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J. F. Jacobs

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Memorandum 6L-246

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Division 6 - Lincoln Laboratory
Massachusetts Institute of Technology
Lexington 73, Massachusetts

SUBJECT: COMMITTEE-236 MEETING MINUTES (FIFTH MEETING, 15 February 1956)

To: Distribution List

From: E. S. Rich

Date: 24 February 1956

Approved: C. R. Wieser
C. R. Wieser

Attendance:

F. C. Frick
J. F. Jacobs
V. A. Nedzel
J. C. Starks
C. R. Wieser
E. S. Rich

1.0 AGENDA

1. Discussion of ESS problem areas outlined in 6L-242
2. Group responsibilities and schedules
3. Extension of scope of Committee 236
4. ESS Maintenance Coordination Planning
5. Over-all Test Program
6. Memo announcing System Engineer appointment
7. Removal of manual height finders from ESS equipment list

2.0 DISCUSSION OF AGENDA ITEMS

2.1 Discussion of ESS Problem Areas

2.1.1 Delay in Master Program Production and Shortage of XD-1 Computer Time

Jacobs described the effort now going on in Group 67 to re-estimate their schedule for production of the ESS master program and to determine at what time ESS shakedown tests can begin. It appears that they are behind schedule at present by about three weeks but further study is being made to obtain a more accurate forecast. Jacobs was concerned that the memos on AF manning requirements, 2M-0032, 2M-0047, and 6M-4088, quotes dates for the initial use of AF operators in program checkout and system shakedown

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which are inaccurate if the Group 67 schedule slippage is a fact. These memos are being processed for TIR release so Jacobs and Rich agreed to look into the problem immediately.

Jacobs raised the question whether it should be considered vital to attempt to recover the three weeks by diverting manpower from other areas, for example, the crosstell-programming activity or the simulation activity. The committee felt that the simulation work was very important at this time but that since the crosstelling was not needed until late in the summer that activity might tolerate a delay. Jacobs estimated it would be set back by two months if the manpower were taken off now to help with the master program. It was agreed that this problem needs further investigation. Jacobs stated he would attempt to make such an investigation in the next week. If there is an official slippage in the date for sending the master program to the first production subsector this would ease the ESS schedule problem. Wieser suggested that we inquire of Col. Scott whether such a slippage is official when he visits the Laboratory on 24 February.

Jacobs made the point that a shortage of XD-1 computer time for program checkout may result in further schedule delays. The estimates made by Group 67 do not contain leeway for time lost because of equipment failure.

2.1.2 Loss of Cape Cod System Operators

Wieser described a serious problem that exists because several key AF operators now used for the Cape Cod SOT's are scheduled to be released from the service on 15 May. If these are not replaced, the Cape Cod system tests must stop at that time. Factors that must be considered in deciding on a course of action are whether replacements can be found and trained, whether tests on the Cape Cod system after 15 May are meaningful to the ESS and SAGE evaluation efforts, and whether it is realistic that evaluation tests on ESS can start in July. Possible sources of replacement manpower are already being discussed with the Air Force. A conclusion that continuation of the Cape Cod testing is desirable has also been reached. It was pointed out that shakedown information on external-site equipment as well as evaluation information is being gathered and that experience in conducting, analyzing, and reporting on evaluation tests is needed.

2.1.3 Plans for Integration of Bath Site

Wieser gave the following summary of the status and planning for the debugging and integration of the FST-2 and the UHF radar at Bath. The FST-2 is to be shipped to the site on 1 March. Before shipment it will have been checked with a dummy video input to verify the over-all logic. After shipment Burroughs plans one month to install and recheck to bring the equipment to the condition it was in when it left the plant. During this period they also will add neon indicators, marginal checking switching, and make some changes in logic to incorporate improvements worked out at South Truro and to adapt it to the Bath radar. Burroughs expects to send 8 to 10

engineers plus technicians to conduct a two-shift operation during the period.

After the first month, Group 21 will be responsible for further testing and integration with the radar. It is planned that three Lincoln staff will be assigned to this work and it is hoped that two Burroughs engineers can be obtained to assist. At this time it is impossible to predict whether the equipment will be operational by 1 June. A meaningful estimate of this date probably cannot be made before April.

At the present time a problem exists to redesign the carriages supporting the antenna for the UHF radar. This work is being done by Division 7 and appears to be progressing satisfactorily.

2.1.4 Mark X Radar Performance

Wieser described the program now going on in Division 2 to find a solution to the problem of unsatisfactory Mark X operation. The past experience has been that performance of the equipment at South Truro has not been consistent. There have been unexplained gross variations in its performance which suggest that there may be a cumulative effect of a number of variables each of which in itself is minor but when taken together cause the system to become marginal. Group 21 is now conducting a thorough investigation of all possible angles to discover what may be wrong before further attempts to fix any specific trouble symptoms are undertaken. This program of investigation includes the following:

1. Investigating to what extent both the ground and airborne equipment suffer from lack of voltage regulation.

2. Comparing the performance of the South Truro equipment with similar equipments at Lexington, North Truro, and Montauk. This is being done by taking scan-by-scan photographs of the raw video outputs and observing them on special projecting equipment in Building B.

3. Examining the circuitry at South Truro for poor connections and other subtle weaknesses.

4. Planning special equipment to make airborne recordings of all interrogation signals that are received by an airborne transponder in the area in which Cape Cod aircraft operate. It is known that at least 8 Mark X equipments could be sending signals into this area.

5. Measurement of antenna patterns.

6. Investigating Mark X equipment produced by other manufacturers.

The above program is expected to produce some significant results in about a month. What will be needed to solve the problem then remains to be determined.

2.2 Group Responsibilities and Schedules

Rich reviewed the plans of the ESS-PCC to collect statements from all Groups contributing to the ESS activity as to the detailed tasks which they are carrying out. After these statements have been collected, the ESS-PCC will consolidate them and attempt to discover overlaps and holes. They will also form the basis for generating a more comprehensive set of time schedules. Rich stated that this effort is not proceeding as rapidly as he would like and requested that Group leaders be urged to regard it as an important activity.

2.3 Scope of Committee 236

Wieser reported that there was some discussion of the scope of the committee at the last meeting of the Lincoln Steering committee. This arose in connection with a request from the ADES Project Office to the Director for ESS schedule information. It was the opinion of the steering committee that Committee 236 should concern itself with any problem which appears to retard progress on ESS. An example given was that of space at Murphy General Hospital.

Jacobs stated he was following the Murphy-space problem and would report on the results of a meeting set up for 21 February. He also brought up the questions of handling approval of BTL subsystem test specs and of Lincoln contribution to planning for production site integration. On the latter point he indicated that there was a need for consultation with and opinions from Lincoln staff in many of the key activities.

3.0 NEXT MEETING

Items 4 through 7 on the agenda were tabled until the next meeting which was set for 21 February.

E. S. Rich

E. S. Rich

ESR:mfc

cc: W. B. Davenport, S. H. Dodd, R. R. Everett, J. W. Forrester, F. C. Frick, F. E. Heart, J. F. Jacobs, V. A. Nedzel, C. F. J. Overhage, E. S. Rich, P. Rosen, H. Sherman, J. C. Starks, N. H. Taylor, G. E. Valley, W. I. Wells, C. R. Wieser