

**IWG-7**

**Draft Proposal for the Work of the Conference**

**Background**

Even where agreement between concerned administrations is reached, the existing Radio Regulations have no provisions that allow for the notification of typical earth stations in the fixed satellite service (FSS) and typical stations in the fixed (FS) service for bands allocated above 100 MHz with equal rights to the FSS and the FS services.

Both these services are implementing large numbers of stations under single authorizations and they would both benefit from regulations that would facilitate the introduction of such stations through the elimination of the need for specific site coordination and notification of every station in such a group.

**Fixed-Satellite Service Stations**

A large number of Fixed Satellite Service (FSS) earth stations are frequently authorized by an administration as a group under a single license. Such authorizations may encompass hundreds or even thousands of such stations to be used in the area of a particular administration. Under the current Radio Regulations, to be recorded in the International Frequency List, each and every one of these stations would require individual site notification in bands where the FSS is co-primary with the FS. Such a situation would be triggered under No. 9.17, in relation to 9.6 and 9.27 (ref. to Appendix 5).

No. 9.17 states inter alia; that coordination is required:

"for any specific earth station or typical mobile earth station in frequency bands above 100 MHz allocated with equal

rights to space and terrestrial services in the territory of another country, with the exception of the coordination under 9.15."

Coordination under this regulation for a large group of FSS earth stations would be a long and cumbersome process, as it would require coordination to be carried out on a site-by-site basis. Under the current regulations, if such coordination were not carried out:

- Receiving FSS earth stations would not be protected from harmful interference from terrestrial stations or earth stations operating in the opposite direction of transmissions;
- Transmitting FSS earth stations would have to take steps to eliminate harmful interference caused to existing and future terrestrial stations, or earth stations operating in the opposite direction of transmission;
- FSS receive/transmit earth stations would not be required to coordinate if their coordination area does not overlap with the territory of another country.

### **Fixed Service Stations**

A large group of fixed stations can similarly be authorized as a group under a single license in bands shared with space services. These stations may be low density or high density systems, or a hybrid of low density and high density configurations. Such fixed systems may be implemented under a geographic area authorization within which the operator is permitted to manage interference margins and deploy links with minimal coordination requirements. In addition, operators may be authorized to add, remove or relocate facilities within the geographic area without prior authorization. Maintaining this minimal requirement for coordination is critical to allow the operator the necessary flexibility to meet the ever changing user needs characteristic of these high density networks which are premises located. These types of fixed service networks have

characteristics similar to temporary fixed and mobile uses. Recommendation ITU-R F.1498 states that in service areas where there is dense deployment of fixed service stations, coordination with and by fixed satellite service earth stations should be carried out on an area basis rather than a station to station basis. Such system deployments can undergo substantial deployment changes, even in short periods of time due to additional network link deployments, their shut down, or movement during day-to-day operations. Accordingly, these systems are substantially similar to area-wide mobile service systems when subjected to coordination requirements, especially if those coordination requirements include coordinating with other services whose systems require multi-year deployment planning.

Under the current Radio Regulations, each and every fixed station would require individual site coordination with Earth stations in bands where the FSS is co-primary with the FS. Such a situation would be triggered under RR 9.18 which states that coordination is required for any transmitting station of a service, in the bands referred to in No. 9.17, within the coordination area of an Earth station. RR 11.17 states "Frequency assignments relating to a number of stations or earth stations may be notified in the form of characteristics of a typical station or typical earth station and the intended geographical area of operation. Except for mobile earth stations, individual notices of frequency assignments are however necessary in the following cases:". One of the cases listed is RR 11.20, terrestrial stations within the coordination area of an Earth station.

This case would require typical fixed stations which may have been in operation for many years to now be notified with specific site characteristics and for the operator to project what changes and additions may occur, either within three months under RR 9.52, if the administration does not agree to the request for coordination or three years under RR 9.52B, if there is an agreement on coordination.

This is a difficult and onerous requirement that should be addressed through modifications in the Radio Regulations for the particular bands where there is the deployment of a high density of Fixed Service stations.

### **Approaches to Regulation of Groups of FS/FSS Stations**

Below are descriptions of concepts on how to facilitate the coordination of FSS earth stations and FS stations that have similar technical characteristics, and are authorized in large groups under a single license.

There are several approaches that could be used, some of which were identified in WP 4-9S CPM text for agenda 1.30. These are described below:

#### **A. No change to the Radio Regulations**

This method would keep the current relation of sharing between FSS and terrestrial services, allowing to take due account of the actual and expected (within the next 3 years) terrestrial deployment and of the geographical situation. However, applying the procedure for specific earth stations to a large group of FSS earth stations would be a long process.

It was noted that this long process could be alleviated at the coordination stage, by the use of any new or existing methodology in bilateral discussions between the administrations concerned. This methodology could be made available through an ITU-R Recommendation. This methodology would rely on the availability of a database where terrestrial stations and earth stations would be recorded. This database, to serve its purpose, would need to contain accurate updated information. Moreover, its availability for neighboring countries would need to be ensured.

The usefulness of this approach is highly dependent on availability of the referenced new methods and an accurate database.

## **B. Changes affecting the coordination and notification of Typical Stations**

### **Typical Earth Stations**

This approach would entail modification of the Radio Regulations to provide for typical FSS earth stations in specific frequency bands through regulations which provide for the coordination and notification of such stations as a consequence of agreements between administrations concerned. On this basis, the coordination area around these types of earth stations would be incorporated into Appendix 7.

This would address the need to provide protection to FSS earth stations deployed in large groups, and avoid the situation where such stations would have to be coordinated and/or notified as specific earth stations or operate on a "non-interference" or "non-protected" basis.

### **Typical Fixed Stations**

A similar modification of the Radio Regulations could be made to provide for typical fixed stations to be notified within a specific geographic area and within certain frequency bands without the further requirement for specific site notification and coordination when there is a future request for coordination with an FSS Earth station, where the frequency bands of the Earth Station and the terrestrial station overlap and the coordination area of the Earth station covers the territory of another administration.

Such regulations would address the need to avoid the situation where such stations would have to be coordinated and/or notified as specific stations or operate on a "non-interference" or "non-protected" basis.

### **Proposals**

**USA/1.30/TES-1**

**MOD 9.17 1)** for any specific earth station or typical mobile

earth station in frequency bands above 100 MHz allocated with equal rights to space and terrestrial services, in respect of terrestrial stations, where the coordination area of the earth station includes the territory of another country, with the exception of the coordination under No. **9.15**. In the following specific frequency bands allocated to the fixed and fixed-satellite services: 17.7-18.8 GHz (space-to-Earth), 27.5-28.6 GHz (Earth-to-space), and 37.5-42.5 GHz (space-to-Earth), typical earth stations in the fixed-satellite service may also be coordinated under this provision with stations of the fixed service based on agreements between the concerned administrations, and the agreements notified to the Radiocommunications Bureau.

#### **USA/1.30/TES-2**

**MOD 9.17A** m) for any specific earth station, in respect of other earth stations operating in the opposite direction of transmission, in frequency bands allocated with equal rights to space radiocommunication services in both directions of transmission and where the coordination area of the earth station includes the territory of another country or the earth station is located within the coordination area of another earth station, with the exception of the coordination under No. **9.19**. In the bi-directional FSS frequency bands 17.7-18.4 GHz and 19.3-19.7 GHz typical earth stations may also be coordinated under this provision based on agreements between concerned administrations and the agreements notified to the Radiocommunications Bureau.

#### **USA/1.30/TES-3**

**MOD 9.18** n) for any transmitting station of a terrestrial service in the bands referred to in No. **9.17** within the coordination area of an earth station, in respect of this earth station, with the exception of the coordination under Nos. **9.16** and **9.19**. In the following specific frequency bands allocated to the fixed and fixed-satellite services: 27.5-28.35 (Earth-to-space), and 37.5-42.5 GHz (space-to-Earth), typical stations in the fixed service may also be coordinated under this provision with earth stations in the fixed-satellite service based on agreements between the concerned administrations, and the agreements notified to the Radiocommunications Bureau.

#### **USA/1.30/TES-4**

**MOD 11.20.1, 11.21.1, 11.21A.1, 11.22.1 and 11.23.1** In such cases, individual notices of frequency assignments are required for frequency bands allocated with equal rights to terrestrial and space services where coordination is required under Appendix 5, Table 5-1; however, in the frequency bands mentioned in Nos. **9.17** and **9.18**, notifications for typical earth stations in the fixed-satellite service and typical stations in the fixed service

may include indication of coordination agreements under Nos. 9.17 and 9.18 based on agreements between concerned administrations.

**USA/1.30 TES-5**

**MOD 11.22.2** In such cases, individual notices of frequency assignments are required for frequency bands allocated with equal rights to space services, in the opposite direction of transmission, where coordination is required under Appendix 5, Table 5-1; however, in the frequency bands mentioned in No. 9.17A, notifications for typical earth stations in the fixed-satellite service may include indication of coordination agreements under No. 9.17A based on agreements between concerned administrations.

**USA/1.30/TES-6**

ADD Section 1.4.8 in Appendix 7

1.4.8 Typical FSS Earth Stations

For a group of FSS earth stations under a single authorization, the coordination area is determined by extending the periphery of the specified service area within which such earth stations are operating by the coordination distance of 100 Km (pre-determined).

Reason: The modifications to the RR proposed in USA/1.30/TES1-6 will provide a basis for typical earth station and fixed stations to be coordinated and notified in identified allocations where the space and fixed services have equal status, and will not upset the balance between the services.

There will be enormous benefit to such stations when they are part of a large group of such stations authorized under a single license as they will be relieved of the regulatory burden of having to coordinate and notify each station in such a group on the basis of individual sites.