

QUESTION ITU-R 70-1/4

Protection of the geostationary-satellite orbit against unacceptable interference from transmitting earth stations in the fixed-satellite service at frequencies above 15 GHz

(1990-1993)

The ITU Radiocommunication Assembly,

considering

- a) that some administrations use low levels of artificial energy dispersal on TV carriers which eases the coordination for some satellite networks;
- b) that the use of artificial energy dispersal may in some cases result in intra-network interference which adversely affects the attainment of the desired operating quality;
- c) that, where the operating frequencies of transmissions are known, their coordination may be facilitated when they are not subject to artificial energy dispersal;
- d) that the temporary increase of transmitted up-link power is an effective means of combatting fading due to rain (up-link power control);
- e) that when up-link power in the direction of a wanted satellite is temporarily increased another satellite may be subject to an interference increase due to differential rain attenuation on the two transmission paths, the attenuation differential expected to increase with inter-satellite spacing;
- f) that the greater the angular spacing between a wanted and an interfered-with satellite the smaller will be the fraction of the total interference in the interfered-with satellite that is subject to the increase and the more tolerable will be the interference increase;
- g) that such an interference increase will persist only for a small percentage of the time;
- h) that these considerations may offer relief for earth station operators under certain circumstances at frequencies above 15 GHz;
- j) that Recommendation ITU-R S.524 only specifies the earth station emission levels while it is the received power levels at the interfered-with satellite that is of concern;
- k) that while television carriers utilize energy dispersal to reduce the e.i.r.p. density levels, it also leads to a wider band of high density spectrum to be avoided by narrow-band carriers,

decides that the following Question should be studied

- 1** What is the appropriate format for criteria for the protection of geostationary space stations in the fixed-satellite service against unacceptable interference caused by earth station emissions above 15 GHz, given that it is the power received which causes interference, not the power transmitted, and that during small percentages of the time increases in interference may be tolerable?
- 2** What off-axis e.i.r.p. density criteria, including those in Recommendation ITU-R S.524 would be appropriate for earth stations transmitting television carriers utilizing various levels of energy dispersal?

3 What are the preferred values for such criteria that give due recognition to the efficiency of utilization of the geostationary-satellite orbit spectrum, intra-network interference and inter-network coordinability?

further decides

1 that the results of these studies should lead to the formulation of appropriate Recommendations by 2006.

NOTE 1 – See Recommendation ITU-R S.524.