Mr. BENINGTON. We are programing the number of terminals that will let us operate at this minimum cost per terminal. On the other hand effectiveness is more than minimizing cost. It is giving people who need access to the system access to the system.

What the cost effectiveness studies are doing is finding out who has priority need to gain access to the system and how many terminals we should procure to give them access. That will be cost effective even though it costs more.

TECHNOLOGY OF SPACE AND GROUND SEGMENTS

Mr. ROBACK. To what extent does your directorate supervise the Army development program in the terminal business? Is this something which your are closely involved in or is this something which you monitor from a distance?

Dr. TUCKER. Well, I am not sure the phrase monitor from a distance is quite correct—but we review the plans and programs and approve the budgets and set up our objectives and guidelines. Then there is a great deal of delegation in the exercising of the program. If there are serious troubles, clearly we can move in and review and raise further questions and issue new guidance as needed. But these are development matters.

Once the goals are set and the plans are firm it is our normal practice to delegate them very substantially.

Mr. ROBACK. The general sense of the question is: In view of the fact that the space segment always seems to be more dramatic than the grubby issues on the ground, the Army is always saddled with a less dramatic program, and apparently one is entitled to make the preliminary judgment that the technology on the terminal side has really not gotten the same amount of attention and therefore is not keeping pace with space.

Would you say that is true or not?

Dr. TUCKER. I think there is a very important differentiation to be made that a satellite, once launched, is completely inaccessible to any engineering change or improvement or modification. Therefore, the engineering policy has to be to put in added expense and added effort to gain a level of assurance which is very high that it will perform.

In the case of a terminal, after early production there can be a continuing series of engineering changes after you gain initial operational experience, and one puts greater stress on economy of design so that the design philosophy may differ between a completely inaccessible system and one which can be improved if necessary thereafter.

I am not saying you plan to have errors in the system, but I am saying the premium you pay for guaranteed performance may differ. I think the significant number of the terminal problems have been associated with the higher power levels that go into these systems than we have been practicing in a more stable art.

It may take some effort to get the reliability in these high power systems under the kind of control that is generally practiced in our communications electronics.

General Klocko, would you like to comment further?

General KLOCKO. Well, from daily watching of the performance of the system, I would say one difficulty with the ground terminals is we sometimes forget they were originally R. & D. They don't have the