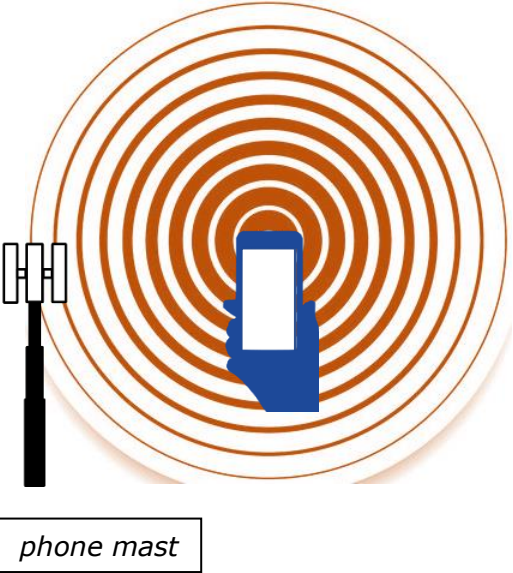
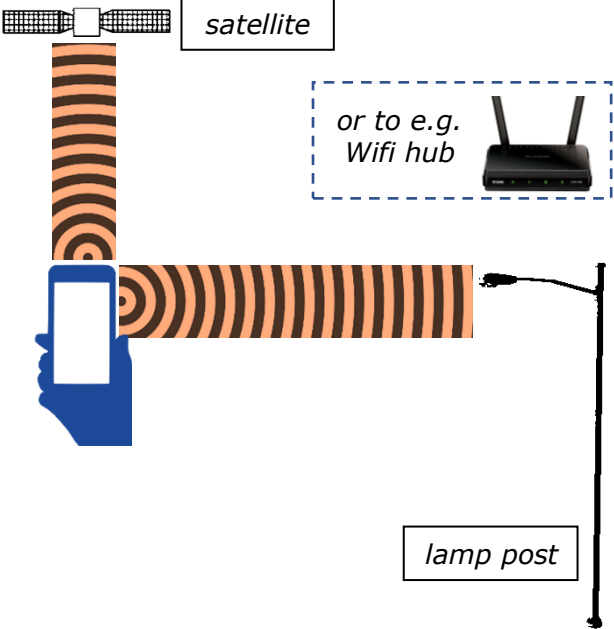
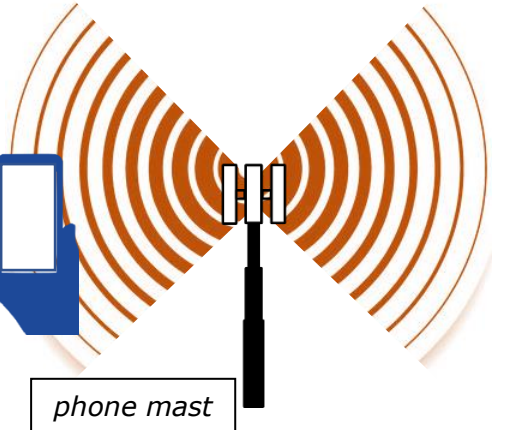
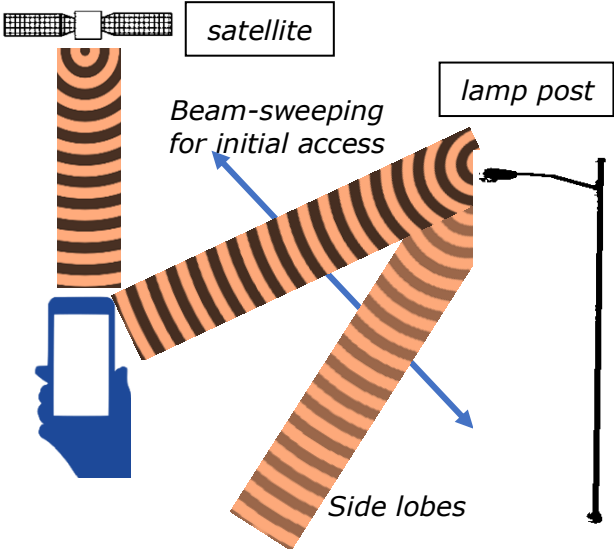


5G: Phased Array Beam Radiation

- 5G has phased array antennas in phones, masts on lamp posts, 'Internet of Things' devices, Wifi hubs, laptops, cars, satellites, concentrating the radiation into a narrow beam allowing Multiple Input Multiple Output (MIMO).
- *Handset antenna near the hand and body breaks ICNIRP short-term heating (6 or 30 min. av.) and IGNIR long-term biological guidelines, unless shielded.*
- *Anyone standing, sitting or sleeping in, or passing through, the 5G radiation beams, side lobes and beam-sweeps is affected by very high levels of radiation.*
- *5G high-power beams also injure animals, birds, insects and plants.*

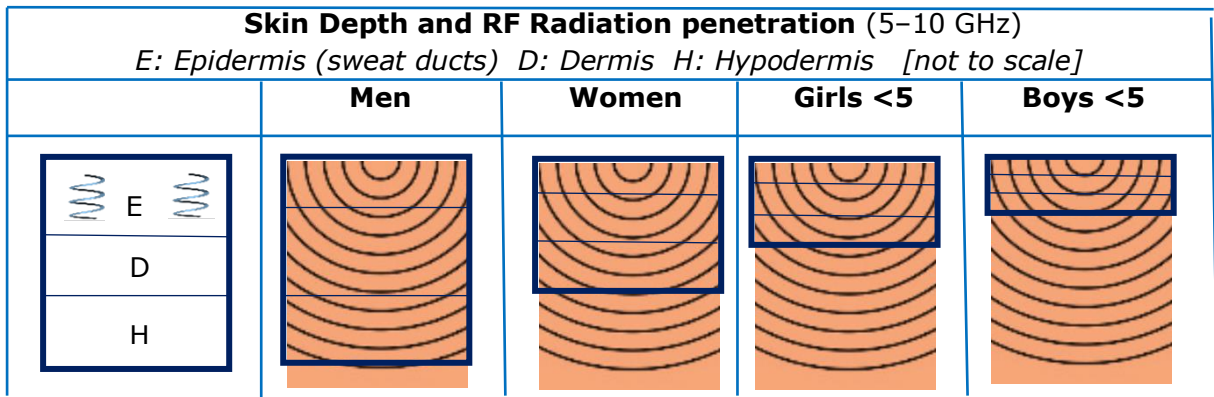
<p>Old 3G phone Radiation emits all around the phone.</p>	<p>New 4G/5G phone with Phased Array Radiation is concentrated into a narrow beam to and from the base antenna.</p>
<p>Upload: all round radiation</p> 	<p>Upload: phased array beam radiation</p> 
<p>Download: all round radiation</p> 	<p>Download: phased array beam radiation</p> 

5G: Established Injuries from Radio Frequency & ELF Radiation:

- Cancers, direct mechanisms: *DNA strand breaks, oxidative stress*, and indirect: *reduced repair mechanisms*. Doubling of fatal brain tumour GMB, last 10 years.
- Cardiovascular effects: *blood-brain barrier leakage, heart arrhythmias and palpitations, reduced cerebral blood perfusion, Rouleaux blood effects*.
- Fertility damage: *reduced male fertility, impaired hereditary female fertility*.
- Neurological: *anxiety, cognitive confusion, depression, disturbed sleep, electromagnetic (hyper-)sensitivity, headaches, memory loss, pains, tinnitus*.

5G: Skin Injuries and Millimetre Radiation (under development)

- Radio Frequency and millimetre radiation (30-300 GHz, 10-1 mm wavelength) causes many known thermal and non-thermal injuries, short- and long-term.
- The sweat ducts (epidermis) absorb 70-110 GHz radiation. They act as an antenna and their circular nature polarises the radiation, causing a high heat absorption compared with the surrounding skin, especially for 30 minutes after exercise. The wireless industry has largely ignored this since being told in 2015.
- Non-linear resonance from THz radiation can unzip DNA.
- Extremely low frequency pulses and Brillouin effects travel far below the skin.



Skin: 3 layers: (1) epidermis, (2) dermis and (3) hypodermis or subcutaneous (fat, collagen etc).

Thinnest areas: knee (2.5 mm), chin (3.0), chest (3.5); **thickest:** waist (6.0)

Adult females typically have thinner skin (5 mm) than males (8 mm).

Children <5 years have thinner skin than adults, with boys having thinner skin than girls.

	Dry skin (proteins)	Fat (lipids)	Muscle (proteins)
20 GHz	1.4 mm	3.9 mm	1.3 mm
9.5 GHz		10 mm	
5.2 GHz	10 mm		
4.7 GHz			10 mm
1 MHz	2.5 m	1.3 m	0.8 m

ICRP: "Report of the Task Group on Reference Man" No. 23. (1975).[Article](#).
Melia GCR: "EM Absorption by the Human Body from 1 to 15 GHz" York 2013, [Article](#).

Appeals: testing 5G without consent contravenes the Nuremberg Code

- [5G appeal](#): Scientists and doctors call for a moratorium on the roll-out of 5G.
- [EMF Call](#): Scientists call for protective limits for EMF exposure (100 kHz-300 GHz)
- [International Appeal to Stop 5G on Earth and in Space](#)
- [International EMF Scientist Appeal](#)

Long-term biological guidelines: [Bioinitiative](#) 2012, [EUROPAEM](#) 2016, [IGNIR](#) 2018.

- *The outdated WHO's ICNIRP 1998 short-term guidelines, based on Schwan's mistake of 1953, allow long-term injuries like cancers and ES/EHS. They were voted obsolete by the EU Parliament in 2009.*
- *Brussels environment minister Céline Fremault rejecting 5G (2019):*
"The people are not guinea pigs whose health I can sell at a profit."
- Alexandrov BS et al.: "[DNA Breathing Dynamics in the Presence of a Terahertz Field](#)" (Phys.Lett A, 2010)
- P. Ben-Ishai: "[Potential Risks to from Future Sub-MM Comm. Systems](#)" EHT, Feb. 15 2017. 32 min.
- Arthur Firstenberg: "[5G From Blankets to Bullets](#)" (Cellular Phone Task Force, January 17 2019)
- Don Maisch: "[Can 5G phased array antennas generate Brillouin precursors?](#)" (BRHP, May 24 2019)
- Professor M Pall: "[5G: Great risk for EU, U.S. and International Health](#)"(May 2018, 90 pages)
- Professor M Pall: "[Dr. Martin Pall To The NIH: "The 5G Rollout Is Absolutely Insane"](#)" (Aug. 2018, 9 min.)
- Professor M Pall: "["Totally insane": Telecomm Industry ignores 5G dangers](#)" (RT Am., Mar. 6 2019, 6 min)
- [Studies on ES and EHS](#) (2018) M. Bevington, July 2019