

NASA currently is using both cable (via London) and satellite circuits to Spain. These 4KHZ circuits are leased by NASA from the international carriers.

It is now possible to obtain groups of 12 4KHZ circuits by satellite and NASA recently asked the international carriers the cost of such 12-channel groups to Spain. As expected this cost was less than the total for 12 individual 4KHZ channels. Consequently, NASA has awarded one of the international carriers a contract to provide a 12-channel group to Spain effective February 1969 and will allow the termination of 12 separate 4KHZ channels at a savings of \$235,000 per year.

This action was not coordinated in advance by NASA with the manager, NCS, since:

(a) There will be no resulting spare capacity which can be used by other NCS operating agencies.

(b) This is not a new requirement and in effect is a Telpak arrangement providing the same service to NASA with the only change being reduced cost.

General KLOCKO. May I now review the Defense Communications System, the worldwide, long-haul, point-to-point communications systems of the DOD. It is a composite of all transmission media, control centers, operating personnel, facilities, and resources associated with such a system. The satellite communications capability is, therefore, an integral part of it.

The Defense Communications Agency's mission is to insure that this system is so planned, engineered, established, improved, and operated as to effectively, efficiently, and economically fulfill DOD long-haul requirements. May I review several of our projects underway to fulfill these three mission characteristics of efficiency and effectiveness with economy?

To facilitate discussion and understanding, I will divide the system into its two major parts:

The transmission system which provides paths or channels between customers in all parts of the world.

The switches which select the paths for interconnecting these customers.

The switched networks will be covered first. [Deleted.] I will briefly define each one, set forth its present program and projected costs, and indicate offsets made or anticipated.

Economy in transmission systems can be attained by concentration of user traffic in a manner insuring maximum use of a minimum number of channels efficiently and effectively. Technological advances provided automatic or electronic switches permitting concentration to gain economies in channels with speed and efficiency. Effectiveness is retained through polygrid routing and enhanced by capability of the switches to recognize precedence levels and preemption. These switches form the nucleus of our [deleted] switched networks.

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AUTOVON

The first for review is the automatic voice network (AUTOVON) for worldwide interconnect of nonsecure administrative, logistic, and operational traffic. It will also accept digital data service which is connected to the switch in an analog mode.

This network is being implemented in two phases: Continental United States and overseas.

The CONUS program calls for installation of 74 switches of which 9 will be located in Canada. The 65 switches in the United States will be leased with service provided by the A.T. & T. and nine independent