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## **More on RMIT Cancer Cluster**

**June 1...** RMIT University has released a more detailed version (#3) of EMC Technologies' EMF/EMR measurement survey (see May 25 item in our May issue).

## **Bluetooth Makes the Scene: Are There Any Health Risks?**

**June 2...** We've been tempted to think that some junior X-men have jumped off the big screen onto the streets of New York City. Well, not really, it just seems like that with so many people linking Bluetooth headsets to their cell phones.

The Bluetooth device transmits at very low power—no more than a couple of milliwatts. Some flash a cool blue light. At these levels, they should be fairly innocuous. Or so we thought until a few days ago when we were thumbing through the most recent issue of the *IEEE Microwave Magazine*, a quarterly that goes to more than 12,000 RF engineers. A two-page, four-color ad caught our attention, and not just because it features a cartoon character which bears a striking resemblance to Angelina Jolie. It was more because the ad implies that designing a Bluetooth headset is a matter of "life and death."

The ad was unsigned. No attribution of any kind. But with a little reverse engineering (thanks to the ad index in the back), we soon learned that Zurich-based Schmid & Partner Engineering, better known as Speag, was behind it.

Speag sells high-tech dosimetry systems to the cell phone industry and is closely associated with IT'IS, the Foundation for Research on Information Technologies in Society which itself is affiliated with industry. (Niels Kuster runs both IT'IS and Speag.) For instance, former Motorola honcho Q. Balzano is an IT'IS vice president and Mike Milligan, the head of the Mobile Manufacturers Forum (MMF) in Brussels is another board member.

The subtext of the Speag ad is that if you don't design Bluetooth antennas correctly, your customer may suffer. A most surprising and contrarian message from a crew allied with industry. And for that very reason, a message that should be taken seriously.

In a paper presented last fall at the URSI meeting in New Delhi, IT'IS' Sven Kuehn and Kuster showed that the maximum 1g SAR of a Bluetooth device can reach 20 mW/Kg. That's not very high, though if Sweden's Leif Salford and Bertil Persson are right, that's enough energy to cause leaks in the blood-brain barrier and to kill off neurons.

How much RF exposure are those urban, Bluetooth-equipped cyborgs getting over the course of a day? We asked Kuehn whether the devices keep transmitting even when the user isn't talking on his cell phone (like a cell phone on standby). It's impossible to generalize, he replied.

We continue to be dismayed by how little we know about exposures and possible effects. Against this backdrop, Motorola's and the rest of the industry's

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calls to stop RF health research sound more and more bizarre.

### **Results of Attempt To Repeat TNO Study Due Tomorrow**

**June 5...** The results of the attempted replication of the TNO study will be announced tomorrow in Zurich. The Dutch TNO study, caused quite a stir when it was released in the fall of 2003. It suggested that 3G RF fields as low as 1V/m could be detrimental to a person's sense of well-being and has been widely cited by those opposed to the siting of mobile phone towers near schools and in residential neighborhoods. Peter Achermann of the University of Zurich, Niels Kuster of IT'IS (see **June 2**, above) and Martin Rössli of the University of Bern will present their findings at a press conference scheduled to begin at 10:30am Swiss time. Their paper has been accepted for publication and will be posted on the Internet after the press conference. The word on the street is that they failed to repeat the TNO findings—but no one expected the TNO to find such effects in the first place. More tomorrow.

### **Swiss Team Fails To Support TNO 1 V/m Effect**

**June 6...** A Swiss research team led by Peter Achermann of the University of Zurich has failed to replicate the Dutch TNO study (see below). Achermann and his collaborators, Martin Rössli of the University of Bern and Niels Kuster of the IT'IS Foundation in Zurich, found no consistent effects on well-being or cognitive performance following a 45-minute exposure to 3G RF radiation, at either a 1V/m or a 10V/m. The radiation signals were designed to mimic those from a mobile phone base station. The experiments were run double blind—that is, neither the subjects nor the investigators knew when the power was turned on. Their paper has been accepted for publication in *Environmental Health Perspectives* and is now available at no charge. Also posted on the Internet are the research team's press release and study summary, as well as a fact sheet issued by the Swiss Research Foundation on Mobile Communication, which coordinated the project. Achermann stressed that the results only apply to short-term exposures and do not allow any conclusions regarding the possible effects of long-term exposures.

### **BusinessWeek on FDA, Kids and Phones**

**June 11...** The U.S. FDA has long sidestepped the cell phone-health controversy even though Congress gave the agency that responsibility. This week's issue of *BusinessWeek*, asks whether Disney is making a smart move targeting young kids for its new Disney Mobile service. In its defense, the company says that it's "relying on the FDA" and that the FDA has repeatedly stated that there is no danger. As *BusinessWeek* reports, the FDA's position is: "there's no available scientific evidence of health problems associated with using wireless phones." This begs the ques-

tion: Why is Howard Cyr, the FDA's point man on cell phone radiation risks, ignoring studies from two different Swedish research groups (one from Örebro University and one from the Karolinska Institute) that independently point to an association between acoustic neuroma and long-term (more than 10-year) cell phone use. Cyr also dismisses the long-term cell phone-brain tumor risk, which others say is still very much an open issue. In light of Cyr's Panglossian outlook, *BusinessWeek* concludes: "the only thing protecting kids from possible danger is their parents."

### **Radiation Exposures from "Microcells"**

**June 14...** Most people don't notice those little boxes stuck on the sides of buildings, but if you live in a city, they're most likely to be your principal source of microwave exposure. That is, of course, when you're not using a cell phone.

Those boxes house cell phone antennas. They are known as microcells because they radiate no more than 5 watts of energy. Of the more than 32,000 base stations in the U.K., some 3,000 are microcells with antennas that are less than 10 meters above the ground. Tim Cooper and colleagues at the Radiation Protection Division of the U.K. Health Protection Agency (HPA)—what used to be called the NRPB—have shown that if you're within 50 meters of a microcell you're exposed to more microwaves than you are from those tall, ugly mobile phone towers that spark so much concern. That's because microcell antennas are much closer to the ground than antennas on cell towers and are therefore closer to where people are. (The HPA survey results appear in the June issue of the *Journal of Radiation Protection*.)

According to Cooper, exposures from these 3,000 microcells are relatively low, usually less than 1% of the ICNIRP guidelines, though in some cases they can reach close to 10% of the limit. But many other mobile phone base stations that can entail higher exposures were left out of the survey. Cooper advises that there are about 2,000 antennas in the U.K, which are also no more than 10 meters above ground but which radiate more than 5 watts. Some transmit "several tens of watts," Cooper writes. He didn't take measurements around these more powerful, low-hung transmitters, because they give off too much energy to be called microcells and his survey was limited to microcells and picocells. The bottom line is that we don't know what the worst-case exposures may be.

Remember also that ICNIRP only recognizes the existence of thermal hazards and ignores any possible long-term health risks. If non-thermal effects do in fact exist—and we believe that they do—ICNIRP may offer only a small margin of safety, if any.

Mobile phone companies try to camouflage microcells so that they blend into their surroundings and don't generate NIMBY protests. This may not be such a good idea. Think, for instance, of those who work in newsstands or at pushcarts or of policemen who direct traffic. Odds are that they would never spot a nearby microcell and take steps to ensure they are not too close. For their sakes, we should make these transmitters more visible, perhaps by slapping a yellow non-ionizing radiation warn-

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ing sign on them.

Cooper's microwave measurements were carried out a few years ago and were first released in a 2004 NRPB report. (It's a free download and has the added advantage of featuring colored illustrations and photographs; p.12 shows a couple of different microcells.) The abstract of the report concludes with the following sentence: "Exposures that comply with the [ICNIRP] guidelines are not considered hazardous." Those reassuring words were later deleted—apparently they didn't pass peer review as the paper made its way to the *Journal of Radiation Protection*.

### **Microcells: Powerwatch Responds**

**June 16...** Powerwatch, the U.K. EMF group, has taken us to task for not being "outspoken enough" in our comments on the HPA's new paper on microcells (see **June 14** item above). Alasdair Philips is outraged over the NRPB's (now the HPA) failure to survey the more powerful base station antennas that are less than 10 meters off the ground. "The operators have installed high-

power macrocell type transmitters at microcell sites," he wrote. He offered a one-word assessment of the *JRP* paper—"rubbish." Last year, Powerwatch posted a detailed critique of the 2004 NRPB report.

### **Taiwan: Highest EMF Exposures in the World**

**June 17...** Residents of Taipei, the capital of Taiwan, may have the highest exposures to power-frequency magnetic fields anywhere in the world. A survey by the Taiwan EPA found that 18% of elementary school classrooms, hospitals and homes had levels exceeding 10 mG (1µT), according to the June 15 *Taipei Times*. The EPA made the measurements after a study by Fu Jen Catholic University found that 95 primary schools and 49 junior high schools, with a total of more than 18,000 students, are within 20 meters of high-voltage power lines. The EPA administrator has said that the ICNIRP standard of 833 mG does not provide sufficient protection, the *Times* reported last February.

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