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TAPE AUTHENTICATION

AUDIO AUTHENTICATION.. WHAT IT IS?

Simply it means that providing proof to your audio that it is authentic or it is without any illegal modification and your audio is not copied somewhere else without your copyright.

Technically it is a complex process of establishing the origin of a questioned recording to determine whether it is consistent with an original one or if there is evidence of tampering.



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Contd...

- The goal of audio authentication is to establish if the questioned recording is
 - **Original**
 - **Continuous**
 - **Unaltered**



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Types of Analog

- Dital audio
- Analog audio
- **Digital audio** is a representation of **sound** recorded in, or converted into, **digital** form. ... **Digital audio** systems may include compression, storage, processing, and transmission components. Conversion to a **digital** format allows convenient manipulation, storage, transmission, and retrieval of an **audio** signal.



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- Analog recording is a technique used for the recording of analog signals which, among many possibilities, allows analog audio for later playback.
- Audio Signals can be converted to digital signals Using analog to digital converter (ADC)



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- Forensic audio recordings collected via digital recording systems.
- These examinations are conducted to determine whether the recorded information is original, contains alterations, has discontinuities due to recorder stops and starts, and matches a submitted recording system, if available.



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- The 11-step protocol consists of evidence marking, physical inspection, digital data imaging and playback optimization, critical listening, high-resolution waveform analysis, narrow-band spectrum analysis, spectrographic analysis, digital data analysis, miscellaneous techniques, work notes, and reporting.
- Much of the forensic analysis work conducted on analogue recordings today,
- variation of sounds in the background, transient like sounds of any nature, audio dropouts, audio quality changes, unnatural speech or voice characteristics, acoustic quality of the recording environment, artefacts produced



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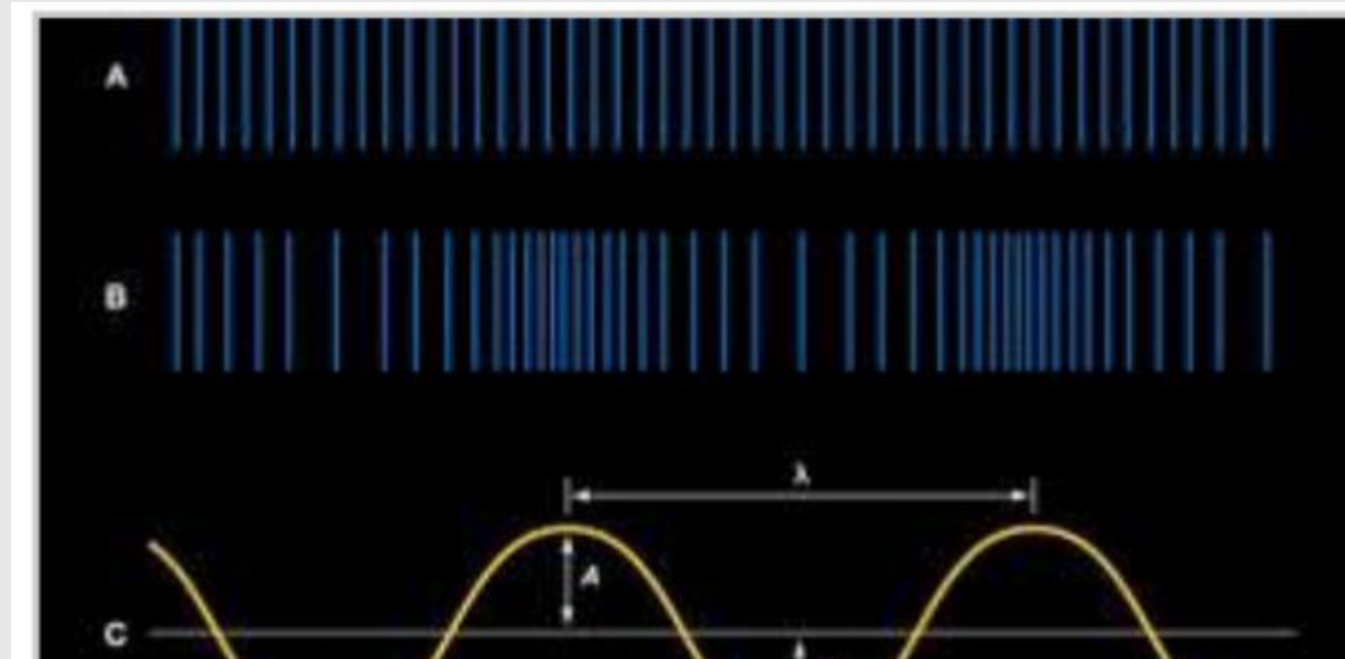
- **The volume and tone of a voice On the recording can provide clues as to distance and spatial relationship within a scene.**
- **If the ambient sound present on a recording changes abruptly this could indicate where the recording took place.**
- **Unnatural wave form present in the audio signal may indicate that an edit has been made.**



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SPECTROGRAPHIC ANALYSIS

- The **sound spectrograph** is a wave analyzer which produces a permanent visual record showing the distribution of energy in both frequency and time.





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Forensic application

- The primary aspects of audio forensics are establishing the *authenticity* of audio evidence, performing [enhancement of audio recordings](#) to improve speech intelligibility and the audibility of low-level sounds, and *interpreting and documenting* sonic evidence, such as identifying talkers, transcribing dialog, and reconstructing crime or accident scenes and timelines.



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Thank you