

ULTRASOUND HARM

Overview: Ultrasound (in air)

1. **Ill Health Symptoms:** Ultrasound can cause ES/EHS ill health symptoms
2. **Unprotective Limits:** limits for Ultrasound do not protect sensitive people
3. **Sonic Weapon:** as a sonic weapon it aims to cause ill health symptoms
4. **Mobile Phone Apps:** these use Ultrasound signals, adding to RFR harm

- (a) Two forms of non-thermal radiation in air – (i) Ultrasound (sound waves above audible levels) and (ii) Radio Frequency Radiation (RFR) – can harm people neurologically.
- (b) Ion channels (calcium, potassium, sodium) are mechanosensitive and voltage-gated.
- (c) ES/EHS symptoms from Ultrasound and RFR can be separate or combined harm.
- (d) Current limits do not allow for these synergistic effects from Ultrasound and RFR.
- (e) Current limits do not protect babies, young and hypersensitive people.
- (f) Sonic weapons to cause harm are sold and used without restriction in the UK.
- (g) Mobile phone ultrasonic apps use sonic beacons for tracking and information.

The sonic weapon ‘Mosquito’ injures health, causing headaches, nausea and tinnitus. The UNCRC, Children’s Commissioners and Liberty want it banned as contravening the Human Rights Act. It can harm all, and discriminates against young people by presbycusis, age-related hearing loss at 18-20 kHz. Such weapons can legally be used in the UK against neighbours and others.



The Ultrasound, Audible and Infrasound limits of 1984, set by the International Radiation Protection Association (IRPA), relied mainly on adult male industrial workers, often assessing permanent hearing loss, but noting ‘many people’ suffered headaches or nausea from ultrasound movement detectors. There is a wider range of effects on babies, young children, autistic and sensitive/hypersensitive persons. Infrasound at high levels can kill.

Sonic Weapons and Limits: Ultrasound, Audible Sound, Infrasound								
Frequency	Ultra- / Audible / Infra-sound	Decibels (equivalent sound level) §	Day / Night	Indoors / Outdoors	Protection for:		Group	Date
					Babies, sensitive people	Healthy adult males †		
Hz / kHz	U / A / I	dB	D / N		Yes / No			
25 - 100 kHz	U	100			No	Yes	IRPA	1984
20 kHz	U	70			No	Yes	IRPA	1984
20 Hz to 20 kHz	A	50	Day	outdoors	No	Yes	WHO	2000
20 Hz to 20 kHz	A	30	Night	indoors	No	Yes	WHO	2000
17-25 kHz	U	135	Sonic Weapon Range: 100 feet				Argo-A AA76101	
10-17 kHz	A	135	Sonic Weapon Range: 100 feet					
16-18.6 kHz	U/A	108 max 76 at 3m	*Sonic Weapon Range: 200 feet (61m); *Weapon Range + baffles: 140 feet (43m)				Mosquito *Pulsed	2005
20 Hz	I	39	Night		No	Yes	IRPA	1984
16 Hz	I	36	Night		No	Yes	IRPA	1984
8 Hz	I	31	Night		No	Yes	IRPA	1984

§ Every 3 decibels signifies double or half the energy.

† Mainly preventing permanent hearing loss.

Councils must investigate noise complaints when there is likely to be a statutory nuisance under the Environmental Protection Act 1990. If there is, they must serve an abatement notice. A statutory nuisance must either unreasonably and substantially interfere with the use or enjoyment of a home or other premises, or injure or be likely to injure health.

Article 3 of the European Court of Human Rights, incorporated into the Human Rights Act 1998 protects an individual from inhuman or degrading treatment. The minimum level of severity of such ill-treatment depends on the circumstances, including whether people affected can move elsewhere. People cannot move elsewhere if the Ultrasound comes from a neighbouring property or the person is a baby or otherwise incapacitated.

These devices also come under Article 8, protecting the respect for private life and physical integrity, and Article 3 of the ECHR on physical symptoms and the inability to escape the radiation. The German Federal Institute for Occupational Safety and Health concluded that young children and babies are particularly affected by Ultrasound which can cause adverse injuries such as hearing loss, nausea, dizziness, pain and loss of a sense of balance, all long established effects of EMFs and RFR. Evidence may suggest they particularly impact people with autism and hearing impairments.

The United Nations report on the Rights of the Child concluded that the UK should 'Prohibit the use in public spaces of acoustic devices used to disperse gatherings of young people (so-called 'mosquito' devices)', §37(a), p.7, under Civil Rights and freedoms (arts. 7,8 and 13-17). UNCRC articles 2, 16, 23, 31 and 37 are relevant.

Dr Timothy Leighton, Professor of Acoustics, University of Southampton, said:

"If you're in the zone [of an ultrasonic sound] and you're one of the sensitive people, you'll get headaches, nausea, tinnitus [ringing in the ears] and [various other symptoms]."

Too much Ultrasound used in sonography through body tissue at 1-10 MHz for fetal scans during pregnancy can cause left-handedness in the child and other neurological harm. This has been shown since 1993.

- Leighton TG: "Are some people suffering as a result of increasing mass exposure of the public to ultrasound in air?" Proc Math Phys Eng Sci., 2016, [PMID: 26997897](#). [PMC4786042](#).
- Leighton TG: "Comment", 2017, [PMID: 28413349](#). [PMC5378247](#).
- Children and Young People's Commissioner, Scotland: "[Position statement: Mosquito devices](#)" 2017.
- Children and Young People's Commissioner, Scotland: "[Response to the Public Petitions Committee Petition PE01713: Ban the use of Mosquito devices in Scotland](#)" 2019.
- European Parliamentary Assembly: Recommendation 1930 (2010): "[Prohibiting the marketing and use of the "Mosquito" youth dispersal device](#)", 2010.
- Ralf Letzter: "[Ultrasonic Waves Are Everywhere. Can You Hear Them?](#)" Live Science, 10th May 2018.
- Salvesen KA et al.: "Routine ultrasonography in utero and subsequent handedness and neurological development" BMJ. 1993, [PMID: 7688253](#). [PMC1678377](#).
- United Nations: Convention on the Rights of the Child: "[Concluding observations on the fifth periodic report on the United Kingdom of Great Britain and Northern Ireland](#)". 2016
- For Infrasound see: *Wind Turbines and Ill Health: Dirty Electricity, Stray Ground Currents, and Infrasound*. ES-UK Resources Sheet 11.7.1 ([Link](#))

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