

caused problems by transmitting close to the SORN and media allocations. These techs would track down sources of interference with mobile radio direction finding gear hooked up to a laptop computer.

Some of the radio equipment used which they mentioned over the air included AOR AR3000 and AR5000 scanners and Hewlett Packard spectrum analyzers.

So, as you can see Rich, given the high level of security at the Sydney Olympic Games and with the increased use of digital transmission modes, it was still possible to monitor a great deal of the radio action with a simple conventional scanner and a 245xlt....all is not lost!!

TROUBLE IN PARADISE

Cops Take Radio Complaints to Airwaves

HONOLULU (APBnews.com) -- The hills and valleys of the island of Oahu are part of its charm, eternal reminders of the volcanic activity that created the Hawaiian islands. But Honolulu police officers say the topography -- along with bureaucratic inaction -- threatens their safety. For the past two years, the city police union has been complaining that new police radios fail in areas where signals are blocked by mountains. And for two years, nothing happened.

Then, last week, police employees put \$5,000 worth of advertisements on commercial radio stations, urging citizens to carry cellular telephones so officers can borrow them when their two-way radios fail to work. "We got a little frustrated," said Alexander Garcia, Oahu chapter chairman of the State of Hawaii Organization of Police Officers.

Within hours, the city and police department said they would install new antennas to eliminate the dead spots. \$19.5 million system The problems began in 1998, when the city spent \$19.5 million to convert its radios from a Motorola to Ericsson system, Garcia said. The new system was not designed to work in a mountainous area, where hills block the signals, he said.

Dead spots, which were not accessible by radio, cropped up in each of the island's four quarters, he said. The city and county of Honolulu are combined and cover the entire island of Oahu.

"You can't talk to each other," he said, and many officers had to turn to their own cellular phones to communicate with headquarters. "Having a radio is a lifeline," said Garcia, a violent crimes detective. "You have to be able to communicate not only with dispatch but also with your fellow officers. The big difficulty is not having that direct communication."

What price safety?

The union chapter, which represents 2,000 officers, complained to no avail. "For the last two years, the city engineers and administration have been trying to correct this, but nothing happened," Garcia said. The police union decided to take its concerns to Oahu's one million residents. The union planned to spend as much as \$50,000 on three radio ads, Garcia said. "What price do you put on officer safety? If we could save one life, \$50,000 is nothing," he said. One ad starkly warned citizens to "not be alarmed" if an officer approaches and asks to borrow a cellular phone. "If you're in trouble, need help or have an emergency, make sure you have your cell phone with you," says a male voice in one ad. "Your Honolulu Police Department needs to be able to call on your cell phone."

Police actually have not had to ask residents for their cellular phones. "We did the ads to show how difficult it could be," Garcia said. "I know the public would have lend them to us if we had asked." "New antennas on way" The day the ads appeared, police and city officials held a news conference to say that the problems were being addressed. Police officials declined to comment, but a spokeswoman confirmed that new antennas would fix the dead spot problem. The city official in charge of the antenna system did not return repeated calls seeking comment. Garcia said he had mixed feelings about the quick response. "I wish they could have done it a couple years ago," he said. "They didn't realize how important it was."

But officers will not bear a grudge, he said. Late last week, the union changed the content of the ads. "We said thank you to the public and the administration of the police department for their fast response," Garcia said.

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COMMENTS ON THE OPTO SCOUT

Optoelectronics recently had a sale on the Opto Scout. I've been borrowing Dave, WI2Q's so often that I thought it was time I buy my own! For those of you who have owned one, Optoelectronics made some changes to increase its reliability. For starters, the battery charging circuit has been simplified and it no longer heats the batteries up. Older Scouts also turned on when the battery was being charged. The new units can be turned on while charging, but will not turn on automatically.

After using it I've made some observations that led me to doing some serious experimentations. Optoelectronics recommends the "miracle baby" antenna made by Comet. Comet claims it's a "10 band" antenna, but I've determined that it actually resonates best at about 819 mhz. This accounts for the superb performance in that region. I called Optoelectronics and they confirmed my findings. They also agreed that the small antenna is marginal at 450 mhz and almost "ineffective" at 150 mhz.

The Scout detects a signal that is about 12-15 db above the ambient RF noise floor. This means that if an efficient is used, strong signals such as NOAA weather and paging transmitters may artificially mask out nearby signals. Ideally, we need a "nearfield" antenna resonate in the 150 and 450 mhz region. As I'm writing this, I'm waiting for one of the "stubby" antennas used by NASCAR scanner listeners. Using an "FM" trap in line with the antenna will also mask out FM broadcast stations that may effect the Scout's overall sensitivity. I also E mailed my conclusions to Bob Grove at Monitoring Times and received this answer...

Hi, Bob:

You're right on all counts. Intuitively, I think you've answered your own questions.

By keeping the general RF field density low, the counter responds only to near field signals which it interprets as being the strongest, so you don't get false products. But by substituting a resonant 155 Mhz rubber duckie, you'd encourage the detection of nearby 152/158 MHz pager signals, NOAA weather broadcasters, and other powerhouses that could give false readings in a near-field environment.

An FM trap will certainly reduce those broadcasters

by 30 dB or so."

Continuing, I also related the following story to Bob Grove....

I had the need to sit with someone for several hours in the emergency room of a local hospital. The hospital had countless signs informing visitors that cell phones were not permitted as they can interfere with the equipment in the hospital. Interesting that my Scout got 20 separate hits from cell phones that the staff was using. I asked one of the Bio-med people why such signs were posted, yet the use of the staff's phones had no effect. His response was that they house phones were on a "safe frequency." I pulled out by Scout, demonstrated how it worked. I wondered if he was just singing the hospital's policy or if he simply had no knowledge of RF? His lack of a response said more than any explanation he could provide!

To this, Bob Grove commented, " yes, there is no difference in the "safe" frequencies used by the hospital staff cell phones than those used by walk-in clients unless the hospital is using their own system, but you showed him this wasn't the case. I recall isolated instances in which patient monitoring telemetry was affected by nearby cell phones, but this doesn't forgive the use by the staff unless they have demonstrated there are safe ZONES rather than FREQUENCIES on the grounds."

Bob Grove

COLORADO SCANNING....

Colorado law enforcement had no quams in switching to digital modes and announcing it to the world. Check this page out!

http://www.state.co.us/gov_dir/gss/cits/comm/dtrs/media.htm

"With the transition of many public safety radio systems to the Cooperative Communications Network of Colorado (CCNC) digital trunked radio system, it will no longer be possible for unauthorized monitoring of radio traffic. The CCNC realizes that granting permission for the news media and certain non-government agencies to monitor specific channels may benefit the public. This policy will define the process and requirements to obtain permission to monitor along with how to obtain and activate the equipment.

All requests for permission shall be in writing signed

by a senior level official from the agency requesting permission. Request should be sent to:

Cooperative Communications Network of Colorado
c/o State of Colorado, ITS 2452 W 2nd Ave. #19
Denver, CO 80219

The request should contain the following information:

- C Name, address, Email and telephone number
- C Specific channels to be monitored
- C Quantity and type of radios requested (Base, Airborne or Portable)
- C Purpose for monitoring Users of the equipment

Once a request has been received, the CCNC Board will contact the public safety agency whose channels are being requested to clear the request. Once the agency has approved or denied the request, the requesting agency will be contacted with the status of their request. If the request is approved, the CCNC will provide an agreement form to be completed by the requesting agency. Once the form is completed and returned, the CCNC will provide information on how and where to purchase the necessary equipment, along with how and where to get the equipment programmed.

The maximum number of radios authorized to a single agency will be 2, one newsroom or fixed location and one airborne unit. Newsroom units will be capable of monitoring only. Airborne units may be granted permission to transmit for official public safety activities only. Decisions of the CCNC Board are final."

FLAWS IN CELL PHONE TECHNOLOGY

Cell Phone Flaw Opens Security Hole

Your cell phone may be multilingual - and that could be detrimental to your privacy. Computer security researchers said a design flaw in the protocol used in global system for mobile communication cell phones could allow eavesdropping. The trick: Just make the cell phone think it's somewhere else. Only 6.5 million people in North America use global system for mobile communications cell

phones - through providers such as Pacific Bell Wireless and VoiceStream Wireless - but worldwide, it's the most widely used standard, accounting for 65 percent of the total wireless digital market.

GSM phones are increasingly popular in the U.S. because they allow roaming in Asia and Europe upon insertion of the appropriate smart card. Since western Europe can't export encryption products to certain countries, such as targets of United Nations sanctions, the default version of the GSM protocol does not use encryption. This in itself isn't necessarily a problem, said David Wagner, a professor of computer science at the University of California-Berkeley, but GSM also does not authenticate its base stations, the hardware that communicates with the handsets - and that is potentially troublesome.

Experts said it is possible to build a phony base station that jams the signal from the real base station and forces the cell phone to connect to it. The base station then tells the cell phone, in essence, "You're in Iraq, don't use encryption," and the call proceeds unprotected with the false base station relaying information between the real base station and the handset.

A handful of researchers have been aware of the loophole for several years now, but it's been "a well kept secret," Wagner said. Security experts call this a "man-in-the-middle" attack because the phony base station sits between the handset and the real base station, intercepting their communications, but neither the real base station nor the handset knows it's there.

"We know about it as a technical issue, but we haven't seen it demonstrated," said James Moran, fraud and security director at the GSM Association. He added that building an interception device would require considerable technical skill. Moran said the next GSM standard would address the problem. Other cell phone standards probably don't authenticate base stations either, Wagner said, perhaps because their designers were more concerned with preventing handset cloning, which allows someone to bill his or her calls to someone else's number. But the phony-base-station trick is a particular problem for GSM, because different strengths of encryption are used in different places. "Whenever you have to support both weak and strong cryptography, one very real risk is that you

end up with "least common denominator" security," Wagner said. Cracking different pieces of the cryptography that protects GSM cell phones from eavesdropping has long been a favorite pastime for computer security researchers. Just last December, two Israeli researchers announced that they had found a fast method of cracking the A5/1 algorithm, the strong encryption used to protect GSM phone calls in Europe and the U.S. But the phony-base-station strategy obviates the need for any encryption busting.

INCREASE IN MILITARY ACTIVITY RESULTS IN INCREASED SATELLITE ACTIVITY

As a result of recent events in the Persian Gulf area and typical of crisis related situations, increased analog FM-SCPC communications has been monitored at my central Virginia location from the INMARSAT Atlantic Ocean Region-East satellite 15 Degrees West and to a lesser degree from the INMARSAT Atlantic Ocean Region-West satellite 53 Degrees West in the 1,535-1,542 mhz. range.

The INMARSAT AOR-E satellite east-west approximate median latitude footprint covers from the Persian Gulf to the USA Mississippi river area. The INMARSAT AOR-W satellite east-west approximate median latitude footprint covers from central Europe to the USA west coast.

VHF SATELLITE FREQUENCY UPDATES

FREQ(MHz)	Use
137.00000	ISKRA-1
137.02000	Symphonie-1
137.03500	FY-1 F1, F2
137.05000	Ariel-4 OTS-2 Orbcomm-X DCS-1 VSUME
137.08000	SSU Precursor-2 Meteosat-1, -3
137.10000	METEOR 1-29
137.11000	ATS-6
137.14000	Aurora-1 NOAA-4,- 5
137.15000	METEOR 1-24, 1-25, 1-26, 1-27, 1-30, 1-31 Magion-1, -3, -5
137.17000	Explorer-43 MARECS-1, -2
137.17500	Bhaskara-2
137.19200	APPLE
137.20000	ESRO-4 GEOS-1, -2 ESA Bhaskara-2
137.22000	Bhaskara-2
137.22500	Orbcomm-A2, -F21, -F22, -F23, -F24, -F25, -F26,-F27,-F28 SAFIR-2
137.23000	Explorer-51, -54, -55
137.25000	Orbcomm-F21, -F22, -F23, -F24, -F25, -F26,-F27,-F28
137.26000	Aeros-1
137.28000	Kosmos-1602
137.28750	Orbcomm-A8
137.29000	Explorer-38 Aeros-2
137.30000	METEOR 1-23, 2-2, 2-3, 1-29, 2-4, 2-5, 2-7, 2-8, 2-9,
137.31250	Orbcomm-A5
137.33000	Kosmos-1602
137.35000	ATS-1,-2, -3, -4
137.36000	ATS-5
137.38500	Timation-2
137.40000	NOAA-3 METEOR 2-6, 2-10, 2-12, 3-1, 2-13, 2-15, 2-16, 2-21
137.41000	Explorer-30 S69-4
137.42000	Rohini-1B

137.43500 Orbcomm-A3
 137.44000 Explorer-30 Miranda Aryabhata Solrad-2A
 137.44500 MAGION-2
 137.45000 ATS-1 METEOR 1-29, 2-5 Kosmos-1484 Interkosmos-24, Aktivny
 137.46000 Orbcomm-FM1, -FM2, -A4
 137.50000 ESSA-2, -4, -6 ITOS-1 MIKA NOAA-2, -3, -4, -5, -6, -7, -10,
 137.53000 SRET-2 (MAS-2)
 137.56000 Prospero X-3 Ariel-6 Solar Maximum Mission Orbcomm-A1,
 137.57500 Explorer-49
 137.62000 ESSA-8 NOAA-1,- 2, -3, -4, -5, -7, -9, -10, -11, -13, -14,
 137.66250 Orbcomm-A3, -A4, -A8, -F15, - F16, - F20
 137.67600 Hilat
 137.68000 Ariel-5 P76-5 Orbcomm-FM2
 137.68750 Orbcomm-A5, -G1, -G2
 137.71000 Explorer-44 Orbcomm-FM1
 137.71750 Orbcomm-A1, -A2, -A5, -A6, -A7
 137.72000 TEMISAT
 137.73750 Orbcomm-A6, -F14, -F19
 137.74000 GRAV GRAD 4 TD-1A SROSS-C
 137.77000 NOAA-7, -9, -10, -11, -13, -14
 137.79500 FY-1 F2 (4 lines/sec APT)
 137.80000 Interkosmos-18 Orbcomm-A7, -F13, -F17, - F18
 137.82000 S69-4
 137.85000 Interkosmos-19 METEOR: 2-8, 2-11, 2-14, 2-15, 2-16, 2-17,
 2-18, 2-19, 2-20, 2-21 (2 lines/s APT + 20 lines/min IR)
 METEOR 3-1, 3-2, 3-3, 3-5 (2 lines/s APT + 2 lines/s IR)
 Kosmos-1809 FY-1 Magion-3 Resurs-01 4

 137.86000 Landsat-1, -2, -3
 137.89000 ANS-1
 137.90000 NUSAT
 137.92000 Explorer-47 PEGSAT
 137.93500 MEGSAT
 137.95000 ISIS-1, -2 Explorer-45 MU-SAT
 137.95500 UPM/LBSAT
 137.96000 HETE
 137.98000 GRAV GRAD 5 Explorer-50

The Urban DX'er would like to thank all those who contributed to this months issue!

Charlie - N2NOV, "R", Joe Walc - K2JAW