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MEMORANDUM FOR CHAIRMAN, DEFENSE SCIENCE BOARD  
CHAIRMAN, INTELLIGENCE SCIENCE BOARD

SUBJECT: Terms of Reference—Defense Science Board Task Force on Detection of Unexploited Signatures and Emissions

You are requested to establish a Joint Defense Science Board (DSB) and Director, National Intelligence Task Force on Detection of Unexploited Signatures and Emissions.

For too long, emission detection focused almost entirely on the electromagnetic spectrum. Scientific and technological advances allow contemplation of a broadly expanded definition of detection, one that includes not only the electromagnetic spectrum but also exploits other phenomenology such as acoustic emissions, odors, environmental changes such as pressure changes, DNA shedding, and others. Capability should be developed to incorporate all types of emissions, both passive and active and signatures.

In evaluating the exploitation of the different phenomenology, the Task Force should assess what level of information such detections provide. Will the information provide indication of presence or can it provide higher levels of information such as location, identification, or even intention?

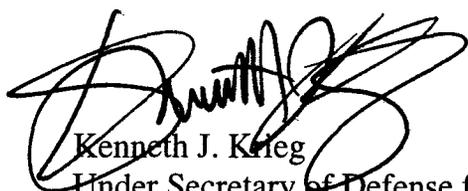
The Task Force shall also assess the systems engineering required to integrate across the entire spectrum of possible phenomenology to be exploited. As part of its assessment, the Task Force should address the required platforms, sensors, communications requirements, collection techniques and analytical tools when assessing the utility of exploited emissions. In addition, the needs of the entire range of users, from tactical, strategic and autonomous and/or human aided, must be considered as a part of any new exploitation techniques.

Since significant investments have been made in legacy systems, the Task Force should assess the possibility of exploiting new phenomenology with current assets which enhance sensor capabilities. In addition, an evaluation must be made as to whether legacy systems should be incorporated in any new systems or maintained as a stand alone capability. Finally the Task Force should assess whether the new capabilities will allow old systems to atrophy as new systems reach operational capability.

The Task Force should also examine techniques to protect any capabilities the US develops in new areas and to minimize the effects of disclosure.

The study will be sponsored by me as the Under Secretary of Defense (Acquisition, Technology and Logistics), the Under Secretary of Defense (Intelligence) and the Associate Director of National Intelligence for Science and Technology. Dr. George Whitesides and Dr. Matt Ganz will serve as the Task Force Co-Chairmen. Mr. R.C. Porter, OSD(I) and Dr. Charles L. Cooke, Jr., O/DNI will serve as co - Executive Secretaries. Mr. Andrew Chappell, Army Military Assistant, will serve as the Defense Science Board Secretariat representative.

The Task Force will operate in accordance with the provisions of P.L. 92-463, the "Federal Advisory Committee Act," and DOD Directive 5105.4, the "DoD Federal Advisory Committee Management Program," It is not anticipated that this Task Force will need to go into any "particular matters" within the meaning of Section 208 of Title 18, U.S. Code, nor will it cause any member to be placed in the position of acting as a procurement official.



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