

SBIR 06.2 PHASE I - AWARD DETAILS	
ORGANIZATION	CERDEC
TOPIC NUMBER	A06-105
CONTRACT NUMBER	
YEAR OF AWARD	
AWARD START DATE	
AWARD COMPLETION DATE	
PROPOSAL NUMBER	A062-105-3434
TITLE	Propagation Modeling of Near Ground Radio Signals
PROJECT MANAGER	Kazem F. Sabet (734) 996-3624 ksabet@emagtech.com
COMPANY	EMAG Technologies, Inc. 775 Technology Dr. Suite 300 Ann Arbor MI 48108 Minority Owned: No Veteran Owned: No Number of Employees: 20
KEYWORDS	Radio Propagation, Electromagnetic Waves, Ground Effects, Radiation Pattern, Ray Tracing, FDTD
ABSTRACT	This Phase I SBIR project will develop models for the wave propagation in a geological stratigraphy including vegetation, snow and ice. The overall goal is to develop macromodels for near ground signal propagation which will be plugged into EMTerrano, EMAG's 3D ray tracing simulation software. In particular, the propagation models developed at the University of Michigan will be examined thoroughly for incorporation into our comprehensive simulation environment. The proposed framework will allow for hybrid full-wave and ray tracing simulation of near ground communication links. This will include the calculation of the radiation pattern of near ground transmitters taking into account the geological stratigraphy.
BENEFITS	The proposed software tool will help communication system designers better design and evaluate near ground communication links and networks of unattended sensors.