UNITED STATES GOVERNMENT

Memorandum

EP 66-204

TO : The Files: Contract No. 4331, Task Order 1 DATE: 15 September 1966

25X1A9a FROM : Mr. [redacted]

SUBJECT: Inspection Report No. 3 - DF-4 [redacted] 25X1A5a1

1. Project Description:

The DF-4 is a small, automatic direction finder which will be 75 percent lighter in weight and 90 percent smaller in size than the currently used DF-3. The DF-4 will operate from 0.5 to 20 Mc/s and require five tuning bands to cover the frequency range. Directional information will be provided on Band 1 for signal strengths from 20 uv/m to 1 v/m and on Bands 2 through 5 with signal strengths in the range from 10 uv/m to 1 v/m. Dual conversion will be employed above 4.8 Mc/s to maintain a high degree of image rejection (greater than 60 db). Audio output will be 2mW into a 1000 ohm load, and audio distortion will be less than 10 percent from 300 cps to 3000 cps. Dial frequency accuracy will be better than 0.3 percent and directional accuracy will be within 5 percent. A 100 kc/s crystal calibrator is used for Bands 1, 2, and 3; and a 1 Mc/s calibrator is used for Bands 4 and 5. The antenna consists of three ferrite core loop antennas oriented 120 degrees with respect to each other. When the output from the sense antennas are mixed, a cardiod antenna pattern results.

2. Contractual Information:

25X1A

a. Initial Cost: [redacted]
b. Request for Procurement Action: 16 November 1965
c. Initiation Date: 10 January 1966
d. Completion Date: November 1966 Extension: December 1966
e. Deliverable Items: Two prototype DF-4's; engineering drawings, final report.

3. Date of Meeting: 8 September 1966

4. Place of Meeting: [redacted] 25X1A

5. Persons Attending:

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5. Persons Attending:

	Agency	Non-Agency
25X1A9a	Mr. [redacted]	Mr. [redacted] 25X1A5a1
	Mr. (Lab co-op student)	Mr.

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:

25X1A5a [redacted] exhibited a fully assembled DF-4. The unit was not electrically operable because the various PC cards were not interwired. An effort was made to get Band 1 working but this was not accomplished prior to leaving the plant. In its final form the DF-4 measures 9" X 8-1/2" X 3-3/4" and weighs 12 lbs. 14 ozs.

25X1A5a1 About the only undesirable feature which exists and which [redacted] was instructed to eliminate is possible operation of the battery charger when the Mercury battery is contained in the battery compartment. (The DF-4 is designed to operate with either a rechargeable Nicad or Mercury batteries.) A plastic "size reduction" liner is used when the Nicad battery is inserted into the DF-4. When the Mercury battery is used the liner is stored in the battery charger cord compartment.

The selected Mercury battery is a Mallory SR 3759 (13.5 Volts). The battery which costs about $16.00 may be ordered direct from Mallory using the Mallory number. The battery consists of ten 1438 cells packaged in a cylindrical shape. One Mercury battery will provide approximately 100 hours of continuous operation while the Nicad will provide about 18 hours per charge.

[redacted] estimates one month . . 25X1A5a1

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25X1A5a1 [redacted] estimates one month of work to wire and debug the two DF-4's. In addition one month of environmental testing will also be required. During the week of October 10 the DF-4's will be available for field testing by SPS & OS in the Fort Wayne area. Also, a lensatic type compass was carried back and forwarded to SPS for inspection to determine acceptability for use on the DF-4.

[redacted] 25X1A9a

Distribution:
R&D Subject File
OL/PD/PCB/CAS
R&D Lab
OC-OS
ESB
OC-SPS
Monthly (3)
EP Chrono

OC-E/R&D-EP/[redacted]jah (15 September 1966)

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