DOD ELECTROMAGNETIC ENVIRONMENTAL EFFECTS AND SPECTRUM MANAGEMENT TESTING POLICY

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Emphasis in the US Department of Defense (DoD) on Net Centric Warfare (NCW) involves greater reliance on the use of the Electromagnetic Spectrum (EM) spectrum at a time when market forces are steering national policy makers to reallocate exclusive government/military portions of the EM spectrum to private use. Increased use of shrinking available spectrum presents Spectrum Management (SM) challenges and potential Electromagnetic Environmental Effects (E3) problems. Joint military operations could potentially have thousands of Communications-Electronics (C-E) systems operating in a confined geographic area presenting both SM and E3 challenges. Platforms are employing increasing amounts of onboard C-E equipment with increased equipment density, increased power levels, and increased bandwidths all contributing to the potential for E3 problems. Trends toward the use of Very High Scale Integrated Circuitry (VHSIC) and nanotechnology using lower threshold voltages and currents and toward the use of composite building materials with loss of conductive shielding effects also increase the potential for E3 problems. US and coalition security forces with their systems being deployed in more regions across the globe present SM challenges. Within the DoD, the Director of Operational Testing and Evaluation (DOTE) is working to increase the awareness of this problem and to ensure that DoD policy, regulations, and testing procedures concerning E3 and SM are up to date and adequately enforced. A significant challenge in the DoD systems acquisition and operational communities is ensuring that program managers and operational commanders are aware of the impacts of E3 and international spectrum regulations on their acquisition programs and fielded systems. Another challenge is anticipating advances in electro-technology, understanding their E3 and SM impacts, and ensuring that policies, regulations, testing procedures are kept current with respect to these advances. This paper presents the view of E3 and SM from within the DoD, how the DoD is organized to address E3 and SM issues including the role of testing, and challenges facing the DoD in these areas.

Abstract Submission Form

2004 National Radio Science Meeting

Abstract: golliday22181

Date Received: September 24, 2004

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2. E - Electromagnetic Noise and Interference

3. (a)

4. C - Contributed Paper

5. No special instructions