Project Status Report
Period: 4/1/2010-6/30/2010

I. Major accomplishments

The project will study and report on the capabilities recommended for a programmable radio substrate in GENI to best support wireless networking innovations. It is expected that a key capability should be to provide programmability and measurement at all layers. This project will also recommend the capabilities that should be included in the cognitive radio systems that are being developed in the "Cognitive Radios for GENI Spiral II" project.

During this period, key achievements include:

a) ORBIT site visit (5/7/10) for detailed discussion with "Cognitive Radios for GENI Spiral II" project PI Ivan Seskar on GENI cognitive radio programming details and up-to-date development plans.
b) Completed remote programming environment setup and compiling/loading/running ORBIT provided example PHY FPGA code.
c) Continued development of whitepaper.

A. Milestones achieved

No milestones are due at this time. Future milestones include:

a) White paper on recommended capabilities for a programmable radio substrate in GENI, and review of white paper with staff of "Cognitive Radios for GENI Spiral II" project. (Due 7/20/10, GEC8)

B. Deliverables made

No deliverables made in this period.

II. Description of work performed during last quarter

A. Activities and findings

a) ORBIT site visit

   The meeting was held on 5/7/10 at WINLAB, Rutgers University. With Ivan Seskar, PI for the "Cognitive Radios for GENI Spiral II" project, the meeting covered:
   1) Reviewed programming environment and procedure for GENI Cognitive Radio.
   2) Discussed programming, debugging, and execution support requirements for any-layer experimentation.
   3) Discussed approaches and challenges for potential integration of existing advanced PHY implementation in various academic archives.

b) Continued development of whitepaper

   Efforts have been made in this quarter to synthesize the requirements, tools/interfaces, and open challenges for different layer-focused wireless networking/communication testbeds:
   1) Channel emulation testbeds
   2) Physical layer testbeds
   3) COTS radio based higher layer testbeds
   4) Full stack programmable testbeds

   The synthesis will serve a useful guide for assessing suitability and adequacy of the architecture, features, and programming support for the GENI Cognitive Radio testbed.

This task is still in progress by the end of this reporting period.

B. Project participants

PI Kuang-Ching Wang is the only participant in this project.

C. Publications (individual and organizational)

Not available at this time.

D. Outreach activities

None in this reporting period.

E. Collaborations

This project is performed in collaboration with the “Cognitive Radios for GENI Spiral II” project staff, specifically Ivan Seskar (Rutgers WINLAB) and Dirk Grunwald (University of Colorado).

F. Other Contributions

None in this reporting period.