

## RESOLUTION 224 (REV.WRC-23)

**Frequency bands for the terrestrial component of International  
Mobile Telecommunications below 1 GHz**

The World Radiocommunication Conference (Dubai, 2023),

*considering*

- a)* that International Mobile Telecommunications (IMT) is the root name that encompasses IMT-2000, IMT-Advanced and IMT-2020 collectively (see Resolution ITU-R 56);
- b)* that IMT systems are intended to provide telecommunication services on a worldwide scale, regardless of location, network or terminal used;
- c)* that parts of the frequency band 790-960 MHz are extensively used in the three Regions by mobile systems;
- d)* that IMT systems have already been deployed in the frequency band 694/698-960 MHz in some countries of the three Regions;
- e)* that some administrations of Regions 2 and 3 are planning to use the frequency band 470-694/698 MHz, or part of that frequency band, for IMT;
- f)* that the frequency band 450-470 MHz is allocated to the mobile service on a primary basis in the three Regions and that IMT systems have already been deployed in some countries of the three Regions;
- g)* that results of the sharing studies for the frequency band 450-470 MHz are contained in Report ITU-R M.2110;
- h)* that cellular-mobile systems in the three Regions in the frequency bands below 1 GHz operate using various frequency arrangements;
- i)* that, where cost considerations warrant the installation of fewer base stations, such as in rural and/or sparsely populated areas, frequency bands below 1 GHz are generally suitable for implementing mobile systems, including IMT;
- j)* that frequency bands below 1 GHz are important, especially for some developing countries and countries with large areas where economic solutions for low population density areas are necessary;
- k)* that Recommendation ITU-R M.819 describes the objectives to be met by IMT-2000 in order to meet the needs of developing countries, and in order to assist them to “bridge the gap” between their communication capabilities and those of developed countries;
- l)* that Recommendation ITU-R M.1645 also describes the coverage objectives of IMT,

*recognizing*

- a) that the evolution of cellular-based mobile networks to IMT can be facilitated if they are permitted to evolve within their current frequency bands;
- b) that some of the frequency bands or parts of the frequency bands identified for IMT below 1 GHz are used extensively in many countries by various other terrestrial mobile systems and applications, including public protection and disaster relief radiocommunications (see Resolution **646 (Rev.WRC-19)**);
- c) that there is a need, in many developing countries and countries with large areas of low population density, for the cost-effective implementation of IMT, and that the propagation characteristics of frequency bands below 1 GHz identified in Nos. **5.286AA**, **5.295**, **5.308A** and **5.317A** result in larger cells;
- d) that the frequency band 450-470 MHz, or parts thereof, is also allocated to services other than the mobile service;
- e) that the frequency band 460-470 MHz is also allocated to the meteorological-satellite service in accordance with No. **5.290**;
- f) that the frequency band 470-890 MHz, except the frequency band 608-614 MHz in Region 2, is allocated to the broadcasting service on a primary basis in all three Regions as contained in Article 5 of the Radio Regulations, and parts of this frequency band are used predominantly by this service;
- g) that, in the frequency band 470-862 MHz, the GE06 Agreement applies in all Region 1 countries, except Mongolia, and in the Islamic Republic of Iran, and that this Agreement contains provisions for the terrestrial broadcasting service and other primary terrestrial services, a Plan for digital television, and a list of stations of other primary terrestrial services;
- h) that the transition from analogue to digital television is expected to result in situations where the frequency band 470-806/862 MHz will be used extensively for both analogue and digital terrestrial transmission, and the demand for spectrum during the transition period may be even greater than the standalone usage of analogue broadcasting systems;
- i) that the time-frame and transition period for analogue to digital television switchover may not be the same for all countries;
- j) that, after analogue to digital television switchover, some administrations may decide to use all or parts of the frequency band 470-806/862 MHz for other services to which the frequency band is allocated on a primary basis, in particular the mobile service for the implementation of IMT, while in other countries the broadcasting service will continue to operate in that frequency band;
- k) that in the frequency band 470-890 MHz, or parts thereof, there is an allocation on a primary basis for the fixed service;

*l)* that, in some countries, the frequency band 470-862 MHz, or parts thereof, for Regions 2 and 3 and the frequency band 694-862 MHz in Region 1 are allocated to the mobile service on a primary basis;

*m)* that the frequency band 645-862 MHz is allocated on a primary basis to the aeronautical radionavigation service in the countries listed in No. 5.312;

*n)* that Recommendation ITU-R M.1036 provides frequency arrangements for implementation of the terrestrial component of IMT in the frequency bands identified for IMT in the Radio Regulations;

*o)* that Reports ITU-R M.2241, ITU-R BT.2215, ITU-R BT.2247, ITU-R BT.2248, ITU-R BT.2265, ITU-R BT.2301, ITU-R BT.2337 and ITU-R BT.2339 contain material relevant to compatibility studies between IMT and other services;

*p)* that Report ITU-R BT.2338 describes the implications of a co-primary allocation to the mobile service in the frequency band 694-790 MHz in Region 1 for the use of that frequency band by applications ancillary to broadcasting and programme-making,

*emphasizing*

*a)* that in all administrations terrestrial broadcasting is a vital part of the communication and information infrastructure;

*b)* that flexibility must be afforded to administrations:

- to determine, at a national level, how much spectrum to make available for IMT from within the identified frequency bands, taking into account current uses of the spectrum and the needs of other applications;
- to develop their own transition plans, if necessary, tailored to meet their specific deployment of existing systems;
- to have the ability for the identified frequency bands to be used by all services having allocations in those frequency bands;
- to determine the timing of availability and use of the frequency bands identified for IMT, in order to meet particular market demand and other national considerations;

*c)* that the particular needs and national conditions and circumstances of developing countries, including least-developed countries, highly-indebted poor countries with economies in transition, and countries with large territories and territories with a low subscriber density, must be met;

*d)* that due consideration should be given to the benefits of harmonized utilization of the spectrum for the terrestrial component of IMT, taking into account the current and planned use of these frequency bands by all services to which these frequency bands are allocated;

*e)* that the use of frequency bands below 1 GHz for IMT also helps to “bridge the gap” between sparsely-populated areas and densely-populated areas in various countries;

- f) that the identification of a frequency band for IMT does not preclude the use of this frequency band by other services or applications to which it is allocated;
- g) that the use of the frequency band 470-862 MHz by the broadcasting service and other primary services is also covered by the GE06 Agreement;
- h) that the requirements of the different services to which the frequency band is allocated, including the mobile and broadcasting services, need to be taken into account,

*resolves*

1 that administrations which are implementing or planning to implement IMT consider the use of frequency bands identified for IMT below 1 GHz and the possibility of cellular-based mobile network evolution to IMT, in the frequency band identified in Nos. **5.286AA**, **5.317A**, and in some countries of Regions 2 and 3, the frequency band(s) identified in Nos. **5.295**, **5.296A** and **5.308A**, and in some countries of Region 1 in the frequency band identified in No. **5.307A**, based on user demand and other considerations;

2 to encourage administrations to take into account results of the existing relevant ITU Radiocommunication Sector studies, when implementing IMT applications/systems in the frequency bands 694-862 MHz in Region 1, in the frequency band 470-806 MHz in Region 2, in the frequency band 790-862 MHz in Region 3, in the frequency band 470-698 MHz, or portions thereof, for those administrations mentioned in No. **5.296A**, in the frequency band 698-790 MHz, or portions thereof, for those administrations mentioned in No. **5.313A**, and in the frequency band 614-694 MHz, for those administrations mentioned in No. **5.307A**;

3 that administrations should take into account the need to protect existing and future broadcasting stations, both analogue and digital, except analogue in the GE06 planning area, in the frequency band 470-806/862 MHz, as well as other primary terrestrial services;

4 that administrations planning to implement IMT in the frequency bands mentioned in *resolves 2* shall effect coordination, as required, with all neighbouring administrations prior to implementation;

5 that in Region 1 (excluding Mongolia) and in the Islamic Republic of Iran, the implementation of stations in the mobile service shall be subject to the applications of procedures contained in the GE06 Agreement; in so doing:

- a) administrations which deploy stations in the mobile service for which coordination was not required, or without having obtained the prior consent of those administrations that may be affected, shall not cause unacceptable interference to, nor claim protection from, stations of the broadcasting service of administrations operating in conformity with the GE06 Agreement; this should include a signed commitment as required under § 5.2.6 of the GE06 Agreement;

b) administrations which deploy stations in the mobile service for which coordination was not required, or without having obtained the prior consent of those administrations that may be affected, shall not object to nor prevent the entry into the GE06 plan or recording in the MIFR of additional future broadcasting allotments or assignments of any other administration in the GE06 Plan with reference to those stations;

6 that, in Region 2, implementation of IMT shall be subject to the decision of each administration on the transition from analogue to digital television,

*invites the Director of the Telecommunication Development Bureau*

to draw the attention of the ITU Telecommunication Development Sector to this Resolution.