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Measurements of static magnetic fields in homes in the UK and their implication for epidemiological studies of exposure to alternating magnetic fields

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Abstract. The variation of static magnetic fields within and between 55 homes in an area of south east England was measured. In general, fields varied by up to $\pm 10 \mu\text{T}$ from the unperturbed geomagnetic field. They varied more in the corners of rooms (standard deviation $2.6 \mu\text{T}$) than in the centres ($1.2 \mu\text{T}$). The field in the bedroom was uncorrelated with the field in the living room of the same home. For this sample of homes, the spread of field within a typical home was greater than the spread between homes. Therefore it is not meaningful to categorise homes by a single value of static field. This finding casts doubt on the suggestion that confusing epidemiological results concerning childhood cancer and power-frequency magnetic fields could be explained by a resonance mechanism involving static fields.