RECOMMENDATION ITU-R SA.1019

PREFERRED FREQUENCY BANDS AND TRANSMISSION DIRECTIONS FOR DATA RELAY SATELLITE SYSTEMS

(Question ITU-R 118/7)

(1994)

The ITU Radiocommunication Assembly,

considering

a) that data relay satellite systems are in operation or are planned corresponding to the Hypothetical Reference System for Data Relay Satellite (DRS) Systems of Recommendation ITU-R SA.1018;

b) that these DRS systems support links with widely different characteristics;

c) that some DRS user spacecraft require links of low data rate (up to about 6 Mbit/s) which require modest bandwidths which can be most economically implemented, using low-power transmitters, simple wide-beam antennas without complex pointing mechanisms and robust receivers, in frequency bands for DRS inter-orbit links below 3 GHz;

d) that some DRS user spacecraft require links from wide-beam or omnidirectional antennas (in particular to support contingency links) in cases where the attitude of the user spacecraft and the direction of the DRS is not accurately known, thus requiring the use of frequency bands for DRS inter-orbit links below 3 GHz;

e) that some DRS user spacecraft require links of medium to high data rates (from about 10 Mbit/s up to more than 600 Mbit/s) thus requiring the use of frequency bands for DRS inter-orbit links above 10 GHz;

f) that the frequency bands available and suitable for DRS inter-orbit links are limited;

g) that the forward and return feeder links of data relay satellites could use bands allocated to the fixed-satellite service;

h) that the normal-mode operations of data relay satellites should use their own forward and return feeder-link frequency bands;

j) that launch, early-orbit-phase and emergency operations of data relay satellites require the use of wide-beam or omnidirectional antennas, which require the use of frequency bands below 3 GHz;

k) that the choice of common frequency bands for different data relay satellite systems permits the consideration of interoperability between user spacecraft designed to use one DRS system and data relay satellites of another DRS system,

recommends

1. that the inter-orbit links for DRS user spacecraft requiring low data rates using wide-beam or omnidirectional antennas use assignments within the allocated bands:

1.1 2 025-2 110 MHz band for the forward inter-orbit link;

1.2 2 200-2 290 MHz band for the return inter-orbit link;

2. that the inter-orbit links for DRS user spacecraft requiring medium data rates consider assignments within the allocated bands, subject to the limitations of a secondary allocation:

2.1 13.4-14.3 GHz band for the forward inter-orbit link;

2.2 14.5-15.35 GHz band for the return inter-orbit link;

3. that the inter-orbit links for DRS user spacecraft requiring medium to high data rates use assignments within the allocated bands:

3.1 22.55-23.55 GHz band for the forward inter-orbit link;

3.2 25.25-27.50 GHz band for the return inter-orbit link;

4. that the launch, early-orbit-phase and emergency operations of a DRS use the 2 025-2 110 MHz and 2 200-2 290 MHz bands.