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DEPARTMENT OF THE NAVY
BUREAU OF AERONAUTICS
WASHINGTON 25, D. C.

Aer-AV-4212

SECRET

5 MAR. 1958
02982

CONFIDENTIAL

From: Chief, Bureau of Aeronautics
To: Director, Naval Research Laboratory
Washington 25, D.C.

Subj: Establishment of a Problem at the Naval Research Laboratory; Request for

Ref: (a) EL-45001 Wide Open Receiver and Antenna System Project at NRL

Encl: (1) Confidential Problem Details

1. This project cancels and supersedes reference (a).

2. It is requested that a problem be established at the Naval Research Laboratory in accordance with enclosure (1) and the following information:

a. Project Title: Intercept System, Lightweight, Subminiaturized for supersonic vehicles.

b. Priority B

c. Operation Requirement Number CA-10503b. R&D Project Number NA442-002.

d. Bureau Problem Number NRL-AV-42004.

e. Estimated Completion Date: 1 January 1959.

f. Disposition of Material: Disposition instructions for developed material will be furnished by the Chief of the Bureau of Aeronautics at completion of project.

3. Abstract of Problem: To design, develop, and fabricate an Electronic Countermeasures Intercept System, subminiaturized, lightweight, for supersonic vehicles.

4. The following additional information is supplied:

a. Cognizant Engineer: Aer-AV-4212, Telephone LIberty 5-6700, Extension 67426.

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5. It is requested that the cost of this problem be charged to: Program Number 8014, Allotment Number 700, Budget Project 14, Expenditure Account Number 46810. R&D Project Number NA442-002, Operational Requirement CA-10503b.

6. Reports: It is requested that interim progress reports be submitted quarterly for the duration of this project. Letter reports will be satisfactory for these interim reports. A final formal report is requested at the completion of the project. It is requested that four copies of each interim report, four copies of the formal report be submitted to the Chief of the Bureau of Aeronautics (Aer-AV-42). It is requested that eight copies of each interim report and the formal report be forwarded to the Chief of the Bureau of Aeronautics (Aer-TD-42).

E. W. Harrison

E. W. HARRISON
By direction

Copy to: (with encl (1))
Addressee (2 copies)
NADEVCEN (AEEL Programs Control)
NATESTCEN, ET

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Project Details for TED Project Number NRL-AV-42004

1. Purpose of Project: To design, develop, and fabricate an Electronic Countermeasures Subminiaturized, Lightweight, Intercept System, with automatic readout, and transmitting, facilities for manned or unmanned, supersonic vehicles. Existing naval receiving stations will be used to receive the information if feasible. If existing receiving stations cannot be utilized efficiently, an automatic receiving set, with recording facilities, shall be developed to complete the Intercept System. This Intercept System will fulfill operational requirements for reconnaissance and early warning.

2. Background Information: The Intercept System is anticipated for supersonic vehicles of advanced design that will enable complete and continual electromagnetic observance of enemy areas with the broadest possible frequency coverage, especially within the 50 mc to 50 kmc frequency range, with the highest possible sensitivity.

3. Elements of the Program:

a. Study and Investigation - It is requested that the personnel assigned to this program on a continuing basis, maintain familiarity with the Tri-Service efforts in the electronic countermeasures and supersonic vehicle fields. The latest techniques in these fields must be applied to produce the most advanced type of equipment possible within the time scale of the project.

b. Equipment Development - Based upon investigation and recommendation, and the approval of such recommendations by the Chief of the Bureau of Aeronautics, develop equipment for evaluation.

The equipment developed shall be of a design that will satisfactorily perform regardless of vehicle size or frequency spectrum to be analyzed. Modular type constriction is recommended such that systems of various weights and complexity can be built by combinations of modules.

The system to be developed must be entirely self sufficient, i.e. antennas, receivers, automatic readout, transmitters, and surface receiving equipment all are considered necessary to the Intercept System to be developed.

Although complete frequency coverage of the entire 50 mc to 50 kmc range is desired, concentration should be directed to produce a system that will cover 1000 mc to 10,000 mc, 50 mc to 20 kmc, and 50 to 50 kmc in that order of priority.

In order to expedite development of the Intercept System, utilization of equipment subcontractors and existing circuit components is recommended.

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4. Liaison: Liaison with other department of defense laboratories as well as contractors in the electronic countermeasures field is recommended in order to insure utilization of the latest arts and techniques and to prevent duplication of effort. It is required, also that all available intelligence information regarding possible enemy transmissions be reviewed in order that research and development under this project can reflect this intelligence.

5. Specifications: Recommended specifications for the equipment developed are desired by the Chief of the Bureau of Aeronautics from which equipment can be procured.

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