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| **Radiocommunication Study Groups** |  |
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| **29 November 2013** |
| **English only** |
| Annex 6 to Working Party 5A Chairman’s Report | |
| Working document towards the preliminary  draft CPM text for WRC-15 Agenda item 1.3 | |
| AGENDA ITEM 1.3 | |

(**WP 5A** / **WP 5B, WP 5C, WP 5D**, (WP 1B), (WP 4A), (WP 4B), (WP 4C),   
(WP 6A), (WP 7B), (WP 7C), (WP 7D))

*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)****;*

Resolution **648 (WRC-12)**: *Studies to support broadband public protection and disaster relief.*

# 1/1.3/1 Executive summary

# 1/1.3/2 Background

Resolution **646 (Rev.WRC-12)** on Public Protection and Disaster Relief (PPDR), encourages Administrations, for the purpose of achieving regionally harmonized frequency bands/ranges for advanced public protection and disaster relief solutions, to consider certain identified frequency bands/ranges or parts thereof when undertaking their national planning.

The benefits of regionally or internationally harmonized frequency bands have been documented in that 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 spectrum harmonization also include enhanced cross-border circulation of equipment and increased potential for interoperability of communications when a country receives assistance from other nations.

Since the initial adoption of that Resolution in 2003, major technological breakthroughs have taken place. Moreover, the use of data applications in certain countries has gone beyond voice applications and the trend continues to grow. New broadband mobile technologies have emerged, for which today there are already practical applications, and PPDR agencies increasingly recognize the importance of video and broadband to carry out their activities more efficiently. [In addition, some countries have designated new frequency bands for broadband PPDR that are currently not identified in Resolution 646.]

It has also been recognized that, during disasters, wireless video systems are rolled out more rapidly than fibre or cable networks. In various parts of the world, governments and PPDR institutions are using high-speed wireless video networks to enhance the safety of officers, increase their effectiveness and save lives. In this context, new scenarios of applications and demand for public safety communications have emerged. WRC-15, under agenda item 1.3, will review and revise, as appropriate, Resolution **646 (Rev.WRC-12)** for broadband PPDR in accordance with Resolution **648 (WRC-12)**.

[**Resolution 647 (WRC-07)** onSpectrum management guidelines for emergency and disaster relief radiocommunications encourages administrations to consider global and/or regional frequency bands/ranges for emergency and disaster relief when undertaking their national planning and to communicate this information to the Bureau. This resolution also requires the Director of the Radiocommunication Bureau to assist Member States with their emergency communication preparedness activities by establishing a database of currently available frequencies for use in emergency situations, which are not limited to those listed in Resolution **646 (WRC-03)**, and by issuing an appropriate listing, taking into account Resolution ITU-R 53 of the Radiocommunication Assembly (Geneva, 2007).

It is proposed to clarify the relationship between Res. 647 and Res. 646 while revising Resolution 646 to make it clear that while Resolution 646 is focused on the harmonisation of spectrum for Public protection agencies, these agencies also play a critical role as the first responders whenever there is any disaster or a major emergency.]

# 1/1.3/3 Summary of technical and operational studies, including a list of relevant ITU-R Recommendations

[Editor’s Note: Include an introduction on the summary of work from PPDR Report Drafting Group including a summary of the studies below]

[Report ITU-R [M.2033](https://as.ntia.doc.gov/owa/redir.aspx?C=e60431aebcb04d70a384053cbfd4a235&URL=http%3a%2f%2fwww.itu.int%2fpub%2fR-REP-M.2033%2fen) “Radiocommunication objectives and requirements for Public Protection and Disaster Relief (PPDR)” defines the PPDR objectives and requirements for the implementation of future advanced solutions to satisfy the operational needs of PPDR organizations around the year 2010. Specifically, it identifies objectives, applications, requirements, a methodology for spectrum calculations, spectrum requirements and solutions for interoperability.

Recommendation ITU-R [M.2015](https://as.ntia.doc.gov/owa/redir.aspx?C=e60431aebcb04d70a384053cbfd4a235&URL=http%3a%2f%2fwww.itu.int%2frec%2fR-REC-M.2015%2fen) “Frequency arrangements for public protection and disaster relief radiocommunication systems in UHF bands in accordance with Resolution **646 (Rev.WRC‑12)**”  provides guidance on frequency arrangements for public protection and disaster relief radiocommunications in certain regions in some of the bands below 1 GHz identified in Resolution **646 (Rev.WRC-12)**.

Recommendation ITU-R [M.2009](https://as.ntia.doc.gov/owa/redir.aspx?C=e60431aebcb04d70a384053cbfd4a235&URL=http%3a%2f%2fwww.itu.int%2frec%2fR-REC-M.2009%2fen) “Radio interface standards for use by public protection and disaster relief operations in some parts of the UHF band in accordance with Resolution **646 (WRC‑03)**” identifies radio interface standards applicable for public protection and disaster relief (PPDR) operations in some parts of the UHF band.

Recommendation ITU-R [M.1826](https://as.ntia.doc.gov/owa/redir.aspx?C=e60431aebcb04d70a384053cbfd4a235&URL=http%3a%2f%2fwww.itu.int%2frec%2fR-REC-M.1826%2fen) addresses harmonized frequency channel plans in the band 4 940‑4 990 MHz for broadband public protection and disaster relief radiocommunications in Regions 2 and 3.]

*Region 1*

[Editor’s Note: Text to be provided by Region 1 members including reference to Region 1 specific studies]

*Region 2*

[Editor’s Note: Text to be provided by Region 2 members including reference to Region 2 specific studies]

*Region 3*

[Editor’s Note: Text to be provided by Region 3 members including reference to Region 3 specific studies]

## List of Relevant ITU-R Recommendations and Reports

Reports ITU-R M.2033, M.[PPDR]

Recommendations ITU-R M.1826, M.2009, M.2015

# 1/1.3/4 Analysis of the results of studies

In general, it is expected that narrowband PPDR technology will play an important role in the medium term (i.e. at least in the next 10-15 years). Notwithstanding that future broadband technology is expected to be able to include voice requirements as additional feature. Its implementation is however depending on national decisions. It was recognised, that the broadband PPDR needs vary to a significant extent, regardless whether the operation and/or the ownership of the PPDR network is in governmental or commercial hand (or a mixture of both - hybrid).

Region 1

[Editor’s Note: Text to be provided by Region 1 members]

Region 2

[Editor’s Note: Text to be provided by Region 2 members.]

Region 3

[Editor’s Note: Text to be provided by Region 3 members.]

# 1/1.3/5 Methods to satisfy the agenda item

## [1/1.3/5.1 Method A: Only Editorial updating to Resolution 646 (Rev.WRC-12)]

Under this method, no change will be made to Resolution **646 (Rev.WRC-12)**, other than editorial amendments to Footnote 1 of Resolution **646 (Rev.WRC-12)**, and the broadband PPDR requirements will be addressed through ITU-R studies appropriately indicated in Section 1/1.3/6.1.

**Advantages**

This method fulfills the objectives of review and revision of Resolution **646 (Rev.WRC-12)**.

**Disadvantages**

This method will not fulfill the needs of Resolution **648 (Rev.WRC-12).**

### 1/1.3/5.2 Method B: Modify Resolution 646 (Rev.WRC-12)

Under this method, requirements of broadband PPDR would be addressed in the revision of Resolution **646** **(WRC-12)** appropriately as indicated in Section 1/1.3/6.2.

[Editor’s Note: The text below needs to be reviewed and has been placed here as a placeholder. Members are requested to provide advice on the appropriate placement of such text.]

[Considering the growing use of mobile broadband communications, including mobile video applications, additional spectrum for PPDR mobile broadband is needed, so that administrations may assign RF spectrum for broadband PPDR-IMT. Spectrum below 1 GHz is suitable for such applications, despite the current broadcasting primary status throughout Region 1. Moreover, spectrum may also be needed for broadband PPDR at frequencies above 1 GHz bands, in order to combine RF spectrum with good coverage and penetration characteristics (below 1 GHz), together with RF spectrum (above 1 GHz) that adds capacity. Common RF spectrum will enable efficient deployment and will ease coordination and harmonization between different PPDR agencies and will advance international aid during disasters and major events. In addition to the benefits of scale production, regional harmonization will improve inter-operability among first responders and will drive suitable devices and standards dedicated to broadband PPDR.]

Advantages

[Editor’s Note: The text below was not discussed at the November 2013 WP 5A meeting. Administrations are requested to provide input to reduce the options to the extent practicable.]

The proposal to revise Resolution **646 (Rev.WRC-12)** takes into account major technological breakthroughs that have taken place since its adoption in 2013. The proposed revisions recognize the use of data applications in certain countries that has gone beyond voice applications and now support high speed data, internet access and video applications, a trend that continues to grow. The proposed changes also support new IMT based broadband mobile technologies have emerged, for which today there are already practical applications, and PPDR agencies increasingly recognize the importance of video and broadband to carry out their activities more efficiently.

The proposal also recognizes that the governments and PPDR organizations around the world are using high-speed wireless video networks to enhance the safety of public as well as their officers, increase their effectiveness in saving lives.

Or

Studies carried out by the ITU-R in accordance with Resolution 648 lead to the development of a new report on PPDR-Advanced requirements. This new report is focussed on the PPDR-adavanced as distinct from from the PPDR-traditional requiremnts that are covered in Report ITU-R M.2033. This new Report on advanced PPDR requiremnts entitled “Enhanced” or “Advanced” PPDR includes necessary technical requiremnnbts of Broadband PPDR.

Or

The proposed revision by adding the range 694-862 MHz for Region 1 will open a high degree of flexibility for the national administrations in identifying LTE spectrum to cover the requirements for broad band PPDR according to national circumstances.

PPDR Spectrum from within this range will allow for the design of more cost effective PPDR UE’s applying as much as possible the high volume radio chips and antenna systems used within the spectrally adjacent commercial radio devices.

The identified requirement, that special PPDR UE shall be technical capable also to operate in a commercial network can most easily be implemented.

The proposed spectrum range will match well with the requirement for still smaller and light weight body worn PPDR UE’S.

The proposed frequency range for Region 1 is in alignment with similar frequency ranges proposed for other Regions.

The proposed spectrum range is aligning with spectrum in 800 MHz which some countries of Region 1 are using or planning to use.

Disadvantages

[Editor’s Note: The text below was not discussed at the November 2013 WP 5A meeting. Administrations are requested to provide input to reduce the options to the extent practicable.]

Countries of Region1 planning to introduce PPDR mobile broad band services in the low end of the 700 MHz range may have to bilaterally coordinate with neighboring countries still transmitting high power terrestrial broadcasting on Channel 48.

Or

None

# 1/1.3/6 Regulatory and procedural considerations

## 1/1.3/6.1 For Method A: Only Editorial updating to Resolution 646 (Rev.WRC-12)

RESOLUTION 646 (Rev.wrc-12)

Public protection and disaster relief

The World Radiocommunication Conference (Geneva, 2012),

considering

…

*g)* that new technologies for wideband and broadband public protection and disaster relief applications are being developed in various standards organizations;

…

*m)* 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[[1]](#footnote-2),

…

## 1/1.3/6.2 For Method B: Modify Resolution 646 (Rev.WRC-12)

[Editor’s Note: The text below was not discussed at the November 2013 WP 5A meeting. Alternate text for each item where agreement cannot/was not reached is provided below. Administrations are requested to provide input to reduce the options to the extent practicable.]

RESOLUTION 646 (Rev.wrc-12)

Public protection and disaster relief

The World Radiocommunication Conference (Geneva, 2012),

considering

*a)* 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;

*b)* 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;,

*c)* 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;

*d)* that many administrations wish to promote interoperability and interworking between systems used for public protection and disaster relief, both nationally and for cross-border operations in emergency situations and for disaster relief;

*e)*that traditional public protection and disaster relief applications are mostly narrow-band supporting voice and low data-rate applications or wideband with data rates below 1 MBP/S, typically in channel bandwidths between f 25 to 100 kHz or less;

*or*

*e)* that current public protection and disaster relief applications are mostly narrow-band supporting voice and low data-rate applications, typically in channel bandwidths of 25 kHz or less;

*f)*that, although many narrow-band and wideband applications continue to be used for meeting PPDR requirements, many PPDR agencies have stated need for broadband applications with data rates in the order of 1-100 Mbit/s) with larger channel bandwidths of 5Mhz and above for systems based on IMT technologies;

*or*

*f)* that, although there [will ] [may] continue to be narrow-band requirements, many future applications will be wideband (indicative data rates in the order of 384-500 kbit/s) and/or broadband (indicative data rates in the order of 1-100 Mbit/s) with channel bandwidths dependent on the use of spectrally efficient technologies;

*g)* that new technologies for wideband and broadband public protection and disaster relief applications are being developed in various standards organizations;

*or*

*g)* IMT technologies support higher data rates, reliability, resiliency, and higher capacity in comparison to traditional PPDR networks. Report ITU-R M. IMT.BROAD.PPDR provides details of the capabilities of IMT technologies for meeting broadband PPDR requirements;

*or*

*g)* that some administrations have started using IMT and IMT-advanced technologies such as LTE (and LTE-Advanced) to meet the needs of their PPDR agencies for data and video;

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

*or*

*h)* that, some administrations have started using IMT and IMT-advanced technologies such as LTE to meet the needs of their PPDR agencies for data and video. In particular, some countries in Region 2 have earmarked parts of 698-806 MHz IMT band for their broadband PPDR requirements;

*hbis*) [that, over time, traditional narrow-band public protection and disaster relief applications, such as voice and low-data rate applications, may be integrated with advanced broadband applications;]

*or*

*hbis)* that during disasters and emergency events requiring response not only from PPDR agencies but also from humanitarian agencies and public in general. Additional frequencies may be needed for adhoc broadband networks covering such disasters areas. Resolution **647(WRC-07)** provides necessary guidelines for meeting such spectrum needs;

*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.Marrakesh, 2002)** of the Plenipotentiary Conference urges Member States to facilitate use of telecommunications for the safety and security of the personnel of humanitarian organizations;

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

*kbis)* that Resolution **647(WRC-07)** on Spectrum management guidelines for emergency and disaster relief radiocommunications encourages administrations to consider global and/or regional frequency bands/ranges for emergency and disaster relief when undertaking their national planning and to communicate this information to the Bureau. Resolution **647 (WRC-07)** also requires the Director of the Radiocommunication Bureau to assist Member States with their emergency communication preparedness activities by establishing a database of currently available frequencies for use in emergency situations, which are not limited to those listed in *resolves* 2) of this resolution but also take into account Resolution ITU-R 53 of the Radiocommunication Assembly (Geneva, 2007);

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

*m)* 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[[2]](#footnote-4),

[Editor's Note: Proposals are invited for review and simplification of text in considering *m*)   
and foot note 2]

*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;

*or*

*e)* the needs of countries, particularly the developing countries[[3]](#footnote-5), for low-cost communication equipment;

*f)* that the trend is to increase the use of technologies based on Internet Protocols;

*or*

*fbis)* that the adoption of IMT should be encouraged for broadband PPDR because of the spectral and other operating efficiencies that these technologies offer;

*g)* that currently some bands or parts thereof have been designated for existing public protection and disaster relief operations, as documented in Report ITU-R M.2033[[4]](#footnote-6);

*h)* that for solving future bandwidth requirements, there are several emerging technology developments such as software-defined radio, advanced compression and networking techniques that may reduce the amount of new spectrum required to support some public protection and disaster relief applications;

or

*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 can differ significantly between countries, that certain amounts of spectrum are already in use in various countries for narrow-band applications, and that in response to a disaster, access to additional spectrum on a temporary basis may be required;

*jbis)* studies carried out by various user agencies in different countries indicate varying spectrum bandwidth requirements for broadband PPDR between XX to XX MHz, recognising that the bandwidth requirements will vary between countries depending on their PPDR agencies requirements;

[Editorial Note: The amount XX to be completed based on the new Requirements report being considered in WP 5A]

*jter)* that certain amounts of spectrum are already in use in various countries for narrow-band applications, and that in response to a disaster, access to additional spectrum on a temporary basis may be required for narrow band PPDR operations;

*k)* that in order to achieve spectrum harmonization, an approach based on regional frequency ranges[[5]](#footnote-7) may enable administrations to benefit from harmonization while continuing to meet national planning requirements;

*or*

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

*or*

*m)* that the identification of a common frequency range 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;

*or*

*n)* that when a disaster occurs, the public protection and disaster relief agencies are usually the first on the scene using their day-to-day communication systems, but that in most cases other agencies and organizations may also be involved in disaster relief operations,

*noting*

*a)* that many administrations currently use frequency bands below 1 GHz for narrow-band public protection and disaster relief applications;

*b)* that applications requiring large coverage areas and providing good signal availability would generally be accommodated in lower frequency bands and that applications requiring wider bandwidths would generally be accommodated in progressively higher bands;

*c)* 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.2033 and Report ITU-R M.[PPDR-B];

[Editor’s Note: Text of *noting c)* will be updated based on work ongoing in respect of a new report and/or revision of Report ITU-R M.2033.]

*cbis)* that public protection and disaster relief agencies and organizations have an initial set of requirements for broadband communications as described in Report ITU‑R M.BROAD.PPDR[(New Report TBD];

*d)* [that, while harmonization may be one method of realizing the requirements outlined in *noting* *b)* and *c)[* ]in some countries, the use of multiple frequency bands can contribute to meeting the communication needs in disaster situations;]

*or*

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

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

*fbis)* that IMT offers a high degree of flexibility for supporting broadband PPDR applications and there are a number of different approaches for using IMT for meeting the broadband communications needs of PPDR agencies which are outlined in Report ITU-R M.[B-PPDR]],

*emphasizing*

*a)* that the frequency bands identified in 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 the fixed, mobile, mobile satellite and broadcasting services;

*abis)* that only some of the frequency bands identified in this Resolution are suitable for Broadband PPDR;

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

– to determine, at national level, how much spectrum to make available for public protection and disaster relief from the bands identified in this Resolution in order to meet their particular national requirements;

– to have the ability for bands identified in this Resolution to be used by all services having allocations within those bands according to the provisions of the Radio Regulations, taking into account the existing applications and their evolution;

– to determine the need and timing of availability as well as the conditions of usage of the bands identified in this Resolution for public protection and disaster relief in order to meet specific national situations,

*c)* that in emergency and disaster relief situations, administrations be encouraged, to satisfy temporary needs for frequencies in addition to what may be normally provided for in agreements with the concerned administrations;

*d)* that public protection and disaster relief agencies and organizations be encouraged to utilize both existing and new technologies and solutions (satellite and terrestrial), to the extent practicable, to satisfy interoperability requirements and to further the goals of public protection and disaster relief;

*e)* that PPDR agencies and organizations be encouraged to use advanced wireless solutions taking into account *considering h)* and *i)* for providing complementary support to public protection and disaster relief;

*f)* that administrations should 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;

*g)* that administrations encourage public protection and disaster relief agencies and organizations to utilize relevant ITU-R Recommendations in planning spectrum use and implementing technology and systems supporting public protection and disaster relief;

*h)* that administrations continue to work closely with their public protection and disaster relief communities to further refine the operational requirements for public protection and disaster relief activities;

*i)* that manufacturers be encouraged to take this Resolution into account in future equipment designs, including the need for administrations to operate within different parts of   
the identified bands,

*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;

[Proposal 1]

2 to encourage administrations, for the purposes of achieving regionally harmonized frequency bands/ranges for advanced public protection and disaster relief solutions, to consider the following identified frequency bands/ranges or parts thereof when undertaking their national planning:

– in Region 1: 380-470 MHz as the frequency range within which the band 380-385/   
390-395 MHz is a preferred core harmonized band for permanent public protection activities within certain countries of Region 1 which have given their agreement[[6]](#footnote-9)

[The frequency band (s) XXX-XXX is/are the preferred harmonized band(s) for broadband public protection and disaster relief solutions in some countries in Region 1]

– in Region 2[[7]](#footnote-10): 746-806 MHz, 806-869 MHz, 4 940-4 990 MHz;

in Region 3[[8]](#footnote-11): 406.1-430 MHz, 440-470 MHz, 806-824/851-869 MHz, 4 940‑4 990 MHz and 5 850-5 925 MHz;

[Proposal 2]

2 to encourage administrations, for the purposes of achieving regionally harmonized frequency bands/ranges for advanced public protection and disaster relief solutions, to consider   
the identified frequency bands/ranges shown in the Table below, or parts thereof when undertaking the national planning [of interoperable public protection and disaster relief systems]

Table

Frequency ranges for PPDR systems

|  |  |  |
| --- | --- | --- |
| **Region** | **Band/frequency range** | **Notes** |
| 1 | 380-470 MHz [[9]](#footnote-14),[[10]](#footnote-15) | 380-385/ 390‑395 MHz is a preferred core harmonized band for permanent public protection activities within certain countries of Region 1 which have given their agreement |
| 2 | 746-806 MHz, 806-869 MHz,  4 940-4 990 MHz | Venezuela has identified the band 380-400 MHz for public protection and disaster relief applications |
| 3 | 406.1-430 MHz, 440-470 MHz,  806-824/851-869 MHz,  4 940-4 990 MHz, 5 850- 5 925 MHz | Some countries have identified the band 380-400 MHz and 746-806 MHz for public protection and disaster relief applications |

[Proposal 3]

2 to encourage administrations, for the purposes of achieving regionally harmonized frequency bands/ranges for advanced public protection and disaster relief solutions, to consider the following identified frequency bands/ranges or parts thereof when undertaking their national planning:Table

Frequency bands/ranges for PPDR

|  |  |  |
| --- | --- | --- |
| **Region** | **Identified frequency bands/range** | **Notes** |
| 1 | 380-470 MHz | a) 380-385/ 390‑395 MHz is a preferred core harmonized band for permanent public protection activities within certain countries of Region 1 which have given their agreement  b) The bands XXX-XXX MHz and XXX-XXX MHz, within the frequency range of XXX-XXX MHZ are the preferred bands for broadband PPDR |
| 2 | ~~746~~698-806 MHz, 806-869 MHz,  4 940-4 990 MHz | a) Venezuela has identified the band 380-400 MHz for public protection and disaster relief applications  b) the band XXX-XXX MHz and XXX-XXX MHz within the frequency range of XXX-XXX MHZ are the preferred bands for broadband PPDR |
| 3 | 406.1-430 MHz, 440-470 MHz,  806-824 MHz,  4 940-4 990 MHz, 5 850-5 925 MHz | a) Some countries in Region 3 have identified the band  380-400 MHz and ~~746~~698-806 MHz for public protection and disaster relief applications  b) The band XXX-XXX MHz and XXX-XXX MHz within the frequency range of XXX-XXX MHZ are the preferred bands for broadband PPDR |

[Proposal 4]

2 to encourage administrations, for the purposes of achieving regionally harmonized frequency bands/ranges for advanced public protection and disaster relief solutions, to consider the following identified frequency bands/ranges or parts thereof when undertaking their national planning:

2.1 in Region 1:

i) 380-470 MHz as the frequency range within which the band 380-385/ 390-395 MHz is a preferred core harmonized band for permanent public protection activities within certain countries of Region 1 which have given their agreement;

ii) the band 698-713 MHz /753-768 MHz within the frequency range 694-790 MHz and the band 791-801 / 832-842 MHz within the frequency range 790-862 MHz are the preferred bands for broadband PPDR within certain countries of Region1 which have given their agreement;

2.2 in Region 2[[11]](#footnote-18):

i) 746-806 MHz, 806-869 MHz, 4 940-4 990 MHz;

ii) the band 703-713/758-768 MHz within the frequency range 698-806 MHz and the band 758-768/788-798 MHz within the frequency 746-806 MHz are the preferred bands for broadband PPDR within certain countries of Region 2 which have given their agreement;

2.3 in Region 3[[12]](#footnote-19):

i) 406.1-430 MHz, 440-470 MHz, 806-824/851-869 MHz, 4 940‑4 990 MHz and   
5 850-5 925 MHz;

ii) the band 703-748/758-803 MHz within the frequency range 698-806 MHz and the band 806-834/851-879 MHz within the frequency range of 806-879 MHz are the preferred bands for broadband PPDR within certain countries of Region 3 which have given their agreement;

3 that the identification of the above frequency bands/ranges for public protection and disaster relief does not preclude the use of these bands/frequencies by any application within   
the services to which these bands/frequencies 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;

4 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;

Or

5 that administrations encourage public protection and disaster relief agencies and organizations to utilize both existing and new technologies [, systems and solutions (satellite and terrestrial),] to the extent practicable, to satisfy interoperability requirements and to further the goals of public protection and disaster relief;

Or

6 that administrations may encourage agencies and organizations to use advanced wireless [solutions /applications] taking into account *considering h)* and *i)* for providing complementary support to public protection and disaster relief;

Or

7 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;

Or

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

Or

9 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;

Or

10 that manufacturers should be encouraged to take this Resolution into account in future equipment designs, including the need for administrations to operate within different parts of the identified bands,

Or

*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 conduct further appropriate technical studies in support of possible additional identification of other frequency ranges to meet the particular needs of certain countries in Region 1 which have given their agreement, especially in order to meet the radiocommunication needs of public protection and disaster relief agencies.

Or

1. The Working Group on Emergency Telecommunications (WGET), convened by the United Nations Office for Humanitarian Affairs (OCHA), is an open forum to facilitate the use of telecommunications in the service of humanitarian assistance comprising United Nations entities, major non-governmental organizations, the International Committee of the Red Cross (ICRC),   
   ITU and experts from the private sector and academia. Another platform for coordination and to foster harmonized global Telecommunication for Disaster Relief (TDR) standards is the TDR Partnership Coordination Panel, which has just been established under the coordination of ITU with participation of international telecommunication service providers, related government departments, standards development organizations, and disaster relief organizations. [↑](#footnote-ref-2)
2. The Working Group on Emergency Telecommunications (WGET), convened by the United Nations Office for Humanitarian Affairs (OCHA), is an open forum to facilitate the use of telecommunications in the service of humanitarian assistance comprising United Nations entities, major non-governmental organizations, the International Committee of the Red Cross (ICRC),   
   ITU and experts from the private sector and academia. Another platform for coordination and to foster harmonized global Telecommunication for Disaster Relief (TDR) standards is the TDR Partnership Coordination Panel, which has just been established under the coordination of ITU with participation of international telecommunication service providers, related government departments, standards development organizations, and disaster relief organizations. [↑](#footnote-ref-4)
3. Taking into account, for example, the ITU-D Handbook on disaster relief. [↑](#footnote-ref-5)
4. 3-30, 68-88, 138-144, 148-174, 380-400 MHz (including CEPT designation of 380-385/   
   390-395 MHz), 400-430, 440-470, 764-776, 794-806 and 806-869 MHz (including CITEL designation of 821-824/866-869 MHz). [↑](#footnote-ref-6)
5. In the context of this Resolution, the term “frequency range” means a range of frequencies over which a radio equipment is envisaged to be capable of operating but limited to specific frequency band(s) according to national conditions and requirements. [↑](#footnote-ref-7)
6. [Option 1:] [Israel has identified the band 806-824/851-869 MHz for public protection and disaster relief applications] [Option 2:][Some countries in Region 1 already have identified bands for public protection and disaster relief] [↑](#footnote-ref-9)
7. Venezuela has identified the band 380-400 MHz for public protection and disaster relief applications. [↑](#footnote-ref-10)
8. Some countries in Region 3 have also identified the bands 380-400 MHz and 746-806 MHz for public protection and disaster relief applications. [↑](#footnote-ref-11)
9. [The frequency band (s) XXX-XXX is/are the preferred harmonized band(s) for broadband public protection and disaster relief solutions in some countries in Region 1] [↑](#footnote-ref-14)
10. [Option 1] [Israel has identified the band 806-824/851-869 MHz for public protection and disaster relief applications].[Option 2] [Some countries in Region 1 already have identified bands for public protection and disaster relief]. [↑](#footnote-ref-15)
11. Venezuela has identified the band 380-400 MHz for public protection and disaster relief applications. [↑](#footnote-ref-18)
12. Some countries in Region 3 have also identified the bands 380-400 MHz and 698-806 MHz for public protection and disaster relief applications. [↑](#footnote-ref-19)