SWITCHED SERVICES NETWORKS
USING CENTRAL OFFICE SWITCHING MACHINES
DESCRIPTION OF
SWITCHED CIRCUIT AUTOMATIC NETWORK (SCAN)

CONTENTS PAGE

1. GENERAL

1.01 This section describes the Switched Circuit Automatic Network (SCAN) and covers only the particular features and requirements of this network. A general description of SSN plans and terminology is contained in Section 310-200-100.

1.02 The contracting agency for SCAN is the U. S. Army Signal Corps. SCAN is designed to provide for the communication needs of all departments of the Army.

1.03 Circuit order and routine test requirements for network trunks, 4-wire subscriber lines, and access lines are covered in Section 310-200-300. Testing methods are covered in Section 310-200-500 and associated sections. Requirements and testing methods for PBX facilities are covered in other sections.

2. SERVICE FEATURES

2.01 SCAN makes extensive use of 4-wire station-to-station switching to provide for data and secure voice transmission. 4-wire telephone sets are used to minimize transmission contrast between the various connections. They may also be equipped for Touch Tone dialing.

2.02 All forms of transmission — voice, secure voice, data, facsimile, etc, — are expected. Special grade conditioning has been provided on some network trunks and access lines.

2.03 Priority is furnished throughout the system in the form of Camp-On to 5D operators and certain selected users. Universal service is not offered at present.

2.04 SCAN provides for some use of dual use lines. In some locations, access lines are arranged for alternate use as 4-wire subscriber lines. The 4-wire station termination may also be arranged for alternate termination in secure voice and data sets.

3. OVER-ALL SYSTEM CONCEPT

A. Type of Network

3.01 SCAN is a hub type plan. All switching centers are 4-wire inner or middle ring offices.

3.02 All of the special features discussed in Section 310-200-100 are found to some degree in SCAN. Maximum use will be made of direct dialing (NID, NOD) as facilities become available.

3.03 The plan is operated almost entirely by the military agencies. DSA is provided by Bell System operators at 5D switchboards.

3.04 Two alternate routes are provided at every originating switching center, and arbitrary directing codes are used. This prevents "ring-around-the-rosy" routing which could completely block the network during heavy traffic periods.

B. Numbering Plan

3.05 The basic numbering plan consists of seven digits of which the first three designate the switching office and the last four the line number. Dialing is on an all number basis. The digit "0" is used for DSA and information. The digit "1" is used as part of a two digit 1X prefix to indicate the type of special handling or priority handling on a call.

3.06 Typical dialing arrangements under the present plan are shown in Table 1.

4. SWITCHING MACHINES

4.01 All offices are presently 4-wire No. 5 Crossbar switching machines. They provide all the features of 2-wire No. 5 Crossbar offices. In addition, they are equipped with facilities for special grade trunking and for priority in the form of Camp-On. Maintenance testing is provided by the use of 19A testboards.

5. PBX COMPLEXES

5.01 Tributary and satellite PBX's are held to a minimum. Main PBX's are used primarily to provide access through the operator to the 4-wire portion of the network for voice communications. Maximum use is made of 4-wire subscriber lines for data and secure voice operations.

6. CENTRAL OFFICE SWITCHBOARDS

6.01 5C switchboards are not presently planned for use in SCAN.

6.02 5D switchboards are used in 4-wire No. 5 Crossbar offices to provide DSA service.

7. STATION EQUIPMENT

7.01 Station equipment will consist of standard sets, 4-wire sets, Touch-Tone sets, and data sets. Customer owned equipment, such as secure voice sets, are also used.

TABLE I

TABLE OF SPECIAL CALL PRIVILEGES IN SCAN AND THEIR CONTROLS TYPICAL DIGITS DIALED OR KEYS OPERATED

	ARMY CAMP PBX OPERATORS	DATA STATIONS	SECURE VOICE STATIONS	DUAL USER LINE PBX OPERATOR	DUAL USER LINE DATA STATION	5D SWITCHBOARD ASSISTANCE OPERATORS
Voice Grade Circuits	7 digits	1X + 7 digits	1X + 7 digits	7 digits	7 digits	7 digits
Special Grade Circuits						
a. With No Other Feature	–	–	–	–	SG + 7 digits	1X + 7 digits
b. Automatic but With No Other Feature	–	7 digits	7 digits	–	–	–
c. With Terminating Office Priority	–	P + 7 digits	P + 7 digits	–	P + 7 digits	1X + 7 digits
d. With Camp-On and Terminating Office Priority	–	P + 7 digits	P + 7 digits	–	P + 7 digits	1X + 7 digits
Dial "0" Assistance						
a. With No Special Attention	0	0	0	0	0	–
b. With Special Attention	–	P + 0	P + 0	–	P + 0	–

7.02 Dual use lines are used. They require auxiliary station circuits to permit transfer of the circuit from 2-wire PBX terminations to 4-wire station equipment. Auxiliary transfer circuits are also used on the 4-wire terminations, to permit alternate use of data or secure voice sets.

7.03 When dual use lines are provided, the terminating set at the PBX is removed by the auxiliary line circuit. In all cases, an echo suppressor is required on the PBX termination. It is also removed by the auxiliary line circuit when the facility is transferred to the 4-wire termination.