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20 JUL 1965

MEMORANDUM FOR THE CHAIRMAN, JOINT CHIEFS OF STAFF

SUBJECT: Requirements for Space Surveillance

- References:
- a. JCSM 427-65, ^{X 3044} dated 4 June 1965, subject: "Report of the Ad Hoc Working Group on DOD Space Detection, Surveillance, Tracking, and Data Processing- March 1965 (DATOS Report)"
 - b. JCSM 428-65, ^{X 3050} dated 4 June 1965, subject: "Requirements for Space Surveillance"
 - c. JCSM 226-65, ^{X 1656} dated 1 April 1965, subject: "Requirements for Space Surveillance"

The prompt and thorough review of the DATOS Report by the Joint Chiefs of Staff is appreciated. I am pleased to note that there is a large area of agreement with the DATOS Group. The areas of disagreement appear to be relatively minor and more a matter of emphasis in wording rather than in basic outlook. Comments on specific points raised by references a. and b. are given below.

- (1) The recommendation that no altitude limitation be placed on the NORAD space mission is accepted, although as noted below in (5), any requirement for coverage should be keyed to specific weapon systems.
- (2) The question of the dual routing of the overseas communications lines from Diyarbakir, Turkey was addressed only in the context of space surveillance in the DATOS Report. As noted in the appendix to reference a., there are other uses such as missile intelligence. Comments are still being received on this and action will be deferred until a later date.
- (3) The closing down of the Moorestown and Trinidad radars will be delayed until the AN/FPS-85 has proven its operational capability. The DATOS Group assumed that the AN/FPS-85 would fulfill its operational mission based on the success of the program to date. Obviously, however, if it does not there may then be a continuing need for the Moorestown and Trinidad radars. At the moment, the Air Force has been directed only to prepare plans for shutting down these radars after the AN/FPS-85 becomes operational and I believe this action should be continued. Present funding plans

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(4) The DATOS Report noted the importance of Mission Assessment and also the problems associated with it. It is believed that sufficient RDT&E emphasis is being placed on this problem. A special study group has been convened to examine the radar signature problem and to make recommendations. No further action will be taken until this group reports at the end of August.

(5) The major area of disagreement between the DATOS Group and the Joint Chiefs of Staff appears to concern the requirement to have (by 1970) a capability to detect and track one square meter space objects to an altitude of 20,000 nm with a detection probability of 99%. There certainly will be some requirements for an evolutionary increase in our space surveillance capabilities with time and this was recognized in the DATOS Report where specific areas needing RDT&E emphasis were noted. However, it is believed that there should not be a requirement that is incomplete (it does not mention orbit inclinations and time to detection, for example) and hence subject to misinterpretation. Further, as noted in Appendix C to reference c, coverages should be keyed to planned weapon systems and be developed as the specific numbers required are derived in weapon system design. It is suggested, therefore, that the requirement be reworded to state that detection and tracking capability to higher altitudes and smaller targets should be pursued with an adequately funded R&D program so that a capability can be expeditiously and economically attained when the need arises.

(6) In reference a the Joint Chiefs of Staff express a fear that the DATOS Report will inhibit attainment of significant improvements in space detection and tracking capability. In fact, as noted in the DATOS Report, radar technology already exists which will permit detection and tracking to almost any reasonable altitude if one is willing to spend the money. However, alternate sensors, such as the Electro-Optical AN/FSR-2, promise to provide detection capability at much less cost and will be pursued in an active R&D program. Presently approved plans will provide operational detection and tracking capability to beyond 6000 nm on 1 square meter targets by 1968 on many classes of orbits, even without the AN/FSR-2. It is quite probable that by 1970, equipment improvements and improved operating techniques will give some capability to beyond 20,000 nm. If the AN/FSR-2 development succeeds, there will be a capability to 300,000 nm.

(7) It is felt that the above comments resolve the differences

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DIRECTOR OF DEFENSE RESEARCH AND ENGINEERING
WASHINGTON 25, D. C.

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Covering Brief

15 JUL 1965

TO: The Deputy Secretary of Defense

FROM: The Director of Defense Research and Engineering *JABrow*

Problem: Resolution of the remaining differences between the Joint Chiefs of Staff and the DATOS Report.

Discussion: Two recent memos (Tabs A and B) from the Joint Chiefs of Staff commented on the recommendations of the DATOS Report. The Joint Chiefs of Staff agreed with a number of the recommendations, deferred comment on several (about which we expect no disagreement), took minor issue with several others and raised one major issue. This issue is whether or not there exists a need for detection and tracking of spacecraft to 20,000 nm by 1970. Because of this, the revision of the NORAD NQR 2-65 directed by Tab C is being held up, even though the Joint Chiefs agree with most of the specific comments of the DATOS Report on the NQR and that the NQR 2-65 (Tab D) needs revision.

I continue to believe that it is impractical to set specific goals for a specific date in the area of space detection and tracking because they are (1) subject to misinterpretation and (2) there is no basis (on threat, or defensive weapons, for example) for quantitative specifications.

While the Joint Chiefs of Staff fear that the DATOS Report will inhibit growth of space surveillance capabilities, it is clear that present and planned performance is impressive and critical RDT&E areas (AN/FSR-2 for example) are being pursued. This point is also addressed in the attached memorandum.

Implementation: The attached memorandum (Tab E) to the Joint Chiefs of Staff explains the above philosophy and proposes a restatement of the requirements for increasing space surveillance capability which should resolve the differences between OSD (DATOS Report) and the Joint Chiefs of Staff. It also covers the minor areas of disagreement noted above.