

ALCATEL-LUCENT

16th. December, 2014

Submission to the RSPG

Radio Spectrum Policy Group:

*(Draft) RSPG Opinion on Common Policy Objectives for
WRC-15*

Introduction

Alcatel-Lucent welcomes the opportunity to respond to the RSPG draft Opinion on Common Policy Objectives for the World Radiocommunication Conference 2015 (WRC-15).

Allocating and making spectrum available on a global basis is a complex process that is managed by the International Telecommunication Union (ITU) on a worldwide scale.

Alcatel-Lucent recognizes the importance of the World Radiocommunication Conference and of the preparatory work required to assure successful outcomes of the upcoming one, WRC-15.

Alcatel-Lucent and the wider mobile industry are working to support the ITU in harmonizing spectrum use as much as possible, which can lead to improved economies of scale for mobile broadband technologies and products.

This response to the consultation reflects the views of Alcatel-Lucent on WRC-15 matters, in general and on the specific common policy objectives raised by the RSPG, in particular.

About Alcatel-Lucent

Alcatel-Lucent is at the forefront of global communications, providing products and innovations in IP and cloud networking, as well as ultra-broadband fixed and wireless access to service providers and their customers, and to enterprises and institutions throughout the world.

Underpinning us in driving the industrial transformation from voice telephony to high-speed digital delivery of data, video and information is Bell Labs, an integral part of the Group and one of the world's foremost technology research institutes, responsible for countless breakthroughs that have shaped the networking and communications industry. Our innovations have resulted in our Group being recognized by Thomson Reuters as a Top 100 Global Innovator, as well as being named by MIT Technology Review as amongst 2012's Top 50 "World's Most Innovative Companies". We have also been recognized for innovation in sustainability, being named Industry Group Leader in the Technology Hardware & Equipment sector in the 2013 Dow Jones Sustainability Indices review, for making global communications more sustainable, affordable and accessible, all in pursuit of the Group's mission to realize the potential of a connected world.

With revenues of Euro 14.4 billion in 2013, Alcatel-Lucent is listed on the Paris and New York stock exchanges (Euronext and NYSE: ALU). The company is incorporated in France and headquartered in Paris.

For more information, visit Alcatel-Lucent on: <http://alcatel-lucent.com>, read the latest posts on the [Alcatel-Lucent blog](#) and follow [Alcatel-Lucent on Twitter @Alcatel_Lucent](#).

Alcatel-Lucent's Responses

The responses below represent Alcatel-Lucent (ALU) views on the topics raised in the consultation with regard to the common policy objectives.

Alcatel-Lucent welcomes the publication by the RSPG of the draft Opinion on Common Policy Objectives for WRC-15, agreed by experts of the 28 EU members. Alcatel-Lucent notes that the RSPG has considered the legal European framework. In this regard Alcatel-Lucent considers that the current approach followed by EU countries to co-ordinate their views through the definition of European Common Positions (ECPs) within CEPT, taking due account of the EU Policies in case of issues potentially impacting these Policies, together with the coordinated support of these positions during the WRC itself, works correctly and should be maintained for WRC-15.

Alcatel-Lucent has participated in discussions in several European groups, such as CPG and its Project Teams, for WRC-15 preparations. We welcome the opportunity to further contribute to the process by responding to this consultation. Alcatel-Lucent believes that the preparation of this Opinion by the RSPG is an important element as it formalizes the positions shared by the 28 EU Member States and expressed within CEPT, contributes to reinforcing their role within CEPT, and will ensure consistency with the views that the European Commission will express on WRC-15.

Alcatel-Lucent agrees with the RSPG's approach of grouping the various Agenda Items (AIs) into broad categories in order to facilitate this consultation. The current document groups the AIs into following categories:

- 1-Information Society-Electronic Communications (Agenda Items: 1.1, 1.2 and 1.3)
- 2-Space Policy (Agenda Items: 1.6, 1.7, 1.8, 1.9.1 and 1.10)
- 3-Transport Policy (Agenda Items: 1.15, 1.16, 1.17 and 1.18)
- 4-Scientific use of spectrum (Agenda Items: 1.11, 1.12, 1.13 and 1.14)
- 5-Future WRC-Agenda Items (Agenda Item 10)

It should be noted that Alcatel-Lucent does not provide responses on all the aspects of the consultation, as we do not have specific positions on some aspects. Alcatel-Lucent's response focuses mainly on the topics under Information Society-Electronic Communications Agenda Items 1.1, 1.2 and 1.3. In addition, Alcatel-Lucent provides views on AI 1.6.1, 1.6.2, 1.8, 1.9.1 and 1.10, as they could present the risk of additional interference to operator's backhaul networks due to the possible expanded usage of FSS networks in the bands addressed in the Agenda Items. Therefore we consider that for these Agenda Items the interests of Space Policy should be balanced with those of the Information Policy - Electronic Communications Policy. Finally, Alcatel-Lucent provides some views on future Agenda Item 10, as it relates to Information Society Policy.

Alcatel-Lucent Positions for Specific Agenda Items

1- Information Society -Electronic Communications (Alcatel-Lucent responses on Agenda Items 1.1,1.2, 1.3)

Alcatel-Lucent sees these Agenda Items as of prime importance for the mobile industry and for Alcatel-Lucent. These Agenda Items will shape the future of the industry, its operations and products, and have major implications for the mobile communications for decades to come.

Agenda Item 1.1:

Alcatel-Lucent agrees with the RSPG's general approach on WRC-15 Agenda Item 1.1. In particular, we agree with the RSPG's statement that Member States ensure that at WRC-15 additional spectrum is identified for IMT and allocated to the Mobile Service, taking into account the development of electronic communication services within the EU, the need to fulfil the tasks of the Digital Agenda for Europe and the RSPP, and the protection of other applications.

The currently available spectrum is recognized as insufficient to address the growth in demand for mobile data in many regions, including the EU. Alcatel-Lucent especially welcomes the RSPG's statement that the aim of WRC-15 should be to provide the means to satisfy the long-term needs of IMT by harmonisation of existing allocations for electronic communication services in EU Member States on a global level to gain benefits from economics of scale and increased opportunities. Moreover, we support regulatory provisions in this spectrum which ensure equitable access between countries.

Concerning specific bands, Alcatel-Lucent supports the following bands for mobile allocation and IMT identification, as appropriate, at WRC-15:

- **470-694 MHz:** While Alcatel-Lucent fully recognises that the use of the band 470-694 MHz by the Mobile Service is not possible in the short or even in medium term in some EU countries, we do not agree with the RSPG opposition to a co-primary mobile allocation for this band at WRC-15.

We support an allocation to the Mobile Service in Region 1 that would ensure a global allocation of the band to the Mobile Service. This band has a lot of potential for better coverage and is also adjacent to already allocated mobile bands. Alcatel-Lucent recognizes that the existing high DTTV penetration is to be protected from resulting interference. This band is also part of discussion for a long-term convergence of broadcast and mobile broadband. An allocation to the mobile service, and even identification for IMT, would not prejudice the results of these discussions. It should be noted that some countries of CEPT/EU (e.g. Northern Europe) evaluate an early availability of the band for IMT applications in the 2020-2025 period.

An allocation to the Mobile Service does not oblige an Administration to authorise or deploy mobile applications in the band; what it does is to give administrations the flexibility to make the political decisions at a later stage. While the date of the political decisions will differ from country to country, we are of the view that a mobile allocation is necessary to ensure that the equipment ecosystem will exist when the time is right. The development of a global market and a robust ecosystem would clearly serve the interests of the EU and of consumers.

- **694-790 MHz (in the context of AI.1.2):** WRC-15 is to confirm the identification of this band for IMT, confirmation made at WRC-12 for Region 1. As the first deployments are expected in 2017-2018 period and wide-scale deployment in 2020, Alcatel-Lucent supports this Agenda Item and the RSPG statements that this allocation to the Mobile Service and identification for IMT will facilitate the implementation of IMT systems in Europe in this band.
- **L-Bands:** The RSPG supports 1427-1452 MHz, 1452-1492 MHz and 1492-1518 MHz for IMT identification at WRC-15, which are categorised as bands to be supported by CEPT (categorised as Category 1 by CPG). The following subsections give more details along with Alcatel-Lucent rationales for supporting these bands:

1427-1452 MHz: CEPT supports the identification for IMT of the band 1427-1452 MHz. Alcatel-Lucent notes that this band is already allocated to the Mobile Service in the three ITU-R Regions. However, limits set to protect adjacent EESS (passive) operating in the band 1400-1427 MHz may reduce the flexibility of the utilization by IMT systems, at least in the lower part of the band.

As CEPT recognizes, identification of 1427-1452 MHz for IMT presents the following advantages:

- A possible global identification to IMT, and,
- The possibility to implement large IMT blocks within the band 1427-1518 MHz, in association with the bands 1452-1492 MHz and 1492-1518 MHz.

On the other hand, the protection of the passive services below 1427 MHz would impose severe limitations to the deployment of IMT in the frequency range immediately above 1427 MHz. It is likely that the use of the band will be restricted to base stations transmission, taking into account that the guard band that will likely result from the protection of the passive band below 1427 MHz would drastically limit the part of the band 1427-1452 MHz that would be usable for terminals transmission.

Although supporting the general position of the mobile industry and of CEPT in favour of an identification of the band 1427-1452 MHz for IMT, Alcatel-Lucent - points out that the possible restrictions to the implementation of IMT could make this band unattractive for Mobile Services.

1452-1492 MHz: CEPT decided to harmonise this band for mobile broadband supplemental downlink (SDL), a decision based on the conclusions of ECC Report 188. An ECC Decision designates this band for Mobile/Fixed Communications Networks Supplemental Downlink.

Alcatel-Lucent supports this Decision that will allow Europe to take early leadership in driving the global harmonisation of the band plan for these 40 MHz of spectrum. In this context, in line with the RSPG position, Alcatel-Lucent supports the identification of this band for IMT at WRC-15, which would facilitate global use of the band for IMT.

1492-1518 MHz: Most of the CEPT administrations having expressed their views at the CPG PTD and CPG level support the use of this band for IMT. The band is already allocated to the Mobile Service in the three Regions, and the potential for a worldwide IMT identification seems very high, making possible the development of a global market benefiting of economies of scale for equipments and end-user devices. For this reason, Alcatel-Lucent agrees with the RSPG view and supports identification of 1492-1518 MHz for IMT.

- **2700-2900 MHz:** This band, adjacent to spectrum already identified for IMT (2.5-2.69 GHz) and with similar propagation conditions, has considerable potential for global harmonisation and offers the potential for larger spectrum blocks. Currently allocated to the ARNS and on secondary basis to the radiolocation services on a worldwide basis, it is primarily used for radar systems. However a limited number of radars are operational in this band in most CEPT countries.

Based on the following reports, limited international support is foreseen for a co-primary mobile allocation in the 2700-2900 MHz band:

- Report ITU-R M.2112 and ECC Report 174 highlighting the incompatibility between the Mobile Service and the radio-determination service in this band in the same geographical area;
- ECC/REC 02(09) recommending the use of the band by cordless cameras in CEPT countries.

Consequently, the RSPG does not support this band for IMT identification.

AT the CEPT level, support for identifying this band for IMT comes from both some administrations and the mobile industry represented by GSMA, Digital Europe, and the UMTS Forum, as there are advantages to consider a co-primary mobile allocation in the band 2700-2900 MHz. Alcatel-Lucent believes that CEPT/EU should continue to look at the band, and explore the possibilities of co-existence between radars and IMT.

- **3400-3600 MHz:** The band 3400-3600 MHz is allocated to the Mobile Service and, in addition, identified for IMT in many countries in Regions 1 and/or 3. Specifically in Region 1, it is allocated to mobile on a primary basis and identified for IMT in 82 countries by footnote.

Alcatel-Lucent is of the view that a co-primary allocation to the Mobile Service in Region 1, directly in the Article 5 of the Table of Allocations, would be important to ensure wider usage of the band by IMT systems.

Usage of the band for IMT is possible in EU countries in the context of "terrestrial systems capable of providing Electronic Communications Services" based on the Commission Decision 2008/411/EC (May 2008), and in the context of Mobile/Fixed Communications Networks (MFCN) in those CEPT countries implementing ECC/DEC(11)06 (December 2011).

Alcatel-Lucent agrees with RSPG's views concerning the 3400-3600 MHz band, i.e., supporting a co-primary mobile allocation and IMT identification.

- **3600-3800 MHz:** The band 3600-3800 MHz is allocated worldwide to the Fixed and Fixed Satellite Services (FSS). The band is also allocated to the Mobile Service on a primary basis in Regions 2 and 3, and on a secondary basis in Region 1. This band is not identified for IMT although usage of this band for IMT is possible in EU countries in the context of "terrestrial systems capable of providing terrestrial communications services" based on the Commission's Decision 2008/411/EC (May 2008), and, more generally, in the context of MFCN for CEPT countries implementing ECC Decision (11)06 (December 2011). We agree with the RSPG that this band should also be supported at WRC-15 for both a co-primary Mobile allocation and IMT identification to ensure global usage for IMT in the future.
- **3800-4200 MHz:** The band is already allocated to the Mobile Service in Regions 2 and 3. In Region 1 some countries propose to support it at WRC-15 as well while a significant number of countries strongly oppose the consideration of the 3800-4200 MHz band for potential IMT usage.

The RSPG Opinion "Strategic Challenges facing Europe in addressing the Growing Spectrum Demand for Wireless Broadband", adopted in June 2013, states: *"Nevertheless, the frequency range 3800-4200 MHz has the potential to play a role in the provision of electronic communications services to ensure that the future capacity needs especially in urban areas, are met. Therefore, studies should be carried out into the possibility of sharing in Europe between the FSS and terrestrial wireless broadband services."*

It is useful to remember that this earlier Opinion clearly invites EU countries to consider an identification of this band for the provision of Broadband Mobile applications. Alcatel-Lucent recognizes the reasons why RSPG did not include the band 3.8-4.2 GHz in the list of bands that should be supported by the Member States at WRC-15. Alcatel-Lucent does not support this band either for IMT identification at WRC-15. However, we support at the European level after WRC-15, an identification of the band for Electronic Communications Services/MFCN within the EU and CEPT, in line with the conclusions of the above-mentioned RSPG Opinion.

Agenda Item 1.2:

Alcatel-Lucent encourages the RSPG to continue to support the confirmation by WRC-15 of the allocation to the Mobile Service and the identification for IMT of the band 694-790 MHz, in line with the position of the vast majority of CEPT countries. Furthermore, Alcatel-Lucent agrees with the RSPG opinion that no additional regulatory provisions are required in the Radio Regulations for the protection of broadcasting, as this is sufficiently addressed in the GE-06 agreement. Finally, we agree that equitable access between the Mobile Service and ARNS would facilitate the deployment of IMT in all EU countries including those bordering countries outside the EU that are operating ARNS. This equitable access could be achieved through appropriate regulatory provisions in the Radio Regulations and through bi-lateral agreements between these EU and non-EU countries, which would ideally be reached before WRC-15.

Agenda Item 1.3:

Alcatel-Lucent agrees with the RSPG that the revision of Resolution **646(Rev.WRC-12)** should provide relevant information on regional PPDR frequency ranges. The inclusion of regional frequency ranges would facilitate harmonization with obvious benefits in terms of equipment cost and availability.

The regulatory framework should preserve the right of administrations/PPDR agencies to decide on the use of dedicated, commercial, or hybrid solutions. As providers of dedicated equipment for PPDR applications, we consider that the interworking of PPDR solutions developed in different CEPT countries would be beneficial for coordination of both Public Safety operations between neighbouring CEPT countries and of pan-European operations.

If commercial mobile networks are used to provide PPDR, the choice of frequencies to be used for PPDR should, in principle, be left to the agreement between the PPDR agencies and the mobile operator. In such a scenario the design of Public Safety terminals should ensure roaming capabilities with countries having implemented dedicated PPDR networks.

If dedicated PPDR networks are implemented, then it would be preferable to define harmonised frequency bands in order to benefit from economies of scale to reduce the cost of implementation of such networks and to facilitate interoperability.

Alcatel-Lucent is of the view that the best solutions for the development of dedicated networks are in the 400 MHz and 700 MHz bands, provided that, in the latter case, compatibility with commercial mobile broadband applications could be ensured. We note that the 400 MHz band is already included in Resolution 646 (WRC-12), as well as portions of the 700 MHz band for Regions 2 and 3.

Alcatel-Lucent would encourage the RSPG to support the inclusion of the 400 MHz and the 700 MHz frequency ranges for the three Regions in the revised Resolution.

2- Space Policy (Alcatel-Lucent responses on Agenda Items 1.6.1, 1.6.2, 1.8, 1.9.1, 1.10)

Alcatel-Lucent, as a provider of microwave links used especially for backhauling traffic from mobile access networks, considers that new allocations or modifications of regulatory regimes as proposed under Agenda Items 1.6.1, 1.6.2, 1.8, 1.9.1 and 1.10, should not result in additional constraints on the implementation of microwave links operating under a Fixed Service allocation.

Agenda Item 1.6:

WRC-15 Agenda Item 1.6 considers possible new primary allocations for the Fixed Satellite Service of 250 MHz between 10 GHz and 17 GHz in Region 1 (Agenda Item 1.6.1) and of 250 MHz in Region 2 and 300 MHz in Region 3 in the range 13 GHz to 17 GHz (Agenda Item 1.6.2). As a provider of backhauling solutions based on microwave links operating under Fixed Service primary allocations in frequency bands overlapping with, or included within, the frequency ranges under consideration, Alcatel-Lucent supports the definition of adequate regulatory conditions for new allocations to the Fixed Satellite Service that may result from this agenda item.

Agenda Item 1.8:

The RSPG view as a common policy objective is in favour of allowing more flexibility in ESV operation while protecting other services in the same bands (5925-6425 MHz and 14-14.5 GHz). Alcatel-Lucent agrees with RSPG's view in the sense that we aim to protect operators' backhauling networks from possible additional interference that might result from expanded use of ESVs using Fixed Satellite Service networks in the 5925-6425 MHz and 14-14.5 GHz uplink bands.

Agenda Item 1.9.1:

For 7150-7250 MHz and 8400-8500 MHz, the RSPG supports an allocation for the Fixed Satellite Service (FSS), to be used by defence systems to provide the capacity requested by the future generation of European military telecommunication satellites that would support the development of European Space industry. Agenda Item 1.9.1 solution based on technical constraints and an operational coordination appears to be effective and widely supported.

Alcatel-Lucent supports protecting mobile network operators' microwave backhaul networks from possible additional interference that might result from new allocations to the FSS in the band 7150-7250 MHz (space to Earth) and 8400-8500 MHz (Earth to space) under this Agenda Item.

Agenda Item 1.10:

Although the RSPG indicates that this Agenda Item is relevant to both electronic communication and space policy, Europe should protect the radio astronomy usage in the 22-26 GHz band and furthermore no new MSS allocations should be agreed. Alcatel-Lucent, as a major player in the mobile industry, wants to ensure that mobile network operators' backhaul networks are protected from interference that might result from a new MSS allocation. Therefore, Alcatel-Lucent, in line with the RSPG, wants no new allocation to the Mobile Satellite Service in this band.

3- Future Agenda Items (Alcatel-Lucent responses on Agenda Item 10)

As specified in the RSPG document, the formulation of positions for WRC-19 is critical, as it may determine the scope of changes to the global spectrum management environment for several decades. Moreover, this will be an opportunity to stress the importance of a European harmonised technological vision and path through the actions at WRC-19 with a major aim to reflect EU positions at a worldwide level.

The RSPG recommends support for a future agenda item addressing the spectrum needs of the next generation of mobile networks ("commonly known as 5G") with a focus on frequency bands above 6 GHz. While recognizing the potential of these bands, Alcatel-Lucent would also like to recall the growing need of spectrum below 6 GHz to achieve ubiquitous service that may not be completely addressed at WRC-15. Alcatel-Lucent has already expressed - through international and regional groups focusing on "5G" actions at WRC-19 - its interest in promoting the global identification of bands above 6 GHz for IMT.

We encourage RSPG to consider methods to limit the scope of the future Agenda Item in order to make the work more manageable. Following options could be considered:

- Limiting the Agenda Item to the consideration of frequency ranges already allocated to the Mobile Service on a primary basis;
- Limiting the range of frequencies to be considered (e.g., 20-50 GHz);
- Specifically excluding spectrum that is used for the Fixed Service, as these microwave backhaul links will continue to be required to support the growing IMT traffic;
- Keeping the Agenda Item strictly focused on the elements above and not expanding it to include other IMT-related agenda items that may be proposed.

Based on the draft CPM text produced by Joint Task Group 4-5-6-7, Alcatel-Lucent considers that it is unlikely that new allocations to the Mobile Service in the 5 GHz range to be provided at WRC-15. Therefore, it may be useful to reconsider the band as part of a new Agenda Item for WRC-19, depending on further progress in sharing and compatibility studies, and after due consideration of the conditions under which such an allocation would likely be obtained.

Finally, Alcatel-Lucent believes that, in the case that WRC-15 does not allocate the 470-698 GHz band in the Region 1 to the Mobile Service, WRC-19 should have a specific Agenda Item dedicated to allocation of this band to the Mobile Service. This would provide a solid basis to further review the use of the band, as envisaged in Pascal Lamy's report. A similar approach might also be applied for the 2700-2900 MHz and 3800-4200 MHz bands.

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