

## OPINION ITU-R 98

**SPECTRUM REQUIREMENTS OF METEOROLOGICAL AIDS  
IN THE FREQUENCY RANGE FROM 400.15 TO 406 MHz**

(1997)

The ITU Radiocommunication Assembly,

*considering*

- a) that meteorological aids systems are essential to produce the upper air measurements required by the World Meteorological Organization (WMO) as summarized in Recommendation ITU-R SA.1165, and that systems using 400.15 to 406 MHz constitute the majority of the systems worldwide;
- b) that there are worldwide allocations to the mobile-satellite (space-to-Earth), space research (space-to-Earth), meteorological aids and meteorological-satellite (space-to-Earth) services, in the band 400.15-401 MHz with the use of the band by the mobile-satellite service subject to coordination under Resolution 46 of the Radio Regulations and the power flux-density in Annex 2 of that Resolution;
- c) that the band 401-402 MHz is shared between the meteorological aids and the space operation (space-to-Earth) services on a primary basis and the meteorological-satellite and Earth exploration- (Earth-to-space) satellite services, fixed and mobile (except aeronautical) services on a secondary basis;
- d) that the band 402-403 MHz is allocated on a primary basis to the meteorological aids service only, and on a secondary basis to the meteorological-satellite, Earth exploration-satellite services (Earth-to-space), fixed and mobile (except aeronautical) services;
- e) that the band 403-406 MHz is allocated on a primary basis to the meteorological aids services, and on a secondary basis to the fixed and mobile (except aeronautical) services;
- f) that in some administrations band segmentation is already used to facilitate sharing between space operation, meteorological aids, meteorological-satellite and Earth exploration-satellite services;
- g) that development of more spectrum efficient meteorological aids systems is continuing in order to minimize the bandwidth required by these systems, as outlined in Recommendation ITU-R SA.1165;
- h) that improved equipment in recent years has been used by the administrations to accommodate increasing requirements for meteorological aids systems within the existing bands, both for shorter term and regional forecasting according to WMO requirements, environmental and emergency monitoring and for defence use;
- j) that administrations with large spacing between meteorological aids systems may not be likely to change to the most spectrum efficient equipment, due to the significant increased cost of such improvements;
- k) that the majority of the current meteorological aids system used worldwide in this band have been in operation for less than 10 years. A major transition is occurring in 1997-1998 in many administrations, when Navaid windfinding systems depending on the omega network must be replaced by systems using another method of windfinding. Implementation of the replacement systems will result in a significant capital expenditure for both operators and manufacturers, a short time into the anticipated operational life of the systems. However, this may offer an opportunity to implement more spectrum efficient systems recognizing that significant increase in costs will occur;
- l) that there are other low power applications that are seeking sharing with meteorological aids systems in some countries,

*noting*

- 1 that sharing studies have shown that in general co-channel sharing between meteorological aids and mobile-satellite service systems is not feasible (except as in *noting* 2) and sharing in the band 401-406 MHz would generally require band segmentation;

2 that one study submitted to Radiocommunication Working Party 7C (Document 7C/81) indicates that feeder links for some mobile-satellite systems using spread spectrum may be able to share the frequency band 401-406 MHz with meteorological aids, provided that a power flux-density below  $-158.3 \text{ dB(W/(m}^2 \cdot 300 \text{ kHz))}$  is maintained and that these mobile-satellite service systems accept interference from the meteorological aids systems;

3 that considerations to upgrade the meteorological-satellite and EES services to a co-primary status with meteorological aids in the bands 401-403 MHz may impose constraints on the frequencies available for meteorological aids systems in some locations, and that these constraints could be expected to increase with time as the requirements of meteorological and EES satellites increase,

*is of the opinion*

1 that Administrations should assess their future requirements for meteorological aids systems, including civilian and defence users in the range 400.15 to 406 MHz and submit them to Radiocommunication Working Party 7C and the WMO;

2 that the WMO should be invited to participate in these studies.

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