

RECOMMENDATION ITU-R M.827*

**Hypothetical reference digital path for systems
in the mobile-satellite service using feeder links**

(1992)

The ITU Radiocommunication Assembly,

considering

- a) that it is desirable to establish hypothetical reference digital paths (HRDP) for mobile satellite systems to afford guidance to designers of equipment and systems for use in networks employing digital transmission techniques;
- b) that satellite-to-satellite links in the intersatellite service may be used in mobile-satellite systems;
- c) that the transmission delay variation introduced by satellite movement relative to the Earth is of particular significance in a plesiochronous (Note 1) network and facilities to compensate for it may be located at earth stations;
- d) that a number of modulation and access techniques may be used in digital satellite links;
- e) that single channel and multiplexed digital signals may be transmitted on satellite links;
- f) that a mobile-satellite service HRDP may form part of an integrated services digital network (ISDN) hypothetical reference connection (HRX) as defined by the ITU-T;
- g) that the channel bit rate required at the terrestrial network interface may vary depending on the application, i.e. maritime, aeronautical, or land mobile-satellite services;
- h) that communications may be effected between mobiles and land earth stations in which case the associated feeder links should be included in the HRDP;
- j) that communications may also be effected between mobiles and this may need a separate HRDP,

recommends

- 1 that an HRDP for mobile-satellite service transmissions between land earth stations and mobiles should consist in one direction of one land earth station to satellite to mobile earth station link, and in the reverse direction of one mobile earth station to satellite to land earth station link; for either direction the space portions may comprise one multi-satellite link;
- 2 that the HRDP for land earth stations to mobile earth stations should include the equipment indicated in Fig. 1; and that the HRDP should interface with the terrestrial network on the land earth station side, and if needed then with other relevant network on the mobile earth station side, at a suitable digital distribution frame (DDF) at the lowest bit rate appropriate to that HRDP;
- 3 that the following Notes be considered as part of this Recommendation.

* Radiocommunication Study Group 8 made editorial amendments to this Recommendation in 2004 in accordance with Resolution ITU-R 44.

NOTE 1 – The term “plesiochronous” is used according to the definition given in ITU-T Recommendation G.701 as follows:

Two signals having the same nominal digit rate but not stemming from the same clock or homochronous.

NOTE 2 – Further study should be made on an HRDP for mobile-to-mobile communications.

NOTE 3 – The term feeder link refers to the link between the LES and satellite and the term service link refers to the link between the satellite and mobile.

NOTE 4 – For the mobile earth station it may not be possible to subdivide the component paths due to the integrated nature of the equipment.

FIGURE 1

Hypothetical reference digital path

