To whom it may concern,

Please see below list of inputs for BERECs' 2021 programme.

1. BEREC Guidelines on Very High Capacity Networks (VHCNs)

BEREC's adoption of VHCN guidelines is positive. The explicit requirement for NRAs' to take these guidelines into utmost account is particularly welcome.

Annex 4: Determination performance for wireless thresholds
There are some issues with BERECs' current position on wireless threshold technologies.

4 of the 16 mobile operators reported downlink speeds of 200Mbps and higher (M1, M2, M3 & M4). As 25% of operators have managed to achieve speeds of 200Mbps plus, BEREC need to further investigate and establish how these capacities can be replicated by all EU mobile providers. Technical data identifying the 4G Gigabit LTE roadmap has been available since 2016 - see below.

LTE Category	Carrier Aggregation	MIMO	Spatial Streams	Modulation	Max. Throughput
Cat-4	2x10MHz	2×2	4	64QAM	150mbps
Cat-6	2x20MHz	2×2	4	64QAM	300mbps
Cat-9	3x20MHz	2×2	6	64QAM	450mbps
Cat-11	3x20MHz	2×2	6	256QAM	600mbps
Cat-16	3x20MHz	4×4	10	256QAM	1000mbps

BEREC have incorrectly stated that the recorded speeds of 300Mbps & 450Mbps are implausible. These speeds not implausible and advancement of 4G gigabit LTE is something that should be promoted by BEREC.

Delaying or restricting 4G LTE capacity improvements in favour of using more spectrum for 5G is unnecessary and will increase energy use in all EU member states.

Unnecessarily increasing energy use can be considered an infringement of the Energy Efficiency Directive (2012/27/EU).

BEREC are advised to reconsider and re-evaluate the current incorrect assumption with regards to 4G gigabit LTE and wireless thresholds.

Note:
In 2017 Telstra launched a Gigabit 4G LTE network demonstrating consistent speeds of 900Mbps.
https://www.itwire.com/mobility/telstra-gigabit,-4gx-lte-%E2%80%93-now-here.html

2. BERECs' Workshop on EMFs'.

BEREC's statement on EMFs' must put an end to all current disinformation campaigns.

Many media outlets throughout the EU continue to make false claims, stating non-ionising EMFs are safe and pose no threat to human health.

Those claims are incorrect, put public health at risk and contradicts EMF Directive 2013/35/EU.

People identified in Directive 2013/35/EU as being '*at particular risk*' from EMF exposure (pregnant women, people with pacemakers etc.) and children are particularly vulnerable to adverse health effects from non-thermal EMF exposures. The EMF Directive requires all workplaces (schools, hospitals, businesses etc.) to conduct a general risk assessment after the installation of a Wi-Fi network (and specific risk assessments for those with pacemakers).

BEREC have an opportunity to demonstrate leadership and guidance by sharing it's own EMF risk assessment procedures and EMF staff information booklet with NRAs'. BERECs' EMF workshop should focus on methods used to identify non-thermal EMF symptoms, avoid EMF risks and how best to promote the same procedures for the European public.

3. Identifying areas of regulatory intervention available to NRAs to maximise their positive contribution on the environment

BEREC should advise NRAs' to adopt, actively promote and demonstrate a bias towards energy efficient technologies. This will help NRAs' maximise their contribution to the environment. Wired infrastructures (and devices) use significantly less long-term energy than wireless networks.

With regards to energy use and wireless technologies, NRAs' must publish and inform the public of the maximum signal-levels required for different wireless services.
For example:

Technology	Max signal level
2.4Ghz (WiFi)	-60dBm
5Ghz (WiFi)	-50dBm
900Mhz	-85dBm
1800Mhz	-80dBm

Providing public guidance on operational signal-levels helps to maximise energy savings, and reduces unnecessary wireless energy wastage.

Note: Modern WiFi routers/Access Points provide maximum data rates at RSSI levels of circa -70dbm(2.4Ghz) & -60dBm (5Ghz)

4. 2014/53/EU Radio Equipment Directive (RED)

BEREC and NRAs' have been unsuccessful ensuring compliance with 2014/53/EU. Failure to ensure radio devices are compliant (and remain compliant) has meant Europeans are exposed to unregulated EMF levels from a wide range of radio devices including Smartphones and Wi-Fi home routers.

Recent examples in France, Denmark and Ireland highlight an ever-growing problem that is directly linked to NRAs' not actively implementing and enforcing 2014/53/EU. In France and Denmark health authorities have requested the withdrawal of the Razor Phone 2. In Ireland a home Wi-Fi router was found to be in breach of regulations. The home router in use in Ireland is also on the market in Belgium, Germany, Netherlands, Poland, Slovakia and UK.

It is 6 years since 2014/53/EU was first issued and still the European public have no reliable and up-to-date information regarding compliant and non-compliant radio devices.

As a matter of urgency BEREC should develop a publicly accessible (free) EU database similar to that provided by the FCC - https://fccid.io/search.php.

To have confidence in wireless technology, EU citizens must be assured the products they purchase are compliant and remain compliant (after a s/w upgrade) with all conformity and assessment procedures listed in 2014/53/EU.

5. NRAs' and EMF Site-survey reports

In order to protect the public from known EMF related auditory effects 1999/519/EC lists a 2mJ energy absorption limit in the range 0.3 - 10Ghz.

When NRAs' publish EMF site-survey reports, no part of the report contains any reference to 2mJ auditory limits. The European public have a right to be informed about EMF levels that may cause the 2mJ energy absorption limit to be breached. They also have a right to be informed about legally recognised and known auditory conditions e.g. 'microwave hearing effect'.

BEREC would best serve the European public by instructing NRAs' to inform the public about legally recognised auditory effects. This could be achieved by including reference to EMF levels that may breach the auditory exposure limit values of 2mJ.

In 2015, over 50 million people in the EU are known to have auditory conditions.

https://efhoh.org/wp-content/uploads/2017/04/Hearing-Loss-Statistics-AGM-2015.pdf

6. Wireless 5G technology

BEREC and NRAs' are not health experts. Recent pandemic events highlight the precautionary measures Governments are prepared to take in order to protect public health.

No technology can be deployed until health experts have conducted rigorous, credible testing, reflecting everyday exposure levels for all members of society.

Particular care must be taken when considering children and those people identified as being '*at particular risk*' from non-thermal EMF exposures. The WHO are currently *'conducting a health risk assessment from exposure to radiofrequencies, covering the entire radiofrequency range, including 5G, to be published by 2022.*'

In the interests of public health, BEREC must adopt the precautionary principle and advise EU NRAs' to wait until all WHO research has completed in 2022 before increasing public exposure to more microwave radio frequencies. Once the WHO results are published, investigated and found to be credible, decisions can then be taken with regards to 5G public exposure.

Note:WHO research must reflect real-world EMF exposures in both intensities and duration.
https://www.who.int/news-room/q-a-detail/radiation-5g-mobile-networks-and-health

7. ICNIRP 2020 guidelines infringe on 1999/519/EC & 2013/35/EU

BEREC must advise all NRAs' they cannot adopt ICNIRPs' 2020 guidelines.

ICNIRP 2020 guidelines contradict and infringe upon sensory effect limits contained within the EMF Directive and public auditory limits contained in 1999/519/EC.

1999/519/EC and 2013/35/EU have energy absorption limits of 2mJ & 10mJ to protect public and workers health from known auditory and sensory effects. ICNIRP 2020 guidelines have removed ICNIRP 1998 auditory limits, and provide no sensory or auditory protection to public health.

ICNIRP 2020 guidelines cannot be endorsed or adopted by BEREC or any EU NRA.