Coordinadora europea de organizaciones por una regulación de la exposición a los campos electromagnéticos (CEM), que realmente proteja la salud pública

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Opiniones y sugerencias a la Evaluación intermedia del Mecanismo «Conectar Europa» (CEF).

El Mecanismo «Conectar Europa» (CEF) está impulsado especialmente por el conjunto de medidas adoptadas por la Comisión el 14 de septiembre de 2016 para la promoción de la conectividad inalámbrica a Internet a través de campos electromagnéticos (CEM) artificiales de radiofrecuencias (Wi-Fi y 5 G).

Las organizaciones ciudadanas que integramos la "Coordinadora europea de organizaciones por una regulación de la exposición a los campos electromagnéticos (CEM) que realmente proteja la salud pública" (∗), consideramos lo siguiente sobre este conjunto de medidas:

1. – Entran en contradicción con los artículos 4, 168, 169 y 191 del Tratado de Funcionamiento de la UE (TFUE).

2.- Ignora las numerosas alertas tempranas científico-profesionales sobre los riesgos de los CEM de radiofrecuencias y baja frecuencia dentro de los actuales límites legales de exposición. La Comisión tampoco contempla las últimas investigaciones sobre los efectos negativos de los CEM sobre el cuerpo humano, ni espera a los resultados del **Estudio Mobi-Kids**, cuyos resultados podrían entrar en conflicto directo con dicho proyecto.

- **Desde 1998, más de 40 declaraciones médicas y científicas en el ámbito internacional llaman a aplicar el principio de precaución** en la línea del principio ALARA (tan bajo como como sea razonablemente posible), con límites y criterios más restrictivos ante una creciente evidencia de los efectos no térmicos de la exposición a la radiación no ionizante en todas las frecuencias a niveles muy por debajo de los actualmente permitidos y los importantes riesgos para la salud de la población general y especialmente en los grupos más vulnerables. En 2015 tuvo lugar la **Declaración científica internacional de Bruselas** sobre Electrohipersensibilidad y Sensibilidad Química Múltiple, y el **Llamamiento Internacional (2015) a la OMS y a la ONU, este último, firmado por más de 220 científicos de 41 países, investigadores expertos en bioelectromagnetismo e implicados en el estudio de los efectos biológicos y médicos de los campos electromagnéticos no ionizantes**.

- **Revisiones bibliográficas, como el Informe Bioinitiative de 2007 y sus actualizaciones de 2012 y 2014 (de más de 4.000 estudios) y la Monografía de la International Commission for Electromagnetic Safety (ICEMS) del 2010 sobre los efectos no térmicos de los CEM, constatan** que los niveles existentes de seguridad pública son inadecuados para proteger la salud pública y documentan las evidencias científicas actuales sobre la relación causal de los CEM.

- Debido a una parte de estas investigaciones la **Agencia Internacional de investigación del cáncer (IARC) de la OMS clasifica los CEM como grupo 2b (en la misma categoría que el DDT, el plomo o la gasolina),** posible carcinógeno para los seres humanos tanto para las **muy bajas frecuencias** (2001) como para las **radiofrecuencias** –Wi-Fi, telefonía móvil,…- (2011). Los expertos de este panel también recomendaron "medidas pragmáticas para reducir la exposición" especialmente para los niños. Una sentencia del Tribunal Supremo italiano **(2012) reconoce el nexo de causalidad entre el uso prolongado del teléfono móvil e inalámbricos y la aparición de un tumor cerebral**, concediendo una incapacidad en concepto de enfermedad profesional. En 2013, una **teleoperadora israelí compensó económicamente a un cliente que contrajo cáncer**. El **grupo de trabajo BioInitiative nos presenta estudios que avalarían una clasificación como grupo 1, carcinógeno para el hombre**, en muy bajas frecuencias (2012) y en radiofrecuencias (2014 y 2016).

- El European Cancer and Environment Research Institute (ECERI), en su búsqueda de las causas ambientales del cáncer y los mecanismos genéticos y epigenéticos que promueven la aparición del cáncer, ha identificado la electro-hipersensibilidad como una enfermedad ambiental causada por los CEM artificiales.

- **Numerosas asociaciones profesionales** se hacen eco de estos llamamientos: asociaciones de medicina ambiental **a nivel europeo** y en distintos países (**Austria**, **Alemania**, **Francia**, **EE.UU**, **Irlanda**, **Italia**, **Macedonia**, **Reino Unido**, **Suiza**,…); colegios profesionales de biólogos (**Galicia**), de médicos (**Viena**, Austria), de pediatras (**Alemania**, **EEUU**,…) …; **médicos por escuelas saludables**; …]. El **Colegio de médicos de Austria (**2012**)** y la **Academia Europea de Medicina Ambiental o EUROPAEM (**2016**) elaboraron respectivamente guías de diagnóstico y actuación ante los problemas y enfermedades de salud relacionados con los CEM**.

3.- Se ignoran las recomendaciones de protección del Parlamento Europeo, la Asamblea Parlamentaria del Consejo de Europa, ni instituciones asesoras europeas, que no consideran los actuales límites de exposición a los campos electromagnéticos como protectores de la salud humana y del medio ambiente, y entran en contradicción con la Directiva 2003/4/CE relativa al acceso del público a la información medioambiental.

- **La** Resolución 1815 **de 2011 de la Asamblea Parlamentaria del Consejo de Europa** (APCE), que supone una fuerte advertencia para limitar la exposición inalámbrica por radiofrecuencias, especialmente la infanto-juvenil sobre la base de los conocimientos científicos disponibles, las **Resoluciones del Parlamento Europeo** en 2008 (P6_TA(2008)0410) y 2009 (P6_TA(2009)0216), las **recomendaciones de la Agencia Europea de Medio Ambiente** (AEMA) desde el 2007 (2009, 2011, 2013), los puntos 4.1, 4.2 y 4.3 del **Dictamen COM(2011) 348 final — 2011/0152 (COD)** del Comité Económico y Social Europeo (CESE), el **Dictamen sobre Hipersensibilidad electromagnética aprobado en la Sección *Sección* Especializada de *Transportes*, *Energía*, *Infraestructuras* y Sociedad de la Información (TEN) del CESE** el 7 de enero de 2015, …

- **En algunos países (dentro y fuera de la UE) ya se aplicaron algunas de las medidas de protección propuestas en dichas recomendaciones institucionales:** límites de exposición más bajos, WI-FI prohibido en guarderías y apagado por defecto en escuelas infantiles (Francia, …), prohibición de la publicidad y la venta de teléfonos móviles específicos para menores (Francia y Bélgica), campañas informativas para conocer los riesgos y disminuir la exposición (Alemania, Australia, Austria, Bélgica, Finlandia, Francia, India, Grecia, Reino Unido, Rusia, Suiza,… así como la propia Agencia Europea de Medio ambiente a nivel europeo). La electrosensibilidad ya fue reconocida en algún grado: discapacidad funcional en Suecia (2000), enfermedad en el código CIE-10 en los países nórdicos (2000), población a proteger (agencias públicas de Canadá, EEUU, Rusia, …), sentencias judiciales entre 2011-2016 de reconocimiento de discapacidad o ayudas para personas EHS [Alemania, Australia, Francia (1, 2, 3, 4), Reino Unido, España (1, 2)]. En Quebec (Canadá, 2015) ya se permitió la retirada de "contadores inteligentes" instalados (inalámbricos) a quién lo requiera, …

- El **Parlamento Europeo** (2009) ya manifestó "su profunda preocupación por el hecho de que las compañías de seguros tiendan a excluir la cobertura de los riesgos vinculados a los CEM" (ver White Geisel 2007, AVIVA 2012, Zurich Insurance Group 2014,…). El punto 8.2.2 del dictamen sobre EHS de la **Sección TEN del CESE** de 2015 **solicita** "**modificar la normativa para impedir esta exclusión**". **¿La Comisión Europea asumirá los riesgos que no asumen las compañías de seguros?**

- Incumple la **Directiva 2003/4/CE del Parlamento Europeo y del Consejo, de 28 de enero de 2003, relativa al acceso del público a la información medioambienta**l: La evaluación de impacto del proyecto WiFi4EU no incluye el impacto ambiental adicional de estos CEM artificiales, en particular en las escuelas y los hospitales.

4.- Vulnera Convenciones Internacionales, suscritas por la Unión Europea: la Declaración Universal de derechos Humanos (1948), la Convención Internacional sobre los Derechos de las Personas con Discapacidad (2006), la propia Carta de los Derechos Fundamentales del 2000 (vinculante desde 2009), y la Convención de Aarhus de 1998 (vinculante desde 2005) sobre acceso a la información, participación pública en la toma de decisiones y acceso a la justicia en temas medio ambientales

- **El Dictamen sobre Hipersensibilidad Electromagnética aprobado en la Sección TEN del CESE** el 7 de enero de 2015, en sus puntos 1.4, 3.3 y 8.1, **pone en evidencia la vulneración de los Derechos fundamentales de las personas electrosensibles al supeditarlos al derecho de la libre comunicación, que no se intenta compatibilizar. Por otro lado, esta propuesta de Código Técnico, y el conjunto de medidas que la acompañan en la promoción de la conectividad inalámbrica a Internet, no contemplan la evaluación del impacto ambiental propio de los CEM, con especial relevancia en zonas sensibles como escuelas y hospitales. Tampoco contemplan los cauces participativos adecuados en su despliegue, garantizados en la Convención de Aarhus**.

5.- Este paquete de medidas que potencian el aumento exponencial de la exposición a radiofrecuencias, se marca objetivos más allá del 2025, sin llegar a contemplar algún plan para conmutar frecuencias antiguas y quizás obsoletas, como GSM o UMTS.

- El Código técnico dispone la concesión de periodos de licencias de un mínimo de 25 años, dejando la defensa de la salud y el medio ambiente a merced de los grupos de presión de las telecomunicaciones, lo que compromete la independencia de las instituciones europeas y su calidad democrática.

6.- Por lo anteriormente expuesto, el Mecanismo "Conectar Europa" y el conjunto de medidas adoptadas el 14 de septiembre por la Comisión para fomentar la conectividad a internet, deberian atender al principio de precaución de la TFEU a través de tecnologías y técnicas biocompatibles y sostenibles desde el punto de vista ambiental y de la salud humana, empezando por la implantación de una red europea de cable coaxial / fibra óptica, en la línea enunciada en resoluciones parlamentarias europeas y paneuropeas y órganos consultivos de la UE:

- La Resolución 1815 de la APCE aconseja **tomar todas las medidas razonables para reducir la exposición a los campos electromagnéticos** (8.1.1), **potenciar tecnologías que siendo también eficaces tengan efectos menos nocivos sobre el ambiente y la salud -o no los tengan**- (8.1.5) y, en la línea de centros educativos sin contaminación electromagnética, apuesta por **promover la conexión a internet por cable en las aulas** (8.3.2).

- El punto 3 de la **Resolución del Parlamento Europeo P6_TA(2009)0216**, incide en que además de reducir los límites de exposición CEM, "**sería razonable que la Comisión elaborase, en coordinación con los expertos de los Estados miembros y los sectores de la industria interesados (empresas eléctricas, operadores de telefonía y fabricantes de aparatos eléctricos, en especial, de teléfonos móviles), una guía de las opciones tecnológicas disponibles y eficaces para reducir la exposición de un lugar a los CEM**". En la misma línea, el punto 4.3 del **Dictamen del Comité Económico y Social Europeo** [COM(2011) 348 final — 2011/0152 (COD)], aconseja **reducir la exposición medioambiental a los CEM, "mediante la aplicación de las mejores tecnologías disponibles a unos costes económicamente aceptables**".

"Existen numerosos ejemplos en el pasado que por no utilizar el principio de precaución, condujeron a serios perjuicios, y a menudo irreversibles, sobre la salud y sobre el medio ambiente. Adoptar ahora medidas apropiadas y proporcionadas para evitar las amenazas verosímiles y potencialmente graves para la salud derivadas de los campos electromagnéticos se consideraria posíblemente como prudente y sabio desde perspectivas futuras. Debemos recordar que la precaución es uno de los principios de la política medioambiental de la Unión Europea". Declaración de la Profesora Jacqueline McGlade, Directora ejecutiva de la Agencia Europea de Medio Ambiente (AEMA) 2003-2013 (AEMA 2007).

Las organizaciones fundadoras de la «Coordinadora europea de organizaciones por una regulación de la exposición a los campos electromagnéticos (CEM) que realmente proteja la salud pública» * (euro.coord.for.emf.regulation@gmail.com).

A.m.i.c.a.	Associazione per le Malattie da Intossicazione Cronica e/o Ambientale AMICA (Association for Environmental and Chronic Toxic Injury) – Italy	
	http://www.infoamica.it/	amica@infoamica.it
ELETTRO SENSIBILI	Associazione Italiana Elettrosensibiliti (Italian "Electrosensibility" association) – Italy	
	http://www.elettrosensibili.it/	presidente@elettrosensibili.it
	Beperk de Straling (Limit Radiation) - Belgium	
	http://www.beperkdestraling.org/	Beperk.de.straling@gmail.com
	Coordination Nationale des Collectifs contre les antennes relais (National Coordination of Collectives against the masts) - France	
	http://coordinationnationalestopantennes.blogspot.com.es/	stopantennesmalefrics@hotmail.fr
diagnose:funk	Diagnose: Funk (Diagnose: wirelees) - Germany	
	https://www.diagnose-funk.org/	kontakt@diagnose-funk.de
	EQSDS. Electro y Químico sensibles por el Derecho a la Salud (EHS & MCS people for the right to health) – Spain	
	http://electrosensiblesderechosalud.org/	electrosensiblesderechosalud@gmail.com

Coordinadora europea de organizaciones por una regulación de la exposición a los campos electromagnéticos (CEM), que realmente proteja la salud pública

	Electrosensitivity in Ireland – Ireland	
	https://iervn.com/contact-us-2/	https://iervn.com/contact-us-2/
	EM-Radiation Research Trust – United Kingdom	
	http://www.radiationresearch.org/	eileen@radiationresearch.org
	Fundacja Instytut Badań Elektromagnetycznych im. Jamesa Clerka Maxwella (Foundation Research Institute of Electromagnetic Jamesa Clerka Maxwella) – Poland	
	http://www.ibe.org.pl/	ibe@ibe.org.pl
	Movimento para a Prevenção da Poluição Electromagnética (Movement for the Prevention of Electromagnetic Pollution) – Portugal	
	https://www.facebook.com/moppe2016/	paulojvvale@gmail.com
	PECCEM. Plataforma Estatal Contra la Contaminación Electromagnética (State Platform of Organizations Against Electromagnetic Pollution) – Spain	
	http://www.peccem.org/	coordinacion@peccem.org
	Association Nationale Robin des Toits (National Association Robin Roofs) - France	
	http://www.robindestoits.org/	contact@robindestoits.org
	SOS EHS-EASC (Electrohypersensitivity - Environmental Diseases of Central Sensitization) – Spain	
	http://s0s.snappages.com/	sos.ehs.easc@gmail.com
	Stichting Elektrohypersensitiviteit (Electrohypersensitivity Foundation) – Netherlands	
	https://www.stichtingehs.nl/	https://www.stichtingehs.nl/stuur-een-mail
	Stralskyddsstiftelsen (Swedish Radiation Protection Foundation) – Sweden	
	http://www.stralskyddsstiftelsen.se/	info@stralskyddsstiftelsen.se
	Verein Für Elektrosensible Und Mobilfunkgeschädigte E.V. – Germany	
	http://www.elektrosensibel-muenchen.de/	kontakt@elektrosensibel-muenchen.de

∗ La ***Coordinadora europea de organizaciones por una regulación de la exposición a los CEM que realmente proteja la salud pública***, impulsa el **Manifiesto Europeo de apoyo a una ICE por una regulación de la exposición a los campos electromagnéticos** (CEM). Entre los **firmantes de este manifiesto europeo** hay científicos, investigadores y expertos, así como colegios y asociaciones profesionales, y representantes de organizaciones de la sociedad civil [defensores de la salud, consumidores, vecinos, ambientalistas, ecologistas, sindicalistas, madres y padres, personas afectadas de síndromes de sensibilización central (electrohipersensibilidad, sensibilidad química múltiple, síndrome de fatiga crónica, fibromialgia, etc.) y de tumores cerebrales, personas comprometidas en la lucha contra la contaminación electromagnética, ...) procedentes de 26 países (Argentina, Australia, Austria, Bélgica, Brasil, Canadá, Dinamarca, Finlandia, Francia, Alemania, India, Irlanda, Italia, Macedonia, Países Bajos, Panamá, Polonia, Portugal, Reino Unido, Rusia, Sudáfrica, Eslovaquia, España, Suecia, Suiza y Estados Unidos).

ANNEX I

ENVIRONMENTAL EFFECTS OF EMF EXPOSURES

"Numerous recent scientific publications have shown that EMF affects living organisms at levels well below most international and national guidelines. Effects include increased cancer risk, cellular stress, increase in harmful free radicals, genetic damages, structural and functional changes of the reproductive system, learning and memory deficits, neurological disorders, and negative impacts on general well-being in humans. Damage goes well beyond the human race, as there is growing evidence of harmful effects to both plant and animal life." International Electromagnetic Field Scientist Appeal to United Nations and World Health Organization (May, 2015).

ADVERSE HEALTH CONDITIONS LINKED WITH EMR

An increasing number of studies indicate adverse health effects as a result of environmental exposure to electromagnetic pollution. There is substantial evidence indicating that even low intensity EMF exposures can cause ill health. Conditions linked with environmental EMF exposures include:

Cancer (Coureau et al. 2014, Moon et al. 2014, Hardell & Carlberg 2013); **Alzheimer's disease** (Davanipour & Sobel 2009, Huss et al. 2009); **Childhood & adult leukaemia** (Dolk et al. 1997, Hocking 1996); **Autism** (Herbert & Sage 2012, Kane 2004); **Immune system effects** (Boscolo et al. 2001, Novoselova et al. 1999); **Miscarriage (**Li et al. 2002); **Infertility** (Avenda o et al. 2010, Otitoloju et al. 2010, Aitken & De Iuliis 2007); DNA damage (De Iuliis et al. 2009, REFLEX 2004); **Oxidative stress** (Kumar et al. 2012, Agarwal et al. 2009, Ilhan et al. 2004).

We suggest the cost to the European economy of electromagnetic pollution runs into many billions of euros in terms of reduced health, wellbeing and productivity, and would be greatly exacerbated by the proposed wireless rollout.

CANCER: Radio frequency exposure at levels that can be experienced environmentally can cause DNA damage, which can be a precursor of cancer (De Luliis et al. 2009, Adlkofer 2004). Cancer rates for females living adjacent base stations 4.15 times greater than those at lower exposures ($p < 0.0001$) (Wolf & Wolf 2004).

After 5 years, the risk of malignant tumours in individuals exposed to raised radio frequency exposures from base stations was 3 times higher than those with lower exposures (Eger et al. 2004). In 2009 cancer cost the EU €126 billion (Luengo-Fernandez et al. 2013).

CHILDHOOD LEUKAEMIA: Association noted between increased incidences of this and mortality at exposures of 8 µW/cm2 (Hocking et al. 1996).

It is important to note that radio waves are already classified as 'Group 2B Possible Carcinogens' (WHO/IARC 2011) based on increased rates of the fatal brain tumour, glioma, linked with increased radiofrequency radiation exposure. Some experts are calling for an upgrade to Group 2A 'Probably carcinogenic to humans', or even to Group 1 'Carcinogenic to humans' (Hardell & Carlberg 2015, 2013). The partial report from the US National Toxicology Program (NTP 2016, 2016a) is already creating pressure for a classification upgrade. The full report, to be published next year, will further corroborate this concerning finding with evidence of DNA damage.

SLEEP QUALITY: The annual cost of chronic sleep deprivation in the UK alone has been estimated at £1.6 billion (Bupa 2010). Many studies indicate that individuals sleep better in environments with very low EMF levels compared to those with even slightly raised EMF levels. As examples: Improved

sleep has been noted in low-field environments with exposures of 0.05-0.22 V/m (0.0006-0.0128 µW/cm2) compared to 0.25-1.29 V/m (0.0165- 0.4400 µW/cm2) (Oberfeld et al. 2004) and for 0.7 V/m exposures compared to 1.17 V/m exposures (Eger & Jahn 2010).

Additionally, a dose-response relationship has been shown between sleep-related fatigue and injuries (Swaen et al. 2003); and almost 20% of all serious car crash injuries are associated with driver sleepiness (Connor et al. 2002).

DEPRESSION: Suicide is the leading cause of death in England and Wales for men between 20-49 years old, and one of the main causes of death among 5-19 year olds (ONS Digital 2015). Depression is a gigantic public health burden that exceeds other common sources of morbidity and mortality. [In England in 2000, the annual cost of depression was estimated to be £9 billion (Thomas & Morris 2003)]. Individuals with depression are at heightened risk of: Alzheimer's disease; Cancer; Diabetes (type 2); Epilepsy; Obesity; and Stroke (BC's Physicians 2009).

Oberfeld et al. (2004) noted depressive tendency with 900/1800 MHz exposures of 0.25- 1.29 V/m (0.0165-0.4400 µW/cm2) compared to 0.05-0.22 V/m (0.0006-0.0128 µW/cm2) ($p = 0.0016$). Others have made similar findings (Eger & Jahn 2010, Bortkiewicz et al. 2004, Santini et al. 2002). [Many wireless smart meters create RF EMF exposure levels above those associated with increased depressive tendency].

EFFECTS OF EMR ON BIOIVERSITY

Unfortunately, Nature too can be adversely affected by electromagnetic pollution. As examples:

Ants: Ants perform many vital services including: pollination, predation and seed removal and dispersion. Exposures of 0.0795 µW/cm2 significantly inhibited memories and association between food sites and visual and olfactory cues. The overall state in exposed colonies appeared similar to bee colony collapse disorder (CCD) (Cammaerts et al. 2012). [Effects of on pollinators, such as bees, have also been reported (Rahmani et al. 2011)].

Birds: "... *migratory birds are unable to use their magnetic compass in the presence of urban electromagnetic noise*," Engels et al. (2014). The RF levels assessed [0.001 µT, approximately equal to 0.3 V/m or 0.0236 µW/cm2] are similar to the levels found in the 2 kHz to 5 MHz frequency range in urban environments as a result of electromagnetic pollution.

Mice: Mice and rats can act as pollinators and form an important part in Nature's food chain (Pattemore & Wilcove 2012). Exposure to 80-900 MHz radiation at 1.053 µW/cm2 could cause irreversible infertility in mice after 3 generations, and levels of 0.168 µW/cm2 caused total infertility after 5 generations (Magras & Zenos 1997). As mentioned earlier, research has additionally shown that EMFs can reduce human fertility (Avenda o et al. 2012, Falzone et al. 2011, Santini et al. 2002).

Low EMF initiatives that promote the use of the most biologically friendly types of technology, and create more biologically friendly exposures than standard wireless systems, are urgently required to help protect the environment and create more viable and sustainable Internet provision.

HIGH CAPACITY NETWORKS - MILLIMETRE WAVE WI-FI

Millimetre waves and biological effects

It has been known for well over a hundred years that millimetre waves can be biologically active (Bose 1906). Though beneficial effects can result from short-term millimetre wave treatments (MMWT) (Table 1), side effects can also arise. The effects of long-term chronic exposures have yet to be assessed.

Table 1: Biological effects reported from mm wave exposures

Power Density [µW/cm2]	Frequency range	Exposure type	Effects noted	Author
0.000,000,000,1 to 0.0001	30-60 GHz	**5-15 minutes** exposure	**Stimulated growth of pine seed microflora**.	Ratushnyak et al. (2008)
0.000,000,01	54-76 GHz	**5 minutes per day** for 5 days on mice previously exposed to ionizing radiation	**Normalizing effect on growth of damaged cells**.	Bundyuk et al. (1994)
0.07	53.37-78.33 GHz	**1-hour exposure** every 2 days. 5 treatments given to **human breast cancer cells** in culture.	**Cell number approximately 60% less** in irradiated group of cells than in sham-exposed control.	Beneduci et al. (2005)
0.1	41.303 GHz	**10-minute irradiation**.	**Maximum effect on *E. coli* cells'** genome conformational state.	Alipov et al. (1993)
≥0.3	60 GHz	**1-minute exposure** [3 current cycles - 5 second exposures every 20 seconds].	**Changes in firing rate of neurons.**	Siegel & Pikov (2010)
1 – 3	54-78 GHz	4-6 treatment sessions, each of **10-20 minutes duration.**	**Complete relief of headaches** in 122 out of 177 patients with pre-stroke forms of cerebrovascular pathology[1]	Kuz"menko (1998)
10	42.2GHz	Mice received **30-minute whole body exposure** daily for 15 days.	**Tumor growth inhibited by 33.5% compared to controls**.	Kalantaryan et al. (2016)

Side effects from short-term MMWT exposure

Mild side effects have been reported as a result of short-term mm wave exposures.

Paresthesias

[1] 65% of patients receiving this treatment remained in remission for around 1 year, versus 20% in control group receiving standard medication

In a number of patients minor short-term paresthesias [a sensation of burning, numbness, prickling or tingling that most often occurs in the body's extremities] has been reported as a result of exposure, as have feelings of fatigue and sleepiness (Usichenko et al. 2006, Radzievsky et al. 1999).

It is suggested by the author that such side effects may be likely to arise in members of the general population as a result of chronic long-term environmental exposures.

Altered neuronal activity

Tests have indicated that neuronal activity in the brain can be affected by very low intensity short-term exposures to mm waves (Siegel & Pikov 2010).

Cancer

In research by Bellossi et al. (2000), DBA/2 mice were irradiated with 60 GHz waves for 30 minutes a day, for 5 consecutive days a week at 500 μW/cm2. While mice with lymphocytic leukemia cells showed increased survival (for 2 series out of 4), mice with Lewis tumor cells exhibited accelerated tumor growth. The exposure level was half that permitted by both ICNIRP (1998) and the FCC (1996) in basic restrictions for members of the general public.

Radio waves are already classified as 'Group 2B Possible Carcinogens' (WHO/IARC 2011), with some experts now calling for them to be upgraded to Group 2A 'Probably carcinogenic to humans', or even to Group 1 'Carcinogenic to humans' (Hardell & Carlberg 2015, 2013). The recent NTP (2016) findings could be particularly instrumental in causing such an upgrade.

EUROPE IS OBLIGED TO RESPECT BASIC HUMAN RIGHTS WHEN SEEKING TO PROMOTE INTERNET CONNECTIVITY

European Convention on Human Rights: Convention for the Protection of Human Rights and Fundamental Freedoms

It is estimated that between 3% to 5% of Europeans (around 22.3 million to 37.1 million individuals) may presently be affected by EHS. This number is growing (Jamieson 2014, Mallery-Blythe 2014a).

The proposed widespread proliferation of wireless Internet throughout Europe that the European Commission is proposing would cause profound harm to many individuals and the environment.

ARTICLE 1: Obligation to respect Human Rights

"*The High Contracting Parties shall secure to everyone within their jurisdiction the rights and freedoms defined in Section I of this Convention*."

It is should be additionally noted that in Article 1 of the Charter of Fundamental Rights of the European Union (The European Parliament, the Council and the Commission 2010) it is declared that "*Human dignity is inviolable. It must be respected and protected*."

Similar is stated in the Universal Declaration of Human Rights "*The Declaration is based on the "inherent dignity" of all people and affirms the equal rights of all men and women, in addition to their right to freedom. The Declaration gives human rights precedence over the power of the state. While states are permitted to regulate rights, they are prohibited from violating them*," UNAC (2012, 2012a).

SECTION I: RIGHTS AND FREEDOMS

ARTICLE 2: Right to life

1. "*Everyone's right to life shall be protected by law. No one shall be deprived of his life intentionally save in the execution of a sentence of a court following his conviction of a crime for which this penalty is provided by law*."

Expectant and New Mothers: It is recognised in The International Covenant on Economic, Social and Cultural Rights (OHCHR 1976) that "*Special protection should be accorded to mothers during a reasonable period before and after childbirth*."

Exposures of mothers to be and new mothers to EMFs "*has raised public health concerns because of the possible effects (cancer, neurological effects, developmental disability effects, etc.) from the long-term exposure to low-intensity, environmental level fields in daily life*," (Bellieni & Pinto 2012).

Protection of Embryos/Foetuses: All EU States agree that the human embryo/foetus belongs to the human race (Hoffman & Rowe 2010). The potential of that being obliges it to be protected in the name of human dignity, even when it is not legally ruled as a person with right to life (Mowbray 2012). It can still have interests capable of protection under law (Deazley & Smith 2013).

Protection for Children: The need for special protection being accorded to children is recognised in human rights legislation. As examples, it is mentioned in The UN Convention on the Rights of the Child (United Nations 1989) and the Declaration of the Rights of the Child (UN1990) that "*the child, by reason of his physical and mental immaturity, needs special safeguards and care, including appropriate legal protection, before as well as after birth.*" Refer also to Mallery-Blythe (2014) for a detailed discussion on risks to children of EMF exposure [https://www.youtube.com/watch?v=sNFdZVeXw7M]

As noted by Hoffman & Rowe (2010), when authorities are aware (or should be aware) of real risk to life they are under obligation to take appropriate mitigative action to protect those at risk.

The present proposals by the European Commission (2016) completely ignore warnings and best practice advice related to electromagnetic fields given by the Parliamentary Assembly of the Council of Europe (PACE) documenting 'The potential dangers of electromagnetic fields and their effect on the environment' (Parliamentary Assembly 2011), the European Parliament (2008) and the European Environmental Agency (EEA 2007).

ARTICLE 3: Prohibition of torture

"No one shall be subjected to torture or to inhuman or degrading treatment or punishment."

The term 'Degrading treatment' can be defined as "… *such as to arouse … feelings of fear, anguish and inferiority, capable of humiliating and debasing… and possibly breaking… physical or moral resistance*," (Conseil de l'Europe / Council of Europe 1978).

The above appears very similar to descriptions provided by some electromagnetically hypersensitive (EHS) individuals (EMFSN 2016), describing how their condition makes them feel when exposed to EMFs.

Article 3 embodies a fundamental human right. "… *the right to freedom from bodily harm is second only to the right to life, and is equally based on the right which all people have a level of basic respect and dignity as human beings,"* (Hoffman & Rowe 2010). The physical symptoms experienced by some of those with EHS, and some non-EHS individuals adversely affected by EMFs, are a form of torture.

ARTICLE 5: Right to liberty and security

1. *"Everyone has the right to liberty and security of person. … "*

Right to Liberty: The liberty of EHS to go where they wish is compromised by electromagnetic pollution. The rights of such individuals may be violated if emissions prevent them from being able to go where they wish (even within their own homes and gardens) unhindered by exposures to electromagnetic field regimes perceived as detrimental to their wellbeing.

"*EHS has been described by patients as a 'loner's disease'. Due to the prevalence of ubiquitous EMR in the contemporary urban environment, EHS causes patients to experience extreme social isolation. The serious symptoms confine them to their home. Venturing out to shopping malls, libraries, theatres, hospitals, and doctors' offices is often precarious because of the prevalence of wireless routers, cell phones, antennas, and other sources of EMR. Furthermore many … are often no longer able to spend time in the homes of family members due to EMR issues. As a result, huge stresses are placed on marriages and families …"* (Genuis & Lipp 2012).

Please note that many of the areas mentioned in the above quote are areas that the current European Commission (2016) proposal recklessly seeks to install wireless Internet into. It appears highly likely that individuals who consider that they are deprived of their liberty to go where they wish, when they wish, may eventually seek legal recourse.

Prohibiting individuals from enjoying proper liberty within society is dangerous, demeaning, degrading and a gross breach of human rights.

Right to Security: 'Security of person' can be legally defined as "*The legal and uninterrupted enjoyment by a man of his life, his body, his health and his reputation*."

Claims may be brought by some that their enjoyment of life, body, health and reputation may be seriously affected as a result of the increased electromagnetic radiation exposure they would receive.

Claims might additionally be brought that some individuals may have their reputations damaged as a result of how they are forced to behave as a result of exposures, or potential exposures. Claims could also be brought that they find that having to behave in this way is degrading and damaging to their security of person.

Security of health impacts both wellbeing and productivity. The health of a growing number of individuals is being adversely affected by electromagnetic pollution.

ARTICLE 8: Right to respect for private and family life

1. *"Everyone has the right to respect for his private and family life, his home and his correspondence."*

"*Respect for home and home life means more than just providing some form of dwelling or shelter: it extends to maintaining the situation to which a person has become accustomed, and the very permanence of which gives comfort*," Hoffman & Rowe (2010).

The quality of home life and enjoyment of inhabiting a dwelling may be "*spoilt by various forms of interference, such as noise, light, smells, fumes or other forms of pollution [including the present author suggests electromagnetic pollution], and anyone who has experienced this might well refer to it as an invasion of their privacy*," Hoffman & Rowe (2010).

In Guerra and others v. Italy (Conseil de l"Europe/Council of Europe 1998), it was ruled that environmental pollution can cause a violation of human rights. In that instance, the European Court found the state guilty of failing to take „positive steps" to provide vital information and that the quality of life of individuals, and that of their home and private lives had suffered as a result of their human rights being breached on this issue.

In the case of López Ostra v Spain (Conseil de l'Europe/Council of Europe 1994), the European Court declared: "*environmental pollution may affect individuals*‟ *well-being and prevent them from enjoying their homes in such a way as to affect their private and family life adversely, without … seriously endangering their health*."

The right for people to be able to enjoy their property in the manner to which they have become accustomed can become severely compromised by electromagnetic pollution. It is already indicated that EMF emissions can prevent some individuals using parts of their homes and gardens, and can even cause them to move home in order to avoid/reduce adverse health effects (EMFSN 2016, Gregory 2011, Havas 2011). There is a need for low EMF environments to be retained whenever possible.

ARTICLE 12: Right to marry

"Men and women of marriageable age have the right to marry and to found a family [emphasis by current author], according to the national laws governing the exercise of this right." [Refer back to section covering the effects of electromagnetic radiation on fertility].

As scientific research indicates environmental exposures to EMFs can reduce human fertility and increase risk of miscarriage (Bellieni & Pinto 2012), there is a risk that those promoting the proliferation of wireless devices may be found negligent if the resultant increase in electromagnetic pollution compromises the ability of individuals to found families.

ARTICLE 14: Prohibition of discrimination

"The enjoyment of the rights and freedoms set forth in this Convention shall be secured without discrimination on any ground …"

Individuals with EHS are discriminated against with regards to jobs, place of residence and public access to most areas of life. They are not just restricted from access to desirable things, such as leisure and entertainment, but also essentials such as groceries, health care and even petrol.

The present proposal by the European Commission (2016) to *"… offer free local wireless connectivity in the centres of local public life …*" appears inadvertently discriminatory. All the areas that it suggests should have Internet access should also provide low EMF zones / White Zones as standard.

Claims might be brought that those who ignore the special needs of individuals who are, or believe they are, vulnerable to EMF radiation may be guilty of discrimination and wilful blindness. Claims might also be brought that those who deliberately ignore and dismiss relevant scientific evidence of potential risks, whether through wilful blindness or recklessness, may be guilty of inciting others to unwittingly discriminate against such individuals (Jamieson 2014a).

The use of the Precautionary Principle, as advocated by Professor Jacqueline McGlade, when Executive Director of the European Environment Agency, helps address this serious issue (EEA 2007).

ARTICLE 17: Prohibition of abuse of rights

"Nothing in this Convention may be interpreted as implying for any State, group or person any right to engage in any activity or perform any act aimed at the destruction of any of the rights and freedoms set forth herein or at their limitation to a greater extent than is provided for in the Convention."

The rights and freedoms of EHS, and others adversely affected by EMFs, must be actively protected when seeking to enhance Internet connectivity within communities. Doing so will help protect, health, wellbeing and the economic prosperity of Europe.

Protocol

to the Convention for the Protection of Human Rights and Fundamental Freedoms

ARTICLE 1: Protection of property

"Every natural or legal person is entitled to the peaceful enjoyment of his possessions. No one shall be deprived of his possessions except in the public interest and subject to the conditions provided for by law and by the general principles of international law," HRA (1998).

Many EHS individuals are forced to move home as a result of adverse health effects from electromagnetic pollution experienced in their property. The term „property" can be legally defined as including real estate, land, growing plants and animals.

Evidence indicates that, in addition to potentially harming humans, EMFs at levels considerably below those permitted in ICNIRP guidelines, which can be created by wireless systems, appear capable of causing damage to plants and animals.

ARTICLE 2: Right to education

As the right to education of children who are EHS can be potentially compromised by electromagnetic pollution in schools, it is suggested that wired, instead of wireless, connections be used as a matter of best practice to enable connectivity.

Protocol No. 4

to the Convention for the Protection of Human Rights and Fundamental Freedoms securing certain rights and freedoms other than those already included in the Convention and in the First Protocol thereto

ARTICLE 2: Freedom of movement

1. ***"Everyone lawfully within the territory of a State shall, within that territory, have the right to liberty of movement and freedom to choose his residence."…***

This freedom is already being compromised for those who are EHS as a result of electromagnetic pollution.

The Commission's strategic aim to have "… *sites at which public services are provided, such as public administrations, libraries and hospitals to be equipped with Gigabit internet connections … [and connect] these and other centres of community life, including outdoor spaces accessible to the general public …*" would breach Article 2 if standard wireless technologies were used.

The provision of hard-wired alternatives helps address this challenge. LiFi may also provide a suitable solution if it is properly developed.

There is a need for low EMF / White Zones in such areas as discussed above to help protect such individuals and allow them freedom of movement and access to general services and amenities. The same holds true for the workplace.

Increased saturation of the environment with electromagnetic pollution would further restrict the freedom of movement of EHS individuals. Refer also to earlier comments related to "Article 14: Prohibition of discrimination".

Protocol No. 12

to the Convention for the Protection of Human Rights and Fundamental Freedoms

ARTICLE 1: General prohibition of discrimination

1. ***"The enjoyment of any right set forth by law shall be secured without discrimination on any ground … ."***
2. ***"No one shall be discriminated against by any public authority on any ground such as those mentioned in paragraph 1."***

Social inclusion is one of the major goals of sustainable development. It is also one of the main declared objectives of the European Union (Atkinson 2009).

The best way to ensure Human Rights are adhered to and that those with EHS are not discriminated against is to adopt more protective EMF guidelines, specify safer technologies for Internet connection, and encourage the creation of Low EMF / White Zones in rural and urban areas by encouraging, for example, the use of hard-wired cabling.

RISK AND QUESTIONABLE RETURNS FOR INVESTORS

The 'Proposal for a REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL amending Regulations (EU) No 1316/2013 and (EU) No 283/2014 as regards the promotion of Internet connectivity in local communities' document states that: "*… **many public authorities and private respondents supported the deployment of Wi-Fi networks in public premises, while seeking an appropriate regulatory environment for issues like access provider liability and exposure to electromagnetic fields (EMF)."*** (European Commission 2016).

The EC (2016) 'Full synopsis report of the public consultation on the evaluation and review of the regulatory framework for electronic communications' briefly touched on this issue as well noting that *"**… many public authorities and private respondents supported the deployment of commercial/municipal Wi-Fi networks in public premises, while seeking appropriate regulatory safeguards for a.o. liability or exposure to EMF."***

Many individuals do not wish blanket wireless coverage

Ofcom's Communications Market Report 2016 indicates that approximately a third of adult UK Internet users (around 15 million individuals) have undertaken a „digital detox" "*in a bid to strike a healthier balance between technology and life beyond the screen*." It also suggests approximately 1 in 10 adults (11%) may undertake such a 'digital detox' every week. Of all those taking such measures, 25% spent ≤1 day without the Internet; 20% avoided it for ≤1 week; and 5% went web-free for ≤1 a month. It is likely that similar figures will be found elsewhere in Europe.

The report mentions that 30% of respondents had undertaken a holiday „digital detox". 16% had deliberately gone on vacation to a place without Internet access; 13% deliberately went on holiday minus their mobile phone; and 9% who had chosen an area where there was neither mobile phone nor Internet access (Ofcom 2016).

Such findings add yet further weight to the already substantial benefits of creating low EMF zones / White Zones within buildings and external environments.

The creation of such spaces will also help address the needs of the growing percentage of the population who are becoming electromagnetically hypersensitive (Jamieson 2016a) and reduce the risks of potential claims from those exposed to electromagnetic pollution.

Many insurers are excluding risks associated with electromagnetic radiation

As examples:

"… insurers over the past 10 years increasingly have been excluding coverage under both general liability and umbrella policies. Others are neither excluding nor making affirmative statements about the risk" (White Geisel 2007).

"Risk is so fundamental … that there are some risks that we simply will not insure against. These include … electromagnetic fields and electromagnetic radiation ..." (AVIVA 2012).

"We will not pay anything under this policy, … in respect of … Electromagnetic fields any liability of whatsoever nature directly or indirectly caused by, in connection with or contributed to by or arising from electromagnetic fields (EMF) …" (Zurich Insurance Group 2014).

THE TELECOMMUNICATIONS INDUSTRY IS ALSO AWARE OF RISKS

As examples:

"The influence of electrosmog on the human body is a known problem. … The risk of damage to health through electrosmog has also become better understood as a result of more recent and improved studies. When for example, human blood cells are irradiated with electromagnetic fields, clear damage to hereditary material has been demonstrated and there have been indications of an increased cancer risk. …" Swisscom AG - major Swiss telecommunications provider (Swisscom AG 2003).

"Unfavorable litigation or governmental investigation results could require us to pay significant amounts or lead to onerous operating procedures," (AT&T 2014).

"… any perceived risk of adverse health effects of wireless communication devices could materially adversely affect the Company..." (BlackBerry Limited 2014).

LEGAL RULINGS RELATED TO EMF EXPOSURE

2011: The Labour Court in Madrid declared that hypersensitivity, caused in part by microwave exposure, can cause permanent disability. Its ruling set a precedent for future conditions related to EHS. [The verdict awarded the college professor, who has been permanently incapacitated, a permanent disability pension at 100% of his base salary rate (WEEP News 2011)].

2012: The Italian Supreme Court affirmed a casual link between a businessman‟s heavy mobile phone use & his brain tumour (Alleyne 2012, Microwave News 2012).

2013: The Australian government ordered to pay claims for damaging the health of an employee with EMF sensitivity (Administrative Appeals Tribunal of Australia 2013, GSMA 2013).

2013: An Israeli cell phone company compensates a customer who contracted cancer (Leibovich 2013, Raz & ZivIsraeli 2013).

2014: The Federal Administrative Court (Bundesverwaltungsgericht) finally recognized as an occupational disease, the EHS of a German soldier who was hired as a radar mechanic in the German army, because of their exposure to radio frequencies on the workplace (Bundesverwaltungsgericht Beschluss 2014)

2014: The French Departmental Home for Disabled Persons (MDPH) in Essonne has provided financial assistance to a person electro (a first in France) to arrange his home and personal protection (Mag de l'Esonne 2014)

2015: A judgment of the Toulouse inability Dispute Tribunal recognize disability due to "hyper sensitivity to electromagnetic waves Syndrome" (first time in France), emphasizing that "the description of the clinical signs is irrefutable" (Legalis.net 2015)

2016: The judgment Nº 588/2016 of the High Court of Madrid has recognized for the first time a situation of total permanent disability for the exercise of the profession of a telecommunications engineer as result of "electrosensitivity syndrome (EHS)". For the first time in Spain, this EHS condition is considered as the main cause of disability involved. (Lefebvre – El Derecho S.A. 2016)

CONCLUSION

It is proposed that great caution is warranted with regard to the proposed widespread rollout of wireless technologies within Europe to meet perceived Internet connectivity requirements and that more environmentally friendly, biologically tested, alternatives are required.

"There are many examples of the failure to use the precautionary principle ..., which have resulted in serious and often irreversible damage to health and environments. Appropriate, ... actions taken now to avoid plausible and potentially serious threats to health from EMF are likely to be seen as prudent and wise ...," Professor Jacqueline McGlade, Executive Director of the European Environment Agency (2003-2013) (EEA 2007).

It is already known that electromagnetic fields can be biologically active. Proper assessment of the potential health and environmental consequences of their widespread use is urgently required. An unchecked proliferation of wireless technologies could create catastrophic results, and is highly unwise particularly given that safer alternatives are already available to provide such services. A far more sophisticated approach than that presently proposed in the European Commission's current proposal is required to create real lasting benefit for Europe in the 'Bioelectromagnetic Age'.

Widespread proliferation of wireless technologies as proposed by the European Commission (2016) could lead to unprecedented public health and environmental disasters. A major rethink is necessary.

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[Some sections within this commentary are from previous work by the present authors].

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