

## Editor's Column



“

Solution is to have more number of cell towers with lesser transmitted power. People have to choose between health and wealth.”

*Professor Girish Kumar*

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In my first newsletter\*, I had mentioned about several health hazards due to overuse of cell phone and continuous exposure to cell phone tower radiation. I had reported several cases in Mumbai and other cities and states in India as well as a few cases in Germany, Spain and Brazil. The newsletter was sent by email as well as its printed copies were distributed to large number of people. Several people asked me why norms are high and what is the solution of the current problem of high radiation.

From Sep. 1, 2012, India has adopted 1/10th of the ICNIRP norms, which is  $0.45 \text{ W/m}^2 = 450 \text{ mW/m}^2$  for GSM900 and  $0.92 \text{ W/m}^2 = 920 \text{ mW/m}^2$  for GSM1800, which is still very high. It should be reduced to  $0.001 \text{ W/m}^2 = 1 \text{ mW/m}^2$ . It is recommended that the power transmitted must be reduced to maximum 1 to 2W in the dense urban area to protect the health of the people. Currently, we have nearly 5 lakh cell towers and antennas from each tower may transmit 100's of Watts of power. Solution is to have more number of cell towers with lesser transmitted power. Each tower may cost Rs. 15 Lakh, so if number of towers are increased by 5 lakh, then additional cost will be Rs. 75,000 crore. To save this cost, cell operators continue to say that there are no concrete evidence of health hazards. However, this cost can be recovered within 3 years by increasing per minute usage charges by only Rs. 0.05 as mentioned in my report to Secretary, DOT in Dec. 2010. <http://www.scribd.com/doc/44736879>

Here is the calculation: there are 90 crore subscribers in India, which on an average use cell phone for 18 minutes per day, so in one year, additional revenue earned by cell operators will be  $90 \times 18 \times 365 \times 0.05 = \text{Rs. } 29,565$  crore.

People have to choose between health and wealth.

Cell phone industry is becoming another cigarette industry, which kept on claiming that smoking is not harmful and now there are millions of people around the world who have suffered from smoking. In fact, cell phone/tower radiation is worse than smoking; as one cannot see it, smell it, and hear it, and its effect on health is noted after a long period of exposure.

I had attended National Conference on Co-Operative Societies, Trusts, Organized by Institute of Chartered Accountants of India in Mumbai on August 3, 2013, Mumbai. Ms. Neha Kumar gave a lecture on Cell phone/tower radiation hazards followed by our interaction with more than 400 CAs from various parts of the country. Neha's presentation and my first issue of Newsletter are included in their proceedings.

This newsletter contains news from Mumbai on Page 2, various initiatives taken by concerned citizens on Page 3, Guidelines by DOT, which are not sufficient to protect people from high radiation on Page 4. Replies to statements made by cell operators and their associates are given on Page 5. Radiation pattern of the cell tower antenna and projected health hazards are given on Page 6. Comments on ICNIRP funding, details of Bio-Initiative Report, etc. are covered under Global Studies on Page 7. Radiation Precautions and more are on Page 8.

\*Link to first Newsletter :

<http://www.scribd.com/doc/151459167>



### Received an SMS from Ms. Juhi Chawla, Film Actress, which is reproduced below :

You say you are electrosensitive... I have become extreme electrosensitive.. Even writing an sms is a huge effort... my ears, head and jaw begin to feel strange...

People who use cell phone for longer time or live/work in the vicinity of cell tower become Electro-Hyper-Sensitive (EHS) over a period of few years depending upon the exposed radiation level. After that, exposure for a few minutes of high radiation creates problem to EHS people.



# Four from Vile Parle bldg with cancer, brain tumour blame it on cell tower

Linah Baliga | TNN

**Mumbai:** Four residents of a building in Vile Parle (W) have been diagnosed with cancer and brain tumor, which residents blame on a cellphone tower installed nearby in 2008. Experts said it was no coincidence that those residents of Hina Kunj at Church Road are battling with serious ailments and undergoing chemotherapy sessions daily though operators insisted that there was no conclusive evidence to link the two.

For Aditya and Ankita Shah (names changed), who had exchanged wedding vows

## TROUBLE FOR TOWER



### THE CASES

FOUR CANCER PATIENTS RESIDE IN HINA KUNJ BUILDING AT CHURCH ROAD IN VILE PARLE (W)



➤ **Padmaben Shah** (83) | Second floor resident | Diagnosed with breast cancer | In May 2013

➤ **Dr Aditya Shah** (name changed) (31) | Ground floor | Diagnosed with stage IV brain tumor | May 2013



Four residents of a building in Vile Parle (W), Mumbai have been diagnosed with cancer and brain tumor, which residents blame on a cell phone tower installed nearby in 2008.

Published in Mumbai Mirror on July 31, 2013

Led by Bollywood singer Sukhwinder Singh, residents of Juhu Society, Mumbai complain to BMC that they suffer from headaches, hearing problems and nausea due to exposure to radiation from cell phone towers. Radiation levels are much higher than mentioned in Bio-Initiative Report.

# Juhu society residents say cell phone towers are making them sick

Led by Bollywood singer Sukhwinder Singh, residents of Galaxy Heaven complain to BMC, saying they suffer from headaches, hearing problems and nausea due to exposure to radiation

Yogesh.Sadhvani  
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TWEETS @yogeshsadhvani

**R**esidents of a Juhu building have complained to BMC against the mobile phone towers on their terrace, saying they have been suffering from constant headaches, hearing problems, and nausea due to exposure to electromagnetic radiation.

Leading the residents' fight is Bollywood singer Sukhwinder Singh, who owns two floors in Galaxy Heaven building, on 10th Road. He said the 10-storey building's terrace hosts at least half-a-dozen mobile phone towers, and 18 antennae.



Sukhwinder Singh owns two floors in the building

### THE DANGER

Experts say mobile phone towers emit microwaves at a frequency of 1900 MHz. Recent studies have shown that the intense radioactivity from mobile phone towers adversely impacts every biological organism within one sq km.

According to the Bioinitiative 2012 report, brought out by 29 independent scientists and health experts from across 10 countries, India's radiation emission limit - 450 milliwatts per sq mt - was too high. The report said exposure to high levels of radiation can lead to headaches, concentration and behavioural problems in children, and sleep disturbances.

### BMC POLICY



Initiatives By

# Concerned Citizens

Published in DNA, Mumbai on Aug. 13, 2013

## This August 15, it's a fight against cellular radiation

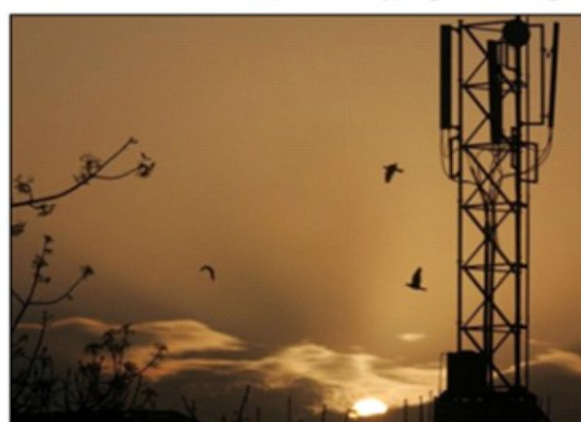
dna correspondent @dna



Published in Free Press, Kashmir

### Kashmir Lawmakers Express Concern Over Cell Tower Radiation

Free Press Kashmir, Monday, 15 Jul 2013



SRINAGAR: Calling for taking adequate and effective measures to avoid the impact of radiations, the Committee on Environment (CE) of Jammu and Kashmir Legislative Assembly (J&KLA) stressed the need for assessing adverse impact of Mobile Towers.

Chairman of the CE Mohammad Yousuf Targami called for adequate and effective measures to avoid and mitigate the impacts of radiations on human, wildlife, birds and bees due to Mobile Towers.

He stressed the need for regular auditing and monitoring of these radiations, especially around the protected and ecological sensitive areas.

<http://freepresskashmir.com/kashmir-lawmakers-express-concern-over-cell-tower-radiation-112709/>

Published in Mid-Day, Mumbai on Aug. 31, 2013



# SOME PROF, SOME SCOFF:

Prof. Girish Kumar(I) speaks while others look on

Panel Discussion and Interaction with students and media on the subject of "Radiations: Myth & Realities) was organized at Nehru Science Centre, Mumbai on Aug. 29, 2013. The speakers included a galaxy of panelists comprising doctors, scientists, professors, Cell Operators representatives, anti-mobile phone tower activists and film actress Juhi Chawla.

Mumbai Press Club President, Gurbir Singh moderated the seminar, which was attended by around 300 people. Speakers talked about effects of cell phones, cell towers, and nuclear radiation. For more details, please see: <http://www.mid-day.com/news/2013/aug/310813-highlights-from-a-recent-seminar-on-nuclear-radiation.htm>



# Guidelines by DOT - Not Sufficient to Protect People

DOT came out with the revised guidelines to States from Aug. 1, 2013 giving safe distance values for number of antennae emitting at their maximum RF power of 20 Watts and exactly in the same direction with same height (a worst case scenario) in a tabular form. I have calculated radiation density at different distances for number of antennas and added third column in the table given by DOT.

It may be noted that safe distance calculated by DOT are based on norms of 450 milliwatts/m<sup>2</sup>, whereas according to the Bio-initiative Report 2012, safe radiation density is 0.1 milliwatts/m<sup>2</sup> for 24x7 exposure as in fourth column. Thus, safe distance specified by DOT will give 1000 times more radiation than recommended by Bio-initiative Report 2012.

Number of antenna(e) pointed in the same direction	Building/Structure safe distance from the antenna(e) at the same height (in meters)	Radiation density for antenna gain=17dB (numeric value=50) in mill watts/m <sup>2</sup>	Safe Radiation density according to Bioinitiative Report for continuous exposure in mill watts/m <sup>2</sup>
1	20	199	0.1
2	35	130	0.1
4	45	157	0.1
6	55	158	0.1

Also, on Aug. 1, 2013. DOT doubled the guidelines for 3G and 4G from 450 milliwatts/ m<sup>2</sup> to 1000 milliwatts/ m<sup>2</sup>. After that the following news appeared in Hindi newspaper :

Published in Rajasthan Patrika, Bhopal on Aug. 11, 2013

## Bhopal (MP)



**फैसला** } सरकार ने 3जी, 4जी सेवा के लिए मोबाइल टॉवरों में रेडिएशन की सीमा को किया दोगुना

# धीमा जहर देने की तैयारी

**भोपाल**  
cityreporter.bhopal@patrika.com

मोबाइल हैंडसेटों की बढ़ती संख्या के साथ सरकार ने नई टेक्नोलॉजी 3जी एवं 4जी के लिए मोबाइल टॉवरों में रेडिएशन की सीमा दोगुना से ज्यादा बढ़ा दी है। राजधानी में भी नई तकनीक के मोबाइल का उपयोग बढ़ने के कारण कई कंपनियां 300 से ज्यादा टॉवरों में 3 जी व 4 जी के लिए डिवाइस लगा रही है या लगा चुकी है। इनमें से कई टॉवर सहासी इलाकों में हैं। जाहिर है इस इस धीमे जहर से मानव व पशु-पक्षियों के जीवन पर गंभीर परिणाम सामने आएंगे। सर्वाधिक नुकसान टॉवरों से निकलने वाले रेडिएशन के नजदीक आने वालों को होता है। जैसे- जैसे रेडिएशन नीचे की ओर आता है, एटमोस्फियर (वातावरण) में उसकी गति कमजोर होती जाती है। जैसे कि 20 फीट ऊंचा टॉवर लगा हुआ है, उससे निकलने वाली रेडिएशन में सबसे पहले हवा में उड़ने वाले पक्षी आते हैं, उन्हें ही सर्वाधिक नुकसान होता है।

**टॉवरों की स्थिति**

- बीएसएनएल के भोपाल में 3जी - 150 ■ 4जी - 5 ■ 2जी - 200
- 3जी- 950 मध्यप्रदेश में
- 2जी- 4000 मध्यप्रदेश में
- 9000 एयरटेल के एमपी-छग में
- 6000 वोडाफोन के मध्य-छग में

**प्रभावित क्षेत्र**

राजधानी के कई क्षेत्रों में मोबाइल टॉवर की संख्या तेजी से बढ़ रही है। एमपी नगर जेन-1 और जेन-2, अरेल कॉलेजी, कोल्डर, खडपुरा, ईदगाह, भरत टॉकीज, पिपलानी, प्रभात पेट्रोल पंप, भोपाल टॉकीज, कोहेफिज, बैरगाह, अजयपुरी समेत ऐसे कई स्थान हैं जहां कंपनी अपने 3 जी और 4 जी नेटवर्क की क्षमता को बढ़ाने के साथ अपने सिस्टम को तेजी से विकसित कर रही है।

**नुकसान**

- तिर दर्द, वीद न आना, थिड़थिड़ा होना ■ मेमोरी लॉस की समस्या
- घबराह भंग होना ■ गर्भपात (मिस्टैरिज) होना ■ नपुंसकता
- ब्रेन ट्यूमर ■ कैंसर।

DOT doubled the guidelines for 3G and 4G, which is akin to giving slow poison. In various residential places in Bhopal, number of cell towers are increasing. People living in the vicinity may have health problems,

like headache, sleep disorder, memory loss, miscarriage, infertility and cancer.



# What cell operators and their representatives Say and Editor's Comments

Cell operators and their associates have been making statements and giving presentations that there are no concrete evidence of health hazards. It contains half truth and claims, which are misleading common people and assuring them that they are safe from radiation. Some of their statements and editor's comments are as follows:

## 1. Conclusive evidences of health hazards

They say there are no conclusive evidences of health hazards due to cell phone and cell tower radiations.

Earlier, they used to say there is no evidence but after large number of scientific papers reported adverse health hazards, now they have started saying, there is no conclusive evidence. Do they want millions of people to get affected before they accept "it is conclusive" just like cigarette industry.

## 2. Radiation Norms in various countries

They generally show the readings of only those countries, which have adopted higher radiation.

There are many countries, which have adopted much lower radiation levels. For example, Switzerland has adopted  $0.042 \text{ W/m}^2$  for apartments, schools, hospitals, offices and playground and Austria (Salzburg) has adopted  $0.001 \text{ W/m}^2$ .

## 3. Radiation Norms in USA

They show that USA has adopted radiation limit as 3 to  $12 \text{ W/m}^2$ .

This is not correct for 24x7 exposure. According to FCC Guidelines, power density limit is  $f/300$  for 6 minutes exposure and  $f/1500$  for 30 minutes exposure. Thus, if time is increased by 5 times from 6 to 30 minutes, then radiation limit is decreased from  $f/300$  to  $f/1500$ . So, for GSM90 ( $f = 900 \text{ MHz}$ ), limit is  $3 \text{ W/m}^2$  for 6min and  $0.6 \text{ W/m}^2$  for 30 min. For 24 hours exposure, one can extrapolate the limit, which comes out to be  $f/(1500 \times 48) = 0.0125 \text{ W/m}^2 = 12.5 \text{ mW/m}^2$ . Even for this limit, over 100 physicians and scientists at Harvard and Boston University Schools of Public Health have called cellular towers a radiation hazard.

## 4. Sun heating versus microwave heating

They compares Sun heating with microwave heating and say Sun radiation density is  $1000 \text{ W/m}^2$ , which is much larger than microwave radiation density of  $1 \text{ W/m}^2$ .

Sun exposure is not continuous whereas microwave radiation is 24x7 due to cell tower radiation. Sun heating is from outside to inside. The skin of human body acts as an insulator from sun and as the temperature increases, skin will either feel the burning sensation or it starts sweating. In addition, air breeze takes away the heat. Whereas, microwave heating is from inside to outside. It penetrates the skin and heats up the blood, fluid, fat, etc. This heat is trapped inside the human body with no escape through the skin.

## 5. WHO reported Cell phones as "Possible Human Carcinogen" (Class 2B)

They make fun of WHO (World Health Organization) Class 2B classification of cell phones and made statements that cell phone is as dangerous as eating pickles and drinking coffee.

Let me ask, how many times people eat pickles in a day, may be, maximum 2 to 3 times; how many times people drink coffee, may be maximum 2 to 5 cups of coffee per day. Similarly, using cell phones for up to 10 to 30 minutes may be safe depending upon SAR value of the cell phone. Interphone study released in May 2010 reported 5,117 brain tumor cases and stated that people who use cell phones for 30 minutes per day over a duration of 8 to 10 years, have doubled to quadrupled chances of getting brain tumor, and that's why it was classified as Class 2B. WHO did not classify it as Class 3 or Class 4, which implies no evidence. Use of cell phones is a personal choice but what about people who live in the vicinity of cell towers, they are exposed to the radiation 24x7.

## 6. Father - Daughter Team - Radiation Solutions

They say that Prof. Girish Kumar is telling about harmful effects of radiation because his daughter, Neha Kumar, has a company named, "NESA Radiation Solutions Pvt. Ltd", which sells radiation shielding solutions.

On every forum and at all the places I always say adopt better radiation norms and reduce the transmitted power. If they reduce the transmitted power, then who will need the shielding solutions?



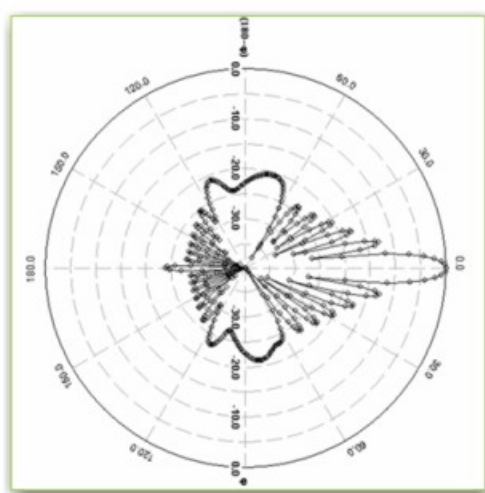
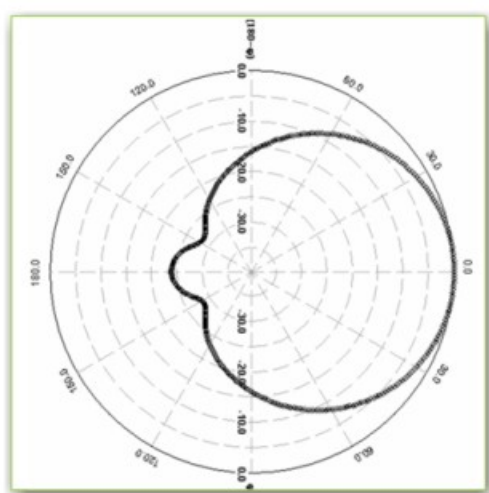


# Harmful effects of Cell towers

## Harmful effects of Cell towers on side walls or top of your building

I have been getting several emails, phone calls and queries from the people, who have installed cell towers on their roof top and/or antennas installed on the side walls of their building, and want to know whether it is safe from radiation or not. They told me that operators keep on saying that there is no radiation downwards or in the back side. Well if there was no radiation downwards or in the back side, then why their cell phones work. It is true that there is more radiation in the front direction and less radiation downwards and in

the back side, if one sees only the radiation pattern of the antenna as shown below. However, power density varies as  $1/R^2$ , where R is the distance from the antenna. Compared to someone living in the front direction at 50m, the distance may be less than 5 meters at the top floor, so the radiation density will be 100 times more from distance point of view. Hence, overall radiation levels remain very high at the top floor or in the back side of the wall.



## Radiation Pattern in Horizontal and in Vertical planes

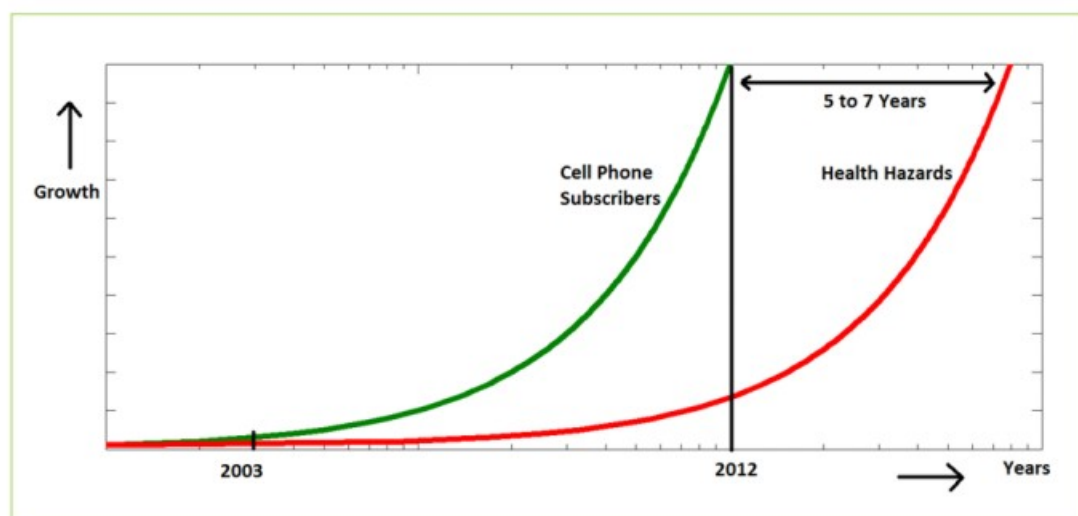
Since cell tower is in your building, you can try to convince cell operators to install low power transmitted antenna, then you will be safe from radiation and can also enjoy the rent. If they do not agree to reduce the transmitted power then you can tell them to remove the tower or you can contact Zenith Industrial Rubber Products Pvt. Ltd.,

who have developed radiation shielded rubber sheets, which reduces radiation by 20 dB (i.e. by 99%) and also prevents water leakage from the roof. Part of the annual rental income from the towers can be used to shield yourself and your family members.

## Exponential growth in cell tower leading to exponential increase in health hazards

There has been exponential growth in the number of cell phone users from the year 2003 in India, when incoming calls became free. This also lead to increase in number of towers and overall increase in the radiation level in the atmosphere. It has been reported in the study of Naila, Germany that there was no significant increase in the relative risk of cancer in the first 5 years, but this risk increased to more than 3

times in 6 to 10 years (Please see first issue of the Newsletter). In India, cell operators are transmitting 100's of Watts of power from each tower, so it is predicted that with a delay of 5 to 7 years, there will be an exponential growth in health hazards to the people living in the vicinity of cell towers as shown in the picture below if no precautions are taken to reduce the transmitted power.



## Predicted exponential growth in health hazards to the people living in the vicinity of cell towers



# Global Studies

## ICNIRP Funding - Questioned by large number of people

India had adopted ICNIRP (International Commission on Non-Ionising Radiation Protection) Guidelines. ICNIRP is an NGO, whose funding has been questioned by large number of people. Google search words as "ICNIRP funding" leads to several websites:

The following websites mentions about Weaknesses in ICNIRP's rationale for its 1998 guidelines and Uncertainties over ICNIRP's membership and aims: <http://wiredchild.org/component/content/article/46-hidden/99-icnirp.html>

The following paragraph is taken from the above site:

"It should be noted that ICNIRP is not a transparent organization. It has never disclosed the sources of its funding nor the procedures for the selection of its members. ICNIRP was established by Mike Repacholi, who has long had financial ties to both the telecom and electric utility industries."

One can see website of Dr. Magda Havas, Associate Professor, Environmental & Resource Studies, Trent University, Peterborough, ON, Canada, at: <http://www.magdahavas.com>. Several reports, videos, etc. have been uploaded showing adverse effect of cell phone, cell tower and wireless radiation. One can see "Conflict of Interest: the Wireless Industry and ICNIRP" at: <http://www.magdahavas.com/conflict-of-interest-the-wireless-industry-and-icnirp/>

## Bio-Initiative Report 2012 - The most authentic report

The Bio-Initiative Report 2012 is prepared by 29 scientists and health experts from 10 countries and was uploaded in Jan. 2013 to create awareness. It is an update of Bio-Initiative Report 2007, which was published by Bio-Initiative Working Group that looked at more than 2,000 peer reviewed studies documenting bio-effects and adverse health effects from EMF exposures. They recommended safe radiation density of 1 milliwatts/m<sup>2</sup> for outdoor and 0.1 milliwatts/m<sup>2</sup> for indoor continuous exposure.

Bio-Initiative 2012 assessed 1800 new research papers (from 2006 to 2011) and mentioned that Bio-effects are clearly established and occur at very low levels of exposure to electromagnetic fields and radiofrequency radiation. Even at 0.03 milliwatts/m<sup>2</sup>, researchers have reported headaches, concentration difficulties and behavioral problems in children and adolescents; and sleep disturbances, headaches and concentration problems in adults. Public safety standards are 1,000 – 10,000 or more times higher than levels now commonly reported in mobile phone base station studies to cause bio-effects.

Cell phone/tower industry criticized the report citing other reports and references. However, according to me, Bio-Initiative Reports of 2007 and 2012 are the most authentic reports on this subject, giving references of 3800 research papers which have been written by more than 1000 scientists, reviewed by equally large number of experts and published in prestigious journals.

## Guidelines of Austrian Medical Association adopted on 3rd March 2012 in Vienna

Irrespective of the ICNIRP recommendations for acute effects, the following benchmarks apply to regular exposure of more than four hours per day.

### High-frequency electromagnetic radiation (as power flow density)

- |                                                                                      |   |                       |
|--------------------------------------------------------------------------------------|---|-----------------------|
| • $\geq 1000 \mu\text{W}/\text{m}^2$ ( $\geq 1 \text{ mW}/\text{m}^2$ )              | — | very far above normal |
| • $10\text{-}1000 \mu\text{W}/\text{m}^2$ ( $0.01\text{-}1 \text{ mW}/\text{m}^2$ )  | — | far above normal      |
| • $1\text{-}10 \mu\text{W}/\text{m}^2$ ( $0.001\text{-}0.01 \text{ mW}/\text{m}^2$ ) | — | slightly above normal |
| • $\leq 1 \mu\text{W}/\text{m}^2$ ( $\leq 0.001 \text{ mW}/\text{m}^2$ )             | — | within normal limits  |



# Radiation Precautions & More

## Precautions to reduce exposure to the radiation from mobile phones

There is electromagnetic radiation from cell phones, which is defined by its SAR (Specific Absorption Rate) value. Overuse of cell phones can cause ear warming, hearing loss, ear tumor, headache, sleep disorder, irritation, memory loss, cardiovascular problems, infertility and even cancer. It does not mean that we have to stop using cell phones. One can take following precautions:

- Limit the use of cell phones
- Talk for short duration
- If possible, use SMS
- Use cell phone with lower SAR value
- Can use speakerphone or wired hands free or Bluetooth, but keep cell phone at a distance of atleast 12" (one foot) from your body.
- Use land-line phone when available
- Do not keep cell phones in your hand/pocket for long.
- At home/office, keep phone away from you.
- Switch off mobile data package when not in use as it transmits more frequently.

When cell phone is not in use, it sends approximately one pulse per minute to communicate with the base station. People should not keep the phone in their pocket for too long and also do not keep the phone next to their pillow while sleeping.

People often ask me if they can use a wired earplug. While using a wired earplug, it is advised that you keep the phone as far as possible from your body. If you keep it near your chest your heart will receive more radiation and if you keep it in your pant pockets, it can cause fertility and hormonal problems.

## Radiation Pollution is 4th pollution

Radiation Pollution should be considered as 4th pollution in addition to water, air and noise pollutions, and extremely strict guidelines must be implemented by Pollution Control Board.

## Video links:

Cell phone towers: India's safety check - NDTV: We The People - <http://youtu.be/3911KTMD4lg>

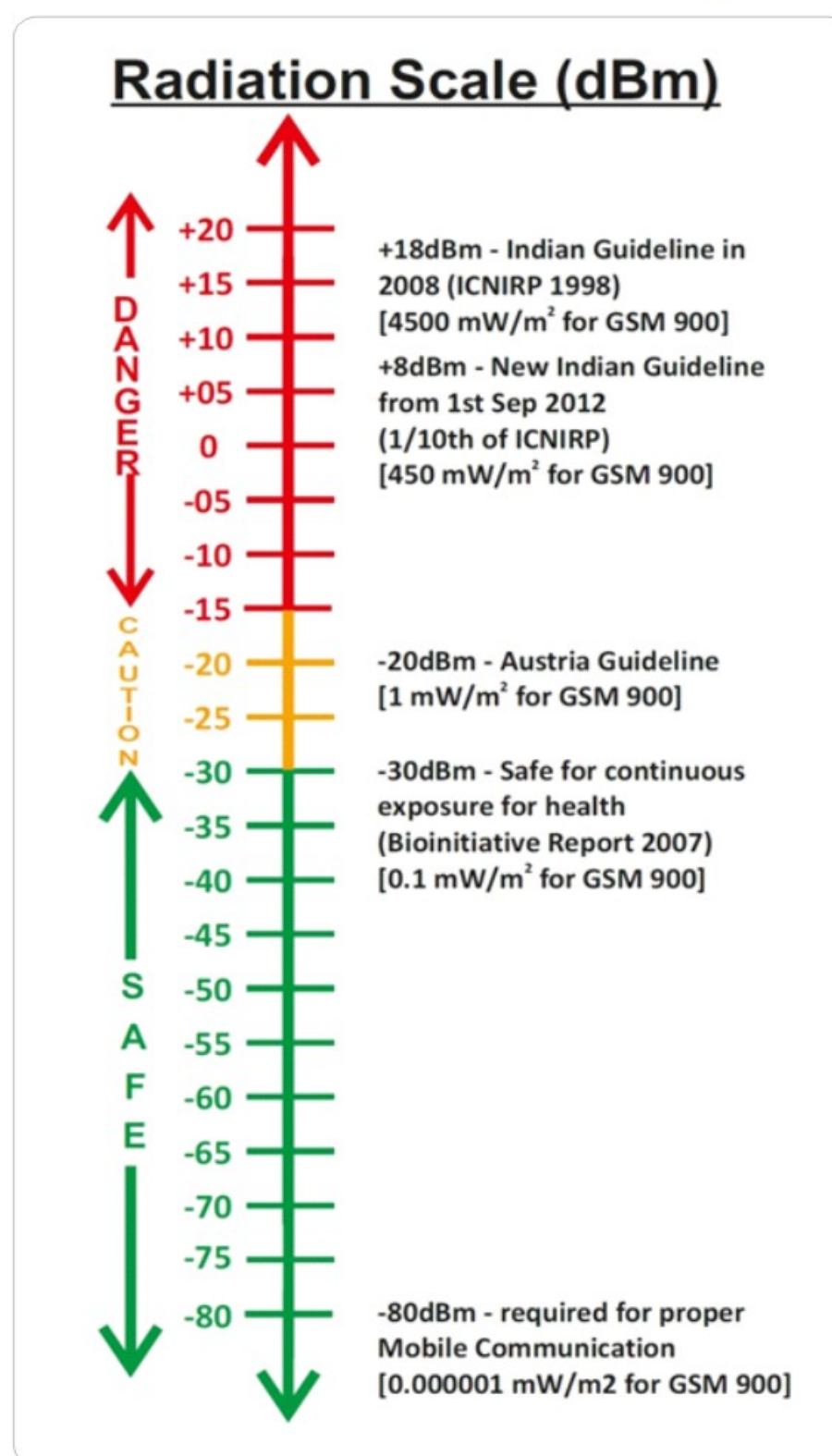
Cell Tower/ Cell Phone Radiation – India - <http://youtu.be/By8sT4ib6qk>

Mobile Radiation and Safe Usage - News Nation Hindi - <http://youtu.be/eelPuOrX-vw>

Rokh Thok: Mobile Tower Cancer - Zee24Taas - [http://youtu.be/\\_GJKNBxRIcc](http://youtu.be/_GJKNBxRIcc)

Cancer horror over Cell Phone Tower Radiation - NewsX - [http://youtu.be/\\_rvCxxvkkRs](http://youtu.be/_rvCxxvkkRs)

## Cell Tower Radiation Readings Safe and High:



Generous financial supporters of the newsletter: Vimlabai Garware Research Institute, Pune and R.O. Somani Charitable Trust, Mumbai

If you would like to support this noble cause, please send your cheque in the name of "Registrar, IIT Bombay" at my office address given on the first page. If anybody overuses cell phone and/or living next to cell towers has experienced health problems, please send me your feedback, suggestions and questions at [cell.newsletter@gmail.com](mailto:cell.newsletter@gmail.com). I will try to answer these in my next newsletter. Please mention whether you want your name to be quoted or not. You can also call me during the day on : (022) 2576 7436 or (022) 2576 4433.