

Table of contents

1. The new communication technologies penetration in Romania
 2. Technical aspects of mobile communications with potential impact on health
 - 2.1. Electrosmog
 - 2.2. Electromagnetic fields
 - 2.3. About the safety zone
 - 2.4 Potential” victims”
 3. Main actors in communications technologies and public health in Romania
 4. Key texts and links
-

1. The new communication technologies penetration in Romania

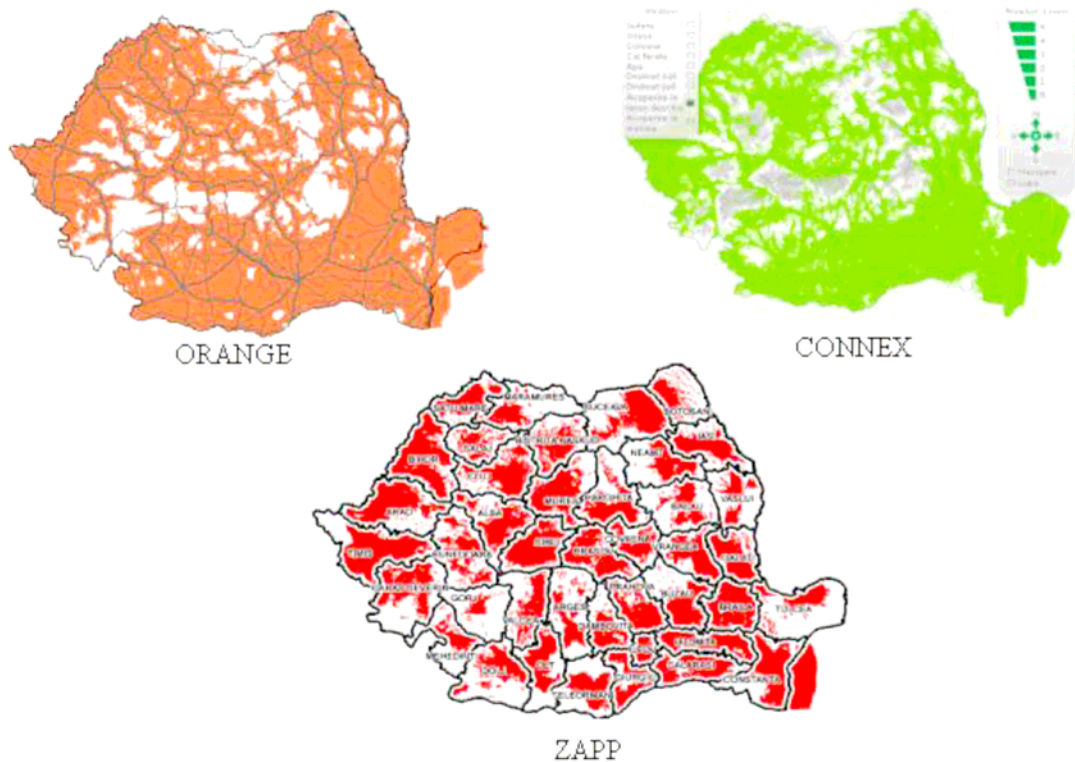
The history of mobile phone began in the 1970's when Bell Labs developed the Advanced Mobile Phone Standard that initiated the Cellular revolution. Now billions of mobile phone users communicate all over the world and 15 million in Romania, a country with 22 million inhabitants.

From the beginning of 2003, in Romania with the total liberalization of the electronic communication market, no specific license “per se” is necessary to provide any electronic communication services. A simple notification to ANRC (National Regulatory Authority for Communications) is sufficient.

By the middle of 2004, 2032 companies had registered notifications at ANRC in order to operate in accordance with the General Authorization.

Among these, 1148 are now authorized to provide electronic communication networks and services. 191 companies are authorized to provide telephonic services, 425 data transmission services and 475 Internet access. However, not all of these are offering services on a commercial basis. 49 Telephony Operators received Numbering Resources from ANRC.

In April 1997 the GSM services were launched in Romania through Connex – the brand name of Mobifon - and by Orange, previously called Dialog – operated by MobilRom.

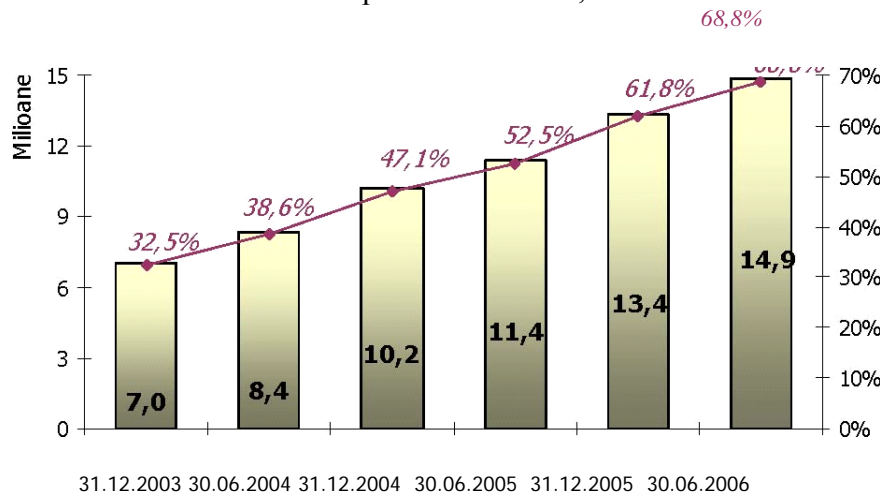


These two companies have rapidly development a rapidly expanding market. Both GSM operators cover around 90% of the Romanian territory. Orange Romania reached about 3,611,000 clients at the end of the first quarter 2004, while Connex had 3,672,138 clients.

In May 2000 Cosmorum, owned entirely by RomTelecom, also introduced a GSM service and covered around 40% of the area. Cosmorum has today less than 100 000 subscribers.

In the year 2000 Zapp was launched and offers services in 450 Mhz frequency band, using the CDMA technology. Zapp reached 100 000 customers in March 2003, and estimated to have 200 000 until the end of 2003. However, there are no recent figures to confirm that.

The total number of mobile phone users is 14,9 millions at 30.06.2006 as in figure 1.



2. Technical aspects of mobile communications with potential impact on health

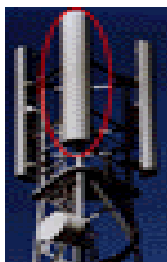
2.1. Electrosmog

Looking around in the capital Bucharest, one could notice mobile-phone antennas on the roof-top of many (high) buildings. Are they harmful for us, people living and working in and near these buildings?

Everywhere electromagnetic fields are present, there is a general concern for public health. Health concerns about exposure to electromagnetic fields (EMFs) are not new. Radiation emitted by overhead power lines (0-100 Hz, or the ELF range of the electromagnetic spectrum) has been under investigation for more than 20 years (see for example the reports of the WHO, link 1-5).

In our everyday lives, we are all exposed to radiation emitted by a number of devices such as ordinary home appliances (e.g. microwave ovens, toasters, hair dryers, electric shavers, PC screens), industrial heating systems and electricity transformer substations, radio and TV transmitters, anti-theft systems, normal electric circuits, remote control devices, and, of course, mobile phones, which are now being subjected to rigorous investigation.

Mobile phone base stations are radio transmitters with antennas mounted on either free-standing masts or on buildings. Radio signals are fed through cables to the antennas and then launched as radio waves into the area, or cell, around the base station. A typical larger base station installation would consist of a plant room containing the electronic equipment as well as the mast with the antenna.



Several types of antennas are used for the transmissions; panel-shaped sector antennas or pole-shaped omni antennas are used to communicate with mobile phones. Dish antennas form terminals for point to point microwave links that communicate with other base stations and link the network together into cells.

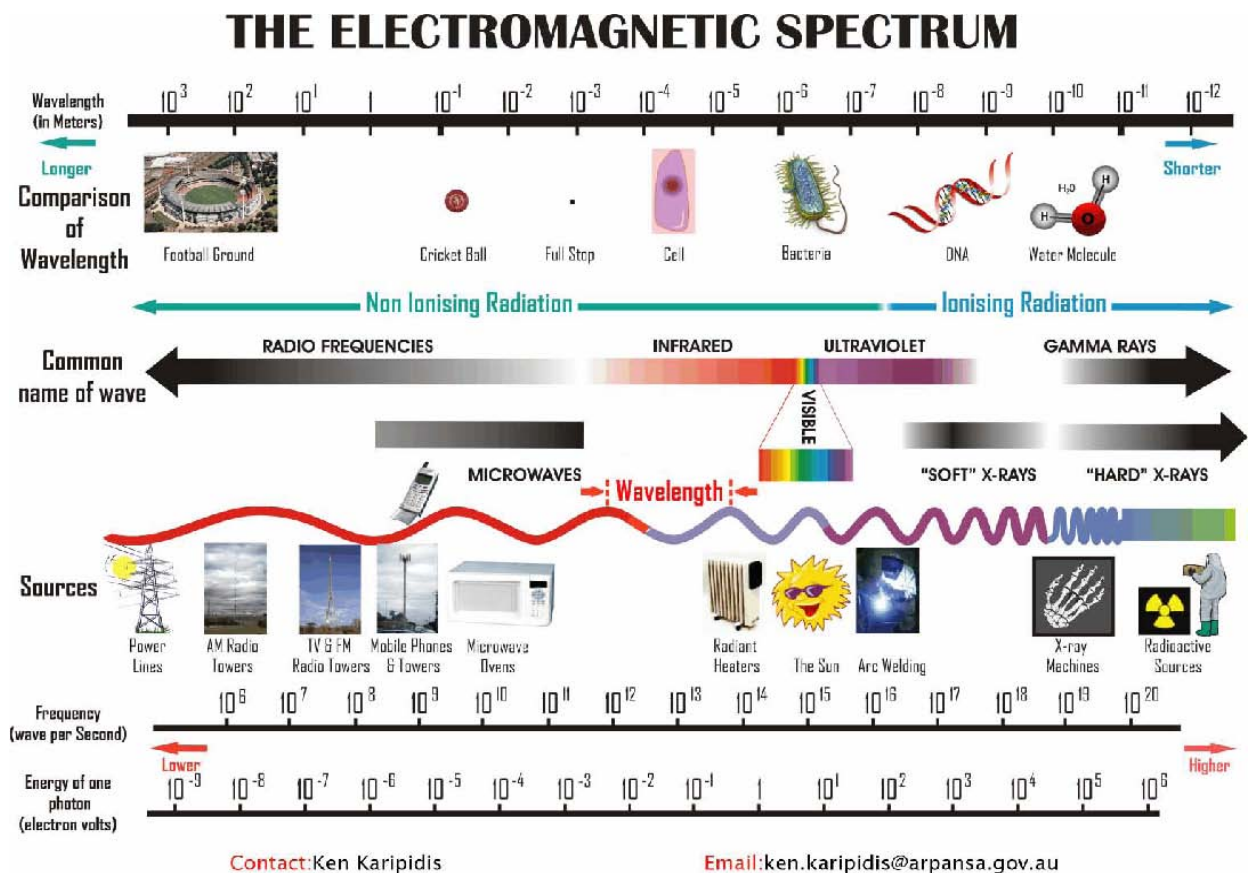
The combined radiation from all these sources is referred to as "**electrosmog**".

The frequency of the fields emitted by these various sources, which is spread across the EMF spectrum, determines their physical properties such as the ability to carry power and to heat or penetrate matter.

Cellular phone technology developed in the 90's operates in the radiofrequency part of the electromagnetic spectrum, is a different part of the spectrum from the EMF range. Mobile phones antennas and base station are EMF generators.

2.2. Electromagnetic fields

Bellow is the electromagnetic spectrum



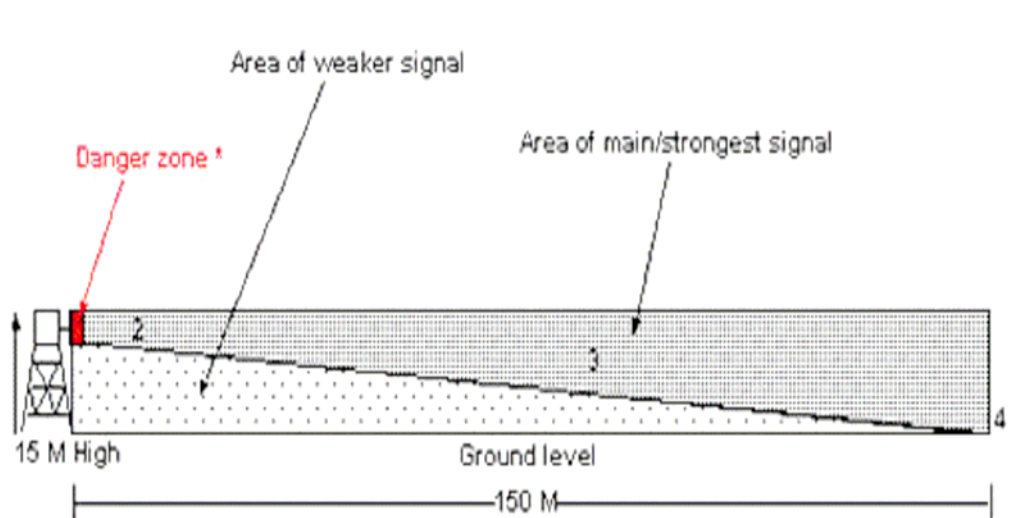
The emission standards have been set by the International Commission on Non Ionising Radiation Protection (ICNIRP, see internet link 13&14).

They are designed to prevent body heating effects. The Specific Energy Absorption Rate (SAR) is a measure of the rate at which energy is absorbed by body tissue in an electromagnetic field. It is measured in units of watts per kilogram (W/kg).

The limits are stricter for the public than telecom workers on the assumption that the public includes children, the elderly and the sick.

2.3. About the safety zone

The safety zone is outside this immediate 2 meter danger zone. It is impossible to enter this danger zone accidentally because the antenna is usually 10 to 15 metres above the ground for microcells and up to 50 metres for macrocells. The main signal is directed towards the ground at an angle of approximately 6 degrees. The diagram below shows that the area directly under the antenna is safe because the signal is at its weakest.



Having all these general elements on mobile phones possible adverse effects, it is intended to make people aware of it based on the precautionary principle which guides the implementation of any new technology in public life.

2.4 Potential” victims”

People living in blocks of flats with mobile base stations.
People, animals, insects living closely to the mobile antennas area.

3 .Main actors in communications technologies and public health in Romania

Ministry of Communications and Information Technology (MCTI) ‘s mission is to create solid premises that will ensure the transition to the Information Society in Romania, a strategic objective for the Romanian Government for 2004 – 2008. Communications infrastructure and the information applications are the fundamental factors for a successful transition to the Information Society that means an economy and a society in which the access, acquisition, storage, process, transmission, propagation and use of knowledge and information plays a capital role.

<http://www.mcti.ro/index.php?id=14&L=1>

The **National Regulatory Authority for Communications and Information Technology – ANRCTI** - is the institution entrusted with the implementation of the national policy in the sector of electronic communications, information technology and postal services.

By its activity, ANRCTI aims to accomplish several major objectives: promote competition, protect the best interest of the end-users and encourage effective investments in infrastructure. <http://www.anrc.ro/DesktopDefault.aspx?tabid=106>
Its action plan on 2006 <http://www.anrc.ro/DesktopDefault.aspx?tabid=119>

National Authority for Consumer Protection – ANPC coordinates and realizes the strategy and policy of the Romanian Government with regard to the enforcement of Consumer Protection in the country, preventing and fighting against the practices which prejudice consumers' life, health, safety or economical interests and estimates the efficiency of the market surveillance system for products and services provided. ANPC collaborates closely with any other public administration department which has responsibilities in the area of Consumer Protection, based on specific procedures approved by the Government. <http://www.anpc.ro/anpcen/>

National Institute for Public Health is found in 1927 and addresses all aspects of public health addressing the specific Bucharest area.
<http://www.ispb.ro/default.htm>

Ministry of Public Health for public health assistance for all country.
<http://www.ms.ro/>

Vodafone (Vodafone Romania S.A.)
www.vodafone.ro
Operator for GSM system.

Orange (Orange Romania S.A.)
www.orange.ro
Operator for GSM system.

Zapp (Telemobil S.A.)
www.zapp.ro
Operator for CDMA system.

COSMOTE România
www.cosmote.ro
Operator for GSM system.

National Association for Consumers' Protection , an ONG
<http://www.protectia-consumatorilor.ro/index.php?lang=en>

Association for Consumer 's Protection, an ONG
<http://www.apc-romania.ro/node/33>

The AncuDinca anti radiation device maker

Romanian physicist of international renown, Mr. Ancu Dincă, discovered one of the mysteries of the Universe, the biological laser. His DNRN-1 device is meant to protect the human body from the harmful radiations of cellular phones. The device should be placed in the cell phone case, under the battery, as close to the antenna as possible. He also developed a device DNRN-GSM L® to be put in a house in the action area of the antennas or mobile base station in order to neutralize the harmful fields on 60mp area.
<http://www.viataenergie.ro/index.php?action=sublinks&id=27&limba2=en&cat=22>

The Bucharest Municipality

http://www1.pmb.ro/pmb/index_en.htm

National Communications Research Institute - INSCC Bucharest performs fundamental and applicative research, technological development, technical and economical studies. INSCC also carries out tests, measurements and trials, conformity assessment and certification of communications equipments and services.
http://www.inscc.ro/index_files/Page316.htm

The National Institute for Research and Development in Informatics (ICI) as developer of Information and communication technologies for public interest and businesses and industry, an initiator of the intended participatory event.
http://www.ici.ro/new_ici_en/index_beta.php?page=12

4. Key texts and links

1. Establishing a dialogue on risks from electromagnetic fields

http://www.who.int/peh-emf/publications/en/EMF_Risk_ALL.pdf or
http://www.who.int/peh-emf/publications/en/emf_final_300dpi_ALL.pdf

2. What are electromagnetic fields?

<http://www.who.int/peh-emf/about/WhatisEMF/en/>

3. Electromagnetic fields and public health: mobile telephones and their base stations

<http://www.who.int/mediacentre/factsheets/fs193/en/print.html>

4. Electromagnetic fields and public health, Base station and wireless technologies

<http://www.who.int/mediacentre/factsheets/fs304/en/index.html>

5. 2006 WHO Research Agenda for Radio Frequency Fields

http://www.who.int/peh-emf/research/rf_research_agenda_2006.pdf

6. Working with the community. Handbook on mobile telecoms community consultation for best siting practice

http://www.mobilemastinfo.com/planning/Risk_Communication_Handbookv2.pdf

7. *Mobile phones and health,*

<http://www.euractiv.com/en/infosociety/mobile-phones-health/article-117521>

8. *ITU International Communication Union- Guidance on complying with limits for human exposure to electromagnetic fields*

<http://www.itu.int/rec/T-REC-K.52-200002-S/en>

9. *Mobilizing Community Concerns Against Mobile Phone Antennas*

<http://www.gothamgazette.com/article/communitydevelopment/20040527/20/992>

10. *Mobile Phone Base Station - Public Health Considerations*

<http://www.hants.gov.uk/regulatory/tradingstandards/mobilebase.html>

11. *Mobile Telephone Communication Antennas: Are They a Health Hazard?,*

http://www.arpana.gov.au/is_anten.htm

12. *Health reports of Mobile Association Operators*

http://www.mobilemastinfo.com/information/radiowaves_and_health/health_reports.htm

13. *Epidemiology of Health Effects of Radiofrequency Exposure*

<http://www.icnirp.de/documents/epiRFreviewPublishedinEHPDec04.pdf>

14. *Current Trends in Health and Safety Risk Assessment of Work-Related Exposure to EMFs, WHO/ICNIRP/EMF-NET Joint Workshop, 14-16.-2.2007, Milan, Italy*

<http://www.icnirp.net/Joint/AbstractCover.pdf>

15. *Top Ten Tips for Minimizing Your Mobile-Phone Radiations Exposure*

http://www.hbhealth.com/article.html?art_id=34&page_id=5

16. *Mobile Phones, Health and the Future of Wireless Technologies, IPTS Report*

<http://www.jrc.es/home/report/english/articles/vol61/HEA1E616.htm>

17. *Impacts of Cell-Phone Sites on Public Health,*

<http://www.echr.org/en/ws/02/cellphone.htm>

=====