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Alive!



The Electronics Unit in the Faraday cage, clockwise from top:
Jim Hoerricks, Police Surveillance Specialist; Det. III Keith Aulick, Officer in Charge; Tony Rodriguez, Police Surveillance Specialist; Alex Supall, Police Surveillance Specialist; Kim Chan, Sr. Clerk Typist; Vivian Levario, Clerk Typist; Shawn Khacherian, Police Surveillance Specialist; Eric Wahlberg, Police Surveillance Specialist; and Chuck Siegler, Sr. Management Analyst. The specially built Faraday cage is used for cell phone forensics.



CS:LA

The Gadget Squad

In the Faraday Cage

LAPD Scientific Investigation Division's Electronics Unit investigates crimes by using audio, video, cell phone, photography, undercover disguises, surveillance techniques and other technologies.

– SEE PAGE 6

Alive! photo by Tom Hawkins, Club Photographer



City Employees Club of Los Angeles
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Los Angeles, CA 90012

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Honoring the Best of the City!

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LAPD The Gadget Squad

The Gadget Squad:

The Electronics Unit in the Faraday cage, clockwise from top: Jim Hoericks, Police Surveillance Specialist; Det. III Keith Aulick, Officer in Charge; Tony Rodriguez, Police Surveillance Specialist; Alex Supall, Police Surveillance Specialist; Kim Chan, Sr. Clerk Typist; Vivian Levario, Clerk Typist; Shawn Khacherian, Police Surveillance Specialist; Eric Wahlberg, Police Surveillance Specialist; and Chuck Siegler, Sr. Management Analyst.



■ **LAPD Scientific Investigation Division's Electronics Unit is serious about using technology – audio, video, photography, cell phones and surveillance – to investigate crimes.**

Photos by Tom Hawkins, Alive! photographer

An important part of the LAPD's investigative team is the Electronics Section, which just recently moved from Parker Center (the last LAPD unit to leave the former police headquarters) and into custom space in Piper Tech downtown.

The Electronics Unit both analyzes electronic evidence involved in crime scenes – cell phones, video surveillance cameras, voice messages, GPS coordinates, and so forth – and prepares its own gadgets for police actions, including stings, stakeouts and other incidents.

The unit is headed by Chuck Siegler, Sr. Management Analyst, 12 years of service with the City, and Keith Aulick, Detective III and Officer in Charge, with 19 years as an LAPD sworn police officer.

The Electronics Unit provides electronic support services for the Department, such as technical investigative support utilizing electronic surveillance devices. The Unit is comprised of eight Police Surveillance Specialists and three clerical personnel. Electronics Unit personnel design, construct, and modify electronic equipment to match the nature of the investigations they support. This unit also provides services such as reproducing audio and video evidence for court, repairing and maintaining recording equipment, audio and video enhancement and analysis, and cell phone analysis. The Electronics Unit also conducts technical security countermeasure sweeps (debugging) for Department entities and City officials.

On the following pages are descriptions of the various functions of the unit.

Inside the Electronics Unit

Here's a look inside the LAPD Scientific Investigative Division's Electronics Unit. Care has been taken to not show any current casework or identifying details.



Basic Video Forensics

Video obtained in crime investigations is analyzed. The video can be captured from security systems, onboard cameras, from cell phones or other cameras, etc. The video can be enhanced or cleaned up, depending on the needs, to identify possible suspects.



Here, Shawn Khacherian, Police Surveillance Specialist, 12 years of City service, examines video captured on a mass transit vehicle.



Various pieces of equipment used in the Video Forensics lab.



THE *ALIVE!*
INTERVIEW

Technology Toward the Truth

■ On Jan. 24, *Alive!* editor John Burnes interviewed Chuck Siegler, Sr. Management Analyst, 12 years of service with the City, and Keith Aulick, Detective III and Officer in Charge, with 19 years as an LAPD sworn police officer. The interview took place in the Electronics Section's new headquarters in Parker Center. – Ed.



From left: Chuck Siegler and Keith Aulick.

***Alive!*: Thanks for that tour. It was very impressive. Keith, you are on loan to the Electronics Unit?**

KEITH AULICK: Yes I am. For about a year and a half now.

And your function here on loan is... ?

KEITH: I'm the Officer in Charge of the unit. I handle all the daily administrative work that needs to be done – your typical day-to-day supervisory work.

Is it required to have a sworn officer with this section? Or just beneficial?

KEITH: It's not required. The supervisor of the unit is a civilian position. It's a Police Surveillance Specialist II. With the hiring freeze, they are unable to hire someone for that position, so they brought me over on loan.

There are some benefits to being a sworn member here because I've been in the field, I've worked the streets, I've started all the way down from a Police Officer all the way up to Detective III. And I've worked investigations, where a lot of these guys [in this section] work with other detectives from Robbery Homicide division and all those other specialized divisions – they are an investigative tool for the detectives out there.

CHUCK SIEGLER: Keith brings a unique understanding of the investigative side. A lot of our tenured employees in the Electronics Unit also have it from supporting that operation, but Keith knows from the sworn side exactly what he needs for court. He is the one who has built a number of cases, so he knows the type of support that the officers need in the field.

Keith isn't a typical loan, either. Generally in the City when an employee is loaned somewhere, they leave their unit behind and take over in the unit that they are loaned to. Keith is actually pulling double duty at this

time and is still running the unit he's on loan from, Gangs and Narcotics.

KEITH: I am the Officer in Charge of two units right now, yes.

Main Functions

Can you give me a quick description of what the unit does? Let's start with building and implementing surveillance devices. We were in that room a second ago.

KEITH: Yes, each Police Surveillance Specialist builds specialized equipment. An officer will say, "We rented this hotel room." The Police Service Specialist might have one day to go out to that hotel, look at it, figure it out, and actually have everything built within that day for surveillance in that hotel room, i.e. cameras and listening devices, ensuring that that is all functional and operating so that when the detectives come in, they have working sound and video and audio equipment in that room. They can overhear and watch from another room or a van outside.

And you process audio/video evidence.

KEITH: A lot of times our Specialists will get something on videotape of a crime that has occurred. Our Police Surveillance Specialist will go out there, retrieve that video, bring it back, and they will work on enhancing it if it needs to be enhanced or actually process it into a working copy that can be viewed by the District Attorney's office, the defense representatives and others. Also a lot of times detectives will bring in tapes or CDs that they already have from the field and will ask to have that duplicated and stored. We have a storage room where we store all of our tapes and audiovisual product that has been booked into evidence.

– continued page 8

LAPD

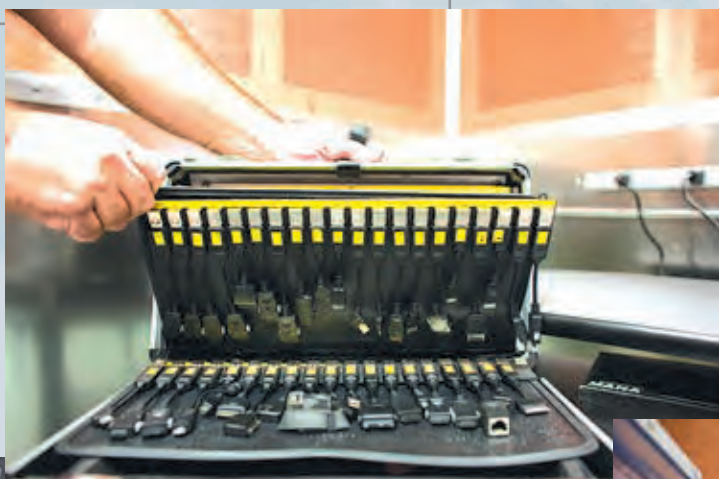


Cell Phone Forensics/ The Faraday cage

Cell phone reception inside this copper-lined cage is impossible. This makes it possible for LAPD technicians to turn on a cell phone so data can be extracted from it, without worrying that someone at a remote location will order the phone to be locked or destroy its onboard data. Inside the Faraday cage, cell phones can be investigated without fear of being wiped during the process.



Eric Wahlberg, Police Surveillance Specialist, 22 years of City service, explains how the Faraday cage works.



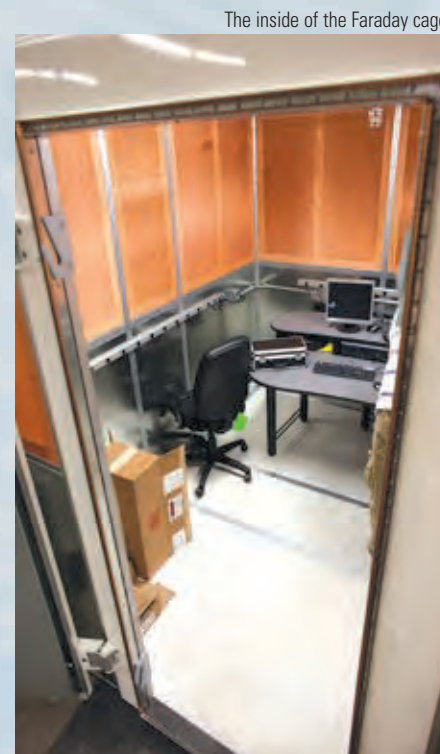
Below and Right: Some of the dozens of power and data adaptors available to Eric Wahlberg for his cell phone forensics investigations.



The outside of the Faraday cage.



Det. III Keith Aulick, Officer in Charge, 19 years as an LAPD sworn police officer, inside the Faraday cage.



The inside of the Faraday cage.

THE ALIVE! INTERVIEW – continued from page 7

That brings up a very good question: How do you maintain the control of the evidence? When it's a gun or a coat or shoes or something that's a physical thing, you know who has it, and there's a chain of custody.

KEITH: We maintain only audio and visual in our evidence. It is done through a chain of custody where it's highly documented who has handled it, who has checked it out, and who is in control of it at that time so that we never lose that chain of custody. There's no doubt when we go to a court of law that we can look at the record.

Det. III Keith Aulick, Officer in Charge.



Is the chain of custody more challenging for digital media?

KEITH: A lot of times they'll extract it if it's on a hard drive, put it on a DVD or a CD file, and that's where we'll store it if we have to. Then we'll book the hard drive. The hard drive will be booked at our regular property division.

And then there's the audio/video analysis.

KEITH: That's where they will get a video or a still photo of a license plate, let's say. The license plate is too blurry to read, but Jim [Hoericks] was able to take that license plate and convert it or do enhancements on it that actually brought out the letters that became a readable copy and was able to find out who that car belonged to.

CHUCK: Jim has a number of different software programs where his steps are traceable and reproducible and follow a very scientific process.

The March of Technology

And then there's the Faraday cage. The cell phone room.

KEITH: It's for cell phone forensics. We have devices made specifically for extracting data from cell phones. We not only do that but Eric [Wahlberg] will take a phone that's been broken, submerged in water, and be able to take that phone apart, take out the chip, put it in a new case and actually get that back working again and able to extract the data from it. Even if photos have been erased, text messages have

been erased, emails have been erased, a lot of that stuff is still on the phones, and with the equipment that we have, we're able to retrieve it from the phones.

You have to be relentless to do the cell phone job. It's changing all the time. There's always new equipment. You have to really be on the hunt to be able to get that evidence off a phone when they don't want you to do that.

KEITH: Every time there's a new phone, there's new software, and that software has to be defeated. Apple doesn't give us the access into it or even tell us how to get into it. Scientific discovery is how we discover how to get into it. We do all that legally through a search warrant when we pull that data off.

So the manufacturer, be it Samsung or Motorola or Apple, they don't really help you.

KEITH: Not in the sense of breaking into their phones. And I think they do that more for a PR reason because if people knew that they helped out the police, it might be bad for business.

Are cell phones the fastest growing part of what you do here?

KEITH: Yes, cell phones. From flip phones a couple of years ago all the way to smartphones now, where pretty much everything is on one phone. You have a camera, a video camera, text messaging, emails... There isn't anything that can't be done almost with a smartphone.

CHUCK: One of the other areas that has really exploded within the electronics unit is digital

evidence retrieval, which is really demanding a lot of our time. It used to be just a matter of an officer pulling a tape out of a VCR at the scene of a crime. But now it actually takes a technician to go out and extract video either from a computer or a DVR or a different system. With the number of cameras out there, it takes the investigating officer to evaluate if it's a working system, and if it has captured anything of value. To actually extract that video, the technician responding from the electronics unit must go out and retrieve that video.

KEITH: It takes technicians like our Police Surveillance Specialists to be able to adapt. They might go out to the scene and see a DVR or an NVR, a digital video recorder or network video recorder, that they've never seen before and have to find the software using the Internet to be able to extract that data, the digital video from that recorder. The evolution of cameras is just like cell phones. It's incredible how they're changing.

CHUCK: Our Specialists have to be able to work with each and every type of system and figure out how to [retrieve] those files. A lot of times the Specialist has to come back, research the proprietary codec [a software code that allows the video to be viewed - Ed.], and add it to the files so that when the officer out at Topanga or the Harbor gets the DVD they're able to view the video on their system.

Are security sweeps a portion of what you do? Maybe there's some big meeting and you have to come in and check and make sure that things are debugged?

KEITH: That happens every once in a while.

Alive! Feature

CSI:LA LAPD SCIENTIFIC INVESTIGATION DIVISION: Electronics Unit



The Workshop

In the workshop, LAPD technicians build audio and video surveillance devices. The devices, which can be hidden in a number of places including shirts, buttons, purses, power strips and clock radios, send a signal to an LAPD receiver, which can be set up nearby, for example in the next room or the LAPD's surveillance truck.

Alex Supall displays an audio transmitter that can be attached via Velcro inside a shirt.



A tiny video camera.



Alex Supall, Police Surveillance Specialist, displays a video transmitter outside the Unit's workshop.



Video cameras can be hidden inside shirt buttons.



Walkie-talkies maintain communication in the field.



Alex shows where a video camera can be hidden inside a clock radio.



An audio mike has been installed in this power strip.



Advanced Video and Audio Forensics

It isn't very often that we'll get called to check a location to ensure that there are no listening devices in it. We have specialized equipment that we can sweep with to see if there are any signals being sent out of that. But that's a very small portion of what we do. Since I've been here I think we've done it twice.

Is your business growing?

KEITH: Oh definitely. It's incredible. I have one guy on call throughout the week, and he could be called out every night to retrieve data from crimes.

What's the biggest challenge to the Electronics section?

KEITH: The evolution of electronics. Just less than 10 years ago our computer hard drives contained one gigabyte. Now you are going to the terabytes, and computers do amazing things. You can run your entire house now at home and computers are so inexpensive. Our smartphones have more data on them than computers did ten years ago, and more memory. The evolution of cell phones is incredible, and it's going to keep being our challenge.

And then again the evolution of the DVRs and the NVRs that are out there for the camera systems [means] my guys have to be able to go out there and figure out how to retrieve that data. It's going to get even more challenging as it goes on.

CHUCK: Occasionally a business would have a surveillance system in place. Now they all do. Neighborhoods have cameras in place. Over in Central Division they've got a number of cameras up throughout the community that are run I think through the local business associations.

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Equipment in the Advanced Video and Audio Forensics Room.



A second room is set up for more theoretical or difficult technical challenges. Still or motion video, and audio evidence can be investigated here. "We get into the physics of things here, to be able to determine whether or not it's real, or just [visual or audio] noise," says Jim Hoerricks, Police Surveillance Specialist, 12 years of City service, Club Member.

Advanced stillframe software including PhotoShop and other more advanced programs allow for scientific and repeatable forensics. Still images can be compensated for angles, distances and other dimensions to bring those images into sharper focus. It's important that every mathematical move can be repeated, so that the evidence is rock solid in court.



Jim Hoerricks, Police Surveillance Specialist, 12 years of City service, in the Advanced Video and Audio Forensics room.



Kim Chan, Sr. Clerk Typist, 6 years of City service.



Jim Hoerricks points out a case where he was able to take a blurry vidcap of a license plate and mathematically refocus it to make it more legible. This was part of a case sent to the Electronics Unit from Italy.

Alive! Feature



Inside one of the LAPD's surveillance trucks.

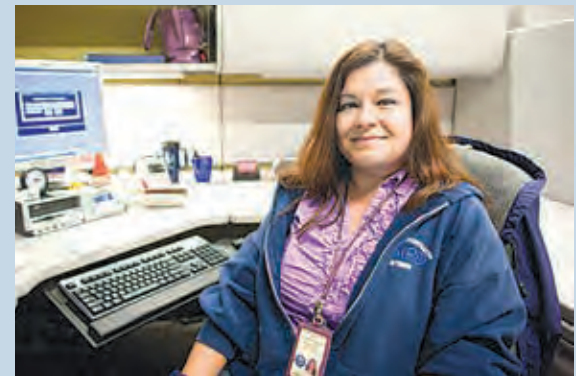


Alex Supall, Police Surveillance Specialist, demonstrates the receiving equipment, including a remote-controlled camera, inside one of the LAPD's surveillance trucks.



The Surveillance Truck

Signals transmitted from LAPD surveillance equipment must be received somewhere close by. The LAPD uses a truck for many surveillance operations.



Vivian Levario, Club Member, Clerk Typist, 14 years of City service.

THE ALIVE! INTERVIEW — continued from page 8

It's a matter of sending somebody out to each of those sites where the cameras have been identified to retrieve the video. The demand is growing, and the complexity of the systems is growing. Keeping up with the training is an ongoing thing for anybody in this profession.

What percentage of what you do requires a warrant?

KEITH: Pretty much most of the video that we get is given freely. I've seen only a couple of instances where we've needed a search warrant to retrieve the video. I would say less than five percent. Because most of the time it's the victim [giving the video], not a suspect.

Now for our cell phone forensics, we have a policy that we want a search warrant every time, even though there have been Supreme Court rulings saying that we do not need search warrants for incidents or arrests. It's better to have it so when we go to court it can never be fought. The judge has already said, "You have enough evidence to search that phone."

The CSI Effect

There are a lot of crime shows on TV that show completely distorted video that suddenly becomes crystal clear. What are the similarities and what are the differences between what you do and what people see on television?

KEITH: You look at *CSI* and they can solve a crime in about one day and...

CHUCK: I think it's 45 minutes, once you take the commercials out.

KEITH: It is. It doesn't happen that way. There's a lot of work that has to be done. They can't just hit the button and zoom in; it just pops up and the person looks perfectly clear and there's your suspect. There's a lot of work behind it. We have to take lot of notes to address every step we've done because it's going to be challenged in court.

Does it make you laugh? Does it make you aggravated that so few people know how your job is really done?

KEITH: It does because you hear people every once in awhile say, "Oh, I see on *CSI* what you guys can do." No, we don't. We can't do exactly what's done on *CSI*. It takes a little more time. [He laughs.]

CHUCK: I do get a lot of the questions from my family and how this works and what that is.

The profession itself fascinates me. The capabilities of the technicians are incredible. I don't know that the shows are that far-fetched. You see the same muddled picture at the beginning and this great picture at the end and that's what [our] guys are doing. It's the process itself that maybe isn't quite as sexy as the TV show makes it seem or as simple.

KEITH: Exactly.

CHUCK: Like Keith referred to, the documentation of every step is so that the process is repeatable. We are authenticating video. We are doing everything that we need to do to document and support the process. It's much more tedious than is perceived by the public.

Careers Saved

Tell me the well-known story about the video and the lawsuits against the two Officers where they pulled over a suspect because there was no license plate, but then a plate was added on later allegedly in a defense video. It's a great story about what you do.

KEITH: There was a traffic stop where two Officers pulled over a vehicle with no license plate. When they pulled over the vehicle, the vehicle was being driven by a parolee. During a search of that vehicle they found cocaine and other narcotics in the vehicle. When it went to court, a video came out by the defense saying that that's not true, that there was a license plate on the car. They brought up the video. Jim [Hoerricks] was able to take that video and retrace the steps, how it was manipulated [to add a license plate where there was none] and actually saved the officer's careers from that defense team's charge that they had falsified a police report.

That's a serious charge.

KEITH: Yes.

This unit got at the truth. You're scientists in a way. Your job is to seek the truth wherever it may lead.

KEITH: That is accurate. We work with the Internal Affairs, too. Justice is blind and we don't take sides. We have to do our job and that's what we do.

But in this incident you saved the careers of two fine officers.

KEITH: Yes.

CHUCK: One of the very interesting things about the Electronics Unit and throughout the Tech Lab in general is that we try to separate ourselves from Investigating Officers. There are times where we're out supporting their different operations in the field, but for the most part, we don't want to know what end result the Officer wants to see. We're taking the information that they provide to us and provide a response whether the video is authentic or not, whether it's been manipulated or not. We're not looking for a particular end result. We're looking to indicate what is there and what's not there.

Great People, Great Mission

Talk about the dedication and the calm relentlessness with which your staff goes about finding out the truth.

KEITH: They're all very much dedicated, from our Clerk Typists all the way up to all of our Police Surveillance Specialists. They constantly have to research and update themselves to what's going on. They are all incredible technicians. They really make the LAPD shine in what they do, and they've worked on some really highlighted cases.

Alex [Supall], for instance, retrieved all the video from the mansion where Michael Jackson died. It had cameras, and Alex testified in court during the trial against Michael Jackson's doctor.

I didn't realize that.

KEITH: There were cameras that gave a timeline of when the phone calls were made and when ambulance personnel showed up on the scene and stuff like that. It became a very important part of the case, and through the due diligence [of the Specialists] and hard work and what they do, he was able to get up on the stand and give an incredible testimony.

CHUCK: We have a unit that like so many other units within the City is running at a very high vacancy rate. The Electronics Unit vacancy rate is somewhere between 35 and 40 percent. The one supervisory position assigned to the unit is vacant. You have an increasing workload and demand and a group that is striving to keep up with it and doing their absolute best. In addition to the vacancy rate, we used to have a fairly significant cash overtime allocation specifically for Electronics to keep up with the workload. You had employees that were working 16-hour days to come in and work



Chuck Siegler.

their regular shift and then stay late into the night or early into the next morning to support a field operation that evening. It's really an amazing group that has really kept up. They have really done an amazing job to support the department's function both from an investigative standpoint and from an officer safety standpoint in supporting field operations. Their dedication is amazing.

What do you like about working here?

CHUCK: For me as an administrator it's being put in a position to support field operations investigations. The City is an amazingly diverse place where you can do so many different things. I've been a project manager for construction projects, but being here and supporting field operations, having an impact on resolving cases, gives me a lot of meaning. There are a number of reports that can be done anywhere. To be able to move this group that has been promised for 20 years they were going to be relocated out of Parker Center, literally 20 years, to actually have that come to fruition to me is an accomplishment. My biggest function is to help enable these guys to do their job.

KEITH: You've heard of what they can do. If it wasn't for them there are a lot of crimes that would not be solved, and I'm talking about big crimes. They do amazing work. They are constantly updating themselves. It's been a great pleasure to work here. It was an honor to be asked to help run the unit while they have the vacancy.

CHUCK: We keep calling it an honor as they put more and more work on us.

KEITH: Yes. [He laughs.]

Gentlemen, thank you very much for the tour and for the words. It was a pleasure to come in and see the amazing work that you do.

CHUCK: Thank you.

KEITH: Thank you very much.