

**Safety Environment & Health Aspects  
of Installation of Radio Antenna  
Systems on Buildings in Urban Areas  
A Case Study.**

By A. R. Qureshi

Structural, & Environmental  
Considerations

- Civil Aviation Requirements
- Biological Effects of Radiations
- Legal & Regulatory Aspects

# RADIO TOWERS



## Self Supporting Towers

## Guyed Towers

Self-supporting towers require less space for installation. These are generally more rigid against twist and sway and are used as such for the mounting of highly directive antennas & in high land cost areas. Guyed towers require extra space for planting the stays.

# **Electromagnetic Wave Spectrum**

Radio Spectrum is a scarce natural resource

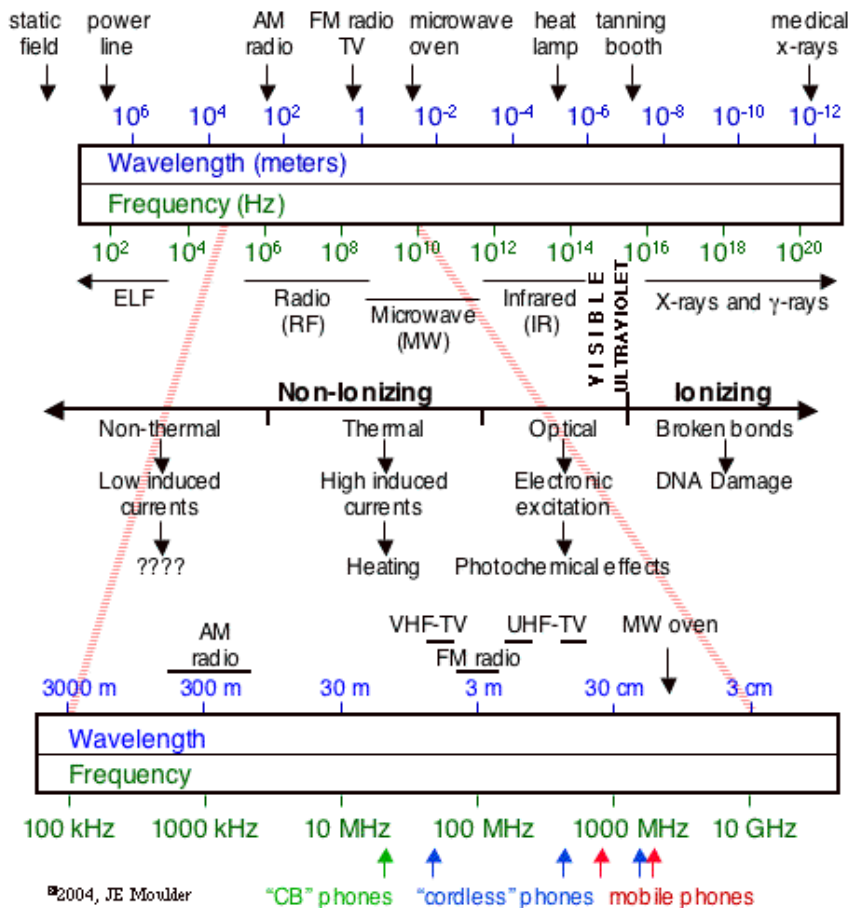
It should be used with due care and where most suited like broadcasting, overseas, and mobile communications including maritime and aviation.

**Broad-based Allocation & Coordination is done by the ITU.**

In Pakistan Licenses for establishing radio communication network are issued by PTA after clearance of parameters from FAB

Antenna tower height, painting & warning light are specified by the CAA. Structural aspects should be approved by the engineers of the Local Authority / Government.

# RADIO SPECTRUM



- Reserved to 300GHz
- Used by many entities
- 800 MHz for CDMA
- GSM900 & 1800 MHz
- 3 G - 2100 MHz
- 15 - 23 GHz interlinks between base stations
- 2400 - 2485 MHz for Wireless LAN

# **Ionising & Non-ionising Radiations**

X-rays and UV light disturb cellular growth

**Assumption**-Radiowaves cause heat only

There are evidences of biological impact also

Earlier exposure values based on thermal effects

Later power limits set for safe absorption rates

## **Standardizing Authorities - Global & National**

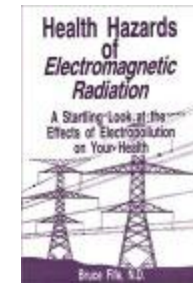
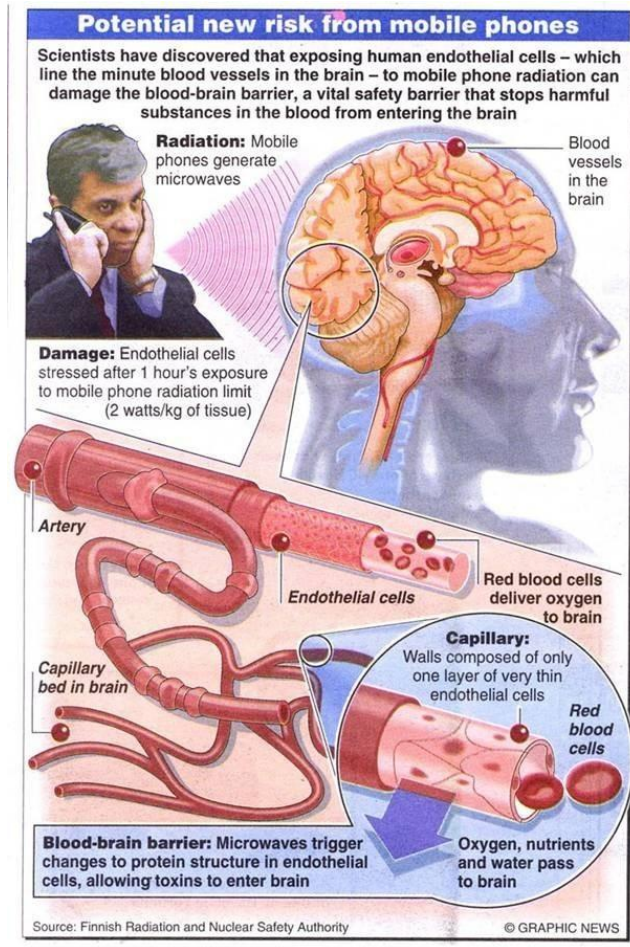
ICNIRP - NCRP - NRPB - ARPANSA (Australian Radiation Protection and Nuclear Safety Agency)

**Engineering & Industrial Institutions - ANSI/IEEE**

**Health, Safety & Environmental Protection Bodies**

WHO, ILO, EPA, OSHA, AIHA, FDA

# R.F Radiation Hazards



by Bruce Fife, N.D

Dr. George Carlo, a researcher, public health scientist, epidemiologist, Chief Scientist of the world's largest research effort into wireless safety, as well as author of the “Cell phones Invisible Hazards in the Wireless Age”.

## “Fauna and Flora”

Probable extermination of 70% US “BEE” population by radiations.

Rapid growth of Michigan forest after installation of huge antenna system in 1986  
Susceptibility of mal-operation by radiations of electronic based control devices

## “Children Exposure”

Schools in residential buildings in Pakistan.  
Mobile base stations in residential buildings  
Many countries forbidden mobile base antenna near school buildings.  
WLAN use restricted in educational institutions.

Dr Saghir Ahmed, Minister for Environment and Alternative Energy Sindh asked mobile companies to shift their antenna structures outside residential areas. The directive was not complied.

Mobile phone companies follow only PTA directives

Haider Abbas Rizvi voiced in the National Assembly

Stressed implementation of safety rules by PTA

Foreign operators to follow their country standards

Referred to the Standing Committee on Environment by Mehreen Anwar Raja

The Chairman PTA was required to brief members

Parliamentary Secretary for Cabinet Division

Dr. Firdous Ashiq Awan mentioned that action will be taken against defaulters not following PTA policy in this regard.



# Conclusion

Shifting of working antennas is not a simple work.  
Time based building use agreements by operators.  
Was building control authority permission obtained?

Was there a procedural error?

If so, how to avoid such mistakes in future?

What to do now – should we take chances for the probable biological damage by the RF waves to occur or in the mean time adopt precautionary measures to prevent the possible harm by minimizing the intensity and duration of the exposure?

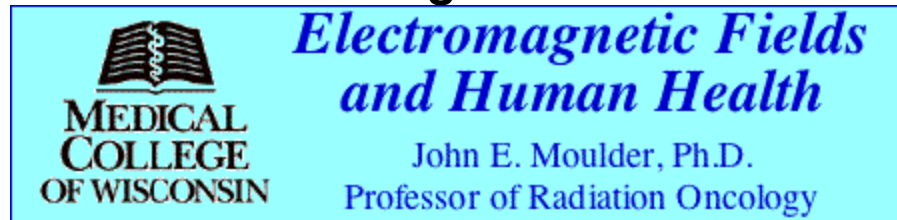
**THINK YOU**

# References

**Mast-Victims.org** Raising awareness of the harmful effects of cellphone masts

***Electromagnetic pollution - Health hazards of high-frequency electromagnetic radiation by Michelle Hancock – “alive magazine”***

**August 2005**



[jmoulder@mcw.edu](mailto:jmoulder@mcw.edu)

**Mobile Phone (Cell Phone) Base Stations and Human Health**

**<http://www.emfpollution.com/>**

***A Cellular Phone Tower on Ossining High School?***

**[http://www.cyburban.com/~lplachta/N\\_2](http://www.cyburban.com/~lplachta/N_2)**

**Radio Frequency Safe**  
**RFSAFE.COM**  
EMF SAFETY & PROTECTION