

Recent developments on EMF Regulations in Europe and IEC/IEEE standards topical issues

8th May 2024
ITU-R Workshop

Jafar Keshvari, Chair IEEE/ICES
Adj. Professor of Bioelectromagnetic
Aalto University-Finland

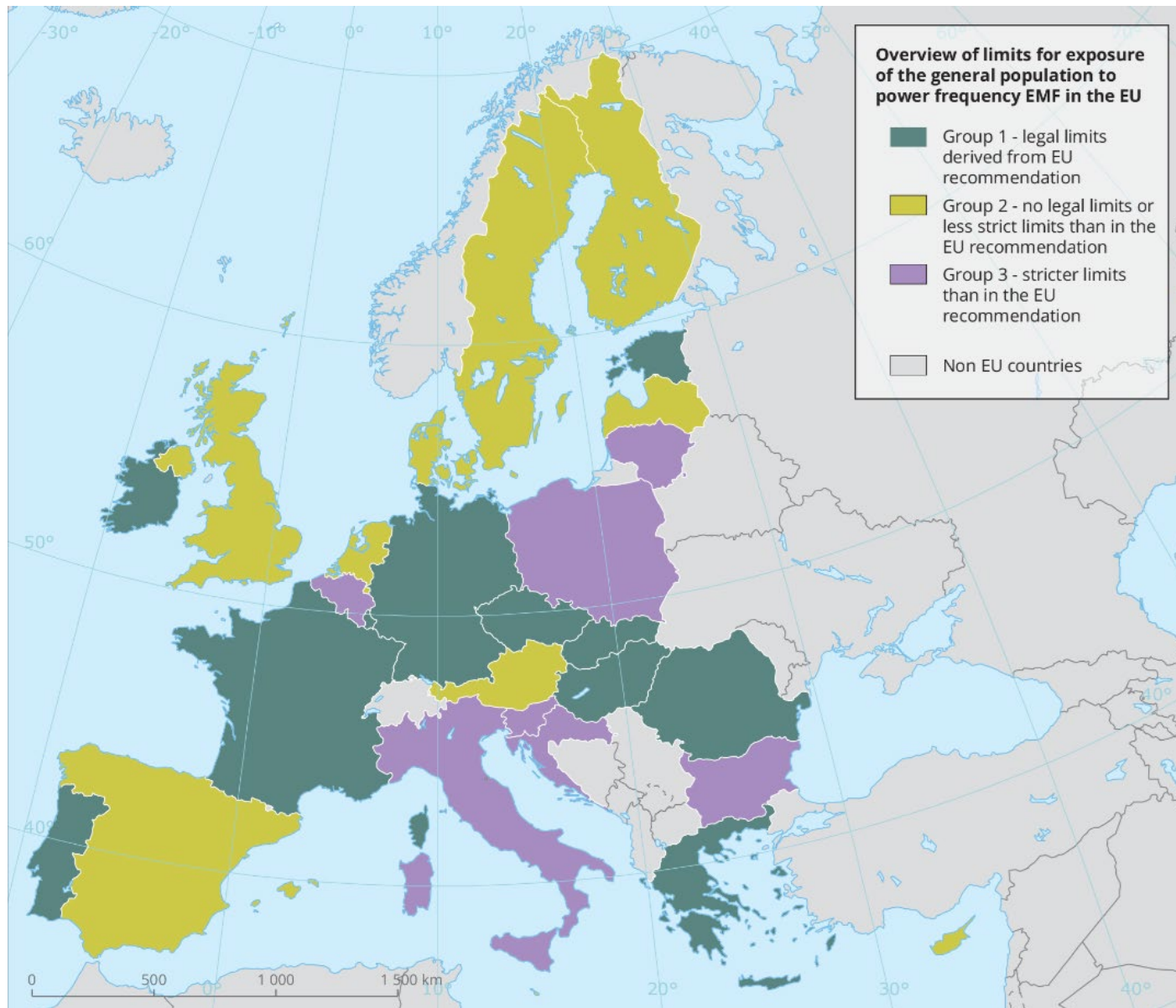
Discussion flow...

- EMF policies in EU countries
 - EU Geographical variation of EMF limits
 - EU Regional Assessment of EMF policies
- Status of the revision of EMF Directive and 1999 Council Recommendation
- Compliance Assessment Standards
 - Base stations
 - Wireless Communication Devices

- EMF regulatory exposure limits in Europe are mainly based on EMF Directive (for occupational exposure since 2013), and the Commission's Council Recommendation 1999 (for general public), which are based on ICNIRP Guidelines from 2010.
- Existing European EMF Directive and RF/EMF Safety Council Recommendation are based on the previous version of International Commission on Non-Ionizing Radiation Protection (ICNIRP) Guidelines, 1998.
- EU Member states are divided into three groups depending on the level of regulation applied to EMF within their country.



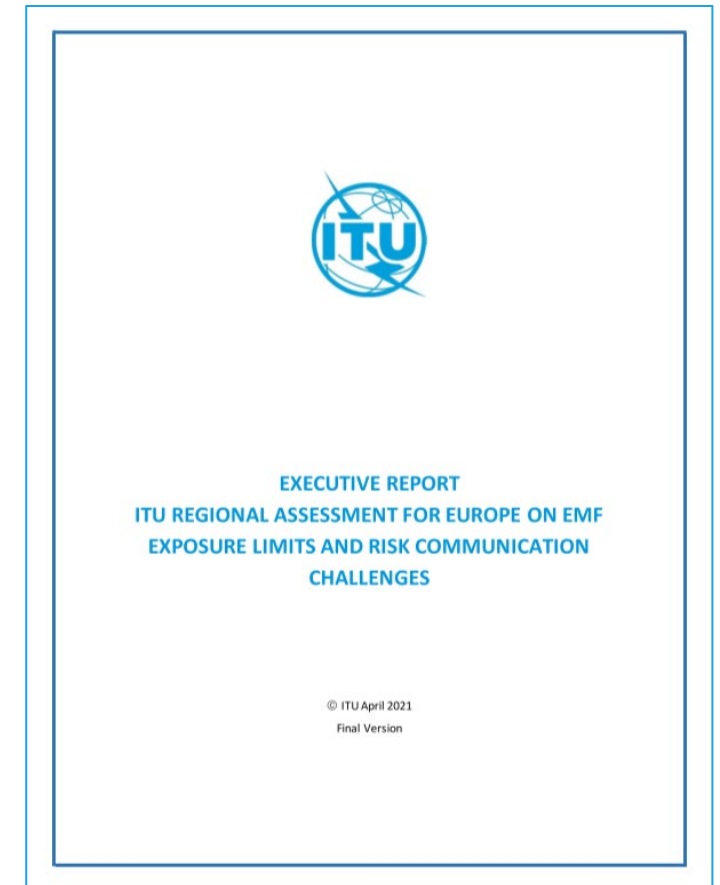
EU Geographical variation of EMF limits



Source: EU Environmental agency

EU Regional Assessment of EMF policies

- **Objective:** to gain a regional overview of the situation and the challenges encountered by institutions responsible for EMF at the country level and identify gaps for future action of the ITU.
- **In numbers:** 31 institutions from 29 countries out of 46 countries of Europe region have responded to the questionnaire
- **Findings:** Aggregate analysis with regards to specific questions and 5 general recommendations



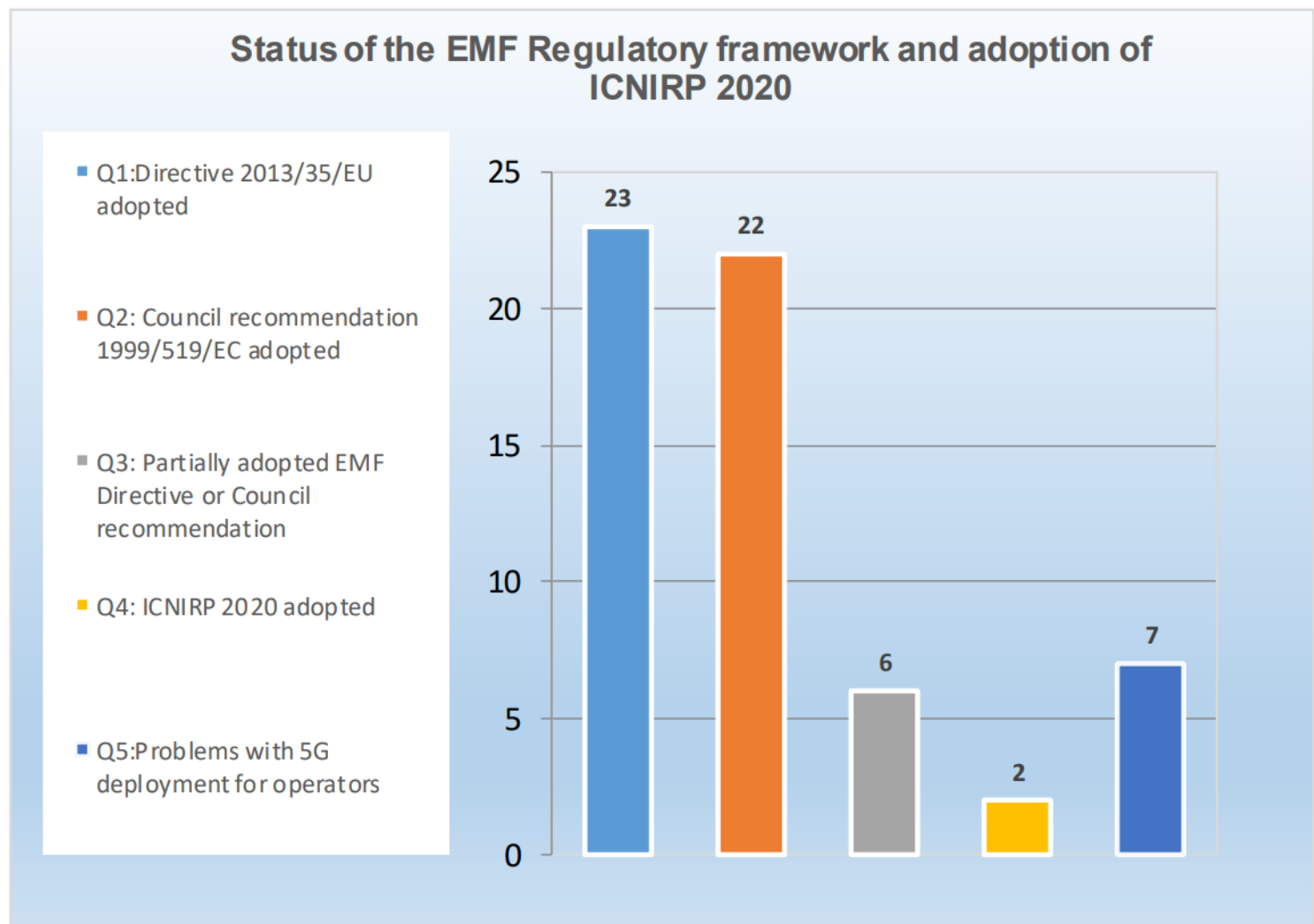


Figure 1. Response from 29 countries showing how many have adopted the European EMF directive 2013/35/EU and 1999 Council Recommendation concerning EMF exposure limits for workers and general public.

Challenges of Availability of Compliance Assessment Standards

- Q1: Challenges on availability of EMF Compliance Assessment Standards
- Q2: Awareness of ongoing relevant standards activities

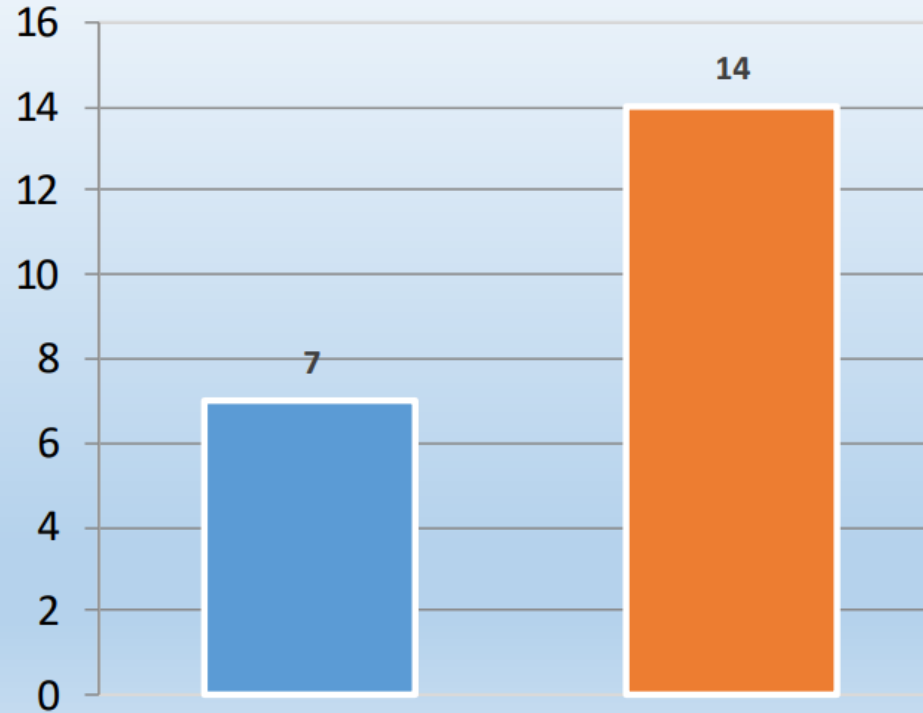


Figure 3. Response from 29 countries showing the number of countries having challenges with the availability of compliance assessment standards. Only half of the countries are aware of the relevant standards activities.

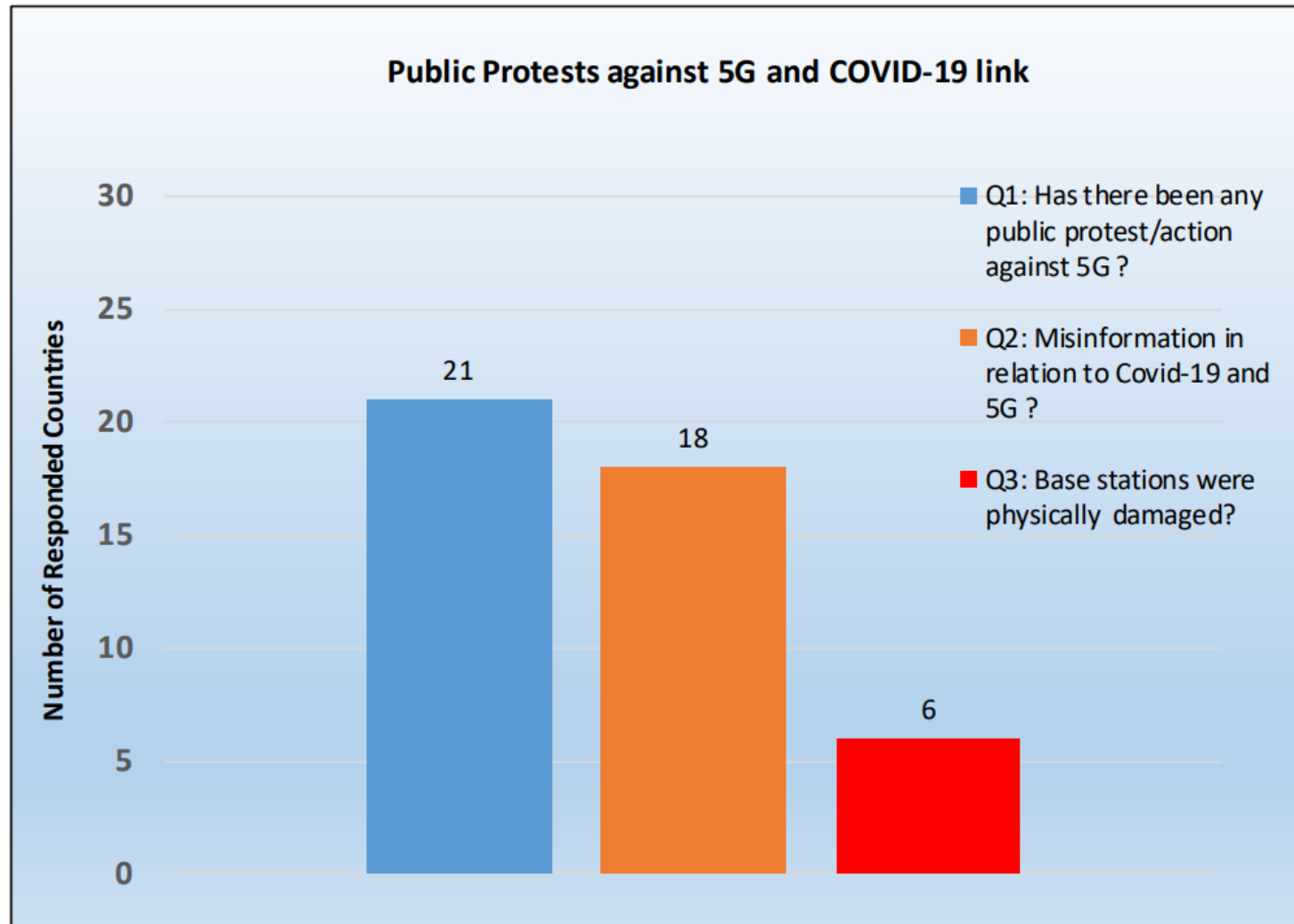


Figure 4. Response from 29 countries showing number of countries that have had protests against 5G technologies, physical damage to the base stations and also number of countries that has reported incidents relating COVID-19 to 5G technologies.⁸

Status of the revision of EMF Directive and 1999 Council Recommendation

- The Commission mandated in June 2021 the Scientific Committee on Health, Environmental and Emerging Risks (SCHEER) regarding the radiofrequency electromagnetic fields range from 100 kHz to 300 GHz.
- The Commission asked the SCHEER to assess the need for a technical revision of the annexes to the Council Recommendation 1999/519/EC in view of the latest scientific evidence available, in particular the ICNIRP guidelines updated in 2020.
- The Definitive Opinion on radiofrequency electromagnetic fields range was published in June 2023. In this opinion the SCHEER confirmed that there is no moderate or strong evidence for adverse health effects from existing technology at levels below the limits set in the 1999/519/EC Council Recommendation. Consequently, there was no need to revise the existing limits set in the Recommendation.

Status of the revision of EMF Directive and 1999 Council Recommendation

- However, the Committee acknowledged that the latest exposure guidelines issued by the ICNIRP in 2020 introduced new dosimetric quantities and limits to them, that would protect humans more effectively from emerging technological applications.
- Therefore, the SCHEER Committee advised to revise the annexes in aforementioned Council Recommendation 1999/519/EC to add these new criteria.
- This technical revision of the annexes to the Recommendation will ensure the continuous and adequate protection of health and safety of the general public from its exposure to electromagnetic fields, in view of new and emerging technologies.
- For this reason, a new mandate for a technical revision of the annexes in Council Recommendation 1999/519/EC was adopted on 6 October 2023 on 6th Plenary meeting of SCHEER Committee. **This technical revision is expected to be adopted in May 2025.**



Compliance Assessment Standards



- IEC and ITU standards form the basis EU countries regulatory product compliance.
- Base station compliance assessment standard:
 - EN IEC 62232/AMD1 ED3 to be published soon.
 - PARALLEL VOTE ON CDV EN IEC 62232:2022/prA1:2023, closed on 15 March 2024.
 - The parallel vote on CDV EN IEC 62232:2022/prA1:2023 was accepted with 100 % positive votes. The voting results are attached as Annex 1.
 - IEC and ITU protocols are very much harmonized.
 - Compatible with multiple applicable exposure limits, including ICNIRP-1998, ICNIRP-2020, IEEE C95.1:2019 and SC6:2015.
 - 5G technology compatible.
 - Handling of beamforming & beamsteering antennas.
 - Improved in-situ measurement process



Compliance Assessment Standards...



- Wireless Communication Device standards:
 - IEC/IEEE 62209-1528 (main Device SAR measurement standard) Amendment is ongoing.
 - The amendment would address the following items:
 - Hand SAR
 - Motion sensor
 - TAS
 - Proximity sensor
 - Separation distance
 - Restructuring the Device SAR standards series is being discussed.
 - IEC/IEEE JWG13 has prepared a high level structure for the new series and the proposal is circulated to National Committee and IEEE for comments.
 - Restructure expected to take place in 2025.

