

Your response

Question	Your response
<p>Do you agree with our proposal to take steps to mitigate risks related to EMF and be in a position to hold licensees, installers and users to account if issues are identified? Please explain the reasons for your response.</p>	<p>Confidential? – Y N</p> <p>Siklu agrees that it is important to take steps to mitigate risks related to EMF. However, Siklu questions the ability of most licensees, installers and users to put the current Ofcom proposal into practice. Please refer to our response to Question 2 for further details.</p>
<p>Do you agree with our proposal (a) to include a condition in spectrum authorisations requiring compliance with the basic restrictions for general public exposure identified in the ICNIRP Guidelines; and (b) that this condition should apply to equipment operating at powers greater than 10 Watts?</p>	<p>Confidential? – Y N</p> <p>Siklu believes that Ofcom’s current proposal, is technically impractical, and will be beyond the ability of almost all licensees, users, installers, to exercise. Siklu further suggests to raise the exemption threshold from 10W. Please refer to our elaborate response in the next page.</p>
<p>Do you agree with our proposed guidance on EMF compliance and enforcement? Please explain the reasons for your response.</p>	<p>Confidential? – Y N</p> <p>Siklu does not agree with the proposed licence condition and guidance. Please refer to the next page for more detail.</p>

Siklu Communication's Response to Q2 and Q3 in Detail

Siklu agrees that it is important to take steps to mitigate risks related to EMF, and welcomes Ofcom's consideration of this potential risk. However, Siklu strongly disagrees with Ofcom's proposal, as we believe it will place an unmanageable onus on licensees, users and installers, and will therefore be impossible to implement and lead to widespread non-compliance.

In order to understand our point of view, it is necessary to consider that the profile of licensees has changed significantly over the last few years. In the past, licensees were mostly large organisations, such as mobile operators, national operators (BT, ...), or national infrastructure companies (Arqiva, ...). These organisations are highly technically-proficient, and typically have the means to employ experts in electromagnetic emissions, capable of following Ofcom's proposal. However, in recent years, the profile of licensees changed completely. We now see more and more small businesses deploying fixed wireless radios - businesses whose core competency is not wireless. For example: security companies installing wireless backhaul to their CCTV cameras, small regional ISPs turning to wireless to extend their otherwise wired footprint, small business campuses wishing to interconnect several offices into a single network without the expense of digging trenches. None of these 'modern' licensees have the technical ability or resources to engage in the type of complex analysis demanded by Ofcom's proposal.

It is fairly easy to adhere to ICNIRP's guidelines **for a single device**. Most vendors (Siklu included) publish a declaration of conformity with ICNIRP, and specify the exclusion zone necessary to meet its limits. The difficulty in Ofcom's proposal lies in the Draft Licence Condition, as set out in Annex 1 of the Consultation:

*When establishing, installing, modifying or using the Relevant Radio Equipment authorised under this Licence, the Licensee shall only establish, install, modify or use Relevant Radio Equipment on a site (whether or not all of the wireless telegraphy stations and/or wireless telegraphy apparatus on that site is operated by the Licensee or by other users) if **the total EIRP emanating from all wireless telegraphy stations and/or wireless telegraphy apparatus on the site is below the basic restrictions for general public exposure** identified in Tables 4 and 5 of the ICNIRP Guidelines.*

The problem here is that **determining the contribution of all radiators in a site is an exceptionally difficult computational task, well beyond the capability of the vast majority of licensees.**

The ICNIRP limit is phrased in terms of **power density**, and there is no direct or straight-forward correlation between EIRP and power density (the latter depends on antenna aperture). Furthermore, calculating power density due to more than a single device is a function of the physical coordinates of these devices. For example, if two radios are installed on a pole in a certain orientation, there is no easy way to calculate whether the sum of their radiated power densities meets the ICNIRP threshold or not. Such calculation would require a complex computer simulation that has accurate knowledge of the devices' exact position, orientation, beam pattern, nearby reflecting surfaces, etc., all of which is not practically available. The complexity of the computational problem is of course increased significantly when a large number radiators share a site.

An alternative to the complex calculation is direct measurement of a site's power density using an RF analyser. However, such equipment is very expensive, and may not even be readily available (for example, in frequencies above 40GHz). And of course, correctly using such analyser also requires a high degree of technical qualification.

Therefore, Siklu believes that the requirement, as currently set out in Annex 1 of this consultation, is computationally unreasonable, impractical, and is well beyond the capability of most licensees. Adopting such a proposal would simply lead to non-compliance, or worse: reduced wireless use.

Siklu would like to take this opportunity to suggest some practical alternatives (to the current draft wording of Annex 1), which Ofcom might like to consider:

1. It is practical and reasonable to expect a licensee, installer, user, to ensure compliance with ICNIRP limits for a **single device** only. However, compliance of the entire site would be up to Ofcom. Ofcom has the high level of technical competence, as well as all necessary details (coordinates, orientation, antenna patterns, etc.) and should be able to check for compliance of an entire site. In other words, in the same way as Ofcom today undertakes to perform frequency coordination involving all neighbouring devices, so might Ofcom undertake to perform 'EMF coordination' for entire sites.
2. Instead of requiring licenses to comply with ICNIRP thresholds, Ofcom would provide an alternative 'easy' rule of thumb that ordinary licensees can easily follow. For example, such a criterion might relate to an exclusion zone, easily determined with a tape measure, as opposed to the intractable power density. Or if considering power density is a must, then perhaps consider only those devices installed within a certain distance (measured in wavelengths), and all transmitting in the same direction (measured by their beam-widths overlap).
3. Change the exemption threshold from EIRP 10W to a higher limit (e.g., 40W), in a way that total-site EMF compliance is not applicable to short-range devices and standard fixed terrestrial point-to-point radios. This would leave the proposed requirement intact for mobile base-stations, and other sites which generate very high levels of power density. Alternatively extend the exemption to devices operating in frequency bands which are not used by mobile RAN.