

RECOMMENDATION ITU-R F.1671

Guidelines for a process to address the deployment of area-licensed fixed wireless systems operating in neighbouring countries

(Question ITU-R 231/9)

(2004)

The ITU Radiocommunication Assembly,

considering

- a) that in some neighbouring countries the same frequency band may be shared by fixed wireless systems (FWSs);
- b) that FWS operators are often licensed by service areas and are allowed to deploy facilities anywhere within their licensed service areas;
- c) that the concept of coordination area would be useful in avoiding undue interference between fixed service (FS) stations;
- d) that some guidelines to determine such a coordination area would be useful;
- e) that such guidelines should be applicable to any frequency band;
- f) that in order to minimize interference from systems operating within close geographical proximity of each other, operator-to-operator coordination is very important;
- g) that some existing procedures to determine the coordination area for fixed terrestrial services may identify stations for which detailed interference studies may not be required;
- h) that the interest of both existing and new systems should be taken into consideration when developing an agreement¹ process,

noting

- a) that FS-FS coordination between countries is no longer available in the Radio Regulations as decided by WARC-79,

recommends

- 1 that with the agreement of administrations concerned, the examples in Annex 1 may be used as guidelines for a process to address the deployment of area-licensed FWSs operating in neighbouring countries in the same frequency band.

¹ For the purposes of this Recommendation, the term “agreement” refers to the agreement reached or to be reached, including the coordination trigger levels, bilaterally or multilaterally, by area-licensed FWS operating in neighbouring countries in the same frequency band.

Annex 1

Guidelines for a process to address the deployment of area-licensed FWS operating in neighbouring countries

1 Introduction

Certain FWS have been licensed on an area basis in a number of administrations. Since these systems are licensed on an area basis, coordination methods are not available. There are many ways to address this. This Annex provides information on a process to address the deployment of area-licensed FWS.

These agreement processes can be applied between administrations where FWS are licensed near the border area(s), or domestically between the different operators for concerned areas. With the agreement of administrations concerned, the processes described in this Recommendation may be used as a guideline.

2 Background

Operators of FWS are often licensed by service areas and are allowed to deploy systems anywhere in that area. Operators of these systems are licensed by frequency blocks on a geographical basis.

In order to facilitate fast deployment of FWS, the agreement processes described here highly encourage operator-to-operator coordination and minimal government involvement. Agreement procedures similar to the ones described here are already in place between operators in domestic administrations and between certain countries.

Within each service area, there may be more than one licensee operating on different frequency channels/blocks (co-area/adjacent channel). Licensees operating in different service areas may also operate on the same channel (adjacent area/co-channel) or on different frequency channels/blocks (adjacent area/adjacent frequency). In order to minimize interference, it is important that operators communicate closely and cooperate with each other for successful deployment. The following section describes a possible solution for the agreement process.

3 Agreement process

3.1 Agreement process for adjacent-area/co-channel cases

3.1.1 Operator-to-operator mutual agreement

Licensees operating within an adjacent area or certain distance of each other are encouraged to develop mutually acceptable agreements concerning any potential interference issues before deployment. In the event that such an agreement has not been developed, a single or dual pfd agreement procedure is used.

3.1.2 Option 1: Dual pfd coordination triggers

3.1.2.1 Distance as an initial coordination trigger

The pfd agreement procedure is triggered by a distance parameter, X km. (For example, 60 km in bands above 20 GHz.) This distance represents the maximum distance from the boundary of the licensed area at which interference is a concern. It is based on radio line-of-sight derived from typical base station and subscriber station parameters. If the shortest distance between the respective service area boundaries is less than the trigger distance then the operators are required to initiate the agreement process.

3.1.2.2 pfd at the service area boundary

If the shortest distance between the respective service area boundaries is less than the trigger distance X , then the operators are required to initiate the agreement process. Operators are then required to determine the pfd level at the affected licensee's service area boundary. It should be noted that the pfd level is calculated on a per transmitter basis, as opposed to an aggregate basis. The objective of the agreement process is to minimize unnecessary coordination that may delay deployment and, at the same time, protect the interest of existing and future systems. In this regard, a dual pfd level agreement process is used.

3.1.2.3 Less than or equal to pfd A

Transmitters generating a pfd level less than a specified pfd A level at the affected licensee's service area boundary do not require coordination prior to deployment. The pfd A level should be set based on appropriately conservative technical assumptions to ensure a very low probability of interference into the affected receiver. This allows for quick deployment of new systems.

3.1.2.4 Greater than pfd A and less than or equal to pfd B

Transmitters generating a pfd level greater than pfd A (as determined above) and less than a specified pfd B at the boundary of the affected licensee's service area are required to proceed to the next stage of the process, i.e. notification of the affected operators. If there is no objection raised within the agreed time-frame mentioned in the agreement, the deployment may proceed.

While pfd A allows for quick deployment, it is based on conservative assumptions that may unnecessarily constrain system performance. The pfd B level is set at 20 dB higher than pfd A. This 20 dB margin allows operators more flexibility in deployment since unnecessary coordination could be avoided by the notification.

Practical mitigation and siting measures can be used to avoid harmful interference. Only licensees with affected existing operating stations may object to such deployment. Objections based on non-operating stations or planned facilities are not valid for pfd levels less than B.