



mobile inSite

news, issues and science on mobile telecommunications deployment

February 2009 – In this issue

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Editorial

Welcome to the first issue of *Mobile InSite* for 2009. Our feature article for this edition is a review of the New South Wales (NSW) planning framework and its impact on the deployment of mobile phone networks.

Currently, the NSW Parliament is holding an inquiry into the state's planning framework, and the Mobile Carriers Forum (MCF) has entered a submission calling on the government to implement planning processes that are consistent across all councils.

The MCF's NSW Regional Committee has spent a significant amount of energy consulting with the state government and local councils about the rules regarding where mobile network carriers can locate network infrastructure. The current rules can be complex and ambiguous and sometimes have little regard for the need for base stations to be located close to where people expect service.

Also in this edition is a particularly interesting study out of Germany which shows that more information or participation does not necessarily make local residents less concerned about base stations; however, being involved in round table consensus discussions with carriers about the placement of base stations was most likely to be successful.

What this paper shows is the role of consultation processes, such as the ACIF code for deployment, is not to attempt to change people's opinions, but to work with local residents to come to an acceptable agreement for both parties if at all possible.

This article links well with another article in this edition showing complaints to the government regarding the way in which mobile phone network carriers install new towers and consult with the community have fallen to an all time low. The statistics released by the Australian Communications and Media Authority are



testament to the fact that network carriers are genuinely committed to addressing community needs.

Also worth reading in this edition is the latest research on mobile phone towers and children's health, a Melbourne investigation into the levels of electromagnetic radiation in typical Australian homes and a federal health department guide to the latest research on mobile phone and base station health effects.

Matt Evans

Program Manager
Mobile Carriers Forum

Mobile Carriers Forum urges clarity on development rules in NSW

The Mobile Carriers Forum (MCF) has called on the New South Wales (NSW) government to review development assessment procedures so the mobile phone industry can plan its ongoing investments in advanced mobile technologies that will be fundamental to the growth of Australia's digital economy.

Mobile phone network carriers have experienced significant difficulties when trying to provide mobile phone coverage and access to high speed broadband in NSW because of differing local government rules regarding telecommunications infrastructure in council areas.

In a submission to the NSW Legislative Council Standing Committee on State Development for its Inquiry into the NSW planning framework, the MCF said the state government had an opportunity to maintain community benefits derived from the industry's investments in existing mobile networks as well as create



the right regulatory environment for future investment.

More information about the NSW Legislative Council Standing Committee on State Development can found at:

[WEBSITE LINK](#)

Program Manager Matt Evans said the MCF has been vocal on this issue for many years now. "Significant concerns have been raised by the MCF over many years with the NSW state government, local government peak bodies and individual councils in relation to telecommunications deployment and the difficulties of navigating the planning system to achieve positive planning outcomes," Mr Evans said.

A sticking point for the difficulties experienced in NSW is the absence of a consistent approach by councils on zoning controls, site selection and design and development assessment provisions in local environmental plans.

In its submission to the Inquiry, the MCF provided examples of where a carrier has met all stated policy requirements in their development application for a new tower, but are still refused a development application.

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Mobile Carriers Forum urges clarity on development rules in NSW

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A common reason for refusal has been health concerns about radio frequency emissions, despite the fact that national safety standards have been fully complied with.

“Australia’s four mobile network carriers comply with all radio frequency safety standards set by the federal health department agency, the Australian Radiation Protection and Nuclear Safety Agency. Carriers are audited to ensure compliance,” Mr Evans said.

“Councils are not qualified to make an assessment of the health and safety impacts of radio frequency emissions and do not have responsibility for this complex scientific judgement.

“Yet, despite this, councils still reject compliant development applications based on health concerns,” Mr Evans said.

In one case, a carrier had been delayed in excess of three and half years and had spent in excess of \$150,000 without an outcome, due to actions by a council.



Legal action was needed to resolve this site dispute. Antennas are masked in the two false chimneys.

In another case, the matter was taken to the NSW Land & Environment Court where after three years of disagreement, the carrier involved won the case and the council, and its rate payers, were forced to pay the significant costs of the court proceedings.

“This has created a climate of uncertainty and diminishing confidence in the NSW planning system as the financial costs of pursuing

uncertain planning outcomes and navigating a process, which can be markedly different between councils, is borne by the carriers,” Mr Evans explained.

He added that the economic benefits of adopting a clear development assessment framework were clear.

“The residents of these councils in NSW are the victims of this system. They are missing out on access to mobile phone coverage, high speed broadband access and the latest developments in wireless telecommunications,” Mr Evans said.

“In our submission, the MCF said it was encouraged by the introduction of the NSW State Environmental Planning Policy in 2007 which partially standardised rules, but identified further work that was required to introduce standard requirements for exempt and complying development. We look forward to working with the NSW government to resolve these issues.”

The NSW Parliamentary Committee is due to report its findings by 14 December 2009.

No health impact for kids from mobile phone towers



Emissions from mobile phones and their base stations have no short-term health impact on children and teenagers, a world's first German government study involving more than 3000 children found.

Researchers from the Ludwig Maximilians University measured the actual amount of mobile phone radio frequency (RF) energy children are exposed to and found there was no direct link between base station emissions and health complaints such as headaches and dizziness.

The study, known as the German MobilEe-study, is the first of its kind to investigate a possible association between exposure to mobile telecommunication networks and well-being in children and teenagers using actual measurements.

The German MobilEe-study can be found at:

[WEBSITE LINK](#)

To assess the health impact of base stations on children, the researchers recruited more than 3000 children and teenagers aged between eight and 17-years-old to study their exposure over a 24 hour period.

Each participant was given a personal radiation meter specifically designed to measure the intensity of radio frequency energy emitted by mobile phones, base stations, wireless networks, digital phones and Wi-Fi devices. The personal meters recorded a measurement every second of the 24 hour period, resulting in 86,400 measurements for every participant.

In addition to the personal meters, each participant and their parents were asked to complete a diary to record their general state of health, with symptoms such as headaches, irritation, nervousness, dizziness, fatigue and sleeping problems.

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No health impact for kids from mobile phone towers

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Half of the eight to 12-year-olds and 90 percent of the teenagers in the study said they owned a mobile phone.

A summary of the research project by the German Mobile Telecommunication Research Programme can be found at:

WEBSITE LINK

After analysing the data, the researchers found exposure levels were on average less than one percent of the International Commission on Non-Ionizing Radiation Protection's (ICNIRP) standard, which is consistent with the results of other studies.

"All exposure levels were far below the ICNIRP reference level and ranged from a mean of 0.13% (all measurement values below the limit of determination) to a mean of 0.92% of the ICNIRP reference level per second during waking hours. Median exposure was slightly higher for

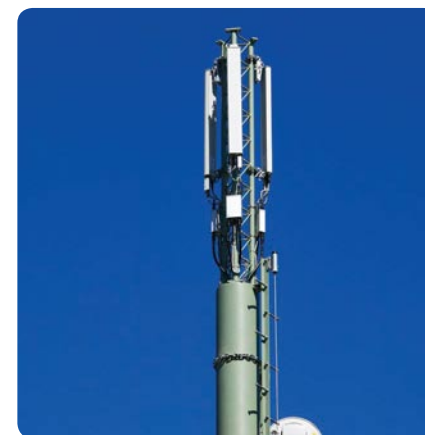
adolescents (0.19) than for children (0.18)," the researchers concluded.

The study also found no evidence mobile phone tower emissions had any influence on the occurrence or severity of the subjective symptoms reported by participants in their diaries.

Interestingly, the researchers found exposure levels were highest during the afternoon. They also found the highest exposures readings were located in highly populated areas like cities.

The researchers admitted the individual exposures over the 24 hour period may not be representative of weekly exposure levels because of the short time period. To analyse this, the researchers selected some participants to carry the personal radiation meters for five days, and found that a single weekday is representative of an entire week.

"The results showed that the assessment of



exposure on a single weekday reflects the typically weekday exposure quite good. However, weekend exposure differs considerably which is plausible as children and adolescents spend most parts of the weekdays in school while at weekends they might spend more time at home or at different places," the researchers said.

The study was funded by the German Federal Office for Radiation Protection.

Australian research finds low levels of electromagnetic radiation in the modern home

A study conducted by the Australian Centre for Radio Frequency Bioeffects Research (ACRBR) has found the modern home has very low levels of electromagnetic radiation despite the increasing number of wireless gadgets in the home.

A team at the Centre monitored 20 typical homes in Melbourne for electromagnetic radiation from common devices such as cordless phones, wireless internet, wireless alarms, mobile phones and baby monitors.

However they discovered that, even with all devices on, the combined radiation in living rooms was only three times that recorded in the front or back yard – and many thousands of times lower than Australia's safety limits set by the federal department of health.



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Australian research finds low levels of electromagnetic radiation in the modern home

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All of the exposure levels measured in the homes studied were well below safety limits.

“Essentially, everything was extremely low, ranging from being about 10,000 times lower than the national standards to being 10 times below,” ACRBR executive director Professor Rodney Croft said.

“With such minuscule levels, it’s very hard to conceive of how there could be a problem at such low levels.”

A video by ACRBR explaining the study and its results can be found at:

WEBSITE LINK

In most Australian homes the microwave oven causes the highest individual exposure, on average 4.4 percent of the safety limit when it is



ACRBR executive director Professor Rodney Croft

in use at maximum power levels. All other devices were less than one per cent of the safety limit.

“For the highest emitting device that’s still very low, but it’s comparatively high, given we never would have thought that with microwave ovens,” Prof Croft said.

On average, the combined exposure in homes is less than 0.03 percent of the Australian safety limits. Even with all of the devices turned on the cumulative effect was not of concern.

“There was a concern that with cumulative exposure we were being bombarded with electromagnetic waves but the difference between devices turned off and turned on was quite trivial,” he said.

Video presentations and posters by ACRBR about electromagnetic radiation in the home, workplace and environment can be found at:

WEBSITE LINK

The study funded by AMTA, but designed and conducted independently by the ACRBR, was the first in Australia to check exposure levels in modern homes.

Government statistics show complaints against network carriers decrease



Complaints to the government regarding the way in which mobile phone network carriers install new towers and antennas have fallen to an all time low, according to statistics released by the Australian Communications and Media Authority (ACMA).

In the 2007/08 financial year, almost 2600 new network facilities were installed, with only six complaints made against the way a network carrier consulted with the community and local government regarding the installation.

According to ACMA's annual report, complaints regarding the consultation procedures of Australia's four network carriers has reduced significantly since records began.

"In 2007-08, ACMA received 13 enquiries and six complaints related to the code. Of these complaints, ACMA conducted one preliminary

enquiry under Part 26. Carriers conducted an estimated 2,587 consultations under the code during this period," the report states.

ACMA's 2007/08 annual report can be found at:

[WEBSITE LINK](#)

"The six complaints against five sites for the 2007/08 year is a marked reduction since records began," Mobile Carriers Forum Program Manager Matt Evans said.

"In 2002/03, 137 complaints were made against 31 sites. Since then, complaints have steadily reduced to the latest figures of six. This is testimony to the efforts of the carriers in improving their consultation procedures," Mr Evans said.

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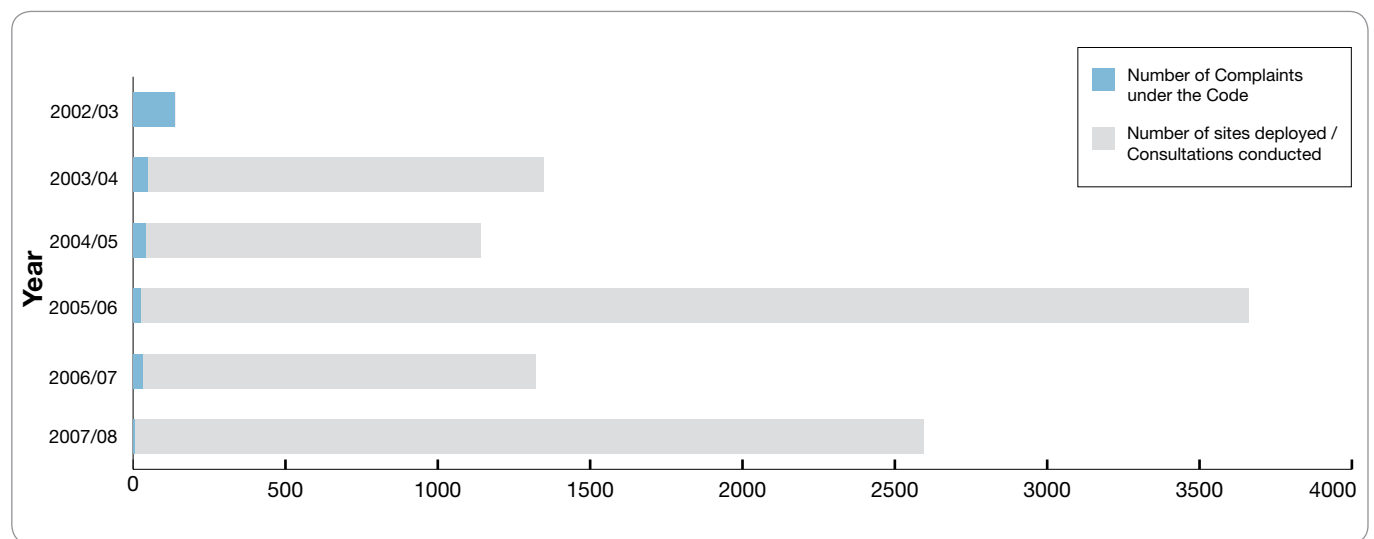
Government statistics show complaints against network carriers decrease

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When proposing to install new mobile phone towers and antennas, network carriers are required to comply with the ACIF code for deployment, which states carriers must take a precautionary approach when designing, siting and operating network infrastructure. The code also requires carriers to consult with local councils and communities when planning to install towers and antennas.

Mr Evans said the latest figures show carriers are genuinely committed to addressing community needs.

“What the latest statistics from ACMA demonstrate is that just 0.19% of consultation processes conducted by the four carriers attracted a complaint. Since the introduction of the ACIF code, carriers have been much more transparent and accountable for their decision



Bar graph showing the number of complaints against network carriers, the number of sites they relate to and the total number of sites deployed each year since 2002/03.

making, more consistent in the information they provide, and more responsive to community feedback,” Mr Evans said.

“The carriers are continually refining and seeking

to improve their consultation practices with communities, as they recognise people still have concerns about the siting of mobile phone network base stations”.

BioInitiative report does not progress science says Australian expert group

Australia's expert group on electromagnetic energy and health, the Australian Centre for Radiofrequency Bioeffects Research (ACRBR), recently reviewed the BioInitiative report and concluded the report is biased and unscientific and does not progress the science on the topic.

The report titled *BioInitiative: A Rationale for a Biologically-Based Public Exposure Standard for Electromagnetic Fields* was published on the internet in 2007 and claimed existing public safety standards governing the level of radiation emitted by mobile phones, power lines, Wi-Fi networks and other electrical devices were inadequate.

WEBSITE LINK

The report was compiled by a self-appointed working group consisting of 14 "scientists, public health and public policy experts" from the US, Sweden, Britain, China and Denmark.



The report argued health effects at biological levels are widely reported below the levels of existing safety limits and new safety standards should be developed taking into account these 'bioeffects' as a precautionary measure.

The report has been widely advocated by groups opposing mobile phone base station deployment.

However the Health Council of the Netherlands' Electromagnetic Fields Committee reviewed the BioInitiative report and concluded it is a selective review of existing research and does not present a balanced analysis considering the relative scientific quality of different studies.

The Health Council of the Netherlands review of the BioInitiative report can be found at:

WEBSITE LINK

In December 2008 the ACRBR reviewed the BioInitiative report and concluded:

Overall we think that the BioInitiative Report does not progress science, and would agree with the Health Council of the Netherlands that the BioInitiative Report is "not an objective and balanced reflection of the current state of

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BioInitiative report does not progress science says Australian expert group

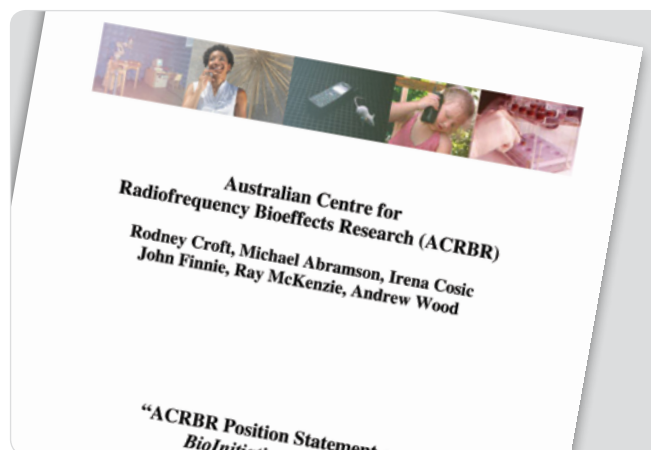
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scientific knowledge". As it stands it merely provides a set of views that are not consistent with the consensus of science, and it does not provide an analysis that is rigorous-enough to raise doubts about the scientific consensus.

The ACRBR points out there are statements in the report that do not accord with the standard view of science, and the report does not provide a reasonable account of why we should reject the standard view in favour of the views espoused in the report.

The ACRBR also noted that the state of science in this area is continually being debated and updated by a number of expert bodies comprising of the leading experts in this field and strongly urged people to consult these views for a balanced assessment of the research.

[WEBSITE LINK](#)



Other reviews

European Commission's scientific committee:



There is a lack of balance in the report; no mention is made in fact of reports that do not concur with authors' statements and conclusions. The results and conclusions are very different from those of recent national and international reviews on this topic... If this report were to be

believed, EMF would be the cause of a variety of diseases and subjective effects...

[WEBSITE LINK](#)

Danish National Board of Health:



The BioInitiative report a) does not provide any reason to change the current health risk assessment on exposure to electromagnetic fields and b) does not include new data and has not taken the scientific quality of the cited reports into consideration in the way that is customary.

[WEBSITE LINK](#)

The German Federal Office for Radiation Protection said:



The BioInitiative report has clear scientific weaknesses including selection bias in several research areas.

[WEBSITE LINK](#)

ARPANSA publishes monthly summary of EMR research

The Australian Radiation Protection and Nuclear Safety Agency (ARPANSA) has created a new information resource which provides free monthly updates of worldwide electromagnetic radiation (EMR) research, including research related to mobile phones and health effects.

ARPANSA's EMR literature survey is an online summary of published research articles. It includes commentary from ARPANSA scientists and a weblink to where the research can be found.

The research reviewed in the survey includes published literature articles in peer-reviewed journals, scientific reports, fact-sheets and conference proceedings.

ARPANSA's monthly EMR literature survey can be found at:

[WEBSITE LINK](#)

The intention of the EMR literature survey is to provide an update on new research related to



EMR and health that may be of interest to the general public.

To help people interested in finding more research, ARPANSA also offers advice on how to search for EMR related research. ARPANSA says it uses several databases to search for EMR research, including the US National Centre for Biotechnology's Pubmed database, Germany's EMF Portal and the Bioelectromagnetics Society's newsletter.

ARPANSA also offers advice for the public on how to decide what research to believe, because scientists often report conflicting ideas.

“The scientific community uses a system to decide which research results should be published in reputable scientific journals called peer review. Peer review subjects scientific research papers to independent scrutiny by other qualified scientific experts (peers) before they are made public.

“This helps to ensure that research conforms to high standards of scientific practice and that conclusions may reasonably be drawn from the work undertaken,” ARPANSA says.

More information about searching for EMR research can be found at:

[WEBSITE LINK](#)

In the January edition of the EMR literature survey, ARPANSA published a feature article on Stang et al's study on mobile phone use and eye cancer.

[WEBSITE LINK](#)

Many Germans are concerned about base stations and one in ten say they make them sick

Almost one third of people in Germany are concerned about base stations and one-in-ten believes they make them sick, researchers have found.

They also found more of the people who live within 500m of a base station complained of pain, sleeping problems, skin reactions, bowel problems, and visual problems, than those living further away.

The researchers attribute these results to the concern and stress caused from living next to a base station.

Phase one

Maria Blettner from the Johannes Gutenberg-University and colleagues from 3 other German institutions, as well as Joachim Schuz from the Danish Cancer Society, embedded their study within a large survey regularly carried out by a private research institute, TNS Infratest.

The institute has over 73,000 German households, representative of the German population aged 0 to 79 years, who voluntarily participate in the surveys.

The survey conducted between August 2002 and November 2004 involved 51,444 households with people aged 14-69 years.

Researchers used information from the German government to identify the locations of all 51,000 base stations in Germany in 2004 and how close the base stations were to each participant.

Of the 27,376 participants who completed the researchers' questions:

- 71% were not concerned and did not attribute health effects to base stations

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Professor Maria Blettner, Director of the Institute of Medical Biometry, Epidemiology and Informatics at Johannes Gutenberg-University

Many Germans are concerned about base stations and one in ten say they make them sick

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- 18.7% were concerned but did not attribute health effects to base stations
- 9.8% were concerned and also attributed health effects to base stations
- 0.5% were not concerned yet still attributed health effects to base stations.

What was not clear was whether or not the people attributed existing health problems to mobile phone base stations in an effort to find a cause of their problems or concern about possible health problems has lead to anxiety, depression and stress or a mixture of both, the researchers said.

They also noted that the more a person knew about a possible link with mobile phones and health concerns the more likely they were to attribute their health concerns to the mobile phone base station.



“Persons stating that they lived in the vicinity of a mobile phone base station significantly reported more worries than other participants (odds ratio 1.35, 95% CI = 1.25-1.45). However, taking the true distance based on geo-coding into account, (two categories, $\leq 500\text{m}$ and $>500\text{m}$) the odds ratio was 1.00 (95% CI = 0.94-1.07).”

However, the summary score of health complaints was “slightly higher” on average among people who actually lived near base stations than those who did not – a result that

cannot be explained by concern or attribution alone, the researchers pointed out.

Phase two

In phase two of the research project, 4150 people who had participated in phase one were contacted and asked if they would participate in a more extensive series of questionnaires and whether they would allow researchers to measure the amount of radiofrequency radiation in their homes.

Of the 3526 people who completed the questionnaires, 7.5% attributed adverse health effects to base stations and 20% were concerned but did not attribute health effects to base stations.

Among the 1326 subjects who had their homes extensively measured, 8.8% attributed adverse

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Many Germans are concerned about base stations and one in ten say they make them sick

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health effects to base stations and 27.1% were concerned but did not attribute health effects to base stations.

“...for all five health scores, no differences in their medians were seen for exposed versus non-exposed (mobile phone downlink frequencies). However, we observed differences across the three groups of risk perception. Participants attributing adverse health effects to mobile phone base stations had more health disturbances on all scores, compared with those who were concerned and those who were neither concerned nor attributed own health complaints to the EMFs of mobile phone base stations.”

Adjusting for age, gender, rural vs. urban, school degree, and mobile phone use did not change the results significantly.

“Most of the variance in the models was explained by the TICS score suggesting an

impact of stress on health and a relationship between this factor and the attribution of adverse health effects to mobile phone base stations,” the researchers found.

“In this large population-based study, measured RF-EMFs emitted from mobile phone base stations were not associated with health disturbances. However, this cross-sectional study shows that sleep disturbances and health complaints are related to the attribution of adverse health effects to mobile phone base stations. We thus believe that the worries and health complaints of people living close to mobile phone base stations need to be taken seriously, and that improved risk communication with concerned persons is required. This however is a difficult task, as these fears are often associated with political sentiments or opinions,” they concluded.

Public participation not more information needed to improve base station acceptance

Researchers in Germany have found public participation through consensus round table discussions, not more information, is the key to improved community acceptance of a base station placed in residential areas.

Peter Wiedemann and Holger Schutz of the Juelich Research Centre in Germany studied more than 200 people in a hypothetical base station placement program and explored the success of the various ways the process could be handled by telecommunications carriers.

In the study funded by German network carrier T-Mobile, participants were asked to “Imagine that a mobile network operator is planning to erect a new transmitter in your residential area,” and this was followed by details about the company’s information and public participation plans.



Dr Peter Wiedemann of the Juelich Research Centre

The information plans included; coordination with representatives of the local authority without informing the public; coordination with the local authority representatives and information about the proposed action on the local authority’s web pages; and, coordination with the local authority representatives, web page information, and a public meeting with rights to public input.

There were also three different public participation plans provided: coordination with the local authority representatives; consensus agreement at a round table; and, a binding poll of the local residents.

They were then asked to rate the company’s approach for each of the following factors:

- transparency of the approach
- consideration of concerns of the local residents
- applicability of the strategies for conflict avoidance
- trust in health protection
- applicability for the reduction of conflicts
- acceptance of the siting decision
- perception of the radiation risk from mobile communication base stations

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Public participation not more information needed to improve base station acceptance

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The researchers found that the various information strategies exerted no influence on any of the factors listed.

“The variation of the information strategies (information for the public) had no significant effect whatsoever” on the evaluation of the company’s approach, Wiedemann and Schutz said.

However, being informed about the various participation strategies found varying results.

Public participation approaches do not influence the public’s trust in the safety of base stations or help to reduce the level of risk the community felt.

However improved participation did improve people’s views about the transparency of the process and addressing the concerns of the local residents as well as improved likelihood to resolve conflicts.



The most positively viewed participation strategy was the round table consensus agreement approach. Interestingly, a binding poll of local residents and co-ordination with local authorities scored the same.

“Our findings indicate that more information and participation do not automatically translate into an acceptable site location or in an increase in the trust in the safety of mobile telephony,” the researchers concluded.

“Nor do information dissemination and participation processes result in lower risk perceptions.

“Thus, if acceptance of a siting decision, increasing trust or and attenuating risk perception are the goals of policy makers or risk communicators in applying information and participation strategies, they will likely be disappointed.”

An abstract for the research paper can be found at:

[WEBSITE LINK](#)

In brief

US FDA updates its position on mobile phone safety

The US Government agency responsible for protecting public health has updated its position statement on health issues related to mobile phone use, saying there is no danger posed to the public from mobile phones or their base stations.

The Food and Drug Administration (FDA) issued an updated fact sheet on 14 October 2008 stating the weight of scientific evidence has not linked mobile phones with any health problems.

In a move to reassure the public, the FDA also said that if a risk does exist – and at this point the FDA does not think there is a risk – it is probably very small.

The updated FDA position statement on mobile phones and health can be found at:

[WEBSITE LINK](#)

“The weight of scientific evidence has not linked cell phones with any health problems. Cell phones emit low levels of radiofrequency energy (RF). Over the past 15 years, scientists have conducted hundreds of studies looking at the biological effects of the radiofrequency energy emitted by cell phones. While some researchers have reported biological changes associated with RF energy, these studies have failed to be replicated. The majority of studies published have failed to show an association between exposure to radiofrequency from a cell phone and health problems,” the FDA said.



Fiji's draft telecommunications policy based on Australian approach

The Fijian Department of Town and Country Planning has released a draft version of its Development Guidelines for Telecommunications Facilities in December, based on the approach used by state governments in Australia.

The guidelines set out procedures for network carriers to follow when planning to install mobile phone towers and antennas.

They state carriers must seek to co-locate network facilities where possible. They also include rules on how carriers should select sites and reduce the visual impact of their infrastructure.

Also, because Fiji does not have health and safety standards for emissions from base stations, carriers will be required to comply with Australian Radiation Protection and Nuclear Safety Agency (ARPANSA) standards.

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In brief

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The guidelines state telecommunications facilities must be designed and installed so that the maximum human exposure levels to radio frequency emissions comply with ARPANSA's standards on maximum exposure.

The draft Fijian Development Guidelines for Telecommunications Facilities can be found at:

[WEBSITE LINK](#)

Government audit of mobile phone tower emissions

A Federal Health Department audit of nine mobile phone base station sites across the country during 2007-08 has found base station radio frequency (RF) emissions are well within Australia's safety standards.

A measurement program undertaken by the Australian Radiation Protection and Nuclear Safety Agency (ARPANSA) shows Australia's



telecommunications carriers are operating their antennas and base stations at levels hundreds to thousands of times below the allowable limit.

The survey revealed some sites, even those expected to have the highest levels, emit less than 0.001 per cent of the safety standard, or 100,000 times below the standard.

The highest level of emissions recorded during the project was still only 1.163 per cent of the standard.

A fact sheet on ARPANSA's 2007-08 base station survey can be found at:

[WEBSITE LINK](#)

Wolf whistle – 2008's sexiest mobile phone towers

Mobile phone tower and deployment news service *Wireless Estimator* has compiled a list of 2008's sexiest steel pinups, showing off some of America's best looking cell phone towers.

Take for example May's winner: "This rubenesque four-legged beauty proves that plus sizes can be very attractive".

Or how about July's: "This trim model displays the many moods of a relationship and the intense highs of infatuation".

And we can't forget September's: "With these six pack abs, it's obvious why so many antennae are mounted on this structure".

Photos of *Wireless Estimator's* Sexiest Steel Pinups for 2008 can be found at:

[WEBSITE LINK](#)

