RECOMMENDATION ITU-R IS.850-1

COORDINATION AREAS USING PREDETERMINED COORDINATION DISTANCES

(Questions ITU-R 3/12, ITU-R 4/12, ITU/R 5/12 and ITU-R 6/12)

(1992-1995)

The ITU Radiocommunication Assembly,

considering

a) that in sharing between space and terrestrial services involving earth stations that are mobile, the characteristics of the stations indicate a need for only a small range of coordination distances, regardless of azimuth;

b) that in such cases it would be simpler to determine a coordination area based on a single predetermined coordination distance rather than on coordination distances that must be calculated for all azimuths and for each case;

c) that the coordination distance needs to be determined with due regard to equivalent isotropically radiated power (e.i.r.p.) and sensitivity to interference at the transmitting and receiving station, respectively, but otherwise relies on high values of basic transmission loss associated with propagation of signals over transhorizon paths;

d) that generally from such cases no advantage can be obtained from terrain shielding;

e) that in some cases involving earth stations operating at a specified fixed point, simple expressions for coordination distance can be based on terrain shielding;

f) Radio Regulation (RR) No. 1107, which prescribes predetermined coordination distances for the radiodetermination-satellite service for use with respect to terrestrial services;

g) RR Article 8, which specifies bands that are shared between space and terrestrial services, including those subject to the provisions of Article 14 under which administrations and the ex-IFRB may have to identify potentially affected administrations,

recommends

1 that the predetermined coordination distances specified in Tables 1 and 2 be used for transmitting and receiving earth stations, respectively, in cases defined by the corresponding frequency band and service entries;

2 that, for earth stations that are to be coordinated on the basis of operation within a specified service area, the predetermined coordination distance be measured in all directions from the service area to determine the coordination contour encompassing the coordination area;

3 that the coordination distances be measured from the location of an earth station operating at a specified fixed point in order to determine the coordination contour that encompasses the coordination area;

4 that in cases not covered by Tables 1 or 2, the methods of Recommendations ITU-R IS.847 or ITU-R IS.849 should be applied;

5 that the following Notes should be regarded as part of this Recommendation:

NOTE 1 – Currently, the RR specify that coordination distances of 1 000 km and 500 km for airborne and ground-based earth stations, respectively, operating with non-geostationary satellites, shall be used for frequency allocations where Resolution No. 46 (WARC-92) applies.

NOTE 2 – In frequency bands where RR No. 1107.2 applies, the coordination distances of 400 km and 100 km for airborne earth stations in the radiodetermination-satellite service are extended to 1 000 km and 500 km, respectively, whenever airborne terrestrial stations are involved.

NOTE 3 – The coordination distance, d (km), for fixed earth stations in the meteorological-satellite service *vis-à-vis* stations in the meteorological aids service assumes a radiosonde altitude of 20 km and is determined as a function of the physical horizon elevation angle θ (degrees) for each azimuth, as follows:

$$d = 582\left(\sqrt{1 + (0.254\,\theta)^2} - 0.254\,\theta\right) \qquad \text{for } \theta > 0$$

$$d = 582 \qquad \text{for } \theta \leq 0$$

The minimum and maximum coordination distances are 100 km and 582 km, and correspond with physical horizon angles greater than 11° and less than 0°.

NOTE 4 – Administrations are urged to assist in the refinement of the technical bases from which the coordination distances are drawn. The coordination distances in Tables 1 and 2 are based on the simplified configuration of the sharing situation of line-of-sight between the stations concerned. This results in conservative values, but with the introduction of suitable technical parameters and statistical assumptions of aircraft traffic density, the coordination distances can safely be reduced. This will be apparent in the subsequent detailed coordination and interference evaluation process.

NOTE 5 – The coordination contour is a threshold within which the more detailed calculation of potential interference should take place; it is not an exclusion zone.

NOTE 6 – Use the parameters in Recommendation ITU-R IS.847, Table 2, for the 2 160-2 200 MHz band when determining the coordination distance.

TABLE 1

Predetermined coordination distances
Transmitting earth stations

Frequency band (MHz)	Terrestrial service (RR No.)	Space service (RR No.)	Class of earth station	Coordination distance (km)
1 610-1 626.5	Aeronautical radionavigation Fixed (730)	Mobile-satellite (731E) Aeronautical radionavigation-satellite (732) (731E) Aeronautical mobile-satellite (733) (731E)	Airborne Ground-based	1 000 and 500 *vis-a-vis* airborne and ground-based stations in terrestrial services, respectively (see Note 1) Recs. ITU-R IS.847 or ITU-R IS.849 for fixed, otherwise 500 (see Note 1)
		Radiodetermination-satellite	Airborne Ground-based	400, *vis-à-vis* ground-based stations in terrestrial services (see Note 2) 100, *vis-à-vis* ground-based stations in terrestrial services (see Note 2)
1 626.5-1 631.5	Fixed (730)	Mobile-satellite (726D)	Airborne	1 000 (see Note 1)
1 626.5-1 645.5		Mobile-satellite (726C) (726D)	Ground-based	Rec. ITU-R IS.847 or ITU-R IS.849 (see Note 1)
		Maritime mobile-satellite (726C)	Ground-based	Rec. ITU-R IS.847 or ITU-R IS.849 (see Note 1)
1 631.5-1 634.5		Land mobile-satellite (726B)		

TABLE 1 *(continued)*

Frequency band (MHz)	Terrestrial service (RR No.)	Space service (RR No.)	Class of earth station	Coordination distance (km)
1 646.5-1 656.5	Fixed (730) Aeronautical mobile (735)	Aeronautical mobile-satellite (726D)	Airborne Ground-based	1 000 and 500, *vis-a-vis* airborne and ground-based stations in terrestrial services, respectively (see Note 1) Rec. ITU-R IS.847 or ITU-R IS.849 for ground-based stations in terrestrial services, otherwise 500 (see Note 1)
1 656.5-1 660	Fixed (730)	Land mobile-satellite (726D) Mobile-satellite (730B) (730C) (726D) Aeronautical mobile-satellite (730A) (726D)		
1 675-1 710	Fixed, Mobile	Mobile-satellite (735A)		
1 970-2 010	Fixed, Mobile	Mobile-satellite (746B)	Airborne Ground-based	1 000 and 500, *vis-a-vis* airborne and ground-based stations in terrestrial services, respectively(see Note 1) Rec. ITU-R IS.847 or ITU-R IS.849 for ground-based terrestrial services, otherwise 500 (see Note 1)
5 000-5 250	Aeronautical radionavigation Mobile (797B)	Aeronautical mobile satellite (733)	Airborne	1 000 and 500, *vis-à-vis* airborne and ground-based stations in terrestrial services, respectively
7 900-8 025	Fixed, Mobile	Mobile-satellite (812)		
15 400-15 700	Aeronautical radionavigation	Aeronautical mobile-satellite (733)		
43 500-47 000	Mobile Radionavigation	Mobile-satellite Radionavigation-satellite		

TABLE 2

Predetermined coordination distances
Receiving earth stations

Frequency band (MHz)	Terrestrial service (RR No.)	Space service (RR No.)	Class of earth station	Coordination distance (km)
1 215-1 260	Radiolocation Fixed, Mobile (711) Radionavigation (712, 712A) Aeronautical radionavigation (714)	Radionavigation-satellite	Airborne	1 000 and 500, *vis-à-vis* airborne and ground-based stations in terrestrial services respectively
1 492-1 525	Fixed, Mobile	Mobile-satellite (723C)	Airborne Ground-based	1 000 and 500, *vis-à-vis* airborne and ground-based stations in terrestrial services, respectively (see Note 1) Rec. ITU-R IS.847 or ITU-R IS.849 for ground-based stations in terrestrial services, otherwise 500 (see Note 1)
1 525-1 530		Mobile-satellite (726D) Maritime mobile-satellite (726D)		
1 550-1 555	Fixed (730)	Aeronautical mobile-satellite (726D)		
1 555-1 559		Aeronautical mobile-satellite (730A) (726D) Mobile-satellite (730C) (726D)		
		Land mobile-satellite (726D)	Ground-based	Rec. ITU-R IS.847 or ITU-R IS.849 (see Note 1)
1 559-1 610	Aeronautical radionavigation Fixed (730)	Radionavigation-satellite		1 000 and 500, *vis-à-vis* airborne and ground-based stations in terrestrial services, respectively, except for the aeronautical mobile-satellite service *vis-à-vis* the fixed service, where 800 applies
1 610-1 626.5		Aeronautical radionavigation-satellite (732) Aeronautical mobile-satellite (733)		
1 613.8-1 626.5	Aeronautical radionavigation Fixed (730)	Mobile-satellite service (731F)	Airborne Ground-based	1 000 and 500, *vis-à-vis* airborne and ground-based stations in terrestrial services, respectively (see Note 1) Rec. ITU-R IS.847 or ITU-R IS.849 for fixed service, otherwise 500 (see Notes 1,6)

TABLE 2 *(continued)*

Frequency band (MHz)	Terrestrial service (RR No.)	Space service (RR No.)	Class of earth station	Coordination distance (km)
1 670-1 700	Mobile (740A) Meteorological aids Fixed	Meteorological-satellite	Ground-based	See Note 3
2 160-2 200	Fixed, Mobile	Mobile-satellite (746B)	Airborne Ground-based	1 000 and 500, *vis-à-vis* airborne and ground-based stations in terrestrial services, respectively (see Note 1) Rec. ITU-R IS.847 or ITU-R IS.849 for ground-based stations in terrestrial services, otherwise 500 (see Note 1)
2 483.5-2 500	Fixed, Mobile Radiolocation	Mobile-satellite (753F)		
		Radiodetermination-satellite (753A) (753C)	Airborne Ground-based	400, *vis-à-vis* ground-based station in terrestrial services (see Note 2) 100, *vis-à-vis* ground-based station in terrestrial services (see Note 2)
2 500-2 520	Fixed, Mobile	Mobile-satellite (760A)	Airborne Ground-based	1 000 and 500, *vis-à-vis* airborne and ground-based stations in terrestrial services, respectively (see Note 1) Rec. ITU-R IS.847 or ITU-R IS.849 (see Note 1)
5 000-5 250	Aeronautical radionavigation Mobile (797B)	Aeronautical mobile-satellite (733)	Airborne	1 000 and 500, *vis-à-vis* airborne and ground-based stations in terrestrial services, respectively
5 150-5 216		Radiodetermination-satellite (797A)		
7 250-7 375	Fixed, Mobile	Mobile-satellite (812)		
15 400-15 700	Aeronautical radionavigation	Aeronautical mobile-satellite (733)		
20 200-21 200	Fixed, Mobile (873)	Mobile-satellite		
29 500-40 500	Fixed, Mobile			
43 500-47 000	Mobile Radionavigation			
		Radionavigation-satellite		