



MPEG Video Guidelines

Questions To Ask about Collection of Data and Digital Video

There continues to be confusion about mpeg video in the video inspection industry. The most important aspect of pipe inspection today is the proper and efficient collection of data and digital video. Here are a few guidelines that will assist potential users of mpeg video ask the necessary questions so they purchase a system they expect and best meets their requirements.

GUIDELINES

- 1. Is the video being hardware or software compressed?
- 2. Should we use MPEG1 or MPEG2 compression?
- 3. Does the video compressor incorporate a multiplexed sound track(audio)?
- 4. Can the video files be stored on a removable drive in order to be transferred to the office for processing?
- 5. Can the video be paused during the inspection without closing the video file?
- 6. Can the compressed video be previewed during the inspection?
- 7. Will the vendor provide a certification that the video can be played back on any Windows Media player 6.4 or higher?
- 8. Are the files being generated a standard .mpg file? Are they named .mpg and not some proprietary name allowing the files to be played back only on the Vendor's media player?
- 9. Is the video compressor automatically started and stopped during the inspection without operator intervention?
- 10. How is the file name linked to the Work Order? Is this done automatically? Why is that important?



REASONS FOR DETERMINING THE ISSUES RAISED ABOVE:

- 1. Video encoding, in some cases, will allow the video file to be paused and when unpaused, the video file will continue encoding with an accurate elapsed time code being provided. Due to the way the pause is implemented in the software, prospective purchasers should make sure that the pause will not cause problems in the video playback.
- 2. The use of MPEG1 is entirely adequate for our industry. The quality of MPEG1 and MPEG2 crosses over at 2.2 Mb/s. The ideal compression rate for MPEG1 is 1.5Mb/s. This compression rate will allow 1000 hours of video on a Terra Byte Drive - or more simply put, 10 hours of video on a 4.7GB DVD R Disc or 1.25 Hours on a CD. The benefit of the MPEG2 technology is that the encoder compresses both fields of the frame. This eliminates the problems found in fast moving scenes - a problem that does not exist in the sewer inspection application. Furthermore, MPEG2 requires at least twice the amount of storage space that MPEG1 uses, reducing the video on a CD to less than 40 minutes. Finally MPEG2 requires special players to decode and playback the video files.
- 3. The Video Compressor should record both the Audio Signal and the Video Signal into the same MPEG I (.mpg) file. The video file needs to be able to be named automatically to ensure that the data files and the video files are always linked. Manually entering a file name for the video increases (1) the possibility of the video files not being appended to the data files, and (2) the possibility of the files being lost.
- 4. From a practical point of view, the video needs to be processed in an office environment rather than in the field. This necessitates the use of a removable drive to transfer the video from the truck to the office. Today, USB, SATA and IEEE 1394 portable drives can be used for the transfer of video to the office. It is also possible to transfer the video files via Ethernet cable. Technology is now available to transfer the files on a wireless link at an acceptable transfer speed using links Wi Fi or 802.11b

eliminating the need to transfer manually. This has been tested in a field environment and provides a flawless transfer of video and data.

- 5. The use of a record pause is an absolute necessity during the inspection. There are numerous times that the operator needs to pause the recording during an inspection. If a pause is not available, the file is closed, and a new file started when the inspection continues. This makes it necessary to edit the files at some later date using an editing program to convert the numerous parts into one file. The record pause eliminates this problem and allows the operator to pause at any time during the inspection and continue at some later time without a new video file being generated.
- 6. The Compressor should have a preview screen of the MPEG video being compressed allowing users to check what is being placed in the video file at that time. We believe the user should have the ability to observe what is being transferred to the MPEG file to ensure the quality of the file is satisfactory. The Vendor needs to certify that a pause and a preview screen is available. The preview screen should be available at all times even when the video compressor is not being used as an .MPEG compressor, the video displayed in the preview screen should be decoded MPEG video whether being captured or not.
- 7. The resulting .mpg file must be able to be played back on a standard Windows media player so that anyone can look at the video on a Windows PC using a Windows Media Player. The Vendor needs to certify that the .mpg file will play through any Pause without the possibility of the video file freezing or being interrupted. This has been a problem that has surfaced in the industry. Some of the consumer level hardware costing perhaps \$300.00, such as Dazzle or Darim, may have Pause functions; however, the video will not playback through the Pause, and it can freeze during playback. Broadcast quality hardware, which costs up to \$2,000.00 per board and has special application software, can generate an .mpg file that is certified to play through the Pause function without a glitch. There is nothing more annoying than looking at a video file that freezes during playback and will not run properly after the point that it has frozen.

- 8. Ideally the video files should be able to be played back on a standard Windows Media Player (which is readily available) avoiding the need to purchase a vendor's proprietary media player. It is important to note that software-encoding means the inspection must be played back on a proprietary media player.
- 9. It should be determined if the operator needs to actually start and stop the video compressor manually or if the video is automatically started and stopped when the inspection is started and stopped. The auto start and stop eliminates the need for the operator to handle the video compression hardware.
- 10. The ability to link the video files to the data in the database is essential. This allows the reviewer to easily access the video files from the location where they are stored whether it be on a disc or on a network drive storage device.

MASS STORAGE OF VIDEO FILES

This is a question often raised when the hard drives are full and there is nowhere to store the video. This problem needs to be worked out with IT personnel before that happens. Contact Cobra today for information and to discuss the best solution for your storage needs.



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