



U.S. ARMY
RDECOM

GPS Measurements and Capabilities



S&T Campaign: Assessment & Analysis

Assessing Mission Capability of Systems

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Research Objectives

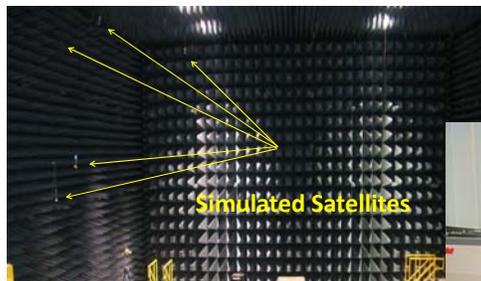
- Development of anti-jamming GPS antennas
- Analysis of Global Navigation Satellite System (GNSS) receivers (munitions, UAV, vehicle) in operational environments
- Counter-Countermeasure post-processing techniques
- Correlation and Visualization
- Software Defined Radio



Assessing performance of multiple GPS receivers

Completed Work

- Assessment of commercial and military GPS receiver performance in the presence of adjacent transmitters
- Assessment of M-code receivers in the presence of GPS jamming



Advanced GPS Navigation Simulator

ARL Facilities and Capabilities Available to Support Collaborative Research

- Two Anechoic chambers (110 ft X 70 ft X 40 ft and 40 ft X 20 ft X 20 ft)
- Global Navigation Satellite System (GNSS) Live sky reradiation
- 12 Channel GPS simulator (L1, L2 and L5)
Legacy, Civil and Military Navigation data messages
Simulation of antenna patterns, Lever arms and various operational scenarios (6DOF)
- Expanding simulator to GNSS (Sept 2016)
10 independent RF outputs for Galileo
10 independent RF outputs for GLONASS
6 independent outputs for Pseudolites
- Electromagnetic environment (EME) Generation



Electromagnetic Vulnerability Assessment Facility (EMVAF)

Complementary Expertise/ Facilities/ Capabilities

- GPS environment simulations
- Automation of data collection and data reduction
- Communication jammers