

## RESOLUTION 753 (WRC-07)

**Use of the band 22.55-23.15 GHz by the space research service**

The World Radiocommunication Conference (Geneva, 2007),

*considering*

- a)* that there is growing interest around the world in the comprehensive space exploration in particular around the Moon;
- b)* that the lunar exploration missions, examining the terrain, environment and potential landing sites, will be robotic for the foreseeable future and manned in the long term;
- c)* that a primary space research service (space-to-Earth) allocation in the band 25.5-27.0 GHz was added to the Table of Frequency Allocations to support a wide range of space research missions;
- d)* that space research service (space-to-Earth) transmissions in the 25.5-27.0 GHz band will be used to support space research service missions in near-Earth orbit, including missions in transit to the Moon and at or near the Moon;
- e)* that the space research service (space-to-Earth) transmissions in the 25.5-27.0 GHz band will be used for both scientific data retrieval and voice/videocommunication with the Earth;
- f)* that there is a need for a companion uplink space research service (Earth-to-space) band to provide the mission data, command and control links for the lunar exploration missions;
- g)* that due to the potential for many concurrent exploration-related systems and the large bandwidth requirements of these systems, especially those supporting manned missions, it is envisaged that a total uplink bandwidth of at least several hundred MHz will be needed;
- h)* that the 22.55-23.15 GHz band is far enough from the 25.5-27.0 GHz band to provide adequate frequency separation;
- i)* that the 22.55-23.55 GHz band is used by data relay satellite systems to communicate with user satellites (forward links) in the existing primary inter-satellite service allocation;

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j) that the 22.55-23.15 GHz band is the logical companion band to provide the necessary uplink bandwidth and by using the same band as data relay satellite systems in *considering i)* for radiocommunication in the Earth-to-space direction, it provides a degree of redundancy and coverage that may prove vital for future missions,

### *recognizing*

1 that the band 22.55-23.55 GHz is allocated to the fixed, inter-satellite and mobile services;

2 that the inter-satellite forward links in the 22.55-23.55 GHz band are paired with inter-satellite return links in the 25.25-27.5 GHz band;

3 that non-GSO inter-satellite service links have been operating for several years and are expected to continue to operate in the 23.183-23.377 GHz band and that these links are increasingly being used in situations of emergencies and natural disasters;

4 that systems referred to in *recognizing* 1 need to be protected and their future requirements be taken into account,

### *resolves*

1 to invite ITU-R to conduct sharing studies between space research service systems operating in the Earth-to-space direction and the fixed, inter-satellite and mobile services in the band 22.55-23.15 GHz, and to recommend appropriate sharing criteria for an allocation to the space research service in the Earth-to-space direction;

2 to invite WRC-11 to review the results of the studies under *resolves* 1 and consider the inclusion of the sharing criteria within the Radio Regulations and appropriate modifications to the Table of Frequency Allocations,

### *invites administrations*

to contribute to the sharing studies between the space research service and the fixed, inter-satellite and mobile services in the 22.55-23.15 GHz band,

### *invites ITU-R*

to complete the necessary studies, as a matter of urgency, taking into account the present use of the allocated band, with a view to presenting, at the appropriate time, the technical information likely to be required as a basis for the work of the conference,

### *instructs the Secretary-General*

to bring this Resolution to the attention of the international and regional organizations concerned.