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COMMONWEALTH OF MASSACHUSETTS

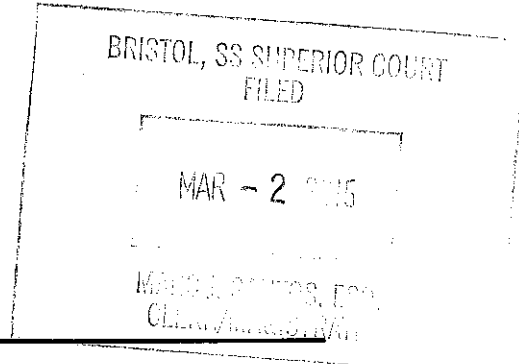
BRISTOL, SS.

SUPERIOR COURT DEPARTMENT  
FALL RIVER SUPERIOR COURT  
INDICTMENT: 2013-00983

COMMONWEALTH

v.

AARON HERNANDEZ




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**COMMONWEALTH'S MOTION IN LIMINE REGARDING VIDEO**

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Now comes the Commonwealth and moves in limine to be permitted to present the home video of the defendant in a form designed to assist the jury in understanding the evidence. In the motion below the Commonwealth lays out first what it believes to be the impediments to the jury's understanding of the evidence. The Commonwealth then describes the technical steps necessary to move the video into a format where these problems can be addressed. Finally, the Commonwealth breaks each of its specific requests into a separate paragraph with a description of expected presentation for that change. Examples of what the Commonwealth requests are also attached on CDs as Exhibits 1-4.

**PROPRIETARY FORMAT OF ORIGINAL VIDEO REQUIRES THE ACTUAL DVR**

Both the original (Exhibit 149) and a clone copy (Exhibit 151) of the video from the defendant's home surveillance system have been admitted into evidence. That video is contained in a proprietary format.<sup>1</sup> In order to play the video in that format from

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A proprietary format is a format that contains data that is ordered and stored according to a particular encoding-scheme, designed by the company or organization to be secret, such that the decoding and interpretation of this stored data is only easily accomplished with particular software or hardware that the company itself has developed. Often, as is the case here, the data is also encrypted.

either of those drives, the video must be played using the actual DVR (Exhibit 150). Any camera switches must be done manually using the operating system player on the DVR.

#### DISPLAYED TIME ON DIGITAL CAMERAS

The defendant's video surveillance system has two distinct types of cameras. First, the system uses older style "analog" cameras. These cameras pass images to the DVR directly without time/date data.<sup>2</sup> The DVR plays the video from the analog cameras with the system time displayed in the video screen. Trooper Conron has testified that the system time is close to real time and is only two minutes and forty six seconds behind the actual time.

Second, the defendant's system has six digital cameras.<sup>3</sup> Each of the digital cameras creates video with time/date data imbedded. For the digital cameras, the DVR displays the digital camera time in the video frame when played. The digital camera times vary greatly from both actual time and from system time.<sup>4</sup>

The proprietary player on the DVR displays the system time at the base of the player window for either digital or analog cameras. This allows anyone operating the DVR to find a particular time to play for any camera (adjusted by the 2:46 described by Trooper Conron). However, the displayed time in the video window itself is uncorrected.

#### VIDEO APPEARS TO SKIP AND FREEZE

In addition to the problem regarding the displayed time, the digital cameras (but not the analog cameras) also display freezes and skips. The Commonwealth will present evidence that these freezes and skips are caused by the network in the Hernandez home. To the jury this issue appears as frozen frames or as a person suddenly appearing in a screen. Both the system time and the on-screen time stutter and jump in a manner

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There were 5 analog cameras. Those faced the driveway, front porch, rear of the home over the backyard, upstairs playroom and rear corner of the yard.

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The digital cameras include the two pan tilt zoom cameras on the front porch, the foyer camera, the living room camera, the basement camera and the camera on the pool house overlooking the back yard

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Five of the digital cameras are off by about a half day and one is off by more than three years.

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consistent with what is actually displayed (but uncorrected to the actual time). These skip/stutter problems are present in the original data on the hard drive.

### VIDEO EXPORTING/CONVERSION

Robert Racette of the Bristol County District Attorney's Office will testify that he used the backup function of the DVR itself to export the entire contents of the DVR onto a portable hard drive. The backup copy on the portable hard drive remains in a proprietary format and can only be viewed within the proprietary viewer that was included on the portable hard drive in the backup process. That proprietary player has the capacity to export segments of video into an open format called AVI but the video quality diminishes noticeably.

In order to take video from the proprietary format on the external hard drive and convert to an open format without losing video quality, Mr. Racette played the video on his computer from the external drive while running a program called "Movavi Screen Capture version 6." ("Movavi") Movavi captures the played images as they are sent to the screen and saves the video in MP4 format. MP4 format is an open format that is recognizable by standard video editing tools. Using this software to capture to MP4 format causes no appreciable loss in video quality and does not change the images themselves. It is capturing software as contrasted with processing or editing software.

Once in MP4 format, Mr. Racette is able to open the video in Adobe Premier Pro CS. That program is a well know piece of software used for making video segments and doing other video editing function. Mr. Racette has viewed every piece of video he has put into MP4 format and compared it the copy in proprietary format and will testify that they are the same.

### FORM OF VIDEO FOR THE JURY

The Commonwealth requests that Mr. Racette be allowed to create video segments of video from the surveillance system for presentation to the jury using Adobe Premier Pro CS. The video segments that the Commonwealth intends to play were all made using that program. The video segments themselves will be in MP4 open format. (The Commonwealth has the capability to use other formats if so requested). The

Commonwealth expects to have Mr. Racette testify to the jury in order to explain how these video segments are created. The Commonwealth avers that making the CDs as outlined below would aid the jury in their understanding of the evidence, make the evidence more accessible to the jury and fairly and accurately shows the video evidence in this matter.

1. **Video Segments:** The Commonwealth's first request is that it be allowed to use the above process to create video segments on CDs of particular portions of a single camera's view. Putting a video segment on a CD makes it playable by the jury during deliberations without using the cumbersome and complex DVR and proprietary program. Each segment contemplated is a copy of a time range of one camera view on the original surveillance video. Segmenting the video means that the jury would not have to view literally hundreds of hours of video to find certain moments or views. Mr. Racette will testify that, for each piece of video to be played there is no change from the original DVR copy to the actual images on the screen.
2. **Sequenced Camera Views:** The Commonwealth requests to be allowed to create video segments on a CD that sequence a series of single camera views. Each view would essentially start at the segment just before it on another camera. This would allow the jury to see the video from cameras as movement between locations appears on video surveillance. Essentially, this shows when events change locations. The sequence is created in reference to the system time which applies to all cameras. This change mirrors what is already possible using the proprietary player on the DVR and switching the displayed cameras by hand or by viewing multiple camera angles at the same time. However, being able to prepare the camera switches ahead of time allows for a much smoother presentation before the jury. It also allows for the sequence to be persevered in a logical fashion for the jury to use in deliberations. When camera changes are made on the DVR using the more cumbersome by hand method, they take about ten to fifteen seconds each change. Mr. Racette will testify that for each piece of video played in this fashion, there is no change to the actual images on the screen. (An example of this is attached as Exhibit 1.)
3. **Side by Side Camera Views:** The Commonwealth requests to be allowed to display multiple cameras next to each other on the same video segment. The start times of the views would be at the same system time for each camera displayed. This would allow the jury to see events in multiple locations simultaneously. This could be done with the analog cameras because those cameras do not have skips and freezes. In very short segments, the digital cameras could also be shown next to each other. However, the skips or freezes in the digital cameras make multiple view clips go out of sync fairly quickly and are therefore of limited use without frame syncing (Commonwealth's request 4). Mr. Racette will testify that what is requested in this paragraph requires no change to the actual images on the screen.

This is a request to mere be able to show multiple camera views at once. (An example of this is attached as Exhibit 2).

4. **Frame Syncing:** The Commonwealth requests to be allowed to sync the frames of the multiple views referred to in paragraph 3 above. To do this, Mr. Racette would use Adobe Premier Pro CS to slow the frame rate in the stuttering sections of one digital camera's view so that it does not jump ahead of the other camera's view. To the jury, this would appear as a stopped video on one view while the other view continued to play. This prevents the confusion of having the same person appear in two locations as video is played in multiple screens. Mr. Racette will testify regarding the process used to sync video and will explain the changes using examples. Mr. Racette will emphasize that nothing is added or taken away from the images themselves. Rather the image is essentially frozen for the time where the DVR recorded no new data for that digital camera. (An example of this is attached as Exhibit 3).
  
5. **Time Overlay:** Finally, the Commonwealth requests to be allowed to overlay the corrected time on the screen for video segments to be played for the jury using Adobe Premier Pro CS. This overlay would appear as a box on the screen with a corrected running clock showing the actual time of events in the video. The ability to place such an overlay is an editing feature of the Adobe Premier Pro CS. Presently, the times that appear on the video displays are incorrect. Particularly, the digital camera times displayed in the full screen view are unrepresentative of actual time and confusing to the jury. The video played on the DVR in proprietary format has the incorrect times in the video window but it does have the system time in the player frame of the window. Mr. Racette will testify to explain the differences in each a camera's time and the process used in Adobe Premier Pro CS to overlay the correct time. (An Example of this is attached as Exhibit 4).

## ARGUMENT

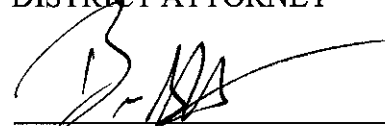
It is well settled that video evidence is "on balance, a reliable evidentiary resource." Commonwealth v. Harvey, 397 Mass. 351, 359 (1986). "Videotapes should be admissible as evidence if they are relevant, they provide a fair representation of that which they purport to depict, and they are not otherwise barred by an exclusionary rule." Commonwealth v. Mahoney, 400 Mass. 524 (1987).

In Commonwealth v. Leneski, 66 Mass.App.Ct. 291 (2006) the court addressed whether it was permissible to admit a copy of a video which had been transferred from a computer's hard drive to a CD by "burning" a copy. In Leneski, the court found that so long as the CD thus created was authenticated as a copy and the process of its creation

explained to the jury, then it could be admitted in that new format before the jury. Commonwealth v. Leneski at 294-95. The court in Leneski said that “the method of storing and reproducing the video material, were properly the subject of cross-examination and affected the weight, not the admissibility, of the CD.” Commonwealth v. Leneski at 295. Mr. Racette’s testimony will be used to explain the processes outlined above and in the case of 4 and 5 make clear how the display to the jury was changed. The result will be video evidence that does not in any way change or distort the content of the videos themselves but rather allows for a less confusing and more useful presentation of evidence to the jury.

RESPECTFULLY SUBMITTED,  
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