

Signature Exploitation Techniques for Detection of Weapons behind Walls

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Project Summary

The objective of this project is to detect the presence of a weapon behind walls. This is achieved by signature exploitation techniques implemented using both temporal and polarization dimensions under linear and distributed apertures, where signals can be transmitted and received from and to different antenna positions. The project examines the merits for using matched illumination and polarization signature exploitation for enhanced target detection and identification. Comparison of performance using optimum temporal-polarization waveform with that obtain using target-independent waveforms is conducted using both EM modelling and experimentations. Both modelling and data measurements will provide target information for different aspect angles and orientations using spatially distributed antennas. Signal analysis and processing will determine the “best” illumination from a single as well as multi-sensor platforms for the “specific” target under considerations.