DIGITAL CAMERAS:
THE FIVE MOST IMPORTANT ELEMENTS

Ellen Freedman, CLM

Are you ready to buy a digital camera, or beginning to think about it? They can come in handy not just to memorialize events in our personal lives, but to make our lives easier at the office as well. PI attorneys were probably among the first to start using digital cameras in their practice to capture images of accident scenes, scars which decorum might prevent displaying in a courtroom, and so forth, But they're being used more widely now. Attorneys are discovering they're also useful for landlord/tenant matters, zoning and construction liability matters, some aspects of family law like spousal abuse, and so forth.

Digital cameras offer a lot of advantages over traditional cameras. The ability to instantly review the resulting photos in order to determine whether you have the "right" shot is probably the greatest feature. With a traditional camera one must first get the film developed and printed in order to determine if the pictures are sufficient to meet your needs. If you then discover they are not, the opportunity may have passed to capture the information on film. The ability to instantly delete unwanted photos without wasting time and money on developing and printing is another advantage.

Digital cameras can capture a greater quantity of high-resolution images than a traditional camera, without worrying about running out of film, or accidentally ruining the roll of film before it gets developed. Less knowledge is generally required to capture quality images with a digital camera than, for example, a high quality 35mm, which may require lens changes, knowledge of F-stop settings, and so forth.

If you've ever had a roll of film lost or improperly developed by a third-party vendor, you will appreciate that you have control over your digital photos, and they can not be lost or destroyed by anyone else. (That's now your job <smile>!) In fact, when it comes to digital cameras, you have to work very hard to actually lose or destroy the digital images.

It's a lot easier to share digital images without extra expense, simply by posting them to free sites like www.kodakgallery.com (formerly ofoto), or attaching them to emails. Printing original or extra copies is often cheaper than obtaining traditional prints. Digital cameras tend to be smaller, lighter and easier to work with "one-handed" than a traditional 35mm. In fact, the only drawback I've found so far is that a digital camera is a lot slower than a traditional camera. It is, after all, a computer, and you have to wait while it boots up when you turn it on, and wait after each shot while it stores the picture in memory. It's not the right camera for rapid succession action shots. So if you want to take stunning rapid sequence pictures during your son or daughter's soccer game, don't plan on using your digital camera.

Ok, so when you're ready to buy, what do you look for? Well, the first thing you have to know is that looks are deceiving. I delight attorneys in my *High Tech Courtroom Presentation Tools* seminar by displaying pictures of the most and least expensive cameras side by side. You can't see any difference between the camera that costs $100+ and the one which costs over $1,000. About the only thing you can tell by looking and touching is how comfortable it is in the hand in terms of weight, balance, location of buttons, size and so forth.

As with so many other considerations, particularly when it comes to technology, you must start with a needs assessment. What do you need the camera for? Under what conditions will you use it mostly? What size output will you need? There are a number of excellent articles available for free on the internet. In fact, I have already done a search for you to get you started. If you go to http://tinyurl.com/bytyj you can start your education. View this article as your introduction.

MEGAPIXELS

You're probably heard people brag about how many megapixels (Mp) their camera has. And then in short order you hear them complain that they should have waited and gotten one with *more* megapixels. Such is life in the technology fast lane.

The number of megapixels will determine the resolution of the picture. Each megapixel represents one million pixels, or dots, in the photo. The more dots, the higher the resolution. Just like with a printer. The higher the resolution you have, the more flexibility you will have to enlarge, or zoom and

enlarge a section of the photo, with losing quality in the final image. Of course you can enlarge a low resolution image, but it will pixelate, meaning that the image will degrade seriously.

The megapixel capacity of the camera has the greatest impact on the price. Your need should be determined by the size and quality of output you will require. A 5x7 print will require 2 Mp in high resolution mode. If you require an 11x14 print, you will need 5 Mp in high resolution mode. One of the great things about digital cameras is that you can change resolution mode on the fly, from picture to picture.

MEMORY

There are an amazing variety of memory types available in cameras. They all work similarly to save your photos. They come in various sizes. Many types are proprietary to specific cameras and printers. Others are more universal, and can be used easily in other printers, or taken to places like Kinko's for enlargements. Normally you don't choose your memory type and then pick the appropriate camera. But when you compare cameras, you need to carefully weigh the limitations and cost of the memory type used by the camera.

Compact Flash (Type 1 and Type 2) is physically the largest memory card, about the size of a matchbook. These cards are not backwards compatible, meaning Type 2 cannot be used in a Type 1 device. It is currently the most common memory type in use, and range in size up to 1 Gb.

Smart Media is about the size of a large postage stamp, and very thin. The size offerings are limited to a maximum capacity of 128 Mb.

xD Memory comes in sizes up to 512 Mb. It is sized like a large postage stamp with a curved edge. It is used mostly in Olympus and Fuji cameras.

Memory Stick is shaped and sized like a piece of chewing gum. The storage capacity is limited to 256 Mb. The newer flavor, **Memory Stick Pro**, comes in capacities up to l Gb. Next to Compact Flash, this is probably the next most popular memory media in use Sony cameras use Memory Stick exclusively.

Secure Digital (SD) Memory is another postage stamp–sized memory card. Although originally limited to capacities of 256 Mb, it is now available in up to 4 Gb capacity. It offers full support for cryptographic security, and is compliant with the Secure Digital Music Initiative (SDMI) portable device requirements and provided with a mechanical write protection switch.

Multimedia Memory (MMC) cards look like SD cards, but without the integrated security. Capacities range up to 1 Gb.

The amount of memory you want will depend on the number of images and varying sizes of images you will want as your final output. The memory card is like a roll of film, but you can control how many images you can store in memory by changing resolution, or buying a larger memory card. Just to give you a point of comparison on a normal resolution JPEG, you can store approximately 54 images on a 32 Mb memory card, and up to 1726 images on a 1 Gb card. A super-fine resolution JPEG will store approximately 14 images on a 32 Mb memory card, and up to 512 images on a 1 Gb memory card.

POWER

Power consumption of some cameras can become a source of frustration to owners. Simply put, some cameras are power hogs. So be sure to do some research in this area before making your final selection. You will want to do research on the individual cameras to determine which are harder on battery life than others. I've started that process for you at http://tinyurl.com/arhep and http://tinyurl.com/amytv . You may also want to do some research on a comparison of the various battery types in addition. You can find a decent one at http://tinyurl.com/87qwk .

Lithium-Ion are rechargeable batteries which are often proprietary to the specific camera they come with. They last a long time on a single charge and can be recharged many times before they fail. They have two drawbacks. First is weight, which tends to make cameras which use them heavier. The second drawback is availability; they are only available in camera shops and stores like Radio Shack, and may not always be in stock.

Alkaline are disposable batteries with a good shelf life. Some provide greater power capacity than others. Their advantage is that it is easy to carry spares, or go to the corner store to obtain them.

Lithium batteries are often called photo batteries. They have good shelf life, and great power capacity, but they are disposable and expensive to use over time.

Nickel Cadmium batteries don't have great shelf life. They are rechargeable, but do best if totally discharged / drained before recharging. To do otherwise degrades performance and useful life. Unfortunately, it means often leaving the photographer in the lurch unless you have a spare on hand. These batteries are also delicate and can be damaged by overcharging. My personal experience with nickel cadmium batteries in other devices leads me to recommend that you look elsewhere if your target camera requires them.

Nickel Metal Hydride batteries hold more power than nickel cadmium, but their shelf life is even worse, meaning they drain faster when not in use. If your camera uses this type of battery, you will always have to make sure you have a fresh charge whenever you go to use your camera.

Keep in mind that rechargeable batteries will be your most economic choice over time, but they are proprietary and can be hard to replace in a pinch. To make sure you are not disappointed, keep spare replaceable batteries on hand, or bring an AC adapter with you to recharge your camera battery when you are away from home.

ZOOM

You know what it is, but there are two kinds on cameras: **Optical** Zoom and **Digital** Zoom. What's the difference and which do you want? This is a source of confusion to many. Well, although many salespeople would disagree, I recommend you completely ignore digital zoom and only look at optical zoom. Higher optical zoom cameras cost more money, which is why lower-priced cameras tend to advertise their digital zoom capabilities a lot more.

Digital zooming performs an interpolation, or computer–based "guess" of an image to try to increase the perceived zoom distance. This often results in fuzzy images with less than optimal clarity, especially if you blow them up into 8x10 or larger photos. Optical zoom, on the other hand, provides for a true zoom–in or zoom–out on your subject without loss in clarity. The zooming is actually done by the lens.

If you want an example of what a photograph may look like when taken with a digital zoom, take a photograph into a piece of photo-editing software and increase its size by 100% or 200%. Although the picture will look bigger on screen, you will start to see dots or imperfections (pixilation) in the image. That's what digital zoom does to create your photo image. It isn't real zoom at all, just an enlargement of a piece of the image.

COMFORT FEATURES / ACCESSORIES

Ok, now we're getting into totally subjective areas where there are not right and wrong answers. Form factor and ease of use are very important criteria. And the only way to determine what you like is to visit stores and feel the cameras in hand and scroll through their menus to determine how intuitive they seem to you.

The camera should be comfortable for you to handle. Depending on your hand size, some may be too small or too large. One–handed operation is preferable to two for most people. Good balance is important. Weight may be important to you, as may be overall size. A larger viewer is better than smaller for most people.

Don't underestimate the importance of accessories. How easy is it to recharge? Can you get a spare AC adapter cheaply for travel? Can it transfer pictures to your PC unwired? Does it come with decent software for editing purposes? How easy will it be to set up on a standalone PC? What about a network? Can it send pictures directly to a network drive? Be sure to determine whether it has a wealth of printers it can work with or only one. Also be sure to determine what are the relative prices and quality output of the printers it will work with, as well as how easy they are to use.

If you will be sending the photos elsewhere for printing, make sure you check out the storage media to ensure you have the widest possible and most convenient choices for quality prints and enlargements. You don't want to wind up like the commercial with the kid on skateboard suspended in mid-air for 6 months because printing the photos is a hassle.

Finally, I recommend you take a look at Brian Carlson's article entitled *Choosing a Digital Camera* which appears in LLRX:com at www.llrx.com/features/digitalcamera.htm. He has a couple of very helpful

charts to help you determine how many megapixels will be right for you, and how large a memory card you will require. All that's left after that is, "Say Cheese!"

A version of this article originally appeared in the Spring, 2006 issue of the Pennsylvania Bar Association Solo & Small Firm Practice Section News