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**MAINTENANCE :  
INTRODUCTION AND GENERAL PRINCIPLES**

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**SUB-CONTROL STATIONS**

**ITU-T Recommendation M.90**

(Extract from the *Blue Book*)

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## NOTES

1 ITU-T Recommendation M.90 was published in Fascicle IV.1 of the *Blue Book*. This file is an extract from the *Blue Book*. While the presentation and layout of the text might be slightly different from the *Blue Book* version, the contents of the file are identical to the *Blue Book* version and copyright conditions remain unchanged (see below).

2 In this Recommendation, the expression “Administration” is used for conciseness to indicate both a telecommunication administration and a recognized operating agency.

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## **SUB-CONTROL STATIONS**

### **1 Definition of sub-control station**

A sub-control station is a point within the general maintenance organization which fulfils the sub-control responsibilities of the circuit, group, supergroup, etc. digital section, assigned to it.

### **2 Appointment of sub-control stations**

The following principles apply to:

- every international circuit (circuit sub-control station), for whatever purpose (telephony, telegraphy, sound-programme, data transmission, etc.). (See in particular Recommendations N.5 [1] in connection with sound-programme circuits and N.55 [2] in connection with television circuits);
- every international digital block, digital path, group, supergroup, mastergroup or supermastergroup (digital block sub-control station, digital path sub-control station, group sub-control station, supergroup sub-control station, etc.);
- every line link, every regulated line section and every digital line section (line link sub-control station, regulated line section sub-control station, digital line section sub-control station) using a symmetric pair line, a coaxial line, an optical fibre or a radio-relay link.

The technical service of the Administration concerned designates the station that is to act as a sub-control station in its country and informs the technical service of the country responsible for the control station accordingly.

#### *2.1 Terminal sub-control stations*

##### *2.1.1 Terminal sub-control stations for circuits*

For each circuit a terminal circuit sub-control station is appointed in accordance with Recommendations M.724 and M.1013 [3] as appropriate.

For unidirectional constituted circuits the terminal station at the sending end should be the terminal circuit sub-control station. In particular, in the case of sound-programme or television circuits, the terminal ISPC or ITC at the sending end should be the terminal sub-control station. (See Recommendations N.5 [1] and N.55 [2].)

##### *2.1.2 Terminal sub-control stations for digital blocks, digital paths, groups, supergroups, etc.*

At the two ends of a digital block, digital path, group, supergroup, etc., the terminal stations are designated as terminal digital block, digital path, group, supergroup, etc., sub-control stations for the direction of transmission for which they are not the digital block, digital path, group, supergroup, etc., control station.

##### *2.1.3 Terminal sub-control station for a digital section, line link or a regulated line section*

At the two ends of a digital section, line link or a regulated line section, the terminal stations are designated as terminal digital section, line link or regulated line section sub-control station for the direction of transmission for which they are not the digital section, line link or regulated line section control station.

#### *2.2 Intermediate sub-control stations*

##### *2.2.1 Intermediate sub-control stations for circuits*

In transit countries in which a circuit is brought to audio frequencies or 64 kbit/s, etc., an intermediate circuit sub-control station is appointed at a suitable point for each direction of transmission. It is left to the country concerned to choose:

- where this point shall be;
- whether the sub-control functions for the two directions of transmission are vested in one station or two stations (see Figure 1/M.90);
- whether, as may be desirable in the case of a large country, each direction of transmission has more than one circuit sub-control station per transit country.

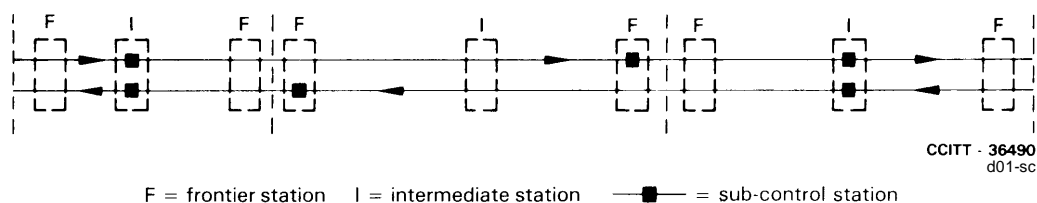


FIGURE 1/M.90

Possible choice for sub-control stations in a transit country

### 2.2.2 Intermediate sub-control stations for paths and links

In general, for digital paths and analogue links, in transit countries in which the path or link concerned appears in its characteristic bit rate or in its basic frequency range, an intermediate sub-control station is appointed for each direction of transmission. The countries concerned have the same prerogatives as those indicated above for circuits (see § 2.2.1 and Figure 1/M.90).

### 2.2.3 Intermediate sub-control stations for regulated line sections

In transit countries, a regulated line section intermediate sub-control station is appointed for each direction of transmission, the same discretion as for circuits being given to the country concerned (see § 2.2.1 above and Figure 1/M.90).

### 2.3 Combination of functions

Any, or all, of the above functions may be vested in one station, depending on the arrangements in the country concerned.

## 3 Responsibilities of sub-control stations for circuits

See Recommendations M.724 and M.1013 [3] concerning automatic public telephone circuits, leased circuits and special circuits, respectively. See also Recommendations N.5 [1] and N.55 [2] in connection with sound-programme and television circuits.

## 4 Responsibilities of sub-control stations for groups, supergroups, digital blocks, digital paths, etc.

The responsibilities of sub-control stations are, for the sections which they control, similar to those given in Recommendation M.80 for control stations, but in addition they include:

- cooperating with the control stations and other sub-control stations in locating and clearing faults;
- setting up and maintaining that part of the digital path, group link, supergroup link, mastergroup link, or regulated line link between the through-connection stations nearest to the two frontiers;
- seeing that the transmission on the national section with which they are concerned is within the prescribed limits;
- reporting to the control station all relevant details concerning the location and subsequent clearance of faults;
- keeping the necessary records on lining-up (analogue transmission) or initial measurements (digital transmission), fault location and fault clearing for the section for which they are responsible.

In addition to the above responsibilities, an intermediate sub-control station (in a transit country) is responsible for initiating fault localization tests on the sections it controls in response to reports from other control or sub-control stations.

## References

- [1] CCITT Recommendation *Control and sub-control stations for sound-programme circuits, connections, etc.*, Vol. IV, Rec. N.5.
- [2] CCITT Recommendation *Organization, responsibilities and functions of control and sub-control ITCs and control and sub-control stations for international television connections, links, circuits and circuit sections*, Vol. IV, Rec. N.55.
- [3] CCITT Recommendation *Circuit sub-control station for leased and special circuits*, Vol. IV, Rec. M.1013.