

Appendix B
Configuration of temporary PC-based recording systems

Configuration of the PC		
Requirement	Status	Additional Detail
The PC running the software must not be connected to the internet by any means.	Recommended	Standalone PC not connected to the internet. All network interfaces should be disabled.
Any PC connected to the internet must have appropriate and up to date protection installed against virus threats and malicious software.	Mandatory	
The PC running the software must not be carrying out any additional services or functions other than audio recording, and the required supporting functions. Recording of additional channels can be carried out using the same dedicated machine.	Mandatory	PC only for recording, not for additional functions such as writing logs, internet browsing or controlling other devices.
The operating system running the software must be under maintenance and supported by the developer.	Mandatory	Cannot use Windows XP or other unsupported or out of date operating systems.
The system must be secured at an operating system level to prevent unauthorised access from any personnel other than the official system administrator.	Mandatory	System must be kept locked when idle and should not be used by unauthorised personnel.
The system must lock automatically when idle.	Mandatory	A time out should be in place to automatically place the PC in a locked state if it is left idle. This time out should be in the order of a few minutes and no more than five minutes.
Strict controls should be put in place around the connection of unauthorised USB devices.	Mandatory	Users should not connect phones, memory sticks etc, other than the system administrator when the backup of data is required. Strict controls should be in place on the device being used for backup.
The system must maintain an accurate clock, accurate to +/- 2 seconds UTC. This may be maintained by the internal PC real time clock but must be regularly checked for discrepancy and any difference from UTC should be logged.	Mandatory	The clock must be accurate within two seconds of co-ordinated UTC. Any difference should be logged.
Any internal free running clock source should be checked and logged daily against a known accurate time source.	Mandatory	If an internal clock is used it should be checked and logged daily against a known accurate time source.

		Such as a GPS receiver clock.
The PC clock should be maintained by a GPS based time source and monitored regularly.	Recommended	The computer clock would ideally be maintained by a GPS based time source connected directly to the PC.
Configuration of recordings		
Recording must be configured to record as an uncompressed file format, with a sampling rate of 44000 samples per second.	Mandatory	Ensures the quality of each recording.
Recordings must be configured with a suitable fall time following activation to ensure where possible that conversations and replies are captured in the same file where practical	Mandatory	Recordings will continue for 20 seconds following the deactivation of the VOX in order to capture a response in the same file. Whilst this may increase storage requirements, it will reduce the complexity of transcription recovery.
<p>Filename shall be configured to contain the following details, separated by an additional non alphanumeric character.</p> <p>Date of recording (ISO 8601)(MMDDYY) Time of recording (UTC)(HHMMSS) Machine channel number(X) Indication of FISO unit or frequency (e.g. tower).</p>	Mandatory	The filenames of the files produced will contain the relevant details to enable easy identification. For example 092316T104021-1-RC. Where RC indicates Rochester.
Recordings must be mirrored when recorded to two separate physical storage destinations to prevent against accidental deletion and hardware failure.	Mandatory	Files shall be recorded to two physically separate hard disks.
Recordings should be stored on a disk structure that provides redundancy in the event of hardware failure.	Recommended	A RAID storage system should be used for at least one copy of the recording.
Procedures and logging		
The recording software and PC must be checked daily and operation of recording confirmed.	Mandatory	The recorder must be checked every day to ensure the PC is still running and that the software is functioning.
The quality of recordings must be monitored regularly.	Mandatory	Recordings should be checked weekly to ensure the audio quality is suitable and that the device is still recording as intended.
A log file detailing the recordings produced must be generated by the recording software.	Mandatory	A CSV type log file or similar should be produced to provide.

		details of the files being captured along with associated time stamps.
The log file should be regularly backed up and stored off the machine.	Recommended	Log file should be backed up to a removable drive regularly
A MD5 or SHA1 type hash must be produced for each recording and captured within the log.	Mandatory	A hash file which provides a unique identification tag for each file should be produced by the recording software and written into the log file or stored as a separate file.
Hardware or Software failure recovery		
The PC should be connected to a backup power device such as a UPS.	Recommended	An uninterrupted power supply should be utilised to prevent loss of data and enable a 'dignified' shutdown of the PC in the event of extended power failure.
In the event of hardware or software failure an equivalent alternative system of recording must be in place within 48 working hours, in the interim period an alternative portable solid state recording devicesuch as Dictaphone, configured and controlled appropriately can be used.	Mandatory	In the event of failure of the hardware or software relevant plans must be in place to enable recovery, this may be an alternative device such as an appropriate handheld audio recorder.

Additional notes on the configuring a PC based recorder:

- Ensure the power saving configuration is such as to not prevent the functionality of the recorder
 - System should not sleep or hibernate
 - System should not power down hard disk drives
- A GPS clock can be implemented using software that utilises a GPS time source through a USB or serial port for the system time.
 - <https://www.coaa.co.uk/gpstime.htm>
 - <http://visualgps.net/index.html#nmeatime-content>
- USB ports should be disabled in the operating system or physically blocked through by means of electrical disconnection or use of port blocking devices.
 - <https://www.amazon.co.uk/LINDY-USB-Port-Blocker-Colour/dp/B000FKP8B6>
 - <http://www.thewindowsclub.com/windows-usb-blocker>
- Strict controls on internet connection and connection of USB devices have been strongly recommended to mitigate risk of virus infection.

Operating systems that are not connected to the internet will not be updated against common virus threats, including those that infect devices through the connection of USB hardware and removable media. Additional process and controls should be put in place to mitigate a risk of this nature.