familiar with your chosen building and its surroundings, you will be able to select the best time to make a recording.

Simple things to work around include:

- Clock or church bells
- Playtimes of local schools
- Ice cream van visits
- Post or couriers calling
- Lifestyle of neighbours
- Boilers and heating systems with programmed activity times
- People using a bathroom will cause interruptions via the plumbing system
- Noisy fluorescent light fittings
- Sounds of a ticking clock in an upstairs room on a timber studded wall can be magnified throughout the building
- Fans or noisy machines can introduce background interference
- Mobile phone interference

6 The reader/narrator

If you feel tired or have a cold it may be advisable not to record as you could make mistakes or your voice will convey tiredness or a blocked nose. If you are recording a book or possibly an article which you find boring, consider getting someone else to read it. Boredom can affect your voice, the same is true of books you perhaps do not understand or “cannot get into”.

If recording becomes hard work and you are not enjoying it, then perhaps it may not be for you. Transcribing into audio does not come naturally to everyone, that's no reflection on the reader. Always enjoy what you are doing, positive criticism from listeners is great, blind and partially sighted people will hear the audio differently to sighted people. Accept that and use it to your advantage.

Your position within the room

Positioning yourself correctly within the room can make a major difference to the quality of the recording.

Steps to enhance the recording are:

- Do not face a hard-surfaced wall or window - this will reflect the sound and produce echoes or a hollow-sounding recording
- Face sound-absorbing materials (e.g. curtains), face into the centre of the room or open the doors of a cupboard in front of you
- If this still produces a "hollow" sound, try putting something sound absorbent behind you and covering the table with a towel or blanket (which also stops vibrations from your arms or the book being transmitted through the microphone stand)
- Use a high-backed chair to encourage an erect seating posture
- Do not use swivel or creaky chairs

- Avoid the use of gate-legged tables (more legs to bang into)

Tip: It is better if the equipment can remain in position rather than having to be set-up for each recording session. Not only does this save time, it helps to ensure a consistent sound quality. Keep equipment covered when not in use, as dust is harmful.

7 The recording

Copyright

Copyright protects literary, dramatic, musical and artistic works as well as films, sound recordings, book layouts, and broadcasts. If you want to copy or use a copyright work then you usually have to get permission from the copyright owner, but there are a few exceptions where you can copy or use part or all of a copyright work without permission. Where a work contains a performance, the performer will also have rights over how the work is used. The exceptions to copyright also apply to these related rights.

In June 2014 the Government made it easier for disabled people to access materials that are protected by copyright. The change in the law made the rules on what can be copied into an accessible format much broader so that a whole range of content, including films and broadcasts, can be reproduced in an accessible format for disabled people. The law now allows the:

- making of Braille, audio or large-print copies of books, newspapers or magazines for visually-impaired people
- making of accessible copies of books, newspapers or magazines for dyslexic people.
- adding audio-description to films or broadcasts for visually-impaired people
- making of sub-titled films or broadcasts for deaf or hard of hearing people

However, it will only be legal to reproduce material if suitable accessible copies are not commercially available. Organisations that make and supply accessible-format copies for disabled people have a duty to keep records of the copies they make and provide them to the copyright owner of the material.

The definitive ruling on the applicable Copyright is contained in the Statutory Instrument of 2014 No 1384. The Copyright and Rights in Performances (Disability) Regulations 2014. This was made effective in Parliament on the 19th May 2014.

Positioning the recording device

Place the recording device on a table (covered if necessary) remembering to consider ventilation issues. Ensure you can easily reach the controls, and can see any audio meters the recording software or recording device may have.

Tip: If not using a permanent studio some people find that foam/rubber backed carpet off-cuts provide a free/cheap means of supporting all the equipment on the table. This also reduces vibrations.

Tip: If not using a permanent studio some people use a marker pen to indicate the exact positions of all the items of recording gear, such as a circle for the microphone so when they dismantle the equipment it can be replaced with confidence in the same position.

Tip: Another tip is to use a stiff card measure marked to measure from the chair arms to table edge to ensure the reader is in the same position reducing the need to adjust recording levels.

Positioning the microphone

- Always use an external microphone, not the inbuilt microphone which your recording device may have - generally they do not make a recording of high enough quality.

- **Never** hold the microphone in the hand. It is impossible to keep your hand steady throughout the recording session. Place the microphone in a stand. It is possible to use a lapel microphone however experience demonstrates that a static microphone in a stand produces the best quality.
- If you are buying a new microphone, consider buying one from the bottom of the professional range - you will get much better value for your money, which will be reflected in the quality of your finished recording. Semi-pro microphones are however still very expensive. Excellent recordings can be made using microphones which cost less than £20.
- To minimise any vibrations picked up by your microphone, do not place the stand directly onto a hard surface and as far away from the recording equipment as possible within the other constraints. If you can afford to, consider using angle-poise stands for the most flexible positioning options.
- The most frequent cause of an unacceptable quality of recording is too low a recording level. Your aim should be to make your voice as loud as possible. If you have a built in sound level indicator, or it is part of your recording software this should be shown at the top of the spectrum without going over into the red area which is likely to cause distortion. Within a given location, a satisfactory signal is the result of adjusting two elements: the distance of the microphone from your mouth and the recording level selected.
- If possible, set the recording level manually, as the mechanics of an Automatic Level Control will defeat your efforts to minimise unwanted noises and may make your voice the dominant signal on the recording. If you cannot bypass the Automatic Level Control, you will have to place the microphone quite close to your mouth in order to achieve this.

- If possible, refer to the manufacturer's instructions for guidance on the optimum distance from mouth to microphone. If these are not available, experiment: less expensive microphones tend to be less sensitive. Start with the microphone between four and six inches from your mouth. More sensitive microphones may work better at greater distances, as much as eighteen to twenty-two inches away. These microphones can be quite expensive and have to be used in specialist environments due to their sensitivity. Be careful to avoid excessive bass boost due to "proximity effect". This is more likely to occur with directional microphones.
- Set the recording volume on the recording device or the digital recording software. Read a few sentences in a normal voice, listen to the playback and then adjust the microphone distance and volume level until you have a good level.
- If your voice sounds hollow or distant, you are too far from the microphone. Try bringing it closer, leaving the volume at the same level.
- If your voice sounds raspy or if you hear "pops" or "puffs" of air, particularly on the "p's", "t's" and "d's", or if your "s's" have a hissing quality, you are too close to the microphone. If only the "s's" are unpleasant, try covering the microphone with a thin cloth, nylon stocking, or a commercial windssock.
- With some microphones/voices, best results may be obtained by keeping the microphone at an angle to the mouth rather than talking directly into it.
- Recording levels should be checked at the beginning of each recording session, since many factors can affect the voice. Begin each session by recording two or three sentences at the usual recording level and microphone distance. Then listen to the last two or three sentences of the previous session with the

two or three new sentences together: If there is a noticeable difference in level in the just-recorded section, make the necessary adjustments until no variation can be heard.

- As you read down the page move the book instead of your head, otherwise it will affect the recording level.

Preventing extraneous noises on the recording

- Clear the recording area of extra papers and other litter
- Remove the dust jacket from hard cover books
- Time is well spent practising page turning; it is surprising how much time is lost from the noise of pages. Try different books and with loose leaf scripts.
- Be very careful not to knock the microphone or cable - even the slightest touch while turning a page can sound like a clog dance.
- The microphone doesn't differentiate between wanted and unwanted sound, and so will pick up not only your voice but also all other sounds. To check if other noises are present, you can listen to your recording on a different recorder in another environment. Otherwise you cannot tell if the sounds you hear are on the recording or merely in the room. If possible, get someone else to listen to the recording, for sometimes background sounds will be so familiar to you that you will not notice they are there.
- Use the "pause" control to stop recording when you have to cough, sneeze, turn a page, when you hear a lorry or plane approaching, or someone coming down the corridor.
- It is better not to use the "start/stop" switch on the microphone (if one is fitted) as this will produce annoying clunks, and, if the recorder has an automatic volume control, a possible reduction in level for a few seconds at the start of the recording.

- If in a shared environment consider a “do not disturb sign” on the door
- Keep windows and doors closed
- Avoid recording on windy days
- Switch off fluorescent lights

8 Maintenance

Keep all equipment, including the microphone, covered when not in use. Air-borne dust causes a high percentage of all repair problems on equipment.

9 Troubleshooting

No recording at all or very low volume

Check that the microphone is switched on - and plugged in, it is very easy to forget.

We do not recommend recording using batteries especially when using a laptop. If recording on batteries, check that the power is still adequate. If your microphone has a battery, check that it is correctly fitted and still has sufficient power to complete the recording.

Low-pitched hums

This can be caused by recording directly from the mains: the only solution is to use batteries for recording sessions. The use of mains to play back will considerably lengthen the lifespan of the batteries. If recording directly from the mains, keep the mains lead well away from the microphone cable. Also make sure cables are not touching each other and fully extended and not coiled up on themselves. Sometimes a better quality microphone cable will cure an interference problem.

You may be picking up a hum from electrical circuits in the room. Try turning off everything electrical to see if this solves the problem.

The microphone may be faulty: check by disconnecting, if possible turning the record level up to maximum, and recording a few minutes. If the hum has gone, you have found the fault.

Feedback

A high-pitched howl when in "record" mode is usually caused by feedback. Check that internal microphones or monitor switches have not been left on.

10 Glossary

A

Airborne: Sound that travels across a space.

Analogue: A recording process in which an audio input is converted into a corresponding waveform - "warts and all" (e.g. cassette tapes, vinyl records).

Atmosphere: Background sounds.

D

Damping: Removing echoes by using sound absorbing materials.

Decibel: Unit describing the loudness levels of sound.

Digital: A recording process that converts audio signals into thousands of pulses (numbers) that by selection later can be compressed to eliminate the "warts and all" elements (e.g. CD player).

E

Echo: A sound heard long after the source has died away.

F

Frequency: The number of waves per second that a sound makes.

H

Host environment: The environment where the "recording studio" is located.

M

Metering: The process of monitoring recorded sound at optimum levels without distortion.

N

Narration environment: Where the "reader" is located whilst recording.

Noise: Unwanted sound or interference.

R

Reverberation time: The time it takes a sound to die away.

S

Sound: The sensation felt when the eardrum vibrates.

Sound absorption: Noise reduction by "taking in sound energy".

Sound insulation: Measures taken to reduce sound transmission.

Sound proof: Resistant to the intrusion of external noise and internal reverberation.

Structure borne: Sound transmitted by the vibration of the components of a building.

W

Wavelength: The distance between successive sound waves.

11 Where to get further help

UKAAF assists businesses and organisations by advising how to meet the needs of customers and clients with print disabilities; providing guidance on how to source and provide quality accessible formats like large print, audio, braille, electronic file formats and Easy Read; and helping you to understand your responsibilities as a service provider.

Through our website and magazine, members will also gain access to:

- findings from public consultations and end-user research
- research and innovation in accessible formats
- information on suppliers of transcription services
- guidance and advice on standards for accessible formats
- opportunities to review and help to develop standards and guidance.

In addition to supporting service providers and transcribers, UKAAF also represents people with print disabilities. We believe that because format quality matters, end-users should have genuine input into the development of standards for accessible information. By collecting and sharing users' views with service providers and transcribers we can help them to deliver a quality service which meets users' needs.

UKAAF has a User Advisory Group (UAG) so we can include blind and partially sighted people and others with print disabilities in ongoing research and consultation on key accessible format issues.

There are many benefits of being a member of UKAAF, not least to demonstrate your commitment to quality accessible formats. For more information visit us at www.ukaaf.org.

12 Your feedback is welcome

We would welcome your views on this guidance, any suggestions for additions, or case studies of how this guidance has helped you. You might like to share your experience in an article in our magazine 'Format Matters'.

You can phone, email or write to us - our details are at the back, or use the feedback form on our website www.ukaaf.org. If you find UKAAF's guidance valuable, please encourage others to join by visiting our website.

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