



Research & Development in:

Dynamic Spectrum Access Systems
Secure Wireless RF Communications
Agile Software Defined Radios
Cognitive Networking
Waveform Development Environments
Intelligent Machine Learning
C2 & Autonomy
Cosite Electromagnetic Studies
Multisensor Data Fusion

**DEPARTMENT OF COMMERCE
National Telecommunications and Information
Administration**

The National Strategy to Secure 5G Implementation Plan

Notice; request for public comments
[Docket No. 200521-0144] RIN 0660-XC047

ANDRO Computational Solutions, with over three decades of experience researching and developing spectrum technologies for the Department of Defense (DoD), is pleased to submit comments to the National Telecommunications and Information Administration (NTIA) in response to the Secure 5G and Beyond Act of 2020. The following are responses to questions in core areas of ANDRO expertise.

Line of Effort One: Facilitate Domestic 5G Rollout.

(4) What areas of research and development should the U.S. Government prioritize to achieve and maintain U.S. leadership in 5G? How can the U.S. Government create an environment that encourages private sector investment in 5G technologies and beyond? If possible, identify specific goals that the U.S. Government should pursue as part of its research, development, and testing strategy.

ANDRO contends that spectrum access governance, towards utilization and efficiency, is the key to facilitating a domestic rollout of 5G. Spectrum resources are under persistent scrutiny and pressure to support growing demands. The current static spectrum allocation paradigm limits the flexibility, and therefore, efficiency, of spectrum utilization. U.S. Government investment in research and development of heterogeneous network dynamic spectrum sharing can enhance the utilization of spectrum by both federal agencies (most notably the Department of Defense) and non-federal users. Current evolution of spectrum allocation is moving from a fixed allocation to flexible but static allocations through Spectrum Access Systems. The U.S. Government should pursue a goal of near-real-time spectrum “on demand” across heterogeneous networks. A key element of achieving this goal is development of executable policies that govern radio behavior and facilitate spectrum access and should be a focal point for U.S. Government investment.

Line of Effort Two: Assess Risks to and Identify Core Security Principles of 5G Infrastructure.

(4) Are there stakeholder-driven approaches that the U.S. Government should consider to promote adoption of policies, requirements, guidelines, and procurement strategies necessary to establish secure, effective, and reliable 5G infrastructure?

The DoD is a major stakeholder in adoption of 5G. ANDRO contends that the spectrum management of 5G infrastructure is undervalued and underserved. Many DoD ranges cannot provide spectrum management capabilities beyond static guard bands for 5G systems. This modality of operation prevents secure spectrum utilization for 5G infrastructure, resulting in potential adversarial vulnerabilities. 5G systems must get included in databases such as Spectrum XXXI and the DD 1494 process. This inclusion of 5G systems into DoD spectrum management lifecycle provides a way for 5G systems to operate with DoD current spectrum planning, operational, and management tools, limiting vulnerabilities and encouraging stakeholder participation.

Line of Effort Four: Promote Responsible Global Development and Deployment of 5G.

The U.S. Government can influence the commercial industry through 5G technical requirements. Participation in standards groups such as the 3rd Generation Partnership Project (3GPP), Internet Engineering Task Force (IETF), and O-RAN Alliance are highly valuable access points. As noted above, as DoD is a key stakeholder, DoD Stakeholder contributions to these committees’

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technical requirements to procure a secure, effective, and reliable 5G infrastructure. In addition to the aforementioned 5G standards bodies, the U.S. Government should look to develop hierarchical policy regulations via groups such as the IEEE International Symposium on Dynamic Spectrum Access Network (DySPAN). The IEEE 1900.5 working group is a prime example of where the U.S. Government can influence development and deployment activities in spectrum utilization and security of 5G.

A handwritten signature in black ink that reads "Timothy O. Woods". The signature is written in a cursive style with a large, sweeping "T" and "W".

Mr. Timothy Woods
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