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| **World Radiocommunication Conference (WRC-15) Geneva, 2–27 November 2015** |  |
| **INTERNATIONAL TELECOMMUNICATION UNION** |  |
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| Egypt (Arab Republic of), United Arab Emirates, Jordan (Hashemite Kingdom of), Kuwait (State of), Lebanon, Morocco (Kingdom of), Mauritania (Islamic Republic of), Palestine (State of), Qatar (State of), Sudan (Republic of the), [Add supporting CITEL Administrations, ATU Administrations….] | |
| Proposals for the work of the conference | |
|  | |
| Agenda item 1.1 | |

1.1 to consider additional spectrum allocations to the mobile service on a primary basis and identification of additional frequency bands for International Mobile Telecommunications (IMT) and related regulatory provisions, to facilitate the development of terrestrial mobile broadband applications, in accordance with Resolution **233 (WRC‑12)**;

**Proposals for Global allocation of the frequency band 614 – 694/698 MHz to Mobile Service and identification for IMT in Regions 1, 2 and 3**

# Introduction and Motivation

With a view to promote global spectrum harmonization in the potential UHF band, the Administrations co-signing this proposal support the allocation of part of UHF band (614 - 694/698 MHz) to Mobile Service on **co-primary** basis and its identification to IMT at WRC-15 under Agenda Item 1.1.

The proposed band (614-694/698 MHz) has exactly similar characteristics and conditions to the adjacent bands below 1GHz, takeing into account the results of the conducted ITU-R studies in the adjacent 700 MHz and 800 MHz bands.

It is proposed that the allocation of (614 - 694/698 MHz) is to be effective after WRC-19 (e.g. First of January 2020). Accordingly, primary allocated broadcasting services will continue to be used, considering the modifications of GE-06 Plans, as a sovereign right of any Administration.

This reflects the trend emerging at global level towards satisfying the growing demands for further development of social and economic aspects while recognizing the vital role of Information and Communication Technologies (ICTs) in the transformations of our societies in the last few decades.

It is noted that the protection of incumbent services (including broadcast services) is a priority for administrations. The frequency range (470-694/698 MHz) is allocated to the broadcasting service on a primary basis in all three Regions and used predominantly for the delivery of television broadcasting.

Identification of this frequency range will provide flexibility for the administration to decide the use of this key frequency range while assuring protection to the existing services, taking into account the importance of the broadcasting service and also taking into account the huge potential of band below 1GHz to provide broadband connection in extended coverage areas. This last aspect is key in developing countries where the fixed infrastructure is not enough and takes more time to implement than wireless services that is contributing to accelerate the closing of the digital gap.

The following are some remarkable incentives and advantages behind the above compromise proposal:

* ITU has recognized “broadband” as a critical infrastructure requirement for economic growth, and “ICTs” as one of the main growth drivers of developed economies in the last few decades, as per many ITU references, such as ITU-D reports of “Exploring the Value and Economic valuation of Spectrum”[[1]](#footnote-1) and “Impact of Broadband on the Economy”[[2]](#footnote-2).
* The same results of ITU-R studies carried out for the adjacent bands 694-790 MHz and 790-862 MHz, are definitely applicable to the proposed band 614-694/698 MHz, as the radio propagation characteristics, sharing and coexistence conditions and regulatory and procedural considerations are similar in these bands.
* The concergence of different services and technologies is becoming a reality, where mobile broadband systems are being developed to efficiently offer broadcasting service.
* This is valuable in developing countries, such as those identified as the most unequal area in the world[[3]](#footnote-3), where mobile internet is a key factor in broadband popularization and the main delivery mechanism for broadband access.
* The allocation of this band at WRC-15 will assist Administrations in developing countries for bridging the gap between communication capabilities of developing countries and those of developed countries.
* There are growing demands for the future use of IMT in this band in the three Regions 1, 2 and 3, which is candidate to be globally harmonized band.
* The radio propagation characteristics of the band 614-694/698 MHz are beneficial to provide cost-effective solutions for coverage, including large areas of low population density;
* This range of 614-694/698 MHz has a unique potential for global harmonization in the three Regions, that will definitely be advantageous to Administrations, users and operators and manufacturers insofar as this band will constitute an example of real global-level coordination of the use of spectrum by IMT systems.
* The global harmonization is essential pillar to achieve econies of scale in timely manner as well as to facilitate and expedite the development of IMT systems in this band with optimized cost compared with the equipment operating in the other bands, owing to the size and quantity of equipment that will be designed for use in the band 614-694/698 MHz.

Proposals

ARTICLE 5

Frequency allocations

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

MOD

460-890 MHz

|  |  |  |
| --- | --- | --- |
| Allocation to services | | |
| Region 1 | Region 2 | Region 3 |
| 614-790  BROADCASTING  MOBILE MOD 5.317A,  ADD 5.XXX  5.149 5.291A 5.294 5.296 5.300 5.304 5.306 5.311A 5.312 5.321A | 614-698  BROADCASTING  Fixed  MOBILE MOD 5.317A  ADD 5.XXX  5.293 5.309 5.311A | 614-890  FIXED  MOBILE 5.313A MOD 5.317A  ADD 5.XXX  BROADCASTING |
| 698-806  MOBILE 5.313B MOD 5.317A  BROADCASTING  Fixed |
| 5.293 5.309 5.311A |
| 806-890  FIXED  MOBILE MOD 5.317A  BROADCASTING |
| 790-862  FIXED  MOBILE except aeronautical mobile 5.316B MOD 5.317A  BROADCASTING  5.312 5.314 5.315 5.316  5.316A 5.319 |
| 862-890  FIXED  MOBILE except aeronautical mobile MOD 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 |

MOD

5.317A Those parts of the band 614-960 MHz in Region 2 and the band 614-960 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)** 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)

ADD

5. XXX-R1 The band 614-694 MHz in Region 1 is identified for use by administrations wishing to implement International Mobile Telecommunications (IMT) – see Resolution 224 (Rev. WRC-15) – subject to GE-06 Agreement. This identification and 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.

**5.** XXX**-R2** The band, 614-698 MHz, in Region 2 is identified for International Mobile Telecommunications (IMT) – see Resolution 224 (Rev. WRC-15). 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. The operation of stations in the mobile service for IMT in this frequency band shall be subject to agreement obtained under No. **9.21**.

**5.** XXX**-R3**  The band 614-698 MHz in Region 3 is identified for use by these administrations wishing to implement International Mobile Telecommunications (IMT) – see Resolution 224 (Rev. WRC-15). 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.

**New RESOLUTION XXX (WRC-15)**

Use of the frequency band 614-694/698 MHz by the mobile, except aeronautical mobile, service and identification to IMT in Regions 1, 2 and 3, and related studies

The World Radiocommunication Conference (Geneva, 2015),

considering

*a)* that IMT systems are intended to provide telecommunication services on a worldwide scale, regardless of location, network or terminal used;

*b)* that some administrations are planning to use the band 614-862 MHz, or part of that band, for IMT;

*c)* that the frequency band 470-806/862 MHz is allocated to the broadcasting service on a primary basis in all three Regions and used predominantly by this service, and that the GE06 Agreement applies in all Region 1 countries, except Mongolia, and in the Islamic Republic of Iran in Region 3;

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

*e)* that cellular mobile systems in the three Regions in the bands below 1 GHz operate using various channelling arrangements;

*f)* 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;

*g)* that 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,

noting

*a)* 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 614-862 MHz, or parts of that band, available for applications in the mobile service;

*b)* that the transition from analogue to digital television shall end on 17 June 2015 at 0001 hours UTC according to Article 12.6 of the GE06 Agreement;

*c)* that the transition from analogue to digital television is expected to result in situations where parts or all of the band 470-806/862 MHz will be used extensively for both analogue and digital terrestrial transmissions, and that the demand for spectrum during the transition period may be even greater than the stand-alone usage of analogue broadcasting systems;

*d)* that Recommendation ITU-R M.819 describes the objectives to be met by IMT 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;

*e)* that Recommendation ITU-R M.1645 also describes the coverage objectives of IMT;

recognizing

*a)* 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;

*b)* that some countries also plan to use the band 470-862 MHz for HDTV and other higher definition modes;

*c)* that, in accordance with No. **5.296**, a number of countries have deployments of applications ancillary to broadcasting operating on a secondary basis, which provide tools for the daily content production for the broadcast service;

*d)* that the GE06 Agreement is applicable in Region 1 and 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;

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

resolves

1 to allocate the frequency band 614-694 MHz in Region 1 and 614-698 MHz in Region 2 to the mobile, except aeronautical mobile, service on a co-primary basis with other services to which this band is allocated on a primary basis and to identify the bands 614-694/698 MHz in the three Regions 1, 2 and 3 for IMT;

2 that the allocation in *resolves* 1 is effective after WRC‑19;

3 that use of the allocation in *resolves* 1issubject to agreement obtained under No. **9.21** with respect to the aeronautical radionavigation service in countries listed in No. **5.312**;

4 that WRC‑19 will specify the technical and regulatory conditions applicable to the mobile service allocation referred to in *resolves*1, taking into account the ITU-R studies referred to in *invites ITU-R* below,

invites ITU-R

1 to study the channelling arrangements for the mobile service, adapted to the frequency band 614-694/698 MHz, taking into account:

– the existing arrangements in the adjacent bands above 694/698 MHz defined in Recommendation ITU-R M.1036-5, in order to ensure coexistence with the networks operated in the new allocation and the operational networks in the adjacent bands;

– the desire for harmonization with arrangements across all Regions;

– the compatibility with other primary services to which the band is allocated, including in adjacent bands;

3 to study coexistence between the different channelling arrangements which have been implemented in Region 1 above 694/698 MHz;

4 to study the compatibility between the mobile service and other services currently allocated in the frequency band 614-694/698 MHz and develop ITU-R Recommendations or Reports;

5 to study solutions for accommodating applications ancillary to broadcasting requirements;

6 to report, in time for WRC‑19, the results of these studies,

invites the Director of the Radiocommunication Bureau

to work, in cooperation with the Director of the Telecommunication Development Bureau, to bring assistance to developing countries wishing to implement the new mobile allocation in order to help these administrations to determine the modifications of the Geneva-06 Plan,

invites administrations

to participate in the studies on channelling arrangements, in the process of preparation for WRC‑19.

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MOD

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 806-960 MHz are extensively used in the three Regions by mobile systems;

*d)* that IMT systems have already been deployed in the band 694/698-960 MHz in some countries of the three Regions;

*e)* that some administrations are planning to use the band 614-862 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 614-862 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, 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,

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 698-806 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‑15)**);

*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 band 450-470 MHz, or parts of that band, is also allocated to services other than the mobile service;

*e)* that the band 460-470 MHz is also allocated to the meteorological-satellite service in accordance with No. **5.290**;

*f)* that the frequency band 470-806/862 MHz is allocated to the broadcasting service on a primary basis in all three Regions and used predominantly by this service, and that the GE06 Agreement applies in all Region 1 countries, except Mongolia, and in the Islamic Republic of Iran in Region 3;

*g)* that the GE06 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 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 band 614-806/862 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;

*k)* that in the band 470-862 MHz, or parts of that band, there is an allocation on a primary basis for the fixed service;

*l)* that, in some countries, the band 614-806/862 MHz is allocated to the mobile service on a primary basis;

*m)* that the 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 the compatibility of the mobile service with the broadcasting, fixed and aeronautical radionavigation services in the band referred to in *recognizing k)* and *m)* will need further study in ITU‑R;

*o)* 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;

*p)* that ITU‑R has produced Reports ITU‑R M.2241, ITU‑R BT.2215 and ITU‑R BT.2248 and is still continuing the compatibility studies in relation to this Resolution,

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 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 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, 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)* thatdue 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 bands by all services to which these 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 band for IMT does not preclude the use of this band by other services or applications to which it is allocated;

*g)* that the use of the 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 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 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 to take into account the results of the ITU‑R studies referred to in *invites ITU‑R* below, and any recommended measures when implementing applications/systems in the bands 614-862 MHz in Region 1 and Region 3, in the band 614-806 MHz in Region 2, and in those administrations mentioned in No. **5.313A**;

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 ITU‑R

1 to continue to study the potential use of the band 614-862 MHz in Region 1 and Region 3, the band 614-806 MHz in Region 2 and in those administrations mentioned in No. **5.313A** in Region 3 by new mobile and broadcasting applications, including the impact on the GE06 Agreement, where applicable as indicated in *recognizing f)*, and to develop ITU‑R Recommendations on how to protect the services to which these bands are allocated, including the broadcasting service and in particular the GE06 Plan, as updated, and its future developments;

2 in the frequency bands mentioned in *invites ITU‑R* 1, to study compatibility between mobile systems with different technical characteristics and provide guidance on any impact the new considerations may have on spectrum arrangements;

3 to include the results of the studies referred to in *invites ITU‑R* 2, and in particular harmonization measures for IMT, in one or more ITU‑R Recommendations by 2015,

invites the Director of the Telecommunication Development Sector

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

**Reasons:** This modifications reflect the identification of frequency range 614-698MHz for IMT.

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1. “Exploring the Value and Economic valuation of Spectrum”, ITU-D, April, 2012 <http://www.itu.int/ITU-D/treg/broadband/ITU-BB-Reports_SpectrumValue.pdf> [↑](#footnote-ref-1)
2. “Impact of Broadband on the Economy”, ITU-D, April, 2012, <http://www.itu.int/ITU-D/treg/broadband/ITU-BB-Reports_Impact-of-Broadband-on-the-Economy.pdf> [↑](#footnote-ref-2)
3. “Acting On The Future: Breaking The Intergenerational Cycle Of Inequality”, 2010 report from United Nations Development Programme (UNDP). [↑](#footnote-ref-3)