



ADVANCED NAVAL NETWORK SOLUTIONS

The Networks and Communications Systems Branch of the Naval Research Laboratory (NRL) is seeking White Papers for innovative research and development in information technology. Current areas of research focus include:

- (1) Information Assurance. Integration and demonstration of multiple independent layers of security (MILS) solutions for Level-One Certified sensor data exfiltration using an NRL developed Software Reconfigurable Payload;
- (2) Demonstration of software defined radio capabilities to include implementation of complex waveforms (including TTNT, HNW, and UxV Control Station Algorithms) hosted on CPCI cards. Advancement of Office of Naval Research (ONR) defined Enabling Capabilities (EC's) in Advanced Tactical Data Links and SATCOM mitigation.
- (3) Advanced Tactical Data Links (ATDL). Research and development of candidate technologies for next generation Tactical Data Links.

- (4) ELINT. Broad based ELINT capability across a broad frequency range for protable software defined radios. Demonstration of the ability to automatically extract common ELINT parametrics (frequency, pulse repetition frequency, pulse repetition interval, pulse width, etc.) and provide signal identification and geolocation. Downconversion of signals to the radio baseband as required to analyze higher frequency signals (to 110 GHz).
- (5) RF Exploitation. Wireless network connectivity between afloat platforms, including ships, aircraft, and UAV's including Line of Sight (LOS) solutions. Use of advanced waveforms to maximize bandwidth at various ranges to achieve the best signal surpluses, to include improved antennae, maximizing efficiency of legacy communications links, UAV communications relays, and wireless connectivity for surface vessel-borne boarding teams. NRL is particularly interested in *ad hoc* mobile-area network (MANET) solutions and applications compatible with current afloat platform capabilities, particularly Link 16 and other established wireless network capabilities.
- (6) SATCOM Mitigation. Methods and techniques for overcoming loss of SATCOM connectivity between (a) deployed units in an Expeditionary or Carrier Strike groups (ESG or CSG; respectively), and (b) connectivity between Operations Centers and deployed ESG/CSG in any given geographic area of responsibility. Solutions must be exportable, scalable, and relevant in any geographic maritime environment in which an ESG or CSG might operate, yet must be compatible with the ONR Satellite

Vulnerability EC. Particular interest exists in solutions that can be hosted on small- to medium-UAVs, and in other airborne relays.

Address White Papers to Code 5520, or [e-mail](#), telephone (202) 767-0084. Allow one month before requesting confirmation of receipt of White Paper, if confirmation is desired. Substantive contact should not take place prior to evaluation of a White Paper by NRL. If necessary, NRL will initiate substantive contact.