

## Exhibit A: Consistent Failure to Identify the Potential for Health Effects (Opinion-wide)

The evaluative language quoted below indicates the disparity between what was asked of the authors (to identify Possible Effects of EMF) and what they eventually chose to use as a basis for their analysis process that no change in the ICNIRP standards is warranted at this time.

SIXTEEN (16) instances of “no causal evidence” or “prevents a causal interpretation” or “is not causally linked” or “not informative for causal linkage”.

THREE (3) instances of “does not provide convincing evidence”.

THREE (3) instances of “not definitive”.

SEVEN (7) instances of “do not unequivocally indicate”.

These criteria are inconsistent with a review that is titled “Possible Effects”. Further, the approach in judging the emerging evidence is inconsistent with the charter of the Scientific Committee\* to give advice needed for “*consumer safety, public health and the environment on new or emerging problems.*” Some statements acknowledge important new evidence of effect; yet then shift the burden of proof to a higher level requiring that adverse health effect, a known mechanism, a causal level of evidence be conclusively demonstrated, or physical evidence of harm be demonstrated. There is nothing in the report that says the authors were directed to provide proof of effect (or consistent indications, or consistent demonstration of effect; or consistent support for, or certainty of effects) at levels below ICNIRP limits. With the same flawed approach in drawing conclusions from emerging science as demonstrated by the SCENIHR, hardly any environmental or occupational condition would be qualified as an emerging or newly identified health risk\*.

\*Three independent non-food Scientific Committees provide the Commission with the scientific advice it needs when preparing policy and proposals relating to consumer safety, public health and the environment. The Committees also draw the Commission's attention to the new or emerging problems which may pose an actual or potential threat. They are: the Scientific Committee on Consumer Safety (SCCS), the Scientific Committee on Health and Environmental Risks (SCHER) and the **Scientific Committee on Emerging and Newly Identified Health Risks (SCENIHR)** and are made up of external experts.

All of the areas **highlighted in yellow** in the preliminary Opinion indicate problems (omissions, mischaracterizations of exposure data leading to erroneous conclusions about possible public health risks, misreading of original study results, dismissal of important findings, need for a known mechanism, and failure to use proper criteria for judging potential for health effects as opposed to causal effects).

There is a serious consequence which comes from dismissing effects linking EMF/RFR exposures reported in scientific studies to an ‘all or none’ finding by using embedded criteria that demand ‘causal’ or ‘conclusive’ or ‘definitive’ or ‘consistent demonstration of effect’. It is clear that such erasing possible impacts of great global health consequence will chill public health responses that would otherwise occur if the correct standards for judging the evidence were used in this Opinion. Public health activities hinge on not causality but sufficiency of evidence to warrant a proportionate preventative action in line with established precautionary principles. This draft Opinion provides no guidance in this area.

Since the charge to the Scientific Committee is to evaluate the possible health effects (not to prove beyond a shadow of a scientific doubt the causality of such exposures to health harm), the Opinion needs complete re-working. It may be also that the Committee needs new membership capable of a different, and more appropriate approach to the important assessment that SCENIHR is charged to prepare. Page and line numbers are included to key to the Opinion sections.

*Page 5: Health effects from Extremely Low Frequency (ELF) fields*

12 The new epidemiological studies are consistent with earlier findings of an increased risk  
13 of childhood leukemia with long-term average exposure to magnetic fields above 0.3 to  
14 0.4  $\mu$ T. However, as stated in the previous opinions, no mechanisms have been identified  
15 that could explain these findings. The lack of experimental support and shortcomings  
16 identified for the epidemiological studies **prevent a causal interpretation.**

*Page 12-13: Health effects from RF fields*

42 Epidemiological studies on RF exposure **do not unequivocally indicate** an increased risk of  
43 brain tumours

20-22 However, research conducted since the previous SCENIHR opinion adds weight to the conclusion that **RF exposure is not causally linked** to these symptoms,

*Page 13 Health effects from ELF fields*

49 The new epidemiological studies are consistent with earlier findings of an increased risk  
50 of childhood leukemia with daily average exposure above 0.3 to 0.4  $\mu$ T. As stated in the  
51 previous SCENIHR opinions, no mechanisms have been identified in experimental studies  
52 that could explain these findings. Due to lack of support from experimental data and  
shortcomings in the epidemiological studies, **evidence remains weak that the observed  
association reflects a causal effect.**

For symptoms associated with longer-term exposures (measured in days to months), the  
30 evidence from observational studies **against a causative association** with RF exposure is  
31 broadly consistent but has gaps, most notably in terms of the objective monitoring of  
32 exposure.

*Page 58*

24-28 They reported higher incidence rates of brain cancers in countries with the most frequent mobile phone subscriptions. The study is **not informative for causal inference**, as popular use of mobile phones can also reflect standard of living, which is also associated with, for example, availability of diagnostic services.

*Page 65-66 Discussion of brain tumours and other tumours of the head and neck area*

5-7 For the segment of the heaviest users, the largest case-control study in particular observed about 40% increased risks for glioma and for acoustic neuroma. It cannot be concluded from the available studies **whether this reflects a causal association.**

Here, the conclusion that there might legitimately be causal evidence for increased risk for brain tumors with cell phone use but it no longer matters, because, indeed, technologies might change in the future. This is a preposterous statement. It has the impact of trivializing the issue, minimizing identified risks and leaping to an irrational conclusion that negates any need for the Scientific Committee to advise caution.

19-25 Therefore, the increased risks seen in heavy users in the case-control studies, mainly driven by technologies not in operation anymore or operating more efficiently today, could perhaps not be due to methodological shortcomings **but indeed reflect a causal association.** This finding might be irrelevant for any future cancer prevention activities since those relevant cumulative RF exposure levels

are not reached anymore, not even among those using mobile phones for longer duration or much more often than the users of the 1980s or 1990s.

Pages 114-115 *Provocation Studies*

The fact that these effects disappear once blinding is used and the participant is therefore unaware of the exposure suggests first, that **no casual (causal) effect of RF exposure** exists and second, that believing RF 48 to be present is sufficient to induce symptoms via a placebo effect. While further work using this paradigm would be beneficial, at present these studies suggest **there is no causal link between exposure and symptoms.**

Page 123 3.7. Health effects from ELF fields

22 3.7.1. Neoplastic diseases

23 3.7.1.1. Epidemiological studies

24 What was already known on this subject?

25 The previous SCENIHR statement endorsed the IARC assessment of classifying ELF  
26 magnetic fields as possibly carcinogenic to humans due to consistently observed  
27 increased childhood leukaemia risk in epidemiological studies (SCENIHR, 2009); the  
28 latter stems mainly from two pooled analyses based on studies completed before the  
29 year 2000, showing a two-fold risk increase with ELF magnetic fields above 0.3-0.4  $\mu\text{T}$   
30 (time-weighted average) but raising concerns about shortcomings of those studies  
31 **preventing a causal interpretation** (Ahlbom et al., 2000; Greenland et al., 2000).

Page 125 *Discussion on epidemiological studies*

27 Pooled analyses of the more recent studies on ELF magnetic fields and childhood  
28 leukaemia confirm those of earlier studies, however, the new generation of studies shows  
29 little methodological advancement compared to the ones conducted before 2000.  
30 Therefore **it remains difficult to judge whether the apparently quite robust empirical**  
31 **association is likely to be causal** or a result of methodological shortcomings of the  
32 studies.

Page 125 *Conclusions on epidemiological studies*

42 The previous assessment of the 2009 SCENIHR statement of a possible association  
43 between long term exposure to ELF magnetic fields and an increased risk of childhood  
44 leukaemia remains valid. From an epidemiological point of view, the association appears  
45 to be robust, having been observed in multiple studies in different settings at different  
46 points in time. **Unfortunately, little progress has been made in explaining the finding,**  
47 **both in terms of finding a plausible mechanism for a causal association** or in identifying  
48 alternative explanations.

Page 131 3.7.1.4. *Conclusions on neoplastic diseases*

18 The new epidemiological studies are consistent with earlier findings of an increased risk  
19 of childhood leukemia with daily average exposure above 0.3 to 0.4  $\mu\text{T}$ . As stated in the  
20 previous opinions, no mechanisms have been identified in experimental studies that  
21 could explain these findings. Lack of support from experimental studies and shortcomings  
22 of the epidemiological studies **prevent a causal interpretation.**

Page 141 3.7.3.1 *Conclusions on Symptoms*

The 2009 opinion concluded that **no consistent relationship** had been demonstrated between ELF exposure and symptoms, neither in the general public nor in people with IEI-EMF.

Page 142 *Conclusions on symptoms* 3.7.3 *Other Health Effects*

49 The studies published since the 2009 opinion show discordant results. However,  
50 observational studies suffered from weaknesses and **do not provide convincing evidence**  
51 of an effect of ELF exposure on symptoms in the general population and most  
52 experimental evidence also points to the **absence of any causal effect.**

Page 144-145 *Neoplastic diseases*

48 The new epidemiological studies are consistent with earlier findings of an increased risk  
49 of childhood leukemia with daily average exposures above 0.3 to 0.4  $\mu$ T. As stated in the  
50 previous opinions, no mechanisms have been identified in experimental studies that  
1 could explain these findings. Lack of support from experimental studies and shortcomings  
2 of the epidemiological studies prevent a causal interpretation.

Page 170 3.13. *Research recommendations*

44 Research to date has not been able to identify with any certainty any adverse health  
45 effect resulting from exposure to EMFs at any frequency or intensity typically found in the  
46 workplace or everyday environment. Epidemiological studies have reported associations  
47 between EMF exposure and certain diseases, most notably for an increased risk of  
48 childhood leukaemia with exposure to low frequency magnetic fields, but none of these  
49 associations can be considered causal

Page 176. 3.14. *Guidance on research methods*

Indeed, organ-specific dosimetry is considered necessary to help to establish causality.

Page 177 - 178

To give particular attention to issues affected by important gaps in knowledge in the previous opinions,  
especially:

35 2a. the potential adverse effects of EMF on the nervous system, including neurobehavioural disorders  
and on the risk of neo-plastic diseases;

37 *RF fields*

38 Previous studies suggesting that RF exposure may affect brain activities as reflected by  
39 changes in the EEG during wake and sleep are further substantiated by the results of  
40 more recent studies. However, given the variety of applied fields, duration of exposure,  
41 number of considered leads, and statistical methods it is difficult to derive firm  
42 conclusions. For event-related potentials and slow brain oscillations results are  
43 inconsistent. Likewise, studies on cognitive functions in humans lack consistency. The  
44 biological relevance of reported small physiological EEG changes remains unclear, and  
45 mechanistic explanation is still lacking.  
46 A reasonable body of experimental evidence now suggests that exposure to RF does not  
47 trigger symptoms, at least in the short-term. While additional observational studies are  
48 required to assess whether longer-term exposure could be associated with symptoms,  
49 the evidence to date weighs against a causal effect.

2 Studies on neurological diseases and symptoms show no clear effect, but the evidence is  
3 limited. Human studies on child development and behavioural problems provide only  
4 weak evidence because of conflicting results and methodological limitations. Direct  
5 effects of exposure from mother's mobile phone use during pregnancy are not plausible  
6 owing to extremely low fetal exposure to mobile phone EMF.

7 Epidemiological studies on RF exposure do not unequivocally indicate an increased risk of  
8 brain tumours, and do not indicate an increased risk for other cancers of the head and  
9 neck region, or other malignant diseases including childhood cancer. Earlier studies  
10 raised open questions regarding an increased risk of glioma and acoustic neuroma in  
11 heavy long-term users of mobile phones. Based on the most recent cohort and incidence  
12 time trend studies, the evidence for glioma became weaker while the possibility of an  
13 association with acoustic neuroma remains open.

14 A considerable number of well-performed in vivo studies using a wide variety of animal  
15 models have been mostly negative in outcome. These studies are considered to provide  
16 evidence for the absence of a carcinogenic effect.

17 A large number of in vitro studies pertaining to genotoxic as well as non-genotoxic end  
18 points have been published since the last opinion. In most of the studies, no effects of

19 exposure at levels below exposure limits were recorded, although in some cases DNA  
20 strand breaks and spindle disturbances were observed.

Page 178 ELF fields

The new epidemiological studies are consistent with earlier findings of an increased risk  
41 of childhood leukemia with long-term daily average exposures above 0.3 to 0.4  $\mu\text{T}$ . As  
42 stated in the previous opinions, **no mechanisms have been identified** and no support is  
43 existing from experimental studies that could explain these findings, which, together  
44 with shortcomings of the epidemiological studies **prevent a causal interpretation**.