

RECOMMENDATION ITU-R M.1389

**METHODS FOR ACHIEVING COORDINATED USE OF SPECTRUM BY MULTIPLE
NON-GEOSTATIONARY MOBILE-SATELLITE SERVICE SYSTEMS BELOW
1 GHZ AND SHARING WITH OTHER SERVICES IN EXISTING
MOBILE-SATELLITE SERVICE ALLOCATIONS**

(Question ITU-R 83/8)

(1999)

Summary

This Recommendation concerns methods for achieving coordinated use of spectrum by multiple non-geostationary mobile-satellite service systems below 1 GHz and sharing with other services in existing mobile-satellite service allocations. A table indicates the techniques to use for narrow band and wideband systems in connection with different services.

The ITU Radiocommunication Assembly,

considering

- a) that WARC-92, WRC-95 and WRC-97 allocated the bands 137-138 MHz, 148-149.9 MHz, 149.9-150.05 MHz (land mobile-satellite service (LMSS) only), 399.9-400.05 MHz (LMSS only), 400.15-401 MHz, 454-455 MHz in certain countries, 455-456 MHz (Region 2 and in certain other countries) and 459-460 MHz (Region 2 and in certain other countries) to the MSS;
- b) that these allocations are shared by other space and terrestrial services;
- c) that Resolution 46 (Rev.WRC-97) provides for coordination between these services;
- d) that various techniques have been developed to achieve the coordinated use of these allocations among these services,

noting

- a) that the aggregate impact of transmissions from mobile earth station (MES) of multiple mobile satellite system (MSS) systems be taken into consideration when determining the coordinated use of spectrum,

recommends

- 1** that the techniques indicated in Table 1 be used as a guide to the coordinated use of existing MSS allocations below 1 GHz with both space and terrestrial services;

TABLE 1

Non-GSO MSS sharing summary

	Narrow-band	Wideband
Fixed and mobile (148-149.9 MHz) (455-456 MHz and 459-460 MHz in Region 2)	Combination: – Dynamic channel avoidance (Rec. ITU-R M.1039) – Low duty cycle – Brief message duration – Geographical separation (Rec. ITU-R M.1185)	Combination: – Low output power density – Brief message duration – Low data rate – Filtering at satellite – Geographical separation
Fixed and mobile (137-138 MHz)* (400.15-401 MHz)	Ground level pfd per RR S5.208 (Resolution 46 (Rev.WRC-97), A2.1.1.1-3)	Ground level pfd per RR S5.208 (Resolution 46 (Rev.WRC-97), A2.1.1.1-3)
Meteorological satellites (137-138 MHz)* (400.15-401 MHz)	Assignment separation	Combination: – Low pfd at ground level – Cross polarization discrimination – Adaptive filter at satellite
Space operations Space research (137-138 MHz)*	Channel avoidance	Combination: – Low pfd – Cross polarization discrimination
Space research (400.15-401 MHz)	Channel avoidance	Combination: – Low pfd – Cross polarization discrimination
Meteorological aids (400.15-401 MHz)	Channel avoidance	Combination: – Low pfd – Cross polarization discrimination
Radionavigation satellite (149.9-150.05 MHz) (399.9-400.05 MHz)	– pfd limit – Channel avoidance – Coordination distance – Antenna elevation limit	
Other MSS systems (uplink)	– Assignment separation for spread-spectrum systems – Channel avoidance for FDMA systems – Geographic separation – Controlled frequency avoidance	– Assignment separation for FDMA systems – Spectrum sharing for other spread spectrum multiple access (SSMA) systems – Controlled frequency avoidance
Other MSS systems (downlink)	Combination: – Channel locations – Cross polarization discrimination – Assignment separation	Combination: – Low satellite e.i.r.p. density – Cross polarization discrimination – CDMA – Assignment separation
Other MSS systems (400.15-401 MHz)	Assignment separation	Assignment separation
Radio astronomy	Filtering/Bit shaping	Filtering/Bit shaping

* See Radio Regulations (RR) Article S1.

2 that for uplink sharing, between non-GSO MSS and other services the sharing techniques include the following:

- terrestrial services and frequency division multiple access (FDMA) MSS systems – dynamic channel assignment and/or operational constraint on the MES transmissions (see Recommendation ITU-R M.1039);
- terrestrial services and code-division multiple access (CDMA) MSS systems – low power density transmissions and/or operational constraints on the MES transmissions;
- sharing between MSS systems may require separate spectrum assignments;