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OPTIONAL FORM NO. 10
5010-104

UNITED STATES GOVERNMENT

Memorandum

EP 65-271

DATE: 3 September 1965

25X1A TO : The Files: [REDACTED]

25X1A9a FROM : [REDACTED]

25X1A SUBJECT: Inspection Report No. 1 - AR-18 Study Program with [REDACTED]

25X1A

1. Project Description:

This four month program is to measure the error rate performance of the AR-18 1480 wpm triphase receiving equipment as a function of signal-to-noise ratio and pulse jitter and to otherwise investigate the performance of the AR-18 as required.

2. Contractual Information:

- a. Initial Cost: [REDACTED]
- b. Request for Procurement Action: 14 June 1965
- c. Initiation Date: 18 June 1965
- d. Completion Date: 18 October 1965
- e. Deliverable Items: (1) Informal reports at conclusion of Phases I and II
(2) Final Report

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3. Date of Meeting: 25, 26 August 1965

25X1A 4. Place of Meeting: [REDACTED]

5. Persons Attending:

Agency

Non-Agency

25X1A9a [REDACTED]

[REDACTED]

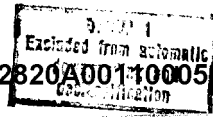
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6. Contractor's Performance:

- a. On schedule and expected to remain so: Yes
- b. Within obligated funds and expected to remain so: Yes
- c. Satisfactory technical progress: Yes

7. Project Status. . . .

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7. Project Status:

Test program number one has been satisfactorily completed. Curves of AR-18 character error rate versus signal-to-noise ratio, pulse jitter, and temperature have demonstrated conclusively that the AR-18 performs poorly. Reasons for this poor performance are being examined. They include the following:

a. The AR-18 uses germanium transistors throughout, which are temperature sensitive and to a large extent obsolete.

b. The crystal oscillator ovens all use snap-action thermostats. Contact closures introduce errors due to impulsive interference.

c. The circuit design is often marginal, requiring constant adjustment.

d. RF mixers are all single ended and introduce considerable phase distortion in the received signal.

A decision is required soon as to whether to rebuild the AR-18's or construct a new base receiver for the RS-18 system. To aid in this decision, [REDACTED] has proposed to change the scope of the current work, at no increase in funds, to examine in more detail the cause of the poor performance and to study the performance of the recognition circuit employed in the AR-18. With the verbal concurrence of

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[REDACTED] on 26 August 1965, [REDACTED] was authorized to redirect the effort. A change order is being prepared to amend the 25X1A5a1 contract.

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[REDACTED] is also preparing budget estimates for rebuilding versus new design. The estimates are expected within 8 weeks.



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