

Title: Cancer and Broadcasting Radiation. Facts from radio engineering and cancer epidemiology

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Abstract

In our main melanoma research project, presented in 2008 [1], we searched for possible explanations to the steadily increasing incidence of melanoma in Western countries since the mid-20th century. Both epidemiologic evidence and statistical model experiments suggest that body-resonant radiation from broadcasting transmitters might have an adverse effect on the skin cell repair efficiency of the body.

As a follow-up of these findings we consulted radio- and antenna expertise to highlight technical facts related to broadcasting radiation that might be of importance to the body and to the efficiency of its immune system. This investigation from a radio engineering point resulted in 12 specific observations that were then compared with epidemiological facts.

The 12 points to be compared with epidemiological facts are:

1. Broadcasting radiation is often horizontally polarized, affecting the body in a horizontal position.
2. The body has maximum absorption around 100 MHz when the body is placed in the E-field direction.
3. At 100 MHz the currents are not restricted only to the skin; they permeate several cm into the body.
4. Bed material is of importance; a metal spring mattress may reflect and via resonance enhance the field.
5. Wave reflections may create standing waves having maximum field $\frac{1}{4}$? above a metal structure.
6. A non-metallic mattress is not likely to cause standing wave patterns from broadcasting radiation.
7. Resonance phenomena at 100 MHz are less likely to affect children due to their shorter body length.
8. Resonance may first affect the gender (boys or girls) that first reaches adult lengths.
9. Resonance effects always cause highest currents in the middle of the structure (middle of the body).
10. With several transmitters around, the risk for high peak field strengths and body resonance is increased.
11. Changing bed structure from metal-free to metal spring should increase the risk of resonance effects.
12. Since 1975 all young people have been exposed for their whole life and should have a stable incidence.

It turned out that all these points are coherent with current epidemiological data.

References

1. Hallberg Ö. The Melanoma Epidemic. BIT Life Sciences' 1st Annual World Cancer Congress 2008, Shanghai, China.
[Proc p 141.](#)

Biography

Örjan Hallberg, born 1942, received a Master of Science degree in Electrical Engineering from the Technical University of Chalmers in 1966. After heading a component engineering group within the Swedish Administration of Telecommunication he worked from 1971 to 1981 as manager of the component reliability unit within ELLEMTEL Development AB. In 1981 he was appointed quality manager within an Ericsson company. From 1987 to 2003 Hallberg worked within Ericsson as Qualification and Vendor assessment Manager, Product Improvement Manager and finally since 1998 as Environmental Manager for two business areas within Ericsson. From 2003 onwards Hallberg has been managing his own research company, Hallberg Independent Research.

Hallberg has co-authored one book about long term reliability of technical systems, authored 17 publications in reliability journals and conferences and, so far, authored 29 publications in medical journals and conferences. In 1996 Hallberg was appointed Expert Reliability Engineering within the Ericsson Corporation.

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