

03/9101 Biological hazards derived from the utilisation of high power density microwave beams

Type of activity: Fast Study (2 months, 15 KEUR)

Current solar power satellite concepts imply the wireless transmission of power via microwave beams from orbit to ground stations. While initial concepts were based on 2.45 GHz transmission frequency, recent studies tend to use the 5.8 GHz range or even higher.

Since its first conceptual appearance, solar power satellites always were accompanied by a wide range of concerns on the biological impacts of microwave radiation. The legal provisions for maximum power level in the frequency range involved are normally regulated in the wider context of limiting the exposure to all kind of non-ionizing radiation, including mobile phone applications.

In this frame, many different and sometimes contradictory scientific investigations of these effects were and are carried out worldwide. This small study shall provide a coherent overview over the state of the art of these investigations, and especially compare the proposed exposure/dose levels within the rectenna areas (airspace and ground), at the rectenna limits as well as at some safety distances to levels experienced currently by the general public (mobile telephones, microwave ovens etc.)

References

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