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| **World Radiocommunication Conference (WRC-15) Geneva, 2–27 November 2015** |  |
| **INTERNATIONAL TELECOMMUNICATION UNION** |  |
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| PLENARY MEETING | **Addendum 3 to Document 7-E** |
|  | **21 August 2015** |
|  | **Original: English** |
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| Member States of the Inter-American Telecommunication Commission (CITEL) | |
| Proposals for the work of the conference | |
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| Agenda item 1.3 | |

1.3 to review and revise Resolution **646** **(Rev.WRC‑12)** for broadband public protection and disaster relief (PPDR), in accordance with Resolution **648 (WRC‑12)**;

**Background**:

Resolution **646 (Rev.WRC-12)** encourages administrations, for the purpose of achieving regionally harmonized frequency bands/ranges for PPDR, to consider certain frequency bands when undertaking their national planning. Under agenda item 1.3, Resolution **648 (WRC-12)** calls for the ITU-R to study technical and operational issues relating to broadband PPDR and its further development, taking into account:

– technical requirements for PPDR services and applications;

– the evolution of broadband PPDR through advances in technology, and

– the needs of developing countries.

In its studies under this agenda item, ITU-R Working Party 5A is proposing to suppress Report ITU-R M.2033, “Radiocommunication objectives and requirements for public protection and disaster relief”, as it is producing a new Report ITU-R M.[PPDR]. This new Report will address the three bullets above. Therefore, the changes to Resolution **646 (Rev.WRC-12)** should reflect that work and focus on improving interoperability and cross-border coordination.

The benefits resulting from the use of regionally or internationally harmonized frequency bands have been well-documented in the Resolution and in many studies and reports. These benefits include, among others, achieving economies of scale and expanded equipment availability, possibly increasing competition and improved spectrum management and planning. In emergency and disaster relief situations, the benefits of harmonization also include enhanced cross-border circulation of equipment and increased potential for interoperability of communications when a country receives assistance from other nations.

Any revision to Resolution **646 (Rev.WRC-12)** should accomplish the following:

* Promote harmonization through the establishment of “core” common ranges for PPDR
* Enable flexibility by facilitating the smooth adoption of advanced technologies for PPDR.

Since the adoption of Resolution **646** in 2003, there have been many changes in the public safety environment, often as a result of major disasters. Administrations have introduced new technologies (e.g. LTE in the U.S.) and they have adopted new band plans (e.g., the U.S. and Canadian 700 MHz band plans for public safety). However, no changes could be reflected in the guiding Resolution without WRC action. This is increasingly viewed as a cumbersome mechanism.

Therefore, it would be advisable to institute a mechanism that would allow administrations to more easily provide updated information on their band plans and the technologies they intend to use. This would facilitate harmonization of both frequency arrangements and technologies.

It is equally important for economies of scale and cross-border circulation that a limited number of bands are used for public safety operations. Therefore, it would be helpful to maintain a list of core common frequency ranges in the Resolution. This would encourage the adoption of regionally harmonized bands that would provide beneficial implications for economies of scale.

The specific information regarding which Regions or administrations were employing which part(s) of the bands could be detailed in a revision of Recommendation ITU-R M.2015, “Frequency arrangements for public protection and disaster relief radiocommunication systems in UHF bands in accordance with Resolution **646 (Rev.WRC-12)**” (which would have to be consequentially appropriately modified to include all bands in Resolution **646**).

The benefit of this approach is that it would not require WRC action for an administration to include its PPDR usage. Furthermore, the inclusion of the bands in the Resolution, without specifying countries, would encourage wider use of globally harmonized bands, with its obvious benefits for economies of scale, cross-border coordination, and interoperability.

The CPM Report that was approved in the second session of the CPM in Geneva, 23 March to 2 April 2015, presents four Methods to satisfy WRC-15 agenda item 1.3. Method D of the CPM text for WRC-15 agenda item 1.3 modifies Resolution 646 (Rev. WRC-12) to include suitable global and regional tuning ranges for PPDR operations with their specific frequency arrangements and any national use covered through non-mandatory reference to Recommendation ITU-R M.2015. The global tuning ranges proposed under Method D for the provision of PPDR solutions are the 700/800 MHz frequency tuning ranges, or parts thereof, as described in the most recent version of Recommendation ITU-R M.2015.

One concern with Method D of the CPM text for WRC-15 agenda item 1.3, expressed during the second session of the CPM, was the indeterminate value of the 700/800 MHz ranges in the resolves part of the draft regulatory text in this method. The proposal below addresses this concern.

MOD IAP/7A3/1

RESOLUTION 646 (Rev.WRC‑15)

Public protection and disaster relief

The World Radiocommunication Conference (Geneva, 2015),

considering

*a)* that Report ITU-R M.[PPDR] provides comprehensive details of systems and applications supporting Public Protection and Disaster Relief (PPDR) operations in narrow-, wide- and broadband use, including but not limited to

– the generic technical and operational requirements relating to PPDR;

– spectrum needs;

– mobile broadband PPDR services and applications including further developments and the evolution of PPDR through advances in technology;

- terms and definitions;

– promotion of interoperability and interworking; and

– the needs of developing countries;

*b)* that Report ITU-R M.2291 provides details of the capabilities of IMT technologies to meet the requirements of applications supporting broadband PPDR operations;

*c)* that the term “public protection radiocommunication” refers to radiocommunications used by responsible agencies and organizations dealing with maintenance of law and order, protection of life and property and emergency situations;

*d)* that the term “disaster relief radiocommunication” refers to radiocommunications used by agencies and organizations dealing with a serious disruption of the functioning of society, posing a significant widespread threat to human life, health, property or the environment, whether caused by accident, natural phenomena or human activity, and whether developing suddenly or as a result of complex, long-term processes;

*e)* the growing telecommunication and radiocommunication needs of public protection agencies and organizations, including those dealing with emergency situations and disaster relief, that are vital to the maintenance of law and order, protection of life and property, disaster relief and emergency response;

*f)* that existing public protection and disaster relief applications are mostly narrow-band supporting voice and low data-rate applications, which may continue to be available;

*g)* that new technologies for wideband and broadband public protection and disaster relief applications are being developed in various standards organizations, e.g. IMT technologies that support higher data rates and higher capacity for PPDR applications;

*h)* that continuing development of new technologies and systems, such as International Mobile Telecommunications (IMT) and Intelligent Transportation Systems (ITS), may be able to further support or supplement advanced public protection and disaster relief applications;

*i)* that some commercial terrestrial and satellite systems are complementing the dedicated systems in support of public protection and disaster relief, that the use of commercial solutions will be in response to technology development and market demands and that this may affect the spectrum required for those applications and for commercial networks;

*j)* that Resolution 36 (Rev. Guadalajara, 2010) of the Plenipotentiary Conference urges Member States Parties to the Tampere Convention to take all practical steps for the application of the Tampere Convention and to work closely with the operational coordinator as provided for therein;

*k)* that Recommendation ITU‑R M.1637 offers guidance to facilitate the global circulation of radiocommunication equipment in emergency and disaster relief situations;

*l)* that Report ITU-R BT.2299 provides a compilation of supporting evidence that terrestrial broadcasting plays an important role in disseminating information to the public in times of emergencies;

*m)* that administrations may have different operational needs and spectrum requirements for public protection and disaster relief applications depending on the circumstances;

*n)* that the Tampere Convention on the Provision of Telecommunications Resources for Disaster Mitigation and Relief Operations (Tampere, 1998), an international treaty deposited with the United Nations Secretary-General and related United Nations General Assembly Resolutions and Reports are also relevant in this regard,

recognizing

*a)* the benefits of spectrum harmonization such as:

– increased potential for interoperability;

– a broader manufacturing base and increased volume of equipment resulting in economies of scale and expanded equipment availability;

– improved spectrum management and planning; and

– enhanced cross-border coordination and circulation of equipment;

*b)* that the organizational distinction between public protection activities and disaster relief activities are matters for administrations to determine at the national level;

*c)* that national spectrum planning for public protection and disaster relief needs to have regard to cooperation and bilateral consultation with other concerned administrations, which should be facilitated by greater levels of spectrum harmonization;

*d)* the benefits of cooperation between countries for the provision of effective and appropriate humanitarian assistance in case of disasters, particularly in view of the special operational requirements of such activities involving multinational response;

*e)* the needs of countries, particularly the developing countries[[1]](#footnote-2), for cost-efficient communication equipment;

*f)* that the adoption of IMT technologies for broadband PPDR has advantages and efficiencies that are achieved through the standardisation of these technologies

*g)* that Recommendation ITU-R M.2015 contains regionally harmonized frequency arrangements, as well as frequency arrangements used in certain countries, for public protection and disaster relief;

*h)* that an approach based on regional frequency ranges[[2]](#footnote-5) may enable administrations to benefit from harmonization while continuing to meet national planning requirements;

*i)* that in times of disasters, if most terrestrial-based networks are destroyed or impaired, amateur, satellite and other non‑ground-based networks may be available to provide communication services to assist in public protection and disaster relief efforts;

*j)* that the amount of spectrum needed for public protection on a daily basis differs significantly between countries, that certain amounts of spectrum are already in use in various countries, and that in response to a disaster, access to additional spectrum on a temporary basis may be required;

*k)* that not all frequencies within an identified common frequency range will be available within each country;

*l)* that the identification of common frequency ranges within which equipment couldoperate may ease the interoperability and/or inter-working, with mutual cooperation and consultation, especially in national, regional and cross-border emergency situations and disaster relief activities;

noting

*a)* that many administrations will continue using different frequency bands below 1 GHz for narrow-band systems and applications supporting PPDR and may decide to use the same range for future PPDR systems taking into account the impact of any new system on existing applications operating in, and adjacent to, the range;

*b)* that public protection and disaster relief agencies and organizations have an initial set of requirements, including but not limited to interoperability, secure and reliable communications, sufficient capacity to respond to emergencies, priority access in the use of non-dedicated systems, fast response times, ability to handle multiple group calls and the ability to cover large areas as described in Report ITU‑R M.[PPDR];

*c)* that, while harmonization may be one method of realizing the desired benefits, in some countries, the use of multiple frequency bands can contribute to meeting the communication needs in disaster situations;

*d)* that many administrations have made significant investments in public protection and disaster relief systems;

*e)* that flexibility must be afforded to disaster relief agencies and organizations to use current and future radiocommunications, so as to facilitate their humanitarian operations;

*f)* that Recommendation ITU-R M.2015 contains specific frequency arrangements to provide for narrow-, wide-, and broadband PPDR operations as identified by individual countries as well as by regional organizations;

*g)* that IMT offers a high degree of flexibility for supporting broadband PPDR applications and there are a number of different approaches for using and deploying IMT to meet the broadband communications needs of PPDR agencies and organizations, which are outlined in Reports ITU-R M.2291 and ITU-R M.[PPDR];

*h)* that spectrum identified for IMT may also be considered as a solution for harmonized measures for broadband PPDR operations,

emphasizing

*a)* that the frequency ranges that are covered by the *resolves* part of this Resolution are allocated to a variety of services in accordance with the relevant provisions of the Radio Regulations and are currently used intensively by several different services;

*b)* that PPDR applications in the ranges listed in *resolves* 2 are intended to operate in the mobile service;

*c)* that flexibility must be afforded to administrations to determine:

– how much spectrum to make available at a national level for public protection and disaster relief from the ranges that are covered by the *resolves* part of this Resolution in order to meet their particular national requirements; as well as

– the need and timing of availability as well as the conditions of usage of the bands identified in the most recent version of Recommendation ITU-R M.2015 for PPDR in order to meet specific regional or national situations;

*d)* that not all of the frequency bands listed in the most recent version of Recommendation ITU-R M.2015 may be suitable for every type of PPDR application (narrowband, wideband or broadband);

*e)* that when planning the use of PPDR in the 400 MHz range, administrations should take into account the provisions contained in No. **5.266,** No. **5.267** and Resolution **205 (Rev.WRC-12)**,

resolves

1 to strongly recommend administrations to use regionally harmonized bands for public protection and disaster relief to the maximum extent possible, taking into account the national and regional requirements and also having regard to any needed consultation and cooperation with other concerned countries;

2 to encourage administrations to consider the 698-869 MHz frequency tuning ranges, or parts thereof, as described in the most recent version of Recommendation ITU-R M.2015 for the provision of PPDR solutions in order to achieve global harmonization;

3 to encourage administrations to also consider the following regionally harmonized frequency tuning ranges, or parts thereof, for their planned and future PPDR operations:

– in Region 1: 380-470 MHz;

– in Region 3: 406.1-430 MHz, 440-470 MHz and 4 940‑4 990 MHz;

4 that specific information on the frequency arrangements for public protection and disaster relief, as well as the specific details of the Regions and/or administrations be contained in Recommendation ITU-R M.2015;

5 that the inclusion of frequency ranges for public protection and disaster relief in this Resolution, as well as the inclusion of frequency arrangements for PPDR operations in these frequency ranges, as described in the most recent version of Recommendation ITU-R M.2015, does not preclude the use of these frequency ranges by any application within the services to which these frequency ranges are allocated and does not preclude the use of nor establish priority over any other frequencies for public protection and disaster relief in accordance with the Radio Regulations;

6 to encourage administrations, in emergency and disaster relief situations, to satisfy temporary needs for frequencies in addition to what may be normally provided for in agreements with the concerned administrations;

7 that administrations encourage PPDR agencies and organizations to utilize both existing and new technologies and solutions, to the extent practicable, to satisfy interoperability requirements and to further the goals of public protection and disaster relief;

8 to encourage administrations to facilitate cross-border circulation of radiocommunication equipment intended for use in emergency and disaster relief situations through mutual cooperation and consultation without hindering national legislation;

9 that administrations encourage public protection and disaster relief agencies and organizations to utilize relevant ITU‑R Recommendations and Reports in planning spectrum use and implementing technology and systems supporting public protection and disaster relief;

10 to encourage administrations to continue to work closely with their public protection and disaster relief community to further refine the operational requirements for public protection and disaster relief activities;

11 that manufacturers should be encouraged to take this Resolution and related ITU-R Recommendations and Reports into account in future equipment designs, including the need for administrations to operate within different parts of the frequency arrangements described in the most recent version of Recommendation ITU-R M.2015,

invites ITU‑R

1 to continue its technical studies and to make recommendations concerning technical and operational implementation, as necessary, for advanced solutions to meet the needs of public protection and disaster relief radiocommunication applications, taking into account the capabilities, evolution and any resulting transition requirements of the existing systems, particularly those of many developing countries, for national and international operations;

2 to review and, as appropriate, revise Recommendation ITU-R M.2015 and other relevant ITU-R Recommendations and Reports.

**Reasons:** This approach preserves the harmonized PPDR frequency core ranges/bands within Resolution **646** while introducing greater flexibility by allowing new arrangements in these ranges/bands to be addressed through updates to Recommendation ITU-R M.2015 on PPDR frequency arrangements. Inclusion of common core frequency ranges in Resolution **646** will encourage the use of that spectrum for public safety, resulting in greater economies of scale and facilitated cross-border coordination and interoperability, which are beneficial to public protection and disaster relief operations.  Moving the details of administration-specific implementations within the specified ranges in the resolution to a Recommendation will ease the revision process by no longer requiring WRC action to introduce revisions.

SUP IAP/7A3/2

RESOLUTION 648 (WRC‑12)

Studies to support broadband public protection and disaster relief

**Reasons:** The suppression of this Resolution is consequential to the completion of the review and revision of Resolution **646 (Rev. WRC-12)**.

1. Taking into account, for example, the ITU‑D updated Handbook on disaster relief (Appendix 1 of the [Report of Question 22-1/2](http://www.itu.int/dms_pub/itu-d/opb/stg/D-STG-SG02.22.1-2014-PDF-E.pdf)). [↑](#footnote-ref-2)
2. In the context of this Resolution, the term “frequency range” means a range of frequencies over which radio equipment is envisaged to be capable of operating but limited to specific frequency band(s) according to national conditions and requirements. [↑](#footnote-ref-5)