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| **World Radiocommunication Conference (WRC-15) Geneva, 2–27 November 2015** |  |
| **INTERNATIONAL TELECOMMUNICATION UNION** |  |
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| **PLENARY MEETING** | **Addendum 1 to Document 9(Add.2)-E** |
|  | **24 June 2015** |
|  | **Original: English** |
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| European Common Proposals | |
| Proposals for the work of the conference | |
|  | |
| Agenda item 1.2 | |

1.2 to examine the results of ITU‑R studies, in accordance with Resolution **232 (WRC‑12)**, on the use of the frequency band 694-790 MHz by the mobile, except aeronautical mobile, service in Region 1 and take the appropriate measures;

Introduction

WRC-15 agenda item 1.2 deals with studies conducted under Resolution 232 (WRC-12) about the use of the frequency band 694-790 MHz by the mobile, except aeronautical mobile, service in Region 1. The work carried out at ITU-R in preparation of WRC-15 for that agenda item (conducted by JTG 4-5-6-7) has been focused on 4 issues:

• Issue A: Option for the refinement of the lower edge (see Addendum 1 to Addendum 2 of Doc. 9).

• Issue B: technical and regulatory conditions applicable to the mobile service concerning the compatibility between the mobile service (MS) and the broadcasting service (BS) (see Addendum 2 to Addendum 2 of Doc. 9).

• Issue C: Technical and regulatory conditions applicable to MS concerning the compatibility between the MS and the aeronautical radionavigation service (ARNS) for the countries listed in No. 5.312 (see Addendum 3 to Addendum 2 of Doc. 9).

• Issue D: Solutions for accommodating the requirements for applications ancillary to broadcasting (see Addendum 1 to Addendum 2 of Doc. 9).

Europe recognizes that WRC-12 decided that the mobile allocation in the band 694-790 MHz is subject to agreement obtained under No. 9.21 with respect to the aeronautical radionavigation service (ARNS) in the countries listed in No. 5.312.

Methods supported by Europe

**Issue A:** Option for the refinement of the lower edge of the mobile allocation

These European Proposals set the lower edge of the mobile allocation at 694 MHz reflected in the modification of Article 5 Section IV (Table of Allocations), modification of No. 5.317A, which also needs to take account of the decisions of WRC-15 for Issue B and Issue C, and suppression of No. 5.312A.

These European Proposals also suppress Resolution 232 (WRC-12), replacing it with a new Resolution giving the provisions relating to the use of the band 694-790 MHz in Region 1 by the mobile, except aeronautical mobile, service and by other services as contained before in Resolution 232 (WRC-12).

**Issue D:** Solutions for accommodating applications ancillary to broadcasting requirements

These European Proposals modify the existing upper limits of frequency bands mentioned in No. 5.296 for the secondary allocation to 694 MHz and extension of that use to applications ancillary to programme-making.

In order to accommodate the operability of the band 694-790 MHz for applications ancillary to broadcasting and programme-making, Europe proposes a WRC Resolution to address the issue taking into account the process described in Resolution ITU-R 59.

Proposals

ARTICLE 5

Frequency allocations

Section IV – Table of Frequency Allocations  
(See No. 2.1)

MOD EUR/9A2A1/1

460-890 MHz

|  |  |  |
| --- | --- | --- |
| Allocation to services | | |
| Region 1 | Region 2 | Region 3 |
| 470-694  BROADCASTING  5.149 5.291A 5.294 MOD 5.296  5.300 5.304 5.306 5.311A 5.312 | 470-512  BROADCASTING  Fixed  Mobile  5.292 5.293 | 470-585  FIXED  MOBILE  BROADCASTING  5.291 5.298 |
| 512-608  BROADCASTING  5.297 |
| 585-610  FIXED  MOBILE  BROADCASTING  RADIONAVIGATION  5.149 5.305 5.306 5.307 |
| 608-614  RADIO ASTRONOMY  Mobile-satellite except aeronautical mobile-satellite (Earth-to-space) |
| 610-890  FIXED  MOBILE 5.313A 5.317A  BROADCASTING |
| 614-698  BROADCASTING  Fixed  Mobile  5.293 5.309 5.311A |
| 694-790  MOBILE except aeronautical mobile MOD 5.317A  BROADCASTING  5.300 5.311A 5.312 |
| 698-806  MOBILE 5.313B 5.317A  BROADCASTING  Fixed   5.293 5.309 5.311A |
| 790-862  FIXED  MOBILE except aeronautical mobile 5.316B 5.317A  BROADCASTING  5.312 5.314 5.315 5.316  5.316A 5.319 |
| 806-890  FIXED  MOBILE 5.317A  BROADCASTING |
| 862-890  FIXED  MOBILE except aeronautical mobile 5.317A  BROADCASTING 5.322 |
| 5.319 5.323 | 5.317 5.318 | 5.149 5.305 5.306 5.307 5.311A 5.320 |

SUP EUR/9A2A1/2

5.312A

MOD EUR/9A2A1/3

5.317A Those parts of the band 698-960 MHz in Region 2 and the band 694-790 MHz in Region 1 and 790-960 MHz in Regions 1 and 3 which are allocated to the mobile service on a primary basis are identified for use by administrations wishing to implement International Mobile Telecommunications (IMT) – see Resolutions **224 (Rev.WRC‑15)**, **[EUR‑A12] (WRC‑15)** and **749 (Rev.WRC‑12)**, as appropriate. 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.    (WRC−15)

**Reasons:** This change extends the IMT identification to include the frequency band 694-790 MHz in Region 1.

MOD EUR/9A2A1/4

5.296 *Additional allocation:* in Albania, Germany, Saudi Arabia, Austria, Bahrain, Belgium, Benin, Bosnia and Herzegovina, Burkina Faso, Cameroon, Congo (Rep. of the), Côte d'Ivoire, Croatia, Denmark, Djibouti, Egypt, United Arab Emirates, Spain, Estonia, Finland, France, Gabon, Ghana, Iraq, Ireland, Iceland, Israel, Italy, Jordan, Kuwait, Latvia, The Former Yugoslav Republic of Macedonia, Libya, Liechtenstein, Lithuania, Luxembourg, Mali, Malta, Morocco, Moldova, Monaco, Niger, Norway, Oman, the Netherlands, Poland, Portugal, Qatar, the Syrian Arab Republic, Slovakia, the Czech Republic, the United Kingdom, Sudan, Sweden, Switzerland, Swaziland, Chad, Togo, Tunisia, Turkey, Angola, Botswana, Lesotho, Malawi, Mauritius, Mozambique, Namibia, Nigeria, South Africa, Tanzania, Zambia and Zimbabwe, the band 470-694 MHz is also allocated on a secondary basis to the land mobile service, intended for applications ancillary to broadcasting and programme**‑**making. Stations of the land mobile service in the countries listed in this footnote shall not cause harmful interference to existing or planned stations operating in accordance with the Table in countries other than those listed in this footnote.    (WRC‑15)

**Reasons:** The modification to the frequency range is a consequential change: due to the addition of a primary mobile allocation in 694-790 MHz, the upper frequency boundary of the secondary land mobile allocation needs to be changed to 694 MHz for all countries in No. 5.296. Adding the term “and programme-making” in addition to “applications ancillary to broadcasting” into No. 5.296 will increase flexibility in the use of the spectrum.

SUP EUR/9A2A1/5

RESOLUTION 232 (WRC‑12)

Use of the frequency band 694-790 MHz by the mobile, except aeronautical mobile, service in Region 1 and related studies

**Reasons:** Resolution 232 is no longer needed. EUR/9A2A1/1 adds the allocation in 694-790 MHz in Region 1 to the mobile, except aeronautical mobile, service, which therefore addresses the former *resolves* 1; EUR/9A2A1/6 proposes a new Resolution [EUR-A12] (WRC-15) to set out the technical and regulatory conditions applicable to the mobile, except aeronautical, mobile service allocation.

Proposals regarding Issue C are contained in Addendum 3 to Addendum 2 of Document 9.

ADD EUR/9A2A1/6

Draft New Resolution [EUR-A12] (WRC-15)

Provisions relating to the use of the band 694-790 MHz in Region 1 by the mobile, except aeronautical mobile, service and by other services

The World Radiocommunication Conference (Geneva, 2015),

considering

*a)* that the favourable propagation characteristics of the bands below 1 GHz are beneficial in providing cost-effective solutions for coverage;

*b)* that WRC‑12, through Resolution **232 (WRC‑12)**, allocated the frequency band 694-790 MHz in Region 1 to the mobile, except aeronautical mobile, service on a primary basis, and that this allocation shall be subject to agreement obtained under No. **9.21** with respect to the aeronautical radionavigation service in countries listed in No. **5.312**;

*c)* that applications ancillary to broadcasting are operating in the band 470-862 MHz or in parts of this band and are expected to continue such operations;

*d)* that the implementation of IMT in the band 694-790 MHz may affect the availability of frequencies for SAB/SAP;

*e)* that it is necessary to adequately protect all primary services in the band 694-790 MHz and in adjacent frequency bands,

recognizing

*a)* that, in Article **5** of the Radio Regulations, the band 694-790 MHz, or parts of that band, is allocated, and is used on a primary basis, for various services including broadcasting;

*b)* that the timing of the deployment of IMT in the band 694-790 MHz is likely to vary from country to country, and that while some administrations may decide to use all or part of the band for IMT, other countries may continue to operate the broadcasting service and/or other services to which the band is also allocated;

*c)* that the identification of a given band for IMT in the Radio Regulations does not preclude the use of that band by any application of the services to which it is allocated and does not establish priority in the Radio Regulations;

*d)* that the GE06 Agreement applies in all Region 1 countries except Mongolia and in Iran (Islamic Republic of) in the frequency bands 174-230 and 470-862 MHz and contains provisions for the terrestrial broadcasting service and other terrestrial services, a Plan for digital broadcasting services, and the list of other primary terrestrial services;

*e)* that ITU‑R carried out studies in accordance with Resolution **232 (WRC‑12)**, on the compatibility between the mobile service and other services currently allocated in the frequency band 694-790 MHz;

*f)* that Report ITU‑R BT.2339 contains the results of co-channel sharing studies between the broadcasting service and the mobile service undertaken in accordance with Resolution **232 (WRC‑12)**;

*g)* that adjacent channel interference generated and received within a given country is a national matter and needs to be dealt with by each administration as a national matter;

*h)* that adjacent channel interference generated in one country and affecting a neighbouring country should be treated among administrations concerned, using mutually agreed criteria or those contained in relevant ITU‑R Recommendations,

noting

*a)* that, in the band 694-790 MHz, Resolution **224 (Rev.WRC‑15)** applies;

*b)* that when coordination between administrations is being effected, the protection ratios applicable to the generic case NB contained in the GE06 Agreement for the protection of the broadcasting service shall be used only for mobile systems with a bandwidth of 25 kHz. If another bandwidth is used, the relevant protection ratios are to be found in Recommendations ITU‑R BT.1368 and ITU‑R BT.2033;

*c)* that SAB/SAP applications could be operated in suitable parts of the frequency band 694-790 MHz;

*d)* that further ITU‑R studies on availability of frequency bands and/or tuning ranges for worldwide or regional harmonization and conditions for their use by terrestrial electronic news gathering systems[[1]](#footnote-1)1 are needed and Resolution ITU‑R 59 provides the framework for such studies;

*e)* that a digital entry in the GE06 Plan may also be used for transmissions in the mobile service under the conditions set out in § 5.1.3 of the GE06 Agreement,

emphasizing

that the requirements of the different services to which the band is allocated, including the mobile, aeronautical radionavigation (in accordance with No. **5.312**) and broadcasting services, shall be taken into account,

resolves

to encourage administrations to take into account, *inter alia*, the results of the sharing studies conducted by ITU‑R in response to Resolution **232 (WRC‑12)**,

Editor's note 1: Further resolves regarding Issue C is subject to Addendum 3 to Addendum 2 to Document 9.

invites administrations

to consider the use of SAB/SAP in those parts of the band 694-790 MHz not used by other applications in the mobile service or other primary services,

instructs the Director of the Radiocommunication Bureau

to implement this Resolution and to take appropriate actions.

**Reasons:** This new Resolution is proposed to specify the technical and regulatory conditions applicable to the mobile, except aeronautical, service allocation as required by *resolves* 5 of Resolution 232 (WRC-12), taking into account the results of ITU-R studies carried out in response to *invites ITU-R* 1 to 6 of Resolution 232 (WRC-12).

MOD EUR/9A2A1/7

RESOLUTION 224 (Rev.WRC‑15)

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

The World Radiocommunication Conference (Geneva, 2015),

considering

*a)* that International Mobile Telecommunications (IMT) is the root name, encompassing both IMT‑2000 and IMT‑Advanced (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 band 790-960 MHz are extensively used in the three Regions by mobile systems;

*d)* that IMT systems have already been deployed in the band 694-960 MHz in some countries of the three Regions;

*e)* that some administrations are planning to use the band 694-790 MHz, or part of that band, for IMT;

*f)* that, as a result of the transition from analogue to digital terrestrial television broadcasting, some countries are planning to make or are making the band 694-862 MHz, or parts of that band, available for applications in the mobile service (including uplinks);

*g)* that the 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;

*h)* that results of the sharing studies for the band 450-470 MHz are contained in Report ITU‑R М.2110;

*i)* that cellular-mobile systems in the three Regions in the bands below 1 GHz operate using various frequency arrangements;

*j)* that, where cost considerations warrant the installation of fewer base stations, such as in rural and/or sparsely populated areas, bands below 1 GHz are generally suitable for implementing mobile systems, including IMT;

*k)* that bands below 1 GHz are important for applications requiring wide-area coverage, especially for some developing countries and countries with large areas where economic solutions for low population density areas are necessary;

*l)* thatRecommendation 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;

*m)* that Recommendation ITU‑R M.1645 also describes the coverage objectives of IMT,

Editor's note 2: *considering n)* may reflect the results of the studies regarding the 700 MHz band.

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 the band 450-470 MHz and parts of the bands 746-806 MHz and 806-862 MHz 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‑12)**);

*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** and **5.317A** result in larger cells;

*d)* that the frequency band 470-890 MHz or parts of this band are allocated to the broadcasting service on a primary basis in all three Regions and used by this service;

*e)* that Report ITU**‑**R BT.2302 describes spectrum requirements for terrestrial television broadcasting in the UHF frequency band in Region 1 and in the Islamic Republic of Iran;

*f)* that the GE06 Agreement applies in the frequency band 470-862 MHz 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;

*g)* that the transition from analogue to digital television is expected to result in situations where the 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;

*h)* that the time-frame and transition period for analogue to digital television switchover may not be the same for all countries;

*i)* that, after analogue to digital television switchover, some administrations may decide to use all or parts of the band 694/698-806/862 MHz for other services to which the 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 band;

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

*k)* that Reports ITU‑R M.2241, ITU‑R BT.2215, ITU‑R BT.2248, ITU**‑**R BT.2247, ITU**‑**R BT.2265, ITU**‑**R BT.2301, ITU**‑**R BT.2337 and ITU**‑**R BT.2339 contain material relevant to compatibility studies with the broadcasting, fixed and aeronautical radionavigation services in the bands below 1 GHz, involving IMT;

*l)* that Report ITU**‑**R BT.2338 describes the implication of a co-primary allocation for the mobile service in the frequency band 694-790 MHz,

emphasizing

...

resolves

1 that administrations which are implementing or planning to implement IMT consider the use of 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** and **5.317A**, based on user demand and other considerations;

2 to encourage administrations, when implementing IMT applications/systems in the band694-862 MHz or parts of it, to take into account the results of the relevant ITU**‑**R studies;

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

4 that administrations planning to implement IMT in the bands mentioned in *resolves*2 shall effect coordination 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 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 Sector

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

**Reasons:** The frequency ranges in Resolution 224 need to be revised to encompass the mobile, except aeronautical mobile, service allocation in 694-790 MHz. The revision is also proposed in order to take into account that the studies in Resolution224 *invites ITU-R* have all been completed.

Europe acknowledges that there may be need for further studies regarding Regions 2 and 3.

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1. 1 ENG within Resolution ITU‑R 59 represents all applications ancillary to broadcasting, such as terrestrial electronic news gathering, electronic field production, TV outside broadcast, wireless radio microphones and radio outside production and broadcast. [↑](#footnote-ref-1)