

[Redacted]

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Physics Department

Proposal

to

[Redacted]

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for

EVALUATION OF RECORDING TECHNIQUES

June 15, 1955

Proposal No. E-160

Copy No. 1 of 3 Copies

B-620

Proposal
for
EVALUATION OF RECORDING TECHNIQUES

I. The Problem: In the very brief analysis of the general problem of recording information, with emphasis on miniature recorders which may be operated apart from electrical mains or other normal power supplies, it has become evident that the choice of principles which might be followed to make substantial improvements in performance is presently very difficult.

The reason for this difficulty in choice is that there are at least 100,000 possible techniques for marking a record medium in accordance with information received from a microphone, a pressure transducer, a Geiger counter, or the like. Information available from manufacturers or from the literature on the subject is completely disorganized as to terminology, methods of performance measurements, or methods of specifying the behavior of system elements.

II. Outline of Proposed Work: [redacted] has recently terminated a very brief analysis of the overall possibilities of data recording. This study is quite incomplete because of the large amount of potential information which it recognized to exist. The main accomplishment of the study has been to provide a logical framework by which individual components of recording systems could be analyzed and compared.

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In view of this it is proposed that [redacted] undertake a more complete analysis of recording techniques with the objective of providing an up to date and yet flexible picture of presently available resources as well as promising principles for future development. There is not a single aspect of present-day commercial recorders which is not capable of improvement by at least one order of magnitude by application of new principles.

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Specifically it is proposed to complete the assembly of commercial catalogs describing recording equipment; to supplement this information by inquiries to manufacturers not releasing technical details in their catalogs; to assemble a representative collection of specifications from the various Defense Department agencies procuring recording equipment; to continue a search of both published and classified literature, particularly that describing the principles on which recorders can be devised.

A final result of this work would consist of five copies (or other quantity, as desired by the sponsor) of a loose-leaf, data notebook based on the outline of the referenced preliminary report. As stated in that report, it should be possible to provide at least 1,000 data sheets on existing or hypothetical systems. Many recording techniques have been devised for individual

experiments in the various fields of science, and this information has never been collected into a central publication.

As a minor part of the proposed program additional effort would be devoted to operations research on the general problem of recorder design. It is believed that many unsound principles have been followed to various states of completion in the past merely because they appeared to be novel methods, and that the bases for analysis stated in the preliminary report can be applied to prediction of the success of the future design program.

III. Estimated Time and Cost: A time of 15 months is believed optimum for completion of the proposed study. One full-time research engineer with approximately 5 years of experience would be assigned to the program, under the supervision of the Chairman of the Physics Department [] the author of the preliminary analysis. In addition, a number of senior staff members of the department would be consulted at intervals on such problems as specification of important definitions or similar questions.

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The estimate below is based on a 40-hour week, and figures in parentheses show percentage of full time.

A. Direct Salaries

Project Engineer (100%)
Project Supervision (5%)
Project Consultants

Total Salaries

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B. Direct Expenses

Travel
Telephone and Telegraph

Total Expenses

C. Technical Services

Reproduction and Drafting

D. General and Administrative Expenses

[] Per Cent of Item A

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E. TOTAL ESTIMATED COST

IV. Contract Conditions: It is proposed that the usual contract conditions between the sponsor and be applied to this project.

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By:

Chairman, Physics Department

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