INTERNATIONAL TELECOMMUNICATION UNION

ITU-T

F.140

TELECOMMUNICATION
STANDARDIZATION SECTOR
OF ITU

(03/93)

OPERATIONS AND QUALITY OF SERVICE

MOBILE SERVICE

POINT-TO-MULTIPOINT TELECOMMUNICATION SERVICE VIA SATELLITE

ITU-T Recommendation F.140

(Previously “CCITT Recommendation”)

FOREWORD

The ITU Telecommunication Standardization Sector (ITU-T) is a permanent organ of the International Telecommunication Union. The ITU-T is responsible for studying technical, operating and tariff questions and issuing Recommendations on them with a view to standardizing telecommunications on a worldwide basis.

The World Telecommunication Standardization Conference (WTSC), which meets every four years, established the topics for study by the ITU-T Study Groups which, in their turn, produce Recommendations on these topics.

ITU-T Recommendation F.140 was revised by the ITU-T Study Group I (1988-1993) and was approved by the WTSC (Helsinki, March 1-12, 1993).

NOTES

1 As a consequence of a reform process within the International Telecommunication Union (ITU), the CCITT ceased to exist as of 28 February 1993. In its place, the ITU Telecommunication Standardization Sector (ITU-T) was created as of 1 March 1993. Similarly, in this reform process, the CCIR and the IFRB have been replaced by the Radiocommunication Sector.

In order not to delay publication of this Recommendation, no change has been made in the text to references containing the acronyms "CCITT, CCIR or IFRB" or their associated entities such as Plenary Assembly, Secretariat, etc. Future editions of this Recommendation will contain the proper terminology related to the new ITU structure.

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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Recommendation F.140

POINT-TO-MULTIPOINT TELECOMMUNICATION SERVICE VIA SATELLITE

(Melbourne, 1988; revised Helsinki, 1993)

The CCITT,

considering

(a) the need for a point-to-multipoint telecommunication service;

(b) the loss of the HF multi-destinational Press broadcast service for this purpose;

(c) the availability of satellites for point-to-multipoint telecommunications services on a regional and world-wide basis;

(d) the availability of a multiplicity of earth station sizes;

(e) the need for a clarification in terms of the functional elements of this service;

(f) the need for the flexibility of their implementation in order to adapt to the needs of all Administrations,

recommends

the following operational guidelines and Quality of Service requirements for an international point-to-multipoint telecommunication service via satellite.

1 Scope[1)]

This Recommendation provides operational guidelines and Quality of Service requirements for an international one-way point-to-multipoint telecommunication service via satellite. See Recommendation D.185 for the general tariff and accounting principles for the international point-to-multipoint telecommunication service via satellite.

1.1 Definition of service

The **international point-to-multipoint telecommunication service via satellite** is defined as a service provided to a customer by Administrations for the transmission for example, of text, photographs or data via a satellite for the reception at a multiplicity of destinations by receive-only earth stations.

2 Service description

2.1 Functional elements of service

A point-to-multipoint telecommunication service via satellite includes the seven following elements (see Figure 1);

1) the provider(s) of information;

2) the link between the provider(s) and the control management centre;

1) Multipoint-to-point and two-way multiple access services are not addressed in this Recommendation, and are subject to further study.

3) the control management centre which uses various transmission means in order to collect, address, and multiplex the information from the provider(s);

4) the link between the command and management centre and the up link transmit earth stations;

5) transmit earth station(s);

6) the transponder of a satellite(s);

7) one or several receive earth stations;

8) the link(s) from the receive earth station(s) to the user(s) equipment.

2.2 Service provision

The service may be provided on either a full time 24-hour basis, a scheduled part-time basis (e.g., five hours per day), or occasional use basis (e.g., a special event), subject to such terms as may be agreed between Administrations.

2.3 Types of service

The service may be provided:

a) in the form of one or more analogue channels, the bandwidth of which may lie anywhere within the maximum available bandwidth of one transponder; or

b) in the form of one or more digital channels operating at any speed within the maximum available digital capacity of one transponder.

2.4 Areas of service coverage

The service may be provided on a regional or global basis depending on customer requirements and satellite capability.

2.5 Service configurations

As illustrated in Figure 1, there are eight functional elements in the provision of a point-to-multipoint telecommunication service via satellite. Owing to the need for flexibility, the systems may be adapted to a diversity of needs and the regulations of each Administration involved.

The conditions of use of the transmit (5) and receive (7) earth stations and the links (2) and (4) conveying the information flow remain a national matter to be determined by the competent authority in each country.

The conditions of use of the space segment (6) are defined by the organizations (INTELSAT, EUTELSAT, etc.) in charge of their provision and by whatever agreements on coordination made by the competent international organizations.

The control management centre (3) for the service may be located and/or operated with the transmit earth station, the provider of the information or independently of these two entities.

3 Quality of Service

The efficiency of operation and therefore the Quality of Service provided to the users are linked to the relationship of all parties which contribute to the provision of the service, i.e. the technical equipment and the entities in charge of their operation. Quality of Service parameters and values are for further study based on operational experience.

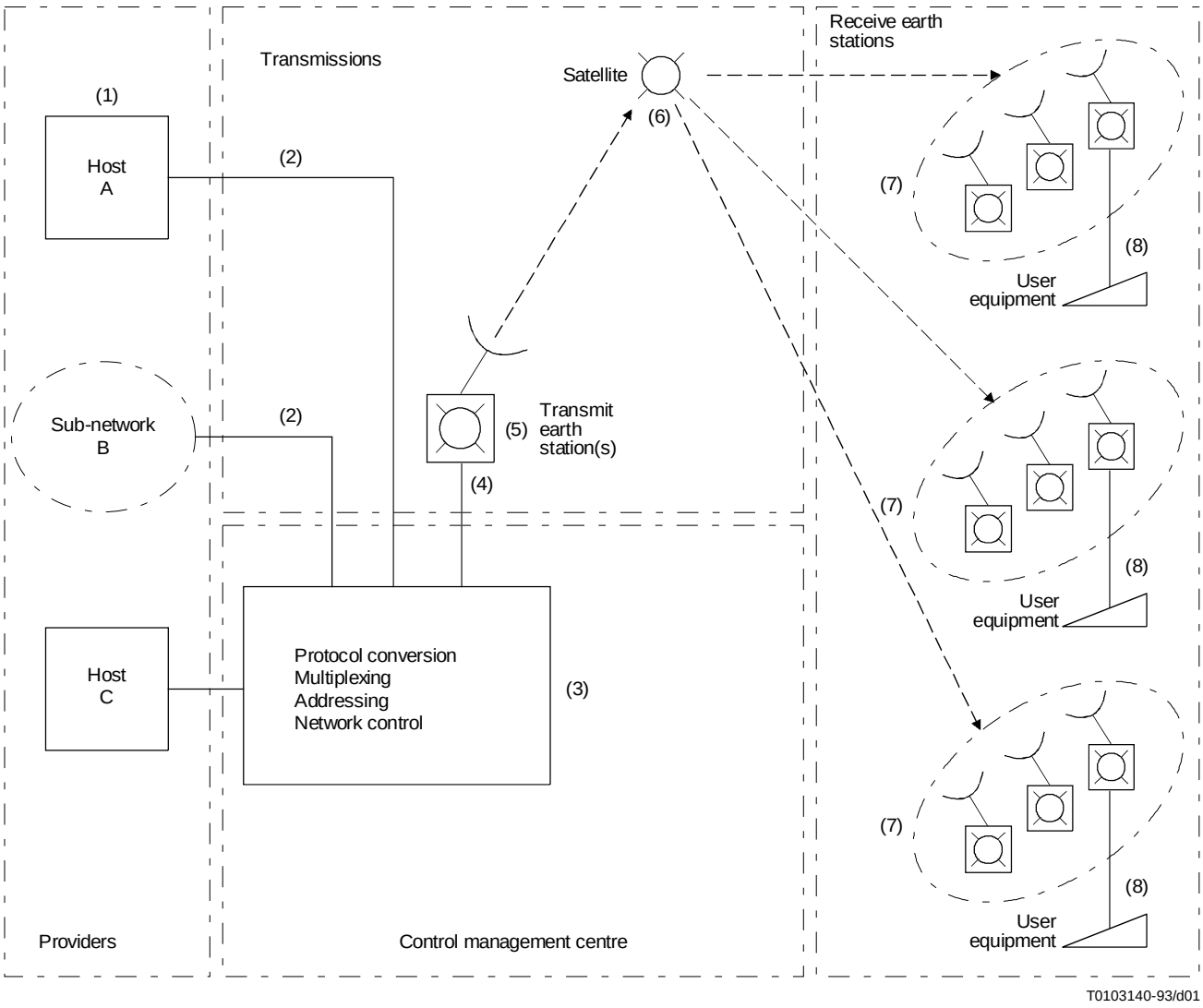

FIGURE 1/F.140

3.1 Service availability

Service availability is the ratio of aggregate time during which satisfactory or tolerable service is or could be provided, to the total observation period (Recommendation X.140, definition).

As this availability of service depends on the class of space segment, the earth station configurations, the propagation and interference effects and the bit error ratio required, it is not possible to specify a service availability requirement for all point-to-multipoint telecommunication services via satellite. The service availability for each customer will have to be calculated on an individual case basis considering all the points mentioned above.

4 Access

4.1 Transmit

The point of interconnection to the service may be located at the providers' location or on the Administrations' premises. When the point of interconnection to the service is located on the Administrations' premises, the providers' access may be via a leased circuit or a public switched network.

4.2 Receive

The receive earth station(s) may be located on the users premises or at Administrations' premises. Where the receive earth stations are located at the Administration's premises, access to the user should be via direct connection. The user of a public switched network is for further study.

5 Classes of space segment

Services offered may take account of classes of space segment available from the space segment provider(s). The following classes of space segment may be utilized to provide service:

a) *non-pre-emptible* – A service which may not be interrupted or terminated for the provision of a service to another customer. There are two types of non-pre-emptible service:

   1) protected – A service for which restoration is guaranteed; and

   2) unprotected – A service for which restoration is not guaranteed and which may only be restored subject to availability of an alternate facility;

b) *pre-emptible* – A service which may be interrupted to provide a service of higher priority.