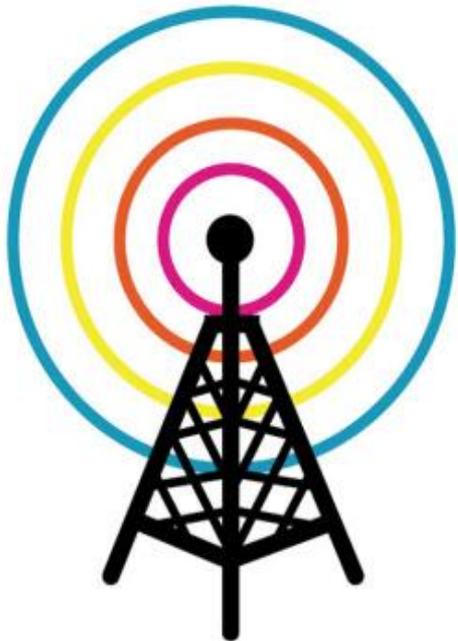




Workshop on Cell Tower/Cell Phone Radiation Hazards & Solutions

November 20, 2011
Venue : VMCC, IIT Bombay



Organized by

Prof. Girish Kumar,
Department of Electrical Engineering, IIT Bombay

Hear from Prominent Researchers, Doctors, Sufferers



About Prof. Girish Kumar



• **Professor, Electrical Engineering Department, IIT Bombay**

• Working in field of Microwave Antenna for the Past 30+ Years (Published 200+ Papers in Journals and Conferences, Book on Broadband Microstrip Antennas, Artech House, USA)

Cell Tower Radiation

- Working since Last 10 Years
- Presented at DOT India, TRAI, TUG, BTUA, CFBP, Rotary Clubs, KEM Hospital, colleges
- Member of Technical Advisory Committee , West Bengal Environment Ministry
- Has appeared in several Media Coverage
 - **News Channels:** CNN IBN, NDTV, ET Now, India Live, Live India, AAJ Tak, etc.
 - **Print Media:** TOI, Hindustan Times, Mumbai Mirror, DNA, The Telegraph etc.

Cell Tower Installed: Residential Complex & Commercial Buildings, Mumbai

Cell Phone/Cell Tower Statistics
India - 2009



India Population –
1.2 billion



Mobile Towers – 4.5
lakhs



Mobile Subscribers –
800 Millions



Biological and Environmental Effects

Neurodegenerative Disorders –Alzheimer, Parkinson's

Immune System Degradation

Tinnitus and Ear Damage

Irreversible infertility

Effect on Skin

Increase in Cancer risk

Effect on Bird, Honey bees



WHO: Cell Phone Use can Increase Cancer Risk

International Agency for Research on Cancer (IARC), a part of WHO designates cell phones as "possible human carcinogen" [Class 2B], Found evidence of increase in glioma and acoustic neuroma brain cancer for mobile phone



World Health Organization

Warning from Blackberry

BlackBerry device **keep the BlackBerry device at least 0.98 in. (25 mm) from your body** when the BlackBerry device is transmitting. When using any data feature of the BlackBerry device, with or without a USB cable, hold the BlackBerry device at least 0.98 in. (25 mm) from your body. If you use a body-worn accessory not supplied by RIM when you carry the BlackBerry device, verify that the accessory does not contain metal and keep the BlackBerry device at least 0.98 in. (25 mm) from your body when the BlackBerry device is transmitting.

To reduce radio frequency (RF) exposure consider these safety guidelines:

- Use the BlackBerry device in areas where there is a strong wireless signal. The indicator that provides information about the strength of the wireless signal is located in the upper-right corner of the Home screen and displays five ascending bars. Three or more bars indicate a strong signal. A reduced signal display, which might occur in areas such as an underground parking structure or if you are traveling by train or car, might indicate increased power output from your BlackBerry device as it attempts to connect to a weak signal.
- Use hands-free operation if it is available and keep the BlackBerry device at least 0.98 in. (25 mm) from your body (including the abdomen of pregnant women and the lower abdomen of teenagers) when the BlackBerry device is turned on and connected to the wireless network. For more information about carrying your BlackBerry device, see the holster information in the "Additional safety guidelines" section of this document.
- Reduce the amount of time spent on calls.

Articles in Different Newspapers

THE TIMES OF INDIA

State to nix cell towers on schools, hospitals

Pratula Marpaka [w]

Mumbai: Taking a cue from the widespread concern about mobile towers installed on school and hospital buildings, the Maharashtra government is all set to amend the Development Control (DC) Rules in this regard. Of the 1,600 mobile towers in Mumbai, nearly 500 (or 30%) are atop schools and hospitals. The remaining are on private or commercial buildings.



Mobile towers in Mumbai 1,600
On schools and hospitals 500
6 metres Proposed distance from schools and hospitals

Since fears have been expressed about the radiation from mobile towers, school and hospital buildings, a senior official told TOI on Monday. Once the DC

rules are amended, it will be mandatory for the operators to remove the towers within six months.

As per the proposed amendment, the operator will have to submit a certificate stating that the emission is within the permissible level and an undertaking that the existing tower will be removed within six months. "New Delhi has already imposed stringent restrictions on mobile towers. We have proposed that they should be at least six metres away from a school or hospital," the official said.

The proposed measures will be implemented by the concerned city corporation

HALF AN HOUR OF CELLPHONE USE A DAY INCREASES BRAIN CANCER RISK

A landmark 10-year study undertaken by the World Health Organisation has found that people who speak on their handset for more than half an hour a day for over 10 years are at risk of brain cancer...

Cellphone users worried about getting cancer are not the only ones. It is also the researchers who have found that the risk of brain cancer has increased in people who use mobile phones, according to a report by the International Agency for Research on Cancer (IARC) published in the journal *Journal of Epidemiology and Community Health*.

A review of 13 studies involving 138,000 participants found more than a 40% increase in the risk of developing gliomas, a common and life-threatening brain tumor, in those who used mobile phones for more than 10 years.

The authors also found that the risk of brain cancer was higher in those who used mobile phones for more than 10 years and who used them for more than 10 years.

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IBN live.com

India has worst radiation norms: report

Nikita
CNN-IBN



STRICTER RADIATION NORMS?

IBN live.com

Mumbai: An Inter Ministerial Report submitted to the Department of Telecommunications (DoT) has recommended the cutting down of mobile phone tower radiation by one-tenth of the present level.

The 5.4 lakh mobile phone towers in the country pose a huge threat to the health of the citizens. Experts say that the amount of radiation emitted from these towers in a day, is equivalent to putting one's body in an oven for 19 minutes!

India has the worst cell phone tower radiation norms in the world. The upper limit is so high that within 2 years the health of 1 crore Indians could be affected.

The Bengal Post CITY 5
Sunday May 15-2011

IT expert to help city tackle tower radiation

Subhankar Chowdhury

Kolkata: With fears being raised on the effects of electromagnetic radiation from mobile phone towers on the health of humans, an expert from IT has approached the West Bengal pollution control board and offered his help in tackling the problem. According to a recent report of the PCB, the intensity of electromagnetic radiation in the city has been increasing and could pose a health hazard to residents.

In a bid to deal with the problem effectively, Girish Kumar, a professor of IIT Bombay, who is also a researcher in the field, wrote to the board on Friday, offering to share his expertise with the board in tackling the

menace. The professor, who teaches in the electrical engineering department, has also written to the Kolkata Municipal Corporation (KMC) on this issue.

"I have heard that like in other metros, mobile towers are coming up in residential areas and near schools and hospitals across the city. Despite strict rules and regulations, the WBPCB gets at least 15 to 20 complaints every month. I have been working in this area for several years. I had spoken with Shri Chandrasekhar, secretary in the department of telecommunication (DoT) last December about taking concrete steps in tackling cell tower radiation. I hope to share this expertise with PCB officials," the professor said.

The professor has given a presentation on the hazards posed by mobile tower radiation at the Inter-Ministerial Committee (IMC) meeting, DoT, Delhi on October 8, last year. Subsequently, the IMC came out with a report on the same subject in January, this year.

The professor claimed that as per the International Commission of Non-Ionizing Radiation Protection (ICNIRP) guidelines, installation of base station antennas within the premises of schools and hospitals must be avoided, because children and patients are more susceptible to electro-magnetic radiation. Installing them in narrow lanes increases the risk of earthquakes or wind related disasters.

The ICNIRP is an international

scientific advisory body monitoring cell tower radiation and issuing guidelines in combating the danger. However, these rules have been clearly ignored by mobile companies, alleged the IIT expert.

"The problem is that DoT officials often overlook these guidelines and submit to the interests of mobile companies. There is also a lack of public awareness about the perils of cell tower radiation. The best way is to create pressure through public awareness via bodies such as the PCB of respective states so that the DoT officials in turn compel mobile companies to adhere to the guidelines. Therefore, I want to work with WBPCB and KMC," Kumar said.

REASONS TO WORRY

- The IIT professor had given a presentation on the hazards posed by cell tower radiation at the Inter-ministerial committee meeting in Delhi on October 8, last year
- Shri Chandrasekhar claimed that as per the ICNIRP guidelines, installation of base station antennas within the premises of schools and hospitals must be avoided, because children and patients are more susceptible to electro-magnetic field



THE ANALYST MAGAZINE

Viewpoint

The telecom sector is providing lakhs of jobs, but it is also giving cancer and other serious health problems to lakhs of people, besides causing harm to birds, animals, trees, etc. The telecom sector claims that it is the fastest growing industry, but it is also creating the fastest growing health problems, and that is the reason why health and environment ministries are after them. The telecom sector says that it is providing the cheapest services in the world, but it takes money from even the poorest of the people in the country and also gets government subsidy; and then nearly 40% of the total collected money goes to foreign vendors. If the technology had been developed and manufactured in India, the money would have remained within the country and also created millions of jobs.

Recommendations to reduce carbon footprint

- The government must adopt immediately a policy to reduce the transmitted power to a maximum of 1 to 2W, which will protect the health of the people from the harmful effects of cell tower radiation.

This may create signal problem to the people living near the edge of the circle in the beginning; hence, a public announcement must be made that it is being done to protect the health of the people. The people must be educated about the adverse health effects of cell phone and cell tower radiations.

- Once the power transmitted is reduced, power amplifiers may not be required at most of the places, and no cooling will be required. This will reduce the energy requirement substantially, which can be easily managed with the renewable energy sources.
- Once the power requirement is reduced, DG will not be required in most of the places. This will also save the diesel subsidy amount of Rs 1,400 cr/year.
- The above measures will reduce carbon footprint, thereby generating carbon credits.
- Self-certification/regulation must not be allowed. The government must enforce stringent policies to monitor the radiation

level, air pollution level, etc. near the cell towers. Monitoring must be done by a third party, and extremely heavy penalty must be handed out in case of any violation, as it is directly related to the health of the people, birds, animals, trees, environment, etc.

- All the people living close to the tower, who have suffered from high radiation, must be compensated. It should come under the corporate social responsibility.
- Greater emphasis must be given to R&D to develop better solutions.
- Indigenous development and Indian manufacturers must be given preference.
- The government must make a rule that at least 90% of the telecom-related products must be manufactured in India. This will help create millions of jobs in India, and also most of the money will remain within the country.

- Girish Kumar
Professor, Electrical Engineering Department
IIT Bombay, Powai, Mumbai

Actor worried about radiation from mobile towers on govt guesthouse

Sayli Udas Mankikar

sayli.mankikar@hindustantimes.com

MUMBAI: Concerned about the cluster of 16 mobile phone towers over the Sahyadri guesthouse, 40m away from her Malabar Hill residence, actor Juhi Chawla had last year carried out an independent audit of the electro magnetic radiation (EMR) in her nine-storey building Veer Bhavan.

She approached the government when she found that the radiation levels were far above the permissible range.

After a study conducted through the Telecom Enforcement Resource and Monitoring (TERM) Cell, the state government claimed that the radiation was within the permissible level.

According to experts, the actor's concerns are genuine as people living within the 50m to 300m radius of mobile towers are in the high radiation zone. "At certain points in my



Mobile towers on Sahyadri guesthouse (left) at Malabar Hill. HEMANT PADALKAR/HT PHOTO
Actor Juhi Chawla's (above) house is 40 metres away from the guesthouse and falls in the high radiation zone.

house, the radio frequency levels were above 2,000 milliwatt per square meter (mw per sqm) which is above the permissible range of 600 mw per sqm," Chawla told Hindustan Times. "The guesthouse said VIPs

needed mobile connection at all times and moved the direction of a few of the towers. This just shifted the exposure to someone else."

In October 2010, Chawla sent the audit copy to former chief

minister Ashok Chavan and MP Milind Deora.

It was chief minister Prithviraj Chavan who responded to her on May 24.

The letter said, "The radiation levels are well within the

prescribed limits of the Department of Telecom for electromagnetic radiation."

While Chawla's study looked at several parameters at different floors and points in the building, the chief ministers letter just mentioned one figure of 1.6 to 25.6 mw per sqm.

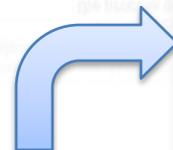
IIT professor Girish Kumar from the electrical engineering department said, "Chawla's house is in the high radiation zone. Also, the reading of 1mw per sqm done by TERM is high."

"They [officials] must have changed the direction of the towers and hence the lower reading. It also depends on the demand and load at that time."

The state government is in the process of finalising the guidelines for setting up mobile phone towers and will be looking at areas that are 'tower' zones.

Chawla said she needed to take a radiation in resi

Actress Juhi Chawla check cell tower radiation

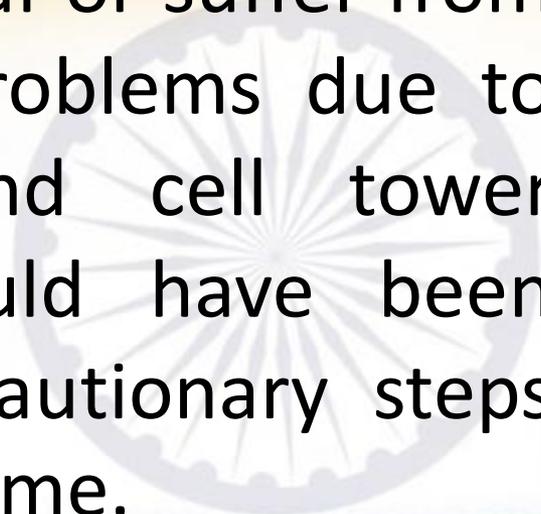


Milind Deora and TERM inspects radiation level of mobile towers at Haji Ali, Mumbai



Children are the Future of Our Nation

Do we want future of our nation to be deaf or suffer from many health problems due to cell phone and cell tower radiations? Could have been avoided if precautionary steps were taken on time.



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THANK YOU!