BUSINESS MANAGEMENT

Looking at a Clearer Picture of Digital Video

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This month, we will elaborate on some issues I introduced back in the March 2003 "Tech Talk" column. We will take a look at some simple design items that the end user, contractor, salesperson and technician can perform to help build success through one of the biggest technology booms our industry has ever experienced: digital video.

First, I have a little story. Flying next to me on my way to ISC West in Las Vegas was a regional executive from a national fast-food chain. I introduced myself and told him of the security mission I had embarked upon. That's when he let me have it with both barrels.

It appears that his company had recently committed to having a large, well-known security company upgrade many of it's stores to digital video. He told me of an armed robbery they had and the trouble with the digitally recorded video. The police reviewed the video and when they went to enlarge the robber's face, it was pixilated and unidentifiable. Needless to say, it took me a good part of the trip to assure this executive that with the correct selection and placement of equipment, he could have better performance than he had with analog systems he had used previously.

Video Evidence Must Be Clear

At ISC West, I had the welcome opportunity to sit in on a seminar by one of the security industry's CCTV gurus: the wild and crazy SSI Hall of Fame member Charlie Pierce (*see February 2004 issue*). If you have not had a chance to see Charlie in action, I recommend you schedule it the next time you are attending a national show.

The seminar was on "Demystifying Digital CCTV" and one key area that caught my attention was the

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special emphasis on *video evidence*. After all, what is one of the main reasons customers — such as my travel partner's company — record crimes on video? To use them as evidence in a court of law.

Sounds simple. But believe me, many in the industry — including many manufacturers — are losing sight of the importance of having quality digital video evidence.

How do I know many of us are missing the mark on applying digital video? As you may remember in my "Tech Talk" column last March, I suggested dealers should get to know the video forensic officers in their respective jurisdictions. How many of you took me up on that offer? The feedback I have gotten is that many in the law enforcement community are not happy campers when it comes to quality digital security video.

During the past year, I have had the opportunity to work with an organization called Law Enforcement-Emergency Services Video Association Int'l (LEVA).

LEVA represents the forensic officers that review your digital video evidence. LEVA supports video performance testing and recently stated, "Police investigations depend on defendable evidence to support their conclusions, and video evidence can be very powerful. CCTV systems must provide images of sufficient quality to facilitate the identification of subjects or items of interest. LEVA strongly supports and encourages performance testing of CCTV systems."

I think you have the picture and, hopefully, I have your attention. Now, what can we in the security industry do to reverse this negative attitude? In the long term, one of the key areas of concern is the lack of national standards for digital video. This is currently being worked on by the Security Industry Association (SIA) in conjunction with government organizations such as LEVA, the International Association of Chiefs of Police (IACP) and the Scientific Working Group on Imaging Technologies (SWIGIT).

Looking at the Big Picture

If we look far into the future, video resolution and processing power will create super high-resolution video for everyone, everywhere and at a great price. In the meantime, what can we do to make things better?

Bob Wimmer is currently presenting an excellent series in this magazine on digital video compression and recording (Part 1 was in the March 2004 issue and Part 2 is coming soon). I recommend everyone review this material and apply it to your video applications. Here, I want to concentrate on a few basic things I refer to as the front end of video systems. Specifically, I am talking about camera location and positioning with reference to evidence.

When specifying a video system, the first thing you need to do is answer the question: "What do I want to see and do with my recorded video?"

If you want to *view movement* in a camera's field of view (FOV), then that image should take up at least 10 percent of the screen. If you want to *recognize the person*, then the image should take up at least 50 percent of the FOV. If you want to be able to *recognize the face* of the person, then the whole person should take up at least 120 percent of the FOV. In other words, you will lose viewing their full profile. In special applications, such as *vehicle tag identification*, the vehicle should take up at least 50 percent of the FOV.

These percentage guidelines will help to inform customers who request "one camera to do it all." In many situations, you will find a need for more cameras to get the image recognition you desire.

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Target the Right Performance Test

One method to help in analyzing a video system's performance is the use of a freestanding test target. One device that I have use is called the Rotakin™ (*see picture on page 26*). The Rotakin was one of my top picks out of the 2003 ASIS show as seen in the December 2003 issue of *SSI* (*See Bob and Al Colombo's 2004 ISC West picks in the June 2004 issue.*).

This video test target is actually used in an established British (PSDB 14/95) and European CCTV system performance standard. More info on this is at the British Police Scientific Development Board (PSDB) Web site (www.homeoffice.gov.uk/crimpol/police/scidev/publications.html).

One easy camera positioning method that I have used through the years is the use of a camera lens angle template made on standard clear plastic sheets. Draw out the camera FOV views for different lenses all on one page (*see diagram in June 2004 issue of* SSI). Make a page for 2/3-inch, 1/2-inch, 1/3-inch and 1/4-inch camera image formats.

Lay this clear sheet with the drawn lens angle lines atop existing floor plans to get a good estimate of camera coverage. You don't have to worry about drawing scales since you are dealing with an angular projection.

It is **important** to remember that camera placement is not two-dimensional, but three-dimensional. You will need to compensate and add additional distance for an elevated camera. The true camera distance to the object from an elevated camera is the hypotenuse of a right triangle, where the height of the camera and the floor distance are the other sides of the triangle.

For example, a 40-foot camera distance to an object on the plans and a 30-foot elevated camera height would yield a 50-foot true distance to the object, or a 25-percent increase from the distance on the plans.

Here are a few handy software programs that can help with your camera layout. An old favorite of mine designed for a PDA is called pCAM (www.davideubank.com). A new program that looks promising is called VideoCAD (www.cctvcad.com). The program allows for complex camera calculations such as the example above and will create custom multiple camera drawings for CAD integration.

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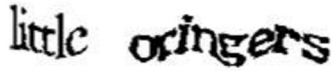

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