

## TERMS OF REFERENCE

### FOR CONSULTANCY SERVICES RELATED TO INTRODUCTION OF RADIOFREQUENCY ELECTROMAGNETIC FIELDS (EMF) STANDARDS IN GEORGIA

#### Background

It is recognized that 5G will transform our economy and society. It will make new services possible in healthcare, energy, transport or education. Over time, 5G and future networks will use much smaller antennas and could have a higher density of sites compared to current systems. Reflecting this, and to accelerate the roll-out of this important new technology in the EU and EaP countries, bureaucratic procedures should be simplified, while ensuring that authorities keep oversight. For this reason, the European Commission has adopted an implementing regulation in accordance with the new European Electronic Communications Code.

At the same time, the new generation of networks brought new antenna types to achieve much better coverage and higher connection speeds. They will also be less visible and produce less electromagnetic emissions. In fact, they could be compared to Wi-Fi installations.

Radiofrequency electromagnetic fields (EMFs) are used to enable a number of modern devices, including mobile telecommunications infrastructure and phones, Wi-Fi, and Bluetooth. As radiofrequency EMFs at sufficiently high-power levels can adversely affect health, the International Commission on Non-Ionizing Radiation Protection (ICNIRP) published Guidelines in 1998 for human exposure to time-varying EMFs up to 300 GHz, which included the radiofrequency EMF spectrum. Since that time, there has been a considerable body of science further addressing the relation between radiofrequency EMFs and adverse health outcomes, as well as significant developments in the technologies that use radiofrequency EMFs. Accordingly, the ICNIRP has updated the radiofrequency EMF part of the 1998 Guidelines with the latest version released in 2020.

The European Council Recommendation 1999/519/EC also sets out strict limits for exposure of the public to electromagnetic fields in line with the 1998 ICNIRP. This means: EU exposure limits for the general public are always aimed to be at least 50 times lower than what international scientific evidence suggests as having any effect on health. The above limits are not binding for the EU Member States. However, the European Electronic Communications Code refers to them and calls on Member States to ensure consistent application.

Similarly, the minimum health and safety requirements regarding the exposure of workers to the risks arising from physical agents (electromagnetic fields) are regulated by the Directive 2013/35/EU of 26 June 2013. Electromagnetic fields present in the working environment for occupational exposure (in terms of health and safety) are subject to milder regulation than those present in the environment (concerning general public). This is due to ensure the safety given the factors previously presented.

Individual countries are also active in this field. Some adopt regulations based on international guidelines, while other conduct their own studies. As an example, in April 2020, the National Frequency Agency

(ANFR) of France published a study including the assessment of the exposure of the general public to 5G electromagnetic waves, presenting the first measurement results on 5G pilots in the 3,400-3,800 MHz band.

### **Current state of play in Georgia**

The Georgian National Communications Commission is actively working to enable the timely launch of 5G in Georgia.

In wider society, fifth generation of wireless networks - 5G is sometimes perceived as a possible threat to public health. Therefore, for the successful launch of 5G it is of particular importance to ensure compliance of Georgian legal framework concerning the limits of exposure of electromagnetic fields with international standards, and the publicity of those regulations to the public to ensure their awareness of the risks, if any, and the regulations in place to protect the public.

Currently, the above limits are prescribed in the Order of the Minister of Labour, Health, and Social Affairs of Georgia of 16 August 2001 on the "Approval of the norms of the quality condition of the environment." It is important to note that these limits are stricter than in many developed countries and may hinder introduction of modern telecommunication technologies that are important for economic development of Georgia.

Therefore, new standard has to be introduced based on the best international practices along with additional research if required in order to pave the way for modern telecommunication networks and services in Georgia, while keeping the population reliably protected from the harmful EMF radiation.

### **Objective and Purpose of the Assignment**

The objective of the assignment is:

1. To develop recommendations on exposure limits including Basic restriction, Reference levels, compliance procedures and emission measurement guidelines to limit people's exposure to electromagnetic fields (EMF) that would be most appropriate in Georgian context for the frequency up to 300 GHz.
2. To support ComCom in negotiations with respective national authorities aiming at initiating amendments to relevant secondary legislation.

### **Tasks and Responsibilities**

The consultant shall report to the head of Spectrum and Technology Department of the Communication Commission of Georgia - ComCom and shall work with other individuals and organizations as identified by the ComCom to fulfil the terms of reference.

The work done by the consultant should include:

1. Review of current Georgian EMF exposure limit regulation with a view to analyze its compliance with international certified and recognized standards and guidelines regarding exposure limits of its population to electromagnetic fields for defined frequency ranges and network technologies.
2. Elaboration of recommendations on introducing amendments to Georgian EMF legal and regulatory framework including following aspects:
  - Basic restrictions and Reference levels;
  - Regulation for general public and occupational exposure;
  - Protection of population- restrictions for placement of base stations including in vicinity of sensitive infrastructure – hospitals, schools’ kindergartens and residential areas;
  - Compliance provisioning, including EMF measurement methodology and technical requirements for measurement equipment and software.
3. Elaboration of explanatory document providing justification for recommended amendments considering Georgian context and based on the documents developed by the international standard organizations, national authorities of EU countries, recommendations by reputable international organizations and NGOs and if appropriate on the studies used by national authorities to derive their regulations. The argumentation should support the notion that more restrictive than recommended EMF norms may hinder investment in 5G and other modern technologies in Georgia, while recommended allowable levels will provide sufficient protection from the radiation generated by use of these technologies.
  - It is expected that consultant will cover activities, regulations and guidelines developed by WHO, EU, ITU, ICNIRP, IEEE and other relevant organizations with regards to EMF safety, as well other materials from reputable sources
  - Of particular interest would be EMF regulation experience in smaller EU countries, who cannot afford to conduct extensive scientific studies for development of their own EMF safety standards.
4. Provide and deliver presentations of provided reports to ComCom and afterwards to the stakeholders at the consultation sessions organized by the ComCom.
5. Assist ComCom in consultations with the Ministry of Internally Displaced Persons from the Occupied Territories, Labour, Health and Social Affairs of Georgia and other stakeholders.

**Deliverables:**

1. Gap analysis report of EMF exposure standard in Georgia against EMF EU guidelines and considering the potential upgrades due to the ICNIRP 2020 guidelines.
2. Recommendations report about EMF regulation and measurements methodologies according to consultancy objectives, tasks and responsibilities, including explanatory document with practical guidance and justification of recommendations.
3. PPT presentations for ComCom, Ministry of Health and other stakeholders covering recommendations and justification.

All deliverables shall be submitted in English. All documents shall be submitted in hard copies and electronic (pdf or similar) format. All correspondence to the Employer shall be in English. The consultant will have to assist with clarification related to the translation process.

## Milestones

Duration of the Contract will be 50 days. The contract could be extended according to the business needs.

#	Description	Timeline (days after contact signature)
1	Gap analysis, plan and structure of the report including primary list of the documents and materials to be used in preparation of the report.	10
2	Preliminary report and presentation to ComCom (Preliminary report should include materials in all sections of the report, including diagrams, tables, footnotes and references. It should require minor, clarifications, additions and editing to constitute Final report)	30
3	Final Report and PPT presentation to ComCom	40
4	Presentation to the Ministry of Internally Displaced Persons from the Occupied Territories, Labour, Health and Social Affairs of Georgia and other stakeholders	45
5	Consultations based on requirements (8 hours)	As required

The consultant will have to communicate with ComCom on weekly basis reporting on progress on his/her work.

## Required Qualification

### Education:

Master's or Doctoral degree in one of the following or related fields:

- Telecommunications engineering;
- Electrical and electronics engineering;
- Physics;
- Biology;
- Medicine.

### Work experience & skills:

- International experience of similar type of assignments or consultancies (with regards to deliverables of the consultancy);

- In case of Master's degree at least 10 years' experience and in case of Doctoral degree at least 5 (five) years' experience in the field of EMF exposure assessment and the health effects of exposure to electromagnetic radiation;
- Ability to work collaboratively in a team and deliver outputs on time;
- Excellent speaking and writing skills in English.

### **Working Conditions**

- Remote work;
- Travel to Georgia in the final stage of the assignment (optional and COVID-19 permitting).