TRAINING AND MEASUREMENT OF ELECTROMAGNETIC RADIATION

EMR is the electrical or magnetic field that all electrical equipment emits. Ramboll offers consultancy on EMR and measurement of EMR levels, both in relation to health and safety regulations and neighbours to sites with antennas for mobile telecom.

Consultancy on EMR
Ramboll offers consultancy on EMR in accordance to laws and regulations concerning workers, the general public or set limit values to e.g. sensible technical equipment.

Measurements of EMF/EMR
Some equipment, like an LED lamp, emits so little EMR that it is hardly measurable. Other equipment emits high EMR values, like electro welding equipment. Especially if there are several sources to high EMR radiations, it can be nearly impossible to make a theoretical evaluation to check if the limit values are exceeded or not.

Since 2004 Ramboll has offered independent consultancy on EMR measurements. Ramboll can perform electromagnetic measurements with highly specialised equipment which is certified every two years. A very broad range of E-field frequencies up to 9GHz are covered - radio, television, mobile, Wi-Fi, local networks and many other services. Our equipment is always calibrated, and all measurements are performed in accordance with Ramboll’s quality system, which complies with DS/ISO 9001.

Over the years, Ramboll has performed EMR measurements in Denmark, Sweden, Norway, England and the USA on items ranging from trains and power lines through various radio systems to radar and satcom systems.

Training on EMR
Ramboll offers EMR seminar sessions in connection with measurements of EMR. This will aid e.g. health and safety representatives to better answer questions and handle concerns from their fellow colleagues. The seminar is tailored to cover all the angles that are of interest to our clients.

WE CAN OFFER SERVICES WITHIN:

- Consultancy on electromagnetic fields/radiation
- Measurements of electromagnetic fields – both magnetic and electric fields
- Training on electromagnetic radiation
- Consultancy on neighbour concerns
- Minimising EMR from antenna installations on buildings
- Consultancy on the Workers EU EMR directive
- Monitoring EMR with alarm
Consultancy on neighbour concerns
Ramboll is also in contact with worried neighbours to installations where electromagnetic radiation is subject to discussion. All questions can be asked by the neighbours and an answer based on actual measurements compared with recommended electromagnetic limits is often a very understandable way to handle the issue. With the EMR report in hand, Ramboll can help neighbours to a site with technical information, which allows the neighbours and mobile operators to discuss and exchange views on a more informed level.
Meetings are often held in the homes of the concerned peoples or areas close to homes or working space. People in general are concerned about non-visible hazards and naturally ask questions, which can only be answered by experienced experts with knowledge concerning especially mobile radiation technology.

Minimising EMR from antenna installations on buildings
Roofs with antennas, especially when roof terraces are involved, need special attention to avoid situations where ordinary visitors are exposed to radiation from panel antennas.
Ramboll can guide the owner of the building to avoid these situations. We have the knowledge and equipment to supervise and verify that critical limits are not exceeded.

Consultancy on the Workers EU EMR directive
The European Commission has published directive 2013/35/EU regarding the minimum health and safety requirements regarding the exposure of workers to the risks arising from physical agents (electromagnetic fields) (20th individual Directive within the meaning of Article 16(1) of Directive 89/399/EEC) and repealing Directive 2004/40/EC. All EU member states had, until the end of June 2016, to transpose the directive to transpose the directive. For the first time ever, workers are now protected by law against exposure to magnetic fields; so far only public and residential areas have been protected. According to the directive, employers are allowed to make a theoretical assessment of whether the limit values for E-Field (electrical field) and H-Field (magnetic field) are upheld.
If in doubt, measurements are to be made. Special consideration is to be taken towards pregnant women and/or personnel with medical implants. If the limit values are exceeded, and the area where this occurs has not been clearly marked or closed off, the employer can be held responsible.
Therefore, it is of the utmost importance to know the EMR levels according to the limit values.

Monitoring EMR with alarm
At construction sites close to cell antennas, e.g. rooftops, it is often necessary to contact the operator to switch off the antennas. This can be a troublesome but imperative requirement for the health and safety of the workers. But what if the antenna could be left turned on instead or be powered during specific time periods throughout the day? Ramboll has developed an alarm box - the RamAlert. This solution is easy to use and can be installed next to the antenna. It only requires AC power and will sound an alarm-signal if EMR levels come close to limit values.

Multidisciplinary consultancy
Being a multidisciplinary engineering, consultancy Ramboll can undertake all engineering services and special analyses that may be needed within telecom infrastructures.

Let us help you
Ramboll has been engaged in all disciplines and areas within analysis, design, construction and operation of telecommunication networks and infrastructure ever since the formation of the company in 1945. We were the first consultants on mobile networks from the infancy of mobile telephony in the early 1980s and know all about the various sites and how to measure radiation.
Based on your needs and specifications, we will make our experience worthwhile for you and help you with the best tailored solutions for your company.