

# **Abstract 1<sup>st</sup> European Symposium on Non-Lethal Weapons**

## **Susceptibility of COTS PC to microwave illumination: experiment and modelling**

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The use of high power electromagnetic waves to intentionally disrupt and/or damage communications and information processing equipment is an area of concern which is receiving considerable attention in the electromagnetic compatibility community. The possibility of intentionally disrupting a communications or computing facility using a microwave burst of energy emitted by a directional antenna, coupled with the fact that there is little chance of detection, makes electromagnetic terrorism a real possibility. It is important to know the susceptibility of typical commercial computing equipment such as the personal computer in order to evaluate this threat.

We present results of susceptibility experiments on a PIII 600 MHz tower system and PIII 600 MHz laptop systems. The impinging EM-fields are pulsed with various repetition rates and carrier frequencies and a fixed UWB source.

The finite difference time domain (FDTD) method is used to analyze the penetration and coupling of electromagnetic energy into the PIII 600 MHz computer cabinet. Various configurations are investigated: case-cover off, case-cover on and installed quick fixes. The purpose of these investigations is to better understand the coupling mechanisms associated with the High Power Microwave (HPM) threat. That is: are there special frequencies which couple best; and are there any geometrical features of the problem which enhance or diminish the coupling of energy to the circuit board. Results of FDTD simulations performed on representative configurations are given.