

## RESOLUTION 223 (WRC-2000)

**Additional frequency bands identified for IMT-2000**

The World Radiocommunication Conference (Istanbul, 2000),

*considering*

- a) that International Mobile Telecommunications-2000 (IMT-2000) is the ITU vision of global mobile access and is scheduled to start service around the year 2000, subject to market and other considerations;
- b) that IMT-2000 is an advanced mobile communication applications concept intended to provide telecommunication services on a worldwide scale regardless of location, network or terminal used;
- c) that IMT-2000 will provide access to a wide range of telecommunication services supported by fixed telecommunication networks (e.g. PSTN/ISDN), and to other services which are specific to mobile users;
- d) that the technical characteristics of IMT-2000 are specified in ITU-R and ITU-T Recommendations, including Recommendation ITU-R M.1457, which contains the detailed specifications of the radio interfaces of IMT-2000;
- e) that the evolution of IMT-2000 is being studied within ITU-R;
- f) that the review of IMT-2000 spectrum requirements at this Conference has concentrated on the bands below 3 GHz;
- g) that at WARC-92, 230 MHz of spectrum was identified for IMT-2000 in the bands 1 885-2 025 MHz and 2 110-2 200 MHz, including the bands 1 980-2 010 MHz and 2 170-2 200 MHz for the satellite component of IMT-2000, in No. **S5.388** and under the provisions of Resolution **212 (Rev.WRC-97)**;
- h) that since WARC-92 there has been a tremendous growth in mobile communications including an increasing demand for wideband multimedia capability;
- i) that ITU-R studies forecasted that of the order of 160 MHz of spectrum, in addition to that already identified for IMT-2000 in No. **S5.388** and in addition to the spectrum used for first- and second-generation mobile systems in all three ITU Regions, will be needed in order to meet the projected requirements of IMT-2000 in those areas where the traffic is the highest by 2010;
- j) that this Conference has identified additional frequency bands in No. **S5.384A** for IMT-2000 in order to meet the additional spectrum requirement projected by ITU-R;
- k) that the bands identified for IMT-2000 are currently used by either first- or second-generation mobile systems or applications of other radiocommunication services;
- l) that Recommendation ITU-R M.1308 addresses the evolution of existing mobile communication systems to IMT-2000;
- m) that harmonized worldwide bands for IMT-2000 are desirable in order to achieve global roaming and the benefits of economies of scale;
- n) that the bands 1 710-1 885 MHz and 2 500-2 690 MHz are allocated to a variety of services in accordance with the relevant provisions of the Radio Regulations;
- o) that, for technical reasons, the existing applications in the bands identified for IMT-2000 require spectrum below 3 GHz;

- p) that technological advancement and market demand will promote innovation and accelerate the delivery of advanced communication applications to consumers;
- q) that changes in technology may lead to the further development of communication applications, including IMT-2000,

*emphasizing*

- a) that flexibility must be afforded to administrations:
  - to determine, at a national level, how much spectrum to make available for IMT-2000 from within the identified bands;
  - to develop their own transition plans, if necessary, tailored to meet their specific deployment of existing systems;
  - to have the ability for the identified bands to be used by all services having allocations in those bands;
  - to determine the timing of availability and use of the bands identified for IMT-2000, in order to meet particular market demand and other national considerations;
- b) that the particular needs of developing countries must be met;
- c) that Recommendation ITU-R M.819 describes the objectives to be met by IMT-2000 in order to meet the needs of developing countries,

*noting*

- a) Resolutions **224 (WRC-2000)** and **225 (WRC-2000)**, which also relate to IMT-2000;
- b) that the sharing implications between services sharing the bands identified for IMT-2000 in No. **S5.384A** will need further study in ITU-R;
- c) that studies regarding the availability of the bands 1 710-1 885 MHz and 2 500-2 690 MHz for IMT-2000 are being conducted in many countries, the results of which could have implications for the use of those bands in those countries;
- d) that, due to differing requirements, not all administrations may need all of the IMT-2000 bands identified at this Conference, or, due to the usage by and investment in existing services, may not be able to implement IMT-2000 in all of those bands;
- e) that the spectrum for IMT-2000 identified by this Conference may not completely satisfy the expected requirements of some administrations;
- f) that currently operating second-generation mobile communication systems may evolve to IMT-2000 in their existing bands;
- g) that services such as fixed, mobile (second-generation systems), space operations, space research and aeronautical mobile are in operation or planned in the band 1 710-1 885 MHz, or in portions of that band;
- h) that services such as broadcasting-satellite, broadcasting-satellite (sound), mobile-satellite and fixed (including multipoint distribution/communication systems) are in operation or planned in the band 2 500-2 690 MHz, or in portions of that band;
- i) that the identification of several bands for IMT-2000 allows administrations to choose the best band or parts of bands for their circumstances;
- j) that ITU-R has identified additional work to address further developments in IMT-2000 and beyond;

k) that the IMT-2000 radio interfaces as defined in Recommendation ITU-R M.1457 are expected to evolve within the framework of ITU-R beyond those initially specified, to provide enhanced services and services beyond those envisaged in the initial implementation;

l) that the identification of a band for IMT-2000 does not establish priority in the Radio Regulations and does not preclude the use of the band for any application of the services to which they are allocated;

m) that the provisions of Nos. **S5.317A**, **S5.384A** and **S5.388** do not prevent administrations from having the choice to implement other technologies in the frequency bands identified for IMT-2000, based on national requirements,

*recognizing*

a) that some administrations are planning to use the band 2 300-2 400 MHz for IMT-2000;

b) that for some administrations the only way of implementing IMT-2000 would be spectrum refarming, requiring significant financial investment;

c) that spectrum for IMT-2000 is identified in Nos. **S5.317A**, **S5.384A** and **S5.388**, but this identification does not preclude the use for IMT-2000 of other bands allocated to the mobile service,

*resolves*

1 to invite administrations implementing IMT-2000 or planning to implement IMT-2000 to make available, based on market demand and other national considerations, additional bands or portions of the bands above 1 GHz identified in No. **S5.384A** for the terrestrial component of IMT-2000; due consideration should be given to the benefits of harmonized utilization of the spectrum for the terrestrial component of IMT-2000, taking into account the use and planned use of these bands by all services to which these bands are allocated;

2 to acknowledge that the differences in the texts of Nos. **S5.384A** and **S5.388** do not confer differences in regulatory status,

*invites ITU-R*

1 to study the implications of sharing of IMT-2000 with other applications and services in the bands 1 710-1 885 MHz and 2 500-2 690 MHz and the implementation, sharing and frequency arrangements of IMT-2000 in the bands 1 710-1 885 MHz and 2 500-2 690 MHz in accordance with Annex 1;

2 to develop harmonized frequency arrangements for operation of the terrestrial component of IMT-2000 in the spectrum mentioned in this Resolution, aiming to achieve compatibility with existing frequency arrangements used by the first- and second-generation systems;

3 to continue its studies on further enhancements of IMT-2000, including the provision of Internet Protocol (IP)-based applications that may require unbalanced radio resources between the mobile and base stations;

4 to provide guidance to ensure that IMT-2000 can meet the telecommunication needs of the developing countries and rural areas in the context of the studies referred to above;

5 to include these frequency arrangements and the results of these studies in one or more ITU-R Recommendations,

*invites ITU-T*

1 to complete its studies of signalling and communication protocols for IMT-2000;

2 to develop a common worldwide intersystem numbering plan and associated network capabilities that will facilitate worldwide roaming,

*further invites ITU-R and ITU-T*

to commence these studies forthwith,

*instructs the Director of the Radiocommunication Bureau*

to facilitate to the greatest extent possible the completion of these studies and to report the results of the studies before the next competent conference, or within three years, whichever is the earlier,

*requests administrations and Sector Members*

to submit the necessary contributions and to participate actively in the ITU-R studies.

## ANNEX 1 TO RESOLUTION 223 (WRC-2000)

### **Request for studies by ITU-R**

In response to Resolution **223 (WRC-2000)**, studies that address the following should be conducted:

- 1 sharing implications and possibilities for all services having allocations in the identified frequency bands;
- 2 harmonized frequency arrangements for the implementation of IMT-2000 in the bands mentioned in this Resolution that take into account the services currently using the bands or planning to use the bands and the required compatible frequency arrangements of second-generation systems using these bands, taking into account the need to facilitate the evolution of current mobile systems to IMT-2000;
- 3 means to facilitate global roaming across different regional band usage within the bands identified for IMT-2000;
- 4 spectrum demand predictions related to traffic density and timing;
- 5 planning tools for adaptation of mobile radiocommunication technologies, including IMT-2000, for the needs of developing countries;
- 6 maintaining a database of national studies and decisions on selection of spectrum for IMT-2000;
- 7 study of the provision of a fixed wireless access interface using IMT-2000 technologies.