Office Memorandum • UNITED STATES GOVERNMENT

TO : Chief, Research & Development Branch, OC DATE: 24 September 1954

FROM : Chief, Auxiliary Functions Branch

SUBJECT: Radiation Tests on the [redacted] Communication System 50X1

1. INTRODUCTION

A request was received by the Instrumentation Section of AFB to run a series of radiation tests of the subject system for the purpose of determining if the security of this system could be jeopardized by picking up radiation from this equipment and, if so, the maximum distance it would be possible to receive this radiation. The units tested consisted of the following:

[redacted] 50X1

2. SCOPE OF THE TEST

The tests were run over the VLF range of 6 KC. to 250 KC. for the purpose of determining the radiation emission of these particular units over this range of frequencies. Since these units were set up in the 1700 Wing of Alcott Hall, an extremely high ambient noise level was encountered due to fluorescent lighting, teletype equipment and office equipment, thus making any radiation check of this nature rather inconclusive.

3. METHOD

A special very low frequency radio receiver and a Stoddard Intensity Meter, Model NM-10A were used as a radiation pick-up device. Checks were made using the single loop and an inductive pick-up loop consisting of 210 turns of wire wound on a 3 foot by 1 foot frame. The first test was conducted with the special VLF receiver and inductive pick-up loop over the frequency range of 6 KC to 90 KC. The second test was run using the Stoddard NM-10A radio receiver covering a range of 14 KC. to 250 KC., using both the pick-up loop, and the single loop antenna supplied with the receiver.

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4. RESULTS

The maximum distance that radiation could be detected with either type of antenna, and either receiver, was six (6) inches. This radiation did not seem to come from any particular location of the equipment being tested, but as pointed out above, the high ambient noise level at the particular location in which these tests were run made it very difficult to determine just what the absolute radiation amounted to.

5. CONCLUSIONS

While the above results are rather inclusive, it would seem that in view of the very short distance involved in picking up any radiation at all would make this equipment relatively secure. This is borne out by the tests run at the Research and Development Laboratory, under more favorable conditions and from 150 KC to 25 MC.

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