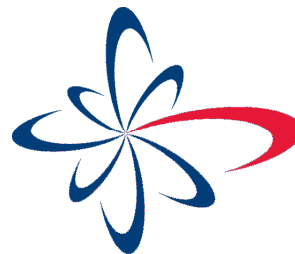


# Mobile Phones and Antennas

Nowadays, mobile phones consist an integral part of our everyday life, as further indicated by the high reported mobile penetration rate in Serbia of 115.35 %. Mobile phones are used not only as a means of communication but are also very useful professional tools and a way to enjoy and experience new and advanced services (e.g. video calling, surfing on the move etc.)



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In order for the citizens to be able to communicate using their mobile phones, it is required that a cellular network is in place and a set of base stations, along with their antennas, are installed.

*This brochure is sponsored by*



## **Mobile Phones in Our Life**

## Mobile Networks Topology

Mobile phone is a wireless transceiver that transforms voice and data signals to radio waves. Every time that a call is set-up, airwaves (electromagnetic power) are transmitted to the nearest antenna and vice versa.

## Safety Limits of Exposure in Electromagnetic Fields

The electromagnetic power that is transmitted by the mobile phone is not a radioactive power. Based on recent studies, the International Commission on non-Ionizing Radiation Protection (ICNIRP) imposed specific limits for the exposure of people in the electromagnetic fields.

## *Proactive Measures of Using Mobile Phones*

The electromagnetic power that is transmitted from the mobile phone to the antenna is directly related to the distance from the nearest antenna. The denser is the network of antennas, the less is the required electromagnetic power that needs to be transmitted by the antennas, as it is required to serve fewer users in a smaller geographic area.

Moreover, in a denser network of antennas, the distance between our mobile phone and the antenna is smaller. Hence, the signal reception at our mobile is better and the electromagnetic power transmitted by our handset, in order to establish communication, is lower.

**The density and the proper design of the network of antennas is a fundamental prerequisite in order for lower electromagnetic power to be transmitted and end-users to enjoy higher quality of service.**

These limits have been approved by the World Health Organization (WHO) and have been adopted by the European Commission (EC), in order to restrict exposure of the public to electromagnetic fields.

More specific, limits have been set as following:

⇒ Mobile Phones

For mobile phones, the limits for safe exposure to electromagnetic fields are defined by the Specific Absorption Rate (SAR). SAR should not exceed the value of 2Watts/kg in a local range.

Mobile phones available in the Serbian market that meet these specifications are marked with the **CE** mark. The maximum allowable SAR value for every mobile phone is clearly written in the manual of the phone device.

⇒ Mobile Telephony Antennas

The exposure safety limits, with regards to mobile antennas, are defined according to international measurements of the electromagnetic field. These measurements should lie below predefined thresholds.

Every country should clearly define these limits and can use as benchmark the ones already adopted by the European Commission.

1. Always check your mobile phone's signal reception level. Show preference in using your mobile phone in areas with strong reception and avoid indoor areas with no sufficient signal strength (e.g. elevators, underground areas).
2. Use accessories for freeing up your hands when using the mobile phone (e.g. hands-free, Bluetooth).
3. When purchasing a mobile device, always check the SAR levels of your mobile phone. Look into the manual of the device to be clearly indicated that phone's SAR levels are below 2 W/kg.
4. Advise children, below 10 years old, to use the mobile phone only when is absolutely necessary.

## **The Role of RATEL**

**RATEL** is responsible for regulating, monitoring and checking the market of electronic communications in Serbia.

Among others, some of the key responsibilities of **RATEL** include:

- Issuing licenses for mobile telephony radio-stations
- Regulate areas of consumers' protection in the field of electronic communications
- Regulate market availability and usage of telecommunication and radio equipment (e.g. mobile phones, Bluetooth devices etc.)