

~~SECRET~~

UNITED STATES GOVERNMENT

# Memorandum

21 JAN 1965

TO : Director of Communications

DATE: 21 January 1965

FROM : Chief, Engineering Staff, OC

SUBJECT: Engineering Staff Monthly Report

DECEMBER 1964/OC

This is the Engineering Staff monthly report for December 1964.

[Redacted]

25X1A9a  
25X1A6a  
25X1A2g

[Redacted]

25X1C1a1

project was an exceptionally fine piece of work.

There are no "crises" items to report for this period.

[Redacted]

25X1A9a

*See page 1 of R & D section.*

2  
-  
5  
22

33  
62  
2011

01  
C

~~SECRET~~

GROUP 1  
Excluded from automatic  
downgrading and  
declassification

MONTHLY REPORT

ENGINEERING SERVICES BRANCH

December 1964

A. RADIO EQUIPMENT AND SYSTEMS SECTION

1. Surveillance Equipment Support

a. A four man team consisting of members of OC-OS and OC-E conducted a range test with representative samples of two-way voice radio equipment. The purpose of the test was to provide information on actual communicating ranges that can be expected from the various equipment; this information will be included in Technical Bulletin No. 41, Revised. All testing was done in the Washington Area and lasted two days.

*What are  
significant  
results?*

25X1A5a1  
25X1A5a1

b. We are attempting to find the cost and complexity of dual channeling [redacted] two-way voice equipment presently in stock. It appears that [redacted] does not have this information readily available but when we do determine the facts, we will decide who modifies the equipment, [redacted]

?

25X1A5a1

c. A series of memos to MSB has resulted in bringing about three (3) different lists of stock numbers for the three (3) classifications of equipments arising from the decisions to:

- (1) go narrowband
- (2) go multiple frequency.

The three (3) main classifications of this type equipments are:

- (1) wideband
- (2) Narrowband
- (3) narrowband-multiple frequency

2. Shelf, sliding, OC Standard, SH-5 - A small project was worked up for the purpose of bringing into stock a sliding shelf suitable for general use in the standard equipment rack. There are a number of commercial sliding shelves available but none are completely acceptable. A description and drawing were made and a requisition prepared. If all goes well at the Office of Logistics, we can expect a standard SH-5 in stock in about three or four months.

*Why does T-203  
have to be  
replaced -  
25X1A5a1*

25X1A5a1

25X1A5a1  
25X1A5a1

25X1A6a

25X1A5a1

25X1A

25X1A8a

25X1A6a  
25X1A6b  
25X1A2g

25X1A5a1

25X1A5a1

3. HFL-1000 Linear Amplifier - The transformer sub-contract, [redacted] has developed a replacement for T-203 that he claims is suitable. We will receive a sample and have it tested at [redacted] early next month. If suitable, [redacted] will ship one hundred and seventy five transformers, no cost, which we will then distribute to the HFL-1000 owners.

4. Kahn Single Sideband Remote Controlled Exciter - The first unit of an order for thirty five was received at the end of this month. The contract specifies evaluation and acceptance of the first two units prior to manufacturing the remainder. We plan to test the model on hand connected to and operating with the 208U-10 linear amplifier at the [redacted].

5. [redacted] Narrow Shift Converter - Using a frequency counter with a print-out recorder the RTTY signal from one of our stations in Central America was monitored to determine the carrier frequency drift both in the transmitter and the receiver. Over a number of hours of monitoring the maximum drift noted was 30 cycles in one hour. This was discussed with [redacted] to determine the feasibility of reducing band width and therefore the number of filters and related circuitry of the Narrow Shift Converter. As now planned the converter will cover 1.4 kc in seven increments. Additional tests are planned to obtain more data on the drift characteristics of our typical communications circuits.

6. [redacted] Fly-Away Packages - Four GNT Morse Keyers were ordered for use with the beacon transmitter which is a part of these packages.

7. Transportable Communication Systems I & II - The mock-ups of Systems I and II were completed and exhibited to members of the Engineering Staff for critique.

8. Project "8-PAC" - Preliminary design work was started on this project for presentation to the equipment Board meeting in January. "8-PAC" is an air-transportable base station completely equipped to provide full duplex RTTY with on-line crypto to seven field stations and one trunk outlet.

9. Thin Route Tropo - Correspondence is being exchanged with NATCA in an effort to secure frequency authorization which is compatible with the range of the equipment and the frequencies available for our use on a [redacted] to [redacted] path.

10. Project [redacted] - After a series of meetings it was decided to have [redacted] submit a proposal for the Communications and Navigation gear and a test program. The communications equipment proposal will be based on a Work Statement and equipment list received from the [redacted].

B. WIRE ENGINEERING SECTION

1. Selector Magnet Shield - Delivery of 50 pre-production shields is scheduled for April 1965. The unit cost of these items will be \$69.00 each. The production model shields have not yet been priced out. This figure should be available during the next reporting period.

25X1A

2. [REDACTED] - Production is on schedule for February delivery.

3. Model R-80 Optical Repeater - Tests have been completed and the unit was found to operate very well. Specifications are being written for quantity procurement of this type device for direct replacement of Sigma Relays.

25X1A  
25X1A

4. Model R-85 Optical Inverter - KW-26 - Two units are operating satisfactorily after three weeks on an operational circuit at Langley and [REDACTED]. One unit of four (4) became inoperative after a few hours use at [REDACTED]. Specifications are being written for procurement of this type of device for all KW-26 units world-wide to alleviate existing maintenance problems. N.S.A. has indicated interest in this same type device. It is a replacement for Sigma-type Relays, with inversion of the Mark and Space Signals.

5. R-100 (A) - The R-100 tested successfully and indicated better than 110 db attenuation in the worst conditions. Twenty units are due in early January 1965, for use with five (5) special screen rooms. Specifications are being written for procurement of this type device for shield rooms and standard station filter applications, replacing RFI filters.

25X1A5a1

25X1A5a1

6. [REDACTED] Scanner - I.B.M. "Selectric" typewriters have been requisitioned for use with the scanner. [REDACTED] is to provide cost quotes during January on a console requirement. Cable format tests were not instigated during December as planned, but we hope this can be accomplished in January 1965.

25X1A5a1

7. [REDACTED] Solid State Relay - [REDACTED] requested approximately \$15.00 per unit for modification components. This is considered too great an expense for what we gain and therefore modifications will not be attempted on our 312 units. [REDACTED] will be notified.

25X1A5a1

25X1A5a1

8. Morse to Baudot Converter - Model 670 - Tests have been completed by Mr. [REDACTED] and the units are to be returned. The input card was again burned out by improper signal line battery connection with no limiting resistance. A fuse will be required on any future unit to prevent this type of failure.

25X1A9a

9. KW-7/TWX - Two TWX installations were made in [REDACTED] for purposes of testing with the KW-7. One installation had to be removed when it malfunctioned and could not be repaired on site. Discussions are now taking place between OC-E, NSA, AT&T and C&P in an effort to make this test installation a government standard rather than being peculiar to CIA. Nine of the safes ordered from Mosler were delivered and placed in stock. The remaining fifteen will be delivered next month, but due to lack of KW-7 cables, will not be complete.

25X1A6a

10. KW-7/Fixed Plant Installation - Beginning in January WES will have two pre-production rack mount installations built under a service contract. Approximately eight weeks will be required for completion, at which time the units will be operationally, and possibly TEMPEST, tested. Production units will then be built using the specifications derived from the pre-production models.

25X1A

25X1A5a1

25X1A5a1

25X1A5a1

12. KG-13 Program - Six [REDACTED] SEBIT-36 modems were ordered for use with KG-13 links.

25X1A5a1

13. LBAC-250 6 circuit Transmitter Cabinet - Manpower shortages have necessitated a slowdown in modifying the LBAC-250 now in Alcott. The final version of the modification was done on a cabinet at Franconia by T&I personnel and developed no problems in operational testing. The MWO will probably go to press in late January.

14. HW-28 Program - Units are presently under test both at [REDACTED] Inc. and the SP Lab.

25X1A5a1

15. MWO-88 - Single Stepping of HW-28 T.D. - The MWO is presently being sent to the field to provide for single step operation of the HW-28 TD units.

16. Design of Dissemination Circuit - A dissemination circuit is presently under design for the Langley Signal Center to facilitate traffic flow between the Special Signal Center and other offices within the building.

17. M-28 Stunt Box Design/NPIC - A M-28 Stunt Box modification is being designed for NPIC to provide a more reliable method of vertical tabulation of page copy. This project has slowed down due to lack of parts from the Teletype Crop. All required parts are on order.

18. KAB 149/150 NSA KW-26 Filter Installation (MWO 89/90) - The MWO concerning the additions and deletions for KAB 149/150 is ready for distribution to the field. However, NSA has put a hold on all filters for corrective action on a minor mechanical problem.

19. Iron Curtain Stations - Wiring diagrams and cable chart information on the rack-mounted stations is being formulated for pouching to all posts.

20. HW-28 Acoustic Attenuation Kit (JACT) - An acoustic attenuation kit has been designed for use with the HW-28. The kit consists of a fiberglass and aluminum enclosure to be placed around the HW-28, a polyester pad underneath the HW-28, and drapes to be hung in front of and to the sides of the HW-28. Three prototype kits have been assembled and specifications are being written for the construction of approximately fifty additional kits. Commercially available enclosures are being investigated to satisfy this requirement.

C. AREA ENGINEERING SUPPORT SECTION

25X1A

1. [REDACTED]

a. The entire Sideband MUX Program is currently under review to determine what measure of assistance we can provide the field to get it underway. Present status and problems were discussed at a meeting attended by Chief, OC-AFD and members of OC-E

25X1A6a

b. [REDACTED] New Receiver Building - This project was initiated on 18 December 1964 during a briefing by Mr. [REDACTED] Chief, OC-AFD. OL/RE&CD was briefed on 23 December 1964. Cost estimates, prepared by RE&CD, and a single line drawing of the proposed building were presented to [REDACTED] See Memos for the Records attached.

25X1A9a

25X1A

25X1A

2. [REDACTED]

25X1A9a

Mr. [REDACTED] Deputy Chief, OL/RE&CD and his staff, together with [REDACTED] OC-E, reviewed the entire [REDACTED] Project prior to

25X1A6a

25X1A9a

Mr. [REDACTED] trip to [REDACTED] to assist in the A&E preparation, 6 January 1965. See Memo for the Record attached.

25X1A6a

25X1A 3. [REDACTED] Phase II - A meeting was held 14 December 1964 to review preliminary planning [REDACTED] See Memo for the Record dated 15 December 1964. 25X1A

25X1A 4. [REDACTED]

25X1A6b  
25X1A6b

a. [REDACTED]  
(1) The [REDACTED] transmitter site expansion A&E drawings will be pouched to Washington in January.

25X1A6b

(2) The [REDACTED] engineer and OICC, [REDACTED] are preparing the installation drawings for a 235 KW generator to replace one of the two existing receiver site power units. The new generator is on site. 25X1A

25X1A6a b. [REDACTED]

(1) A&E drawings for the [REDACTED] basement-located Comcenter were received via the FBO, Washington. The recent decision to install a shielded enclosure concurrently with the actual renovation necessitated changes to the previous scheme. The [REDACTED] Mechanical Engineer is revising the air conditioning portion and will specify the actual equipment. Sixty kilowatts of power will be required to operate the 35 ton air-conditioning system with the required fan coil units. This presents a demand load of 130 KW for the joint Comcenter and will require an additional 100 KW generator to supplement the 100 KW unit provided by the Department. The revised power requirements are being drawn up by the [REDACTED] 25X1A6a  
25X1C

(2) The A&E contract for the [REDACTED] communications building will be let in January, 1965 with a 90 day completion date of April. Funds for this phase have been transferred to the [REDACTED]. 25X1A6a  
25X1C4a

(3) A modification kit has been requisitioned to adapt one of the three (3) acoustical shielded enclosures in stock for installation in [REDACTED]. 25X1A6a

25X1A2d1 5. [REDACTED] - Several ESB personnel were given an initial briefing on this project by the R&D project engineer. Plans call for gradually increasing participation by ESB in this project as it emerges from the R&D stage into field installation and activation.

6. Shielded Enclosures

a. We are continuing the program to modify our stock enclosures to include features pointed up in the [REDACTED] installation. 25X1A6a

25X1A6a b. Present efforts are being directed to installations in [REDACTED].

D. ADMINISTRATION

25X1A9a 1. Messrs [REDACTED] attended an "open house" at Defense Electronics Inc.'s new plant in Rockville, Md. to inspect their engineering and production capabilities.

25X1A9a 2. Mr. [REDACTED] is still attending KG-13 school.

25X1A9a 3. Mr. [REDACTED] was promoted to GS-05 on 20 December.

E. INACTIVE PROJECTS

E-5085 Communication System Planning New Building

E-5159 Line Battery Supply Replacement

E-5199 SELCAL

E-5213 Transistorized Multicoupler

E-5217 [REDACTED]

25X1A  
25X1A

[REDACTED] 25X1A9a

Attachments:

- 25X1A6a 1. TDY Report
2. Memo - Trip Report - Stainless Steel Shielded Enclosure w/[REDACTED] 25X1A5a1
3. Memo - [REDACTED] Phase II 25X1A6a
4. Memo - New Receiver Building - [REDACTED] 25X1A6b
5. Memo - New Receiver Building - [REDACTED] 25X1A6b
6. Memo - New [REDACTED]