Swiss RF Survey: Ten Times More Exposure

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In the mid-1970s, the U.S. EPA sent a van around the country to survey RF levels in various cities, as well as from high-power sources such as radio and TV broadcast antennas, radars and satellite uplinks. The agency generated a trove of reports which describe the electromagnetic environment before the wireless revolution took hold. Some members of EPA's RF group continue to work on health issues —Norb Hankin is still at the EPA, Ed Mantiply moved over to the FCC some years ago — but the EPA van is long gone. No one in the U.S. is doing these types of radiation surveys anymore.

The good news is that a Swiss team has now completed its own set of RF measurements, which take into account the proliferation of wireless sources. The new survey is based on exposure profiles of 166 residents of Basel, a town with a population of just under 200,000. It's part of a larger project, called "Qualifex" led by Martin Röösli of the University of Basel and sponsored by the Swiss National Research Program on Non-Ionizing Radiation, known as NRP57. The results are in a new paper that has just been published in *Environmental Research.*

Overall, the survey found a roughly tenfold increase in overall RF exposures in Switzerland compared to the levels found by the EPA in the U.S. It provides some additional insights: Yes, mobile phones and towers are major contributors to overall exposure, but so are cordless (DECT) phones, as is riding on a train or a bus. Airports may be hot zones too. The DECT finding could turn out to be a problem for the forthcoming Interphone study, which gives cordless phones short shrift. As for passive or second-hand RF exposures, their contribution can be important in confined spaces such as on public transportation (see **May 15** post below).

Here's some of what they found, in their own words:

"Exposure levels were high in trains, tramways and buses, with a high contribution of mobile phone handsets. This was not only due to calls by fellow passengers but also due to the hand-overs during the journey of mobile phone handsets from one base station to the next. Exposure to mobile phone handset radiation in public transport was only slightly lower for persons not owning a mobile phone, showing that passive mobile phone exposure plays an important role in these situations. We found also high exposure levels at airports, but analyses were based on relatively few measurements (5h in total), and these results should therefore be confirmed in future studies. The low exposures measured at churches and school buildings are explained by the infrequent use of mobile phone handsets at these places. Similarly the lower exposure during night compared to daytime is explained by the smaller contribution of mobile phone handsets. Considerable exposure contrasts were also found between individuals. Explanations for this include difference in exposure at home or at work from fixed site transmitters (mobile phone base stations or broadcast transmitters) and from wireless devices (mobile phone handsets, DECT phones, W-LAN) and different life styles resulting in more or less frequent stays at locations with high exposure levels. Although mobile phone uplink was the major exposure source at most of the locations, mobile phone base stations and cordless phones contributed substantially to total exposure."

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