RECOMMENDATION ITU-R RS.1803*

Technical and operational characteristics for passive sensors in the Earth exploration-satellite (passive) service to facilitate sharing of the 10.6-10.68 GHz and 36-37 GHz bands with the fixed and mobile services

(Question ITU-R 232-1/7)

(2007)

Scope

This Recommendation provides mitigation techniques concerning passive sensors in operation within the bands 10.6-10.68 GHz and 36-37 GHz in order to facilitate sharing within these bands between EESS (passive) and the fixed and mobile services.

The ITU Radiocommunication Assembly,

considering

a) that the 10.6-10.7 GHz and 36-37 GHz bands are allocated on a primary basis to the Earth exploration-satellite (EESS) (passive) and space research (passive) services;

b) that the 10.6-10.68 GHz band is also allocated on a primary basis to the fixed service (FS) and the mobile service (MS), subject to the provisions of No. 5.482 of the Radio Regulations;

c) that the 36-37 GHz band is also allocated on a primary basis to the fixed and mobile services;

d) that the 10.6-10.7 GHz band is very important for the study of the rain, snow, ice, sea state, and ocean wind as stated in Recommendation ITU-R RS.515;

e) that the 36-37 GHz band is very important for the study of rain, snow, ocean ice, water vapour as stated in Recommendation ITU-R RS.515;

f) that the performance and the interference criteria for satellite passive sensing in the 10.6-10.7 GHz and 36-37 GHz bands are contained in Recommendations ITU-R RS.1028 and ITU-R RS.1029;

g) that certain technical and operational constraints on passive sensors operating in the 10.6-10.68 GHz and 36-37 GHz bands facilitate the sharing of these bands with the fixed and mobile services,

recognizing

that sharing studies between the passive services and the fixed and mobile services in the 10.6-10.68 GHz and 36-37 GHz bands have been conducted in order to define appropriate sharing criteria between these services,

* This Recommendation should be brought to the attention of Radiocommunication Study Groups 8 and 9.

recommends

1 that the incidence angle of a passive sensor should not exceed 60°;

2 that the main beam efficiency should not be less than 85% for passive sensors operating in the 10.6-10.68 GHz band and not less than 92% for passive sensors operating in the 36-37 GHz band;

3 that the spatial resolution, as defined by the pixel size, should not exceed 50 km;

4 that the following Notes 1, 2 and 3 are an integral part of this Recommendation.

NOTE 1 – The passive sensor incidence angle is defined as the angle at the Earth's surface between the local vertical and the centre of the passive sensor antenna beam.

NOTE 2 – The main beam efficiency of a passive sensor is defined as the energy (main and cross-polarization components) within 2.5 times the –3 dB beamwidth region, relative to the total energy within all angles.

NOTE 3 – The spatial resolution of a passive sensor is defined as the maximum cross-section of the passive sensor –3 dB contour on the Earth's surface.