

## WARC-92 frequencies for IMT-2000

Allocation to services		
Region 1	Region 2	Region 3
1 710-1 930	FIXED MOBILE S5.380 S5.149 S5.341 S5.385 S5.386 S5.387 S5.388	

**S5.388** The bands 1 885-2 025 MHz and 2 110-2 200 MHz are intended for use, on a worldwide basis, by administrations wishing to implement International Mobile Telecommunications-2000 (IMT-2000). Such use does not preclude the use of these bands by other services to which they are allocated. The bands should be made available for IMT-2000 in accordance with Resolution **212 (Rev.WRC- 97)**.

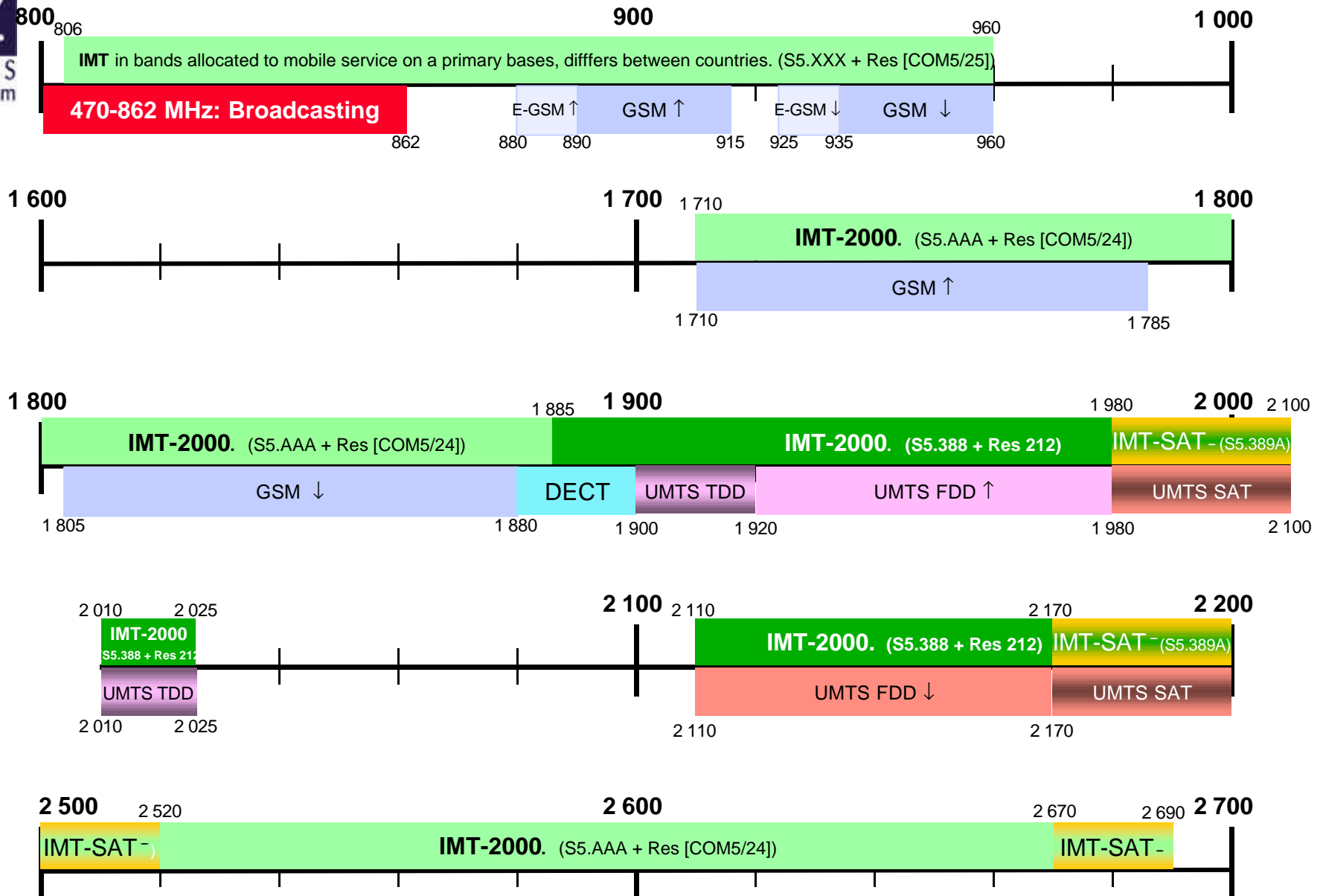
*Note: This includes the satellite component (1 980 - 2 010 and 2 170 - 2 200 MHz)*

## WRC 2000 in Istanbul

- identified the bands 1 710 - 1 885 and 2 500 - 2 690 MHz for IMT-2000  
*(Provision S5.AAA and Resolution [COM5/24])*
- identified those parts of the band 806 - 960 MHz which are allocated to the mobile service on a primary basis  
*(Provision S5.XXX and Resolution [COM5/25])*
- admitted that High Altitude Platform Stations (HAPS) may use the WARC-92 frequency bands for terrestrial IMT-2000 on restrictive conditions  
*(Provision S5.BBB and Resolution [COM5/13])*
- decided that the frequency bands 1 525 - 1 544, 1 545 - 1 559, 1 610 - 1 626.5, 1 626.5 - 1 645.5, 1 646.5 - 1 660.5 and 2 483.5 - 2 500 MHz may be used for the satellite component of IMT-2000, as well as the bands 2 500- 2 520 MHz and 2 670- 2 690 MHz, depending on market developments  
*(Resolution [COM5/26])*



# Frequency bands identified for IMT-2000



## S5.AAA and extract from Res [COM5/24]

**S5.AAA** The bands, or portions of the bands, 1 710-1 885 MHz and 2 500-2 690 MHz, are identified for use by administrations wishing to implement International Mobile Telecommunications-2000 (IMT-2000) in accordance with Resolution [COM5/24] (WRC-2000). This identification does not preclude the use of these bands by any application of the services to which they are allocated and does not establish priority in the Radio Regulations.

...

*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.AAA** 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. **S5.388** and **S5.AAA** do not confer differences in regulatory status,

## Extract from Res [COM5/24] (cont'd)

*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 IMT2000 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,

...

## Below 1 GHz -- S5.XXX and extract from Res [COM5/25]

**S5.XXX** Administrations wishing to implement International Mobile Telecommunications - 2000 (IMT-2000) may use those parts of the band 806-960 MHz which are allocated to the mobile service on a primary basis and are used or planned to be used for mobile systems (see Resolution [COM5/25] (WRC- 2000)). This identification does not preclude the use of these bands by any application of the services to which they are allocated and does not establish priority in the Radio Regulations.

...

*resolves*

to request administrations which are implementing, or planning to implement IMT-2000, to consider the use of bands below 1 GHz and the possibility of evolution of first- and second-generation mobile systems to IMT-2000, in the frequency band identified in No. **S5.XXX**, based on market demand and other national considerations,

*invites ITU-R*

to study compatibility between mobile systems with different technical characteristics and provide guidance on any impact on spectrum arrangements.

## HAPS -- S5.BBB and extract from Res [COM5/13]

**S5.BBB** In Regions 1 and 3, the bands 1 885-1 980 MHz, 2 010-2 025 MHz and 2 110-2 170 MHz and, in Region 2, the bands 1 885-1 980 and 2 110-2 160 MHz may be used by high altitude platform stations as base stations to provide International Mobile Telecommunications- 2000 (IMT-2000), in accordance with Resolution [COM5/13] (WRC-2000). The use by IMT- 2000 applications using high altitude platform stations as base stations does not preclude the use of these bands by any station in the services to which they are allocated and does not establish priority in the Radio Regulations.

...

*resolves*

1 that:

a) for the purpose of protecting certain stations operating within IMT-2000 in neighbouring countries from co-channel interference, a HAPS operating as a base station to provide IMT-2000 shall not exceed a provisional co-channel power flux-density (pfd) of  $-121.5$  dB ( $W/(m^2 \cdot MHz)$ ) at the Earth's surface outside an administration's borders unless agreed otherwise by the administration of the affected neighbouring country;

## HAPS -- Extract from Res [COM5/13] (cont'd)

b) a HAPS operating as a base station to provide IMT-2000, in order to protect fixed stations from interference, shall not exceed the following provisional values of out- of- band pfd at the Earth's surface in the bands 2 025-2 110 MHz:

–  $-165 \text{ dB}(\text{W}/(\text{m}^2 \cdot \text{MHz}))$  for angles of arrival ( $\theta$ ) less than  $5^\circ$  above the horizontal plane;

–  $-165 + 1.75 (\theta - 5) \text{ dB} (\text{W}/(\text{m}^2 \cdot \text{MHz}))$  for angles of arrival between  $5^\circ$  and  $25^\circ$  above the horizontal plane; and

–  $-130 \text{ dB}(\text{W}/(\text{m}^2 \cdot \text{MHz}))$  for angles of arrival between  $25^\circ$  and  $90^\circ$  above the horizontal plane;

2 that, as of the end of WRC-03, such a HAPS shall operate only in accordance with such limits as are confirmed or, if appropriate, revised by WRC-03, irrespective of its date of bringing into use;

3 that administrations wishing to implement HAPS within a terrestrial IMT-2000 system shall comply with the following:

*(detailed antenna pattern characteristic)*



## HAPS -- Extract from Res [COM5/13] (cont'd)

4 that administrations wishing to implement HAPS within a terrestrial IMT-2000 system shall, prior to their bringing into use, take into account in their bilateral coordination with affected neighbouring administrations the operation and growth of existing and planned systems in the fixed and mobile services having allocations on a primary basis;

5 that, for the purpose of protecting fixed service stations operating in neighbouring countries from co-channel interference, administrations wishing to implement HAPS within a terrestrial IMT-2000 system shall, pending the review by WRC-03 of the studies mentioned below, take full account of the relevant ITU-R Recommendations relating to protection values for fixed stations (see Recommendation ITU-R F.758),

*invites ITU-R*

1 to complete, as a matter of urgency, additional regulatory, operational and technical studies on sharing criteria for HAPS with other systems in the bands 1 885-1 980 MHz, 2 010-2 025 MHz and 2 110-2 170 MHz in Regions 1 and 3 and 1 885-1 980 MHz and 2 110-2 160 in Region 2, and in adjacent bands, so as to allow revision of the values in *resolves* 1;

2 to develop appropriate regulatory and technical provisions to allow the coordination mentioned in *resolves* 4;

3 to report on the results of these studies in time for consideration by WRC- 03.

## IMT-SAT -- Extract from Res [COM5/26]

*resolves*

1 that, in addition to the frequency bands indicated in *considering a)* and *resolves 2*, the frequency bands 1 525- 1 544 MHz, 1 545- 1 559 MHz, 1 610- 1 626.5 MHz, 1 626.5- 1 645.5 MHz, 1 646.5- 1 660.5 MHz and 2 483.5- 2 500 MHz may be used by administrations wishing to implement the satellite component of IMT-2000, subject to the regulatory provisions related to the mobile-satellite service in these frequency bands;

2 that the bands 2 500- 2 520 MHz and 2 670- 2 690 MHz as identified for IMT-2000 in No. **S5.AAA** and allocated to the mobile-satellite service may be used by administrations wishing to implement the satellite component of IMT-2000; however, depending on market developments, it may be possible in the longer term for bands 2 500- 2 520 MHz and 2 670- 2 690 MHz to be used by the terrestrial component of IMT-2000;

3 that this identification of frequency bands for the satellite component of IMT-2000 does not preclude the use of these bands by any applications of the services to which they are allocated and does not establish priority in the Radio Regulations,

*invites ITU-R*

1 to study the sharing and coordination issues in the above bands related to use of the mobile-satellite service allocations for the satellite component of IMT-2000 and the use of this spectrum by the other allocated services, including the radiodetermination-satellite service;

2 to report the results of these studies to a future world radiocommunication conference

# Frequencies for IMT-2000 in a global perspective

