RESOLUTION [COM4/7]

Development of methods for the identification of administrations whose existing and planned digital and analogue assignments/allotments in the broadcasting service and assignments to other primary services may be affected by the application of the interim coordination procedures adopted by the first session of the Regional Radiocommunication Conference (Geneva, 2004)

The first session of the Regional Radiocommunication Conference (Geneva, 2004),

considering

a) that it has adopted definitions for existing and planned assignments/allotments of the broadcasting service and for existing and planned assignments of primary services other than broadcasting that are to be taken into account in the design of the new plan (see § 1.7 of the report to the second session);

b) that it has adopted a list of the primary services other than broadcasting that are to be taken into account in the design of the new plan (see Chapter 4 of the report to the second session);

c) that the current procedures included in the Stockholm, 1961 and Geneva, 1989 Agreements are applicable only between the parties to those agreements;

d) that it has adopted interim procedures for the coordination of assignments of primary services other than broadcasting with existing and planned assignments/allotments of the broadcasting service,

considering further

that the coordination between administrations concerned may be undertaken on the basis of bilateral or multilateral agreements,

resolves to invite ITU-R

to study, as a matter of urgency, the development of methods for the identification of administrations whose existing and planned digital and analogue assignments/allotments in the broadcasting service, and assignments to other primary services may be affected by the application of the interim coordination procedures adopted by this session of the conference, taking into consideration the need to verify the contents of the Annex to this resolution,

urges administrations

to actively participate in the studies referred to in *resolves to invite ITU-R* and to provide, whenever available, appropriate information to facilitate those studies,

instructs the Secretary-General

to bring the results of the studies requested in this resolution to the attention of the second session of the Regional Radiocommunication Conference.

ANNEX

Methods to identify administrations potentially affected by assignments or allotments in the broadcasting service and other primary services

1 Identification of the administrations whose analogue or digital assignments in the broadcasting service or assignments in other primary services may be affected by digital assignments recorded in the ST61 and GE89 Plans

Initial provisional studies of the Rules of Procedure of the Stockholm, 1961 Agreement (Part A2) and of the Geneva, 1989 Agreement (Part A6) indicate that the following approach may be used to protect the analogue broadcasting services and some other primary services from digital terrestrial broadcasting services, by applying the coordination distances as described below.

1.1 Coordination distances to assess the potential impact of DVB-T assignments on analogue television and comparison with the ST61/GE89 limiting distances

For the impact of DVB-T on analogue television, the minimum median field-strength values given in Recommendation ITU-R BT.417 have been used to calculate the values of maximum interfering field strength, and a protection ratio of 41 dB has been used (Recommendation ITU-R BT.1368), which leads to the maximum interfering field-strength values as tabulated below.

TABLE 1

Values of maximum interfering field strength (dB(µV/m)) for analogue television interfered with by DVB-T used to evaluate coordination distances

	Minimum median field-strength value (dB(µV/m))	**Maximum interfering field strength (dB(µV/m)) $E_{max\ int}$**
Band III	55	14
Band IV	65	24
Band V	70	29

The field-strength values are converted into coordination distances by applying Recommendation ITU-R P.1546 as described in Chapter 2 of the report to the second session, using 1 kW e.r.p. transmitters with 300 m effective antenna heights, but without taking into account terrain clearance angle.

Considering the information presented by the Radiocommunication Bureau, the only new digital assignments in the ST61/GE89 Plans or in the Master International Frequency Register are in Band IV/V. Consequently, the analysis has been conducted for 600 MHz only.

TABLE 2

Comparison of coordination distances (1 kW e.r.p., 300 m effective antenna height)

	Calculated coordination distances with Recommendation ITU-R P.1546 (1% of the time) (km)	**ST61 limiting distances (km)**	**GE89 limiting distances (km)(1)**
Case 1 (600 MHz, land)	130	220	150 to 180
Case 2(2) (600 MHz, warm sea)	670	Not given (>1 000 km)	650 to 750
Case 3(3) (600 MHz, cold sea)	500	980	

(1) For the GE89 distances, the distances related to Zone 1 (for land) and Zone 4 (for warm sea) are considered in this document for comparison. No comparison has been drawn for cold sea.

(2) For this case, the ST61 distances for comparison are taken from the "Mediterranean Sea" case.

(3) For this case, the ST61 distances for comparison are taken from the "sea in general" case.

Based on these results, it can be seen that, for the chosen cases, the calculated coordination distances are lower than the limiting distances provided by ST61 and GE89. It is envisaged that this will be generally valid (e.g. for other values of transmit powers and antenna heights).

It is therefore concluded that the distances provided by ST61 and GE89 can be used to identify administrations whose analogue assignments in the broadcasting service may be affected by digital assignments recorded in the ST61 and GE89 Plans.

1.2 Coordination distances to assess the potential impact of DVB-T assignments on other primary services

1.2.1 Reception of other primary services at ground level

It has been agreed that, in this case, limiting distances from ST61/GE89 can be used to identify administrations whose assignments to other primary services can potentially be affected by a digital assignment recorded in the ST61 and GE89 Plans.

1.2.2 Reception of other primary services on board aircraft

It has been concluded that, in this case, the coordination distances should be determined by line of sight using free-space propagation.

For the application of this method, it seems necessary to have a means to specify the reference points of the aircraft receiver area, which should be limited to the service area of the aeronautical land station, and shall be limited to the territory of the notifying administration responsible for the aeronautical radionavigation system.

As an example, the case of an aircraft at 10 000 m altitude will lead to line-of-sight distances around 450 km, which will depend upon the DVB-T antenna height.

2 Identification of the administrations whose analogue or digital assignments in the broadcasting service or assignments in other primary services may be affected by T-DAB allotments/assignments

2.1 Impact of T-DAB allotments/assignments on analogue or digital assignments in the broadcasting service

In order to identify the administrations whose analogue or digital assignments in the broadcasting service may be affected by T-DAB allotments/assignments, Recommendations ITU-R BS.1660, ITU-R BT.655 and ITU-R BT.1368 should be applied.

2.2 Impact of T-DAB allotments/assignments on assignments in other primary services

For assignments related to ground-based receiving stations from another primary service, distances from ST61/GE89 can apply to identify administrations potentially affected by T-DAB allotments/assignments.

For an airborne receiving station from another primary service, these distances will be determined with line of sight (see § 1.2.2).

3 Identification of the administrations whose analogue or digital assignments in the broadcasting service may be affected by assignments in other primary services

It is proposed to use the same method as described in § 1.2.

When the transmitting station of the other primary service is ground-based, distances from ST61/GE89 may be applied (see § 1.2.1).

When the transmitting station of the other primary service is on board an aircraft, the distances will be determined with line of sight (see § 1.2.2).

4 Identification of the administrations in the RRC planning area whose broadcasting and other primary services may be affected by the broadcasting analogue assignments contained in the “RCC List”

This case has not been studied in detail, but it is expected that the methods proposed in section 1 will be applicable as well.

5 Applicability to DVB-T allotments

In the case of DVB-T allotments, the combined effect of individual transmitters in the corresponding reference network should be considered (see § 5.3.1.2.6 of the report from the first to the second session of RRC).