

ITUEvents

ITU Regional Seminar 5G Implementation in Europe and CIS

*Strategies and Policies Enabling
New Growth Opportunities*



HOSTED BY



NATIONAL STRATEGIES FOR
5G DEPLOYMENT

ENABLING
ENVIRONMENT

5G PILOT
IMPLEMENTATION

NEW BUSINESS
MODELS

DIGITAL
DIVIDEND

SPECTRUM
MANAGEMENT



5G Implementation in Europe and CIS

Setting the scene on EMF and 5G

István Bozsóki

**Head of Spectrum Management
and Broadcasting Division
International Telecommunication Union**



ITU activities on EMF

- ITU-T
- ITU-R
- ITU-D



• Study Group 5: Environment, climate change and circular economy

- ✓ Q3/5 - Human exposure to electromagnetic fields (EMFs) from information and communication technologies (ICTs)
- ✓ Raising awareness on EMF
- ✓ Recommendations on EMF assessment (K Serial)
- ✓ **K Suppl.14 on** The impact of RF-EMF exposure limits stricter than the ICNIRP or IEEE guidelines on 4G and 5G mobile network deployment
 - ✓ This Supplement provides an overview of some of the challenges faced by countries, regions and cities which are about to deploy 4G or 5G infrastructures. This Supplement provides information on a simulation on the impact of RF-EMF limits that was carried out in Poland as an example of a wider phenomenon, which is applicable to several other countries, which have set limits stricter than those contained in the ICNIRP or IEEE guidelines.
- ✓ **K Suppl.9 (11/2017):** 5G technology and human exposure to RF EMF
 - ✓ Higher frequencies, small cells, shared infrastructure, IoT, etc.

• Study Group 1, WP1C: Handbook on Spectrum Monitoring

➤ Chapter 5.6 on Non-Ionizing Radiation (NIR) measurements

- Explains **NIR limits & exposure quotient**
- **Instruments** for NIR measurements
 - Broadband isotropic probes and meters
 - Tri-axis antennas and field strength meters
 - Transportable station
 - standard field strength measurement equipment
- **Measurement procedures** for different radio services (incl. mobile, broadcasting, etc.)
- **Reporting methods**

➤ Question ITU-R 239/1 (2016):

1. What are the **measurements techniques** to assess the human exposure from wireless installations of all types?
2. How can **measurement results** be presented?

➤ A practical guide for EMF measurements to assess human exposure

- **Study Group 2 Q7/2: Strategies and policies concerning human exposure to electromagnetic fields**

- Report 2014-2017 period

- The report collects and disseminates information concerning exposure to Radio Frequency (RF) and Electromagnetic Fields (EMF), in order to assist national Administrations, particularly in developing countries, to develop appropriate national regulations. It is useful for Administrations, in order to listen and respond to the concerns of the public related to radiating antennas.

- WTDC-17 updated the Q7/2. Some issues to study:

- d) Information on the international (mainly in WHO, ICNIRP and IEEE) activities, including updated limits of exposure levels.

- e) Challenges and opportunities of developing technical regulations on the limits for maximum exposure to non-ionizing electromagnetic radiation from radio base stations and specific absorption rate levels in wireless devices.

- ✓ The report will provide materials for workshops and seminars to share experiences on the establishment of limits for maximum exposure to non-ionizing electromagnetic radiation from radio base stations.

- **Policies and legislation on EMF effecting 5G roll-out**

Expert Meeting “EMF and 5G Roll-out”

- 2 and 3 November 2017, Rome
- Jointly organised by the Development Bureau of the International Telecommunication Union and Ministry of Economic Development of Italy
- In follow up to the Regional Seminar on Spectrum Management and Broadcasting held on 29-30 May 2017 in Rome
- A call for a collection of case studies of countries and a suggestion to assist countries in the adoption of policies and legislations that do not negatively affect the rollout of mobile broadband networks, in particular 5G networks
- Aims at taking stock of some selected and basic aspects of national regulations on the protection from EMF.
- Some suggestions for further stocktaking of national experiences and areas for further cooperation.
- <https://www.itu.int/en/ITU-D/Regional-Presence/Europe/Pages/Events/2017/EMF/Electromagnetic-Field-Level-and-5G-Roll-out.aspx>

Structuring Practices & Challenges (based on replies)

- National approach for the protection against non-ionizing radiation (NIR)
 - If ICNIRP exposure limits / If more restrictive exposure limits (e.g. < 10% of ICNIRP)
- Planning permissions / Authorisations to put into operation
 - Calculation methods to assess human exposure
 - In support for efficient deployment of 5G: simplified procedures needed for
 - Small cells / Site modifications / Site sharing / Site access (e.g. public buildings and installations (street lighting posts))
- Compliance (Measurement or calculation)
 - ITU-T Recommendations
 - ITU-R Handbook on Spectrum Monitoring, Chapter 5.6 on “Non-ionizing radiation measurements”, including instruments for NIR measurements, associated measurement procedures and reporting.
 - IEC 62232:2017 «Determination of RF field strength, power density and SAR in the vicinity of radiocommunication base stations for the purpose of evaluating human exposure”
- Communication
 - Information for the General Public / Awareness campaigns
 - Building trust / Transparency / Cost/benefit analysis and define success measures including evaluation / GSMA Booklet “5G, the Internet of Things (IoT) and Wearable Devices: What do the new uses of wireless technologies mean for radio frequency exposure?”
 - Between authorities (health, environmental, ICTs, local city councils)
 - Consider EMF management in National roadmap for 5G roll-out
- Regional harmonisation of EMF management (particularly limits and technical compliance)
 - The draft European Electronic Communications Code contains many articles that recommend harmonization based on the ICNIRP limits.

Proposed Next Steps

- The outcomes of the experts' meeting will be brought to the attention of the Study Groups of ITU-D, ITU-R and ITU-T.
- ITU possesses the expertise for compliance measurements and calculations. It is a joint effort of all the sectors of ITU and each has to contribute.
 - Academia should be urged to continue to contribute to discussion in ITU through any of the sector (-R, -D, or -T)
 - Realistic methods for compliance assessment with EMF exposure limits
- Establish mechanisms for future collaboration between countries, and country case studies.
 - Proposed studies to be included in ITU-D SG Question 7/2 (revised by WTDC-17)
 - Preparation of guidelines and case studies on public awareness on EMF issues
 - A guideline for a coherent approach for the standardized EMF levels across the ITU countries was called for.
 - Suggestions for communication, education, and information strategies in order to address public concern regarding human exposure to EMF and possible health effects would be welcome.
 - Compilation of good practices of local community communications and perception management.
 - Investigate utilization of ITU Interactive Transmission Map for EMF level
- Request WHO to revise its backgrounder on EMF exposures from base stations and wireless networks in view of 5G Roll-out
- Meeting of relevant ITU and WHO experts in 2018
 - Pursuing contribution to the relevant WHO meetings
- ITU-T EMF guide update in view of 5G roll out
- Investigate possible avenues for adjusting compliance processes for EMF level in countries where there are significant local differences between the theoretical and the actual exposure levels
- Contribution to the on-going studies within ITU-R Working Party 1C in response to Question ITU-R 239/1 on "Electromagnetic field measurements to assess human exposure"

THANK YOU

Istvan Bozsoki

**Head of Spectrum Management
and Broadcasting Division
International Telecommunication Union**

