

## GHOSTS IN THE CELL PHONE

At the beginning of my tours, I give a quick overview of the proper way to use cameras when attempting to record ghosts. Photography remains one of the best evidence gathering devices we have, and it is also of the least understood devices in the Ghost Hunter's Toolbox.

During the tour I explain, under these (tour) conditions, take three or four pictures in a row, as quickly as the camera can handle, without moving the camera. We are looking for stuff that *does not* appear in every picture. If it appears every time, we know it has a normal (rather than a paranormal) explanation. It is a reflection, or a bug, or fog (humidity). We are looking of stuff that only appears in one image, or sometimes an object that moves.

IN ALL FAIRNESS, IT IS IMPOSSIBLE TO EVALUATE AN IMAGE IN THE CAMERA, IN THE FIELD. WAIT UNTIL YOU GET THE IMAGE ON HIGH QUALITY EQUIPMENT SUCH AS A HIGH RESOLUTION MONITOR.

IN THE FIELD, IT IS ALMOST ALWAYS POSSIBLE TO TELL WHEN AN IMAGE IS *NOT* A GHOST, BUT DIFFICULT TO TELL WHEN IT IS.

IN GENERAL, I FIND THAT 90% OF ALL IMAGES ARE *NOT* GHOSTS.

Then I mention Cell Phones, because often people forget to bring their regular cameras. In jest, I point out, if you use a cell phone camera, I guarantee you will get pictures of what appears to be ghosts.

That is because Cell Phone Cameras suck.

For the most part, people simply point the device and press the button. Often we capture "interesting" images, but how do we determine which are ghosts and which are "artifacts" or camera failures?

Recently I found a Cell Phone Application that claims to take pictures of ghosts. It counts down, 3, 2, 1, and takes a picture. Mysterious objects appear in the picture almost every time.

There are several problems with this. Let's look at the inherent problems with cell phone cameras and then you can make your own decision.

### Cell Phone Camera Details

There are a number of problems when it comes to Cell Phone Cameras. However, don't get me wrong, cell phone cameras tend to perform well when they are used for what they are intended to do. Cell phone cameras are designed to grab a quick photo under informal conditions. When you are out with your friends, having a good time, you can grab a quick picture and share it with the

world. The quality is often quite good – good enough for email or social media, but not good enough for publication in a magazine. It is nowhere near good enough to provide evidence of ghostly encounters.

The first problem is the size of the lens on a cell phone. Photography is the act of “capturing” light and storing it on a light sensitive surface. At risk of oversimplifying, more light means a photo with more detail, less light means less detail. For example, look at a photo of a darkened room. Lots of shadows, not much detail.

Cell phones are small and getting smaller. Some phones are as thin as 8mm. As a result the camera module must fit in a very small space, often as small as 4mm x 4mm x 6 mm for a 1.3 MP camera. A sugar cube is bigger.

The **Light sensitive surface** in a cell phone is an electronic device called a CCD (Charge Coupled Device). It is an integrated circuit containing an array of pixel sensors, each pixel containing a photo detector and an active amplifier.

The key here is the “active amplifier.” To compensate for the tiny bit of light gathered by the tiny lens, it is necessary to *amplify* the image gathered by the camera. Any time a signal of any kind is amplified, distortion and noise are introduced.

Next we encounter the problem of **Shutter speed**. In many cases, the cell phone camera will keep the shutter open until the CCD gathers enough light to make a picture. If the shutter is open longer than 1/30 of a second, there will be blur from image motion. In other words you cannot hold the camera still for that long.

Have you ever noticed a delay when you press the shutter on your camera? When this happens, the camera is holding the lens open, and when enough light is gathered, the flash (finally) goes off. This creates a picture with motion blur in the general field and when the flash goes off it “freezes” the foreground image. As a result, you get what appears to be a normal picture with blurry stuff in the frame. It is very mysterious, but not paranormal. I have seen hundreds of pictures like these.

Then finally we get to the problem of Electronic zoom. The lens in a cell phone does not move, the electronics manipulate the image and isolate part of the frame creating what appears to be a close up picture. Guess what? That means more electronic modification and



The dark spots in this photo are almost certainly distortion introduced by electronic amplification. They are not ghosts. Note also the “graininess” of the picture caused by the low light situation.

therefore more error. You get graininess, blur, motion blur and in general, low quality images.

## Summary

A Cell phone camera faces the following problems.

1. A small lens that limits the devices ability to gather sufficient light.
2. Small physical size so that electronic enhancement is required to create a visible image.
3. The camera will often hold the lens open until enough light strikes the CCD. This slow shutter speed often creates motion blur.
4. The device will “selectively enhance” portions of the image in an effort to capture additional details in a “trouble spot.”
5. The inherent electronic enhancement often creates a grainy, distorted image.
6. Most cell phone cameras are very low image density, often as low as 1.3 MegaPixels. (This is improving in newer cameras, but the other problems remain).
7. A delayed flash can create a picture that appears to be sharp but the blur in the background is bogus data.
8. In general, pictures from a cell phone are just not acceptable paranormal evidence.



In this picture, the camera picked up a couple of bright spots and “enhanced” them creating the classic false orb shot. Look carefully at the center of each orb and you will find a bright object, a rock on the ground and a bright light coming through the trees.

Notice also the image is very grainy indicating additional “low light” enhancement.

Very cool picture though...

**Modern technologies**, such as Photography and EMF detectors, takes what was once considered to be a past-time for hoaxers and kooks and elevated it to a respected field of scientific study.

The art (and science) of Paranormal research is focused on looking beyond “everyday” occurrences and experiencing events that may not have an immediate explanation. When it comes to defining the Spirit World, there are many opinions, but it is time to approach the unknown in a methodical and scientific manner. We work to provide facts, statistics, documentation and solid answers as part of a quest that has been underway since the emergence of human kind.

It is our responsibility to use the highest quality equipment (limited of course by your budget) and it is very important to understand how the equipment works and what limitations apply.

Cameras are an excellent and almost required item in the Ghost Hunters Toolbox. It is also the most widely misunderstood. After all, you just point it and press the button, right?

Well, yes. But then you need to evaluate the images that are collected. 90% (or more) of all “evidence” collected can easily be explained in very natural terms. When in doubt, it is NOT a ghost.

However, there is that 10% that cannot be easily explained. That is the 10% that keeps me coming back. The 10% that makes ghost hunting so much fun! Ghost hunting is not difficult, but like any other skill (or for that matter any other field of research) you must know the strengths and limitations of your equipment.

The best tools you have in your toolbox are your eyes, ears and feelings. The cool equipment we have – EMF, Digital recorders, Cameras and other – can make permanent records of our experiences, but trust your own senses first.

Then get the cameras out and snap away!

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