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## **EXPOSURE TO MICROWAVES GENERATED BY RADAR EQUIPMENT: CASE-STUDY AND PROTECTION ISSUES**

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### **Abstract**

Health protection against microwave exposure is regulated by exposure standards that set limits on exposure levels and by technical standards that provide guidance for field level measurement and human exposure assessment. Present international standards focus only on thermal and auditory effects of microwaves and, consequently, they show some lack of provisions for some practical exposure situations. On the other hand, studies on human exposure to pulsed microwaves require a complex exposure assessment, especially in the case of microwaves emitted by radar equipments. This work investigated the relevance of some parameters of pulsed microwaves that might be useful to correlate with specific health findings in microwave exposure studies. Proposed parameters were used for exposure evaluation of radar mechanics and engineers from a Romanian aircraft factory. Assessment of long-term, low-level exposure to radar fields was based on power density measurements. Besides computation of specific absorption rate, assessment of pulsed microwave exposure also included computation of some additional dosimetric and radiometric quantities. The majority values of mean power density and of specific absorption rate were below exposure limits confirming the lack of thermal effect. On the other hand, other quantities like peak power density frequently exceeded the reference level and were correlated with nervous system effects. Consequently, proposed additional quantities might be useful for emphasising dose-effect relationship when non-thermal effects of pulsed microwaves occur.

*Key words:* microwaves, occupational exposure, pulsed fields

*Received: December, 2010; Revised final: March, 2011; Accepted: April, 2011*

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