

RECOMMENDATION ITU-R S.727-1

Cross-polarization isolation from very small aperture terminals (VSATs)

(Question ITU-R 23-1/4)

(1992-2002)

The ITU Radiocommunication Assembly,

considering

- a) that it is necessary to provide protection of the wanted VSAT earth station signals from signals on the orthogonal polarization in the fixed-satellite service;
- b) that cross-polarization isolation in prime focus axisymmetric parabolic antenna systems (centre fed), is usually higher than in prime focus offset-fed paraboloid systems;
- c) that for small aperture antennas (e.g. 1.2-2.4 m), offset fed antenna geometry has the advantage of providing significantly lower side-lobe levels than from centre fed antennas;
- d) that offset fed antennas are widely used for VSAT operation;
- e) that the reduction in the efficiency of frequency reuse by dual polarization has to be taken into account when using prime focus offset fed antennas with relatively low polarization discrimination,

recommends

- 1** that the ratio of the on axis co-polar gain to the cross-polar gain of a linearly polarized antenna in the allocated transmit frequency band should be not less than:
 - 25 dB within the 0.3 dB contour of the main beam, and
 - 20 dB between the 0.3 dB and 20 dB contours of the main beam;
- 2** that beyond the 20 dB contour of the main beam of the antenna, the cross-polar gain should meet the same standards as the co-polar gain.

NOTE 1 – Some administrations (including satellite operators) may require higher cross-polar isolation than specified above.

NOTE 2 – Further studies are needed to assess the applicability of this Recommendation for VSAT in frequency bands above 18 GHz.
