

Radio Frequency (RF) Modeling of Layered Composite Dielectric Building Material

Principal Investigator: Dr. Ahmad Hoorfar

Objectives:

The objective of this Phase I project is to develop a system that will permit reliable RF detection of humans visually obscured behind non-homogeneous walls. Phase I of this SBIR project aims at accurate EM modeling of walls over the upper band of the UHF frequency range. The EM modeling results will then be used to devise algorithms to mitigate the wall dispersive effects that tend to obscure the EM signature of persons standing, sitting or kneeling behind the walls. In addition to these specific objectives, the Phase I research seeks to determine if the proposed solution can provide satisfactory performance at varying standoff distances, starting at 0m and increasing 5m increments up to 20m. We will also try to determine if the antenna array required to achieve reliable imaging can be reasonably mounted in a HUMVY.