Declining effectiveness of the European Union in the International Telecommunication Union: evidence from recent World Radiocommunication Conferences

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Abstract
The effectiveness of the European Union (EU) in shaping international radio spectrum regulation is assessed by comparing the EU’s objectives prior to and the outcomes of three World Radiocommunication Conferences (WRCs). The document analysis shows that the effectiveness of the EU is declining. Three explanatory factors are identified: 1) the EU was not able to keep coalitions in support of its objectives; 2) the EU failed to contain the increasing influence exercised by African and Arab countries; 3) promoting EU’s interests at international level has become more difficult due to the increasing number of countries actively participating at WRCs.

Given the three levels of participation of the EU in WRCs, the European Commission is encouraged to take a proactive role in promoting intra- and inter-Regional cooperation in order for the EU to restore its leading position. In particular, the EC could act as a facilitator of the dialogue between the European regional organisation and the other regional organisations in ITU Region 1, aiming for a single Regional proposal to reduce the complexity of WRC’s negotiations. In addition, the EC could act as a facilitator of the dialogue between the European regional organisation and the regional organisations operating in ITU Region 2 and ITU Region 3. Building coalitions prior to WRCs might help the EU promote its interests at WRCs. In particular, since the larger the number of supporters of EU’s objectives, the stronger may be the influence of the EU on the process of agenda-setting and decision-making.

Keywords: radio spectrum regulation; European Union; World Radiocommunication Conference; agenda-setting; coalition building.

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1. Introduction

The radio spectrum is regulated at international, regional and national level. Countries set the rules governing the use of the radio spectrum in their national territories, the radio spectrum being a national resource. Also, they periodically participate in international negotiations to review and revise international radio spectrum regulation. Furthermore, six regional entities have been established to enhance radio spectrum coordination in specific regional areas. These regional entities support countries in the preparatory work prior to international negotiations. Recent trends have shown greater centralisation of decisional power from national to regional level of government, in particular in the EU (Pearson & Marks, 2012). Centralisation of decisional power is considered by the European Commission (EC) essential for guaranteeing radio spectrum coordination across the EU, which, in turn, is essential for the well-functioning of the EU internal market (EC, 2016). The EU has moved from a situation where it had no authority over the radio spectrum to a situation of strong interest in participating in international negotiations to promote and safeguard the EU interests in radio spectrum (COM(1998) 596; COM(2005) 461; COM(2007) 371; COM(2011) 180; COM(2015) 234).

Theories of international relations indicate agenda-setting as a key determinant of the outcomes of international negotiations (e.g. Livingston, 1992; Modelski & Thompson, 1999). According to agenda-setting theory, agenda setting can be seen as a dynamic process where actors, having different interests, compete against each other to earn their issues a place on the agenda and keep others’ issues off the agenda. Competition arises because the agenda is finite in scope and the political system possesses limited means and resources, whereby a finite number of issues can be addressed, among all possible issues perceived by the political community as requiring public intervention (e.g. Cobb & Elder, 1972; Parsons, 1995; Sarpu, 2004; Birkland, 2006; Birkland 2007; Gupta, 2011; Buonanno & Nugent, 2013; Baumgartner et al., 2014). The agenda thus includes the few issues which are to be acted upon by decision-makers. Therefore, influencing the process of agenda-setting is fundamental, since decisions will be taken only on the issues that are on the agenda. In addition, the actor who identifies the issue that gains a place on the agenda, is most likely the one who will lead the political discussion on courses of action to address that issue (e.g. Schattschneider, 1975; Birkland, 2006; Birkland 2007). In order to increase the power to influence the agenda, actors often form coalitions. A coalition is formed when a number of actors, who share similar interests, pull together their means and resources to attain a common goal. Issues that find support from a large number of actors usually gain more visibility in the policy-making process. This is particularly important for weaker actors, which can make more powerful actors lose control over the agenda by acting collectively (e.g. Birkland, 2007; Baumgartner, 2010).

Notwithstanding an increasing interest of the EU in radio spectrum, very little is known about the EU’s capability to take a leading role in international negotiations on radio spectrum regulation. Theories of international relations are widely used to understand the EU integration process, and concepts of agenda-setting theory are traditionally employed to understand the decision-making process within the EU. In contrast, the EU still struggles to be recognised as an entity by itself (e.g. De Bremtherton & Vogler, 2006, p. 13; Waele & Kuipers, 2013, p. 4). In this context, this paper looks at the EU as an actor in its own right participating in international negotiations, disregarding the nature of the EU itself as an international organisation (e.g. Jørgensen, 2009; e.g. Klein et al., 2014). The aim is to assess the effectiveness of the EU in international negotiations on radio spectrum regulation. The term effectiveness is intended as the ability of the EU to achieve its objectives in specific multilateral settings (Jørgensen et al., 2011; Wessel, 2011; Schaik, 2013). In particular, this paper attempts to answer the following question: to what extent has the EU been effective in influencing the outcomes of the international negotiations on radio spectrum regulation held in 2007, 2012 and 2015?

To assess the effectiveness of the EU, a comparison is made between the EU’s objectives, set prior to international negotiations, and the outcomes of international negotiations. Information is gathered from the public domain. In particular, a document analysis is conducted scrutinising official documents containing information about discussions held between the EU and the other actors required to coordinate the use of the radio spectrum, by international radio spectrum regulation (ITU, 2012). The degree of match between EU’s objectives and
negotiations’ outcomes is taken as explanatory of the EU’s capability to fulfil its objectives through international negotiations.

The motivation to study the effectiveness of the EU draws upon existing research, which ascertains the EU’s declining leading role in the international decision-making process for radio spectrum regulation (e.g. El-Moghazi et al., 2014; El-Moghazi et al., 2015). The scope of investigation in this paper is limited to the aspects of radio spectrum regulation for mobile broadband services. This choice lies on the fact that radio spectrum regulation for mobile broadband services has become one of the most critical regulatory issues during the international negotiations held in 2007, 2012 and 2015, due to a massive growth of mobile data usage registered on a global scale (e.g. COM(2007) 371; Rancy, 2007).

The remaining part of this paper is organised as follows: section two describes how the radio spectrum is regulated at international level; section three explains the three levels of participation of the EU in international negotiations on radio spectrum regulation; section four introduces the three international negotiations taken into consideration for the analysis; in section five, the effectiveness of the EU is assessed; section six concludes by identifying three explanatory factors of the declining effectiveness of the EU and recommending closer intra-and inter-regional cooperation during the preparatory work to the actual negotiations in order for the EU to restore its role as leading international actor.

2. International Radio Spectrum Regulation

The radio spectrum is regulated at international level by the International Telecommunication Union (ITU), a United Nation’s specialised agency. The ITU is responsible for guaranteeing efficient use of the radio spectrum by all radio-based services, on a global scale. This is done by periodically reviewing radio spectrum regulation, taking into considerations technological and market developments.

Every three to four years, the ITU holds a World Radiocommunication Conference (WRC), which lasts up to four weeks, where ITU member states discuss and revise the so-called Radio Regulations (RR). The RR is the international treaty that regulates the use of the radio spectrum by the various radio-based services, with binding effect on all ITU member states. The ITU counts 193 member states, which have the right to participate in the WRC decision-making process. Each WRC concludes with the adoption of amendments to specific portions of the RR. Decisions are taken by consensus. This means that all ITU member states have to agree upon amendments (Ard-Paru, 2013).

At each WRC, selected radiocommunication issues are discussed, related to a limited number of radio spectrum bands. These issues are identified in the preceding WRC, which sets the agenda for the forthcoming WRC. The WRC agenda is structured in agenda items, each agenda item corresponding to a specific issue. The WRC agenda requires the consent of a majority of the ITU member states to be adopted (ITU, 2015a).

Preparations for a WRC start right after the preceding WRC. Preparatory work is carried out by the Conference Preparatory Meeting (CPM). The CPM usually meets twice during the time between two WRCs. In the first session, the CPM prepares a draft CPM Report, taking into consideration the agenda of the forthcoming WRC, and places mandates to study groups to conduct specific technical, operations and regulatory studies regarding certain agenda items. In the second session, the CPM finalises the CRM Report. The CPM Report is functional for the efficient and smooth work of WRCs. It describes the purpose of each agenda item, the results of the studies carried out, and selected courses of action identified to address each agenda item (ITU, 2015b).

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2 Detailed descriptive information contained in this and the following section is retrieved from the websites of the International Telecommunication Union (ITU), the European Commission (EC), the European Conference of Postal and Telecommunications Administrations (CEPT) and the Radio Spectrum Policy Group (RSPG). This information is publicly available.

3 When a decision has to be taken on the use of the radio spectrum in a specific ITU Region, only countries belonging to that Region participate in the decision-making process.
ITU also counts more than 700 sector members and associates and more than 100 members from the academia. Sector members and associates include National Regulatory Authorities (NRAs) and various organisations from the private sector, such as radio manufactures and radio communications operators. \(^4\) Academia includes universities and research institutes interested in the field of radio communications (ITU, 2015c). Sector members, Associates, and Academia do not have the right to participate in the WRC decision-making process, but they can attend WRCs as observers and can be involved in various ways in the preparatory work prior to WRCs.

In the RR, the globe is conventionally divided into three macro-regions, called Region 1, Region 2 and Region 3. \(^5\) Region 1 includes Europe, Africa, the Middle East, including Iraq, the former Soviet Union and Mongolia. Region 2 covers the Americas, Greenland and some of the eastern Pacific Islands; and Region 3 comprises most of the Asian countries, which were not part of the former Soviet Union, Iran, and most of Oceania (e.g. Cave & Webb, 2015).

![ITU Regions](image_url)

**Figure 1. ITU Regions**


Coordination within each ITU Region is fundamental in order to avoid the risk of producing harmful interference. Regional entities have been established in order to facilitate negotiations between countries belonging to the same Region. Countries in Region 1 are organised in four regional entities: the European Conference of Postal and Telecommunications Administrations (CEPT); the African Telecommunications Union (ATU); the Arab Spectrum Management Group (ASMG) and the Regional Commonwealth in the Field of Communications (RCC). Countries in Region 2 are all members of one single regional entity called the Inter-American Telecommunication Commission (CITEL). Likewise, the Asia-Pacific Telecommunity (APT) represents all countries in Region 3. On behalf of the countries they represent, each of these regional entities is responsible for formulating proposals to review the RR, which are to be discussed at WRCs.

The RR allows for both global and Regional radio spectrum allocations. This means that there are radio spectrum bands used for the same service at international level, while some other spectrum bands are used for different services in the three ITU Regions. Global radio spectrum allocations are considered necessary for certain services

\(^4\) The difference between sector members and associates is that the category associates includes smaller entities and organisations that cannot afford the financial obligation borne by sector members (ITU, 2015d).

\(^5\) In the rest of the paper, the term “Region” is used to refer to one of the ITU Regions, while the term “region” indicates a geographical area which includes a group of countries, i.e. the EU, Europe, Africa, the Middle East, etc.
such as aeronautical, maritime and space services, which require global coordination. Nevertheless, there is a general tendency towards worldwide harmonisation of radio spectrum use, because of potential benefits in terms of standardisation and economies of scale for radio equipment (RSPG, 2015). In addition, there are cases where a country can use the spectrum for different purposes than the ones set in its ITU Region, by adding a so-called “footnote” in the RR (ITU, 2012).

Furthermore, services are distinguished between primary and secondary. The main difference between the two categories is that if a country decides to allow the use of a frequency band for the provision of a secondary service in its national territory, no harmful interference should be caused to the primary service provided by using the same frequency band by another country (in the same Region in the case of Regional allocation) and no protection from harmful interference can be claimed. In addition, a band can also be allocated to two or more primary services. These cases of co-primary allocation are usually allowed after compatibility studies have verified that there is no risk of producing harmful interference (ITU, 2012).

3. The role of the EU in the ITU

In order to assess the effectiveness of the EU in fulfilling its objectives through WRCs, it is necessary to clearly understand the nature of the EU’s participation in international negotiations on radio spectrum regulation (Brantner & Gowan, 2009; Jørgensen et al., 2011). The participation of the EU in WRCs can be broken down into three levels. The first level is represented by the EC, the second level includes the EU member states, and the CEPT constitutes the third level.

With regard to the first level, the Treaty on the functioning of the EU (TFEU) prescribes that the High Representative of the EU for Foreign Affairs and Security Policy and the EC represent the EU in international fora, including the UN and its specialised agencies, i.e. the ITU. With regard to the ITU, the High Representative can delegate this representation capacity to the EC Directorate General for Communications Networks, Content & Technology (DG Connect) (e.g COM(2007) 371; Shahin, 2011). The EC is an ITU sector member, which means that the EC does not have the right to participate in the WRC decision-making process. Although without formal seat and vote, participating in WRCs gives the EC the possibility to supervise the conduct of the EU member states and ensure that the EU interests are represented during the negotiations.

The second and third levels come into place mainly during the preparatory work to WRCs. With regard to the second level, the EU commits to build consensus among EU member states. EU member states are independent ITU member states, which means that each EU member state has the right to participate in the decision-making process and represent its own interests at WRCs (COM(2007) 371; COM(2011) 180; COM(2015) 234). In order to ensure that EU interests are represented at WRCs, the EU adopts a common EU position. In particular, the common EU position is formulated by the EC in the form of a Communication to the Council of the EU (as well as to the European Parliament, the European Economic and Social Committee and the Committee of the Regions) in order to ensure that the EU interests, with regard to the issues in discussion at WRCs, are clearly communicated to national governments.6 The Council of the EU (together with the European Parliament) is asked to endorse the common EU position, as formulated by the EC (e.g. COM(2007) 371). According to the article 218 of Treaty on the Functioning of the European Union (TFEU), the Council of the EU should endorse the common EU position by adopting a decision. A decision is a legal act with binding effects on the EU member states.7 In addition, the EC formulates the common EU position, taking into consideration the opinion expressed by the Radio Spectrum Policy Group (RSPG). The RSPG is an advisory body which assists the EC at strategic level in the development of radio spectrum policy. Members of the RSPG are high-level governmental experts from EU member states (one

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6 Members of the Council of the EU are national government ministers.
7 Interestingly, the Council of the EU adopted Council Conclusions in preparation for the WRC held in 2015. Council Conclusions are not legally binding on the EU member states. According to the EC, the Council of the EU acted in breach of the art. 218 of the TFEU (Council of the EU, 2015).
member from each EU member state) and a high-level representative from the EC (Decision 2002/622/EC). Cooperation between the EC and the RSPG allows the EU member states to contribute to and shape the common EU position. It is worth mentioning that the EU member states cannot act in an independent manner in WRCs because they are required to comply with the obligations imposed by the TFEU (COM(2007) 371; COM(2011) 180; COM(2015) 234). As stated in the EC Communication COM(2007) 371, EU member states “[…] will apply the revision of the ITU RR adopted at the conference in accordance with their obligations under the EU Treaties.” In the specific case of radio spectrum regulation, the EU member states are bound by Directive 2002/21/EC on a common regulatory framework for electronic communications networks and services and Decision 243/2012/EU establishing a multiannual Radio Spectrum Policy Programme (RSPP). In the remit of the RSPG, the EU member states are asked to comply with the principle of “sincere cooperation”, meaning that the EU member states should not act in a way that could harm the proper functioning of the EU (RSPG, 2015; EU, 2010).

The third level is represented by the CEPT, which plays a key role in developing a common European position with regard to the use of the radio spectrum from a technical perspective. The CEPT is responsible for preparing the so-called European Common Proposals (ECPs) for WRCs. ECPs contain proposals for amendments to the RR, supported by all CEPT member states (COM(2007) 371; COM(2011) 180; COM(2015) 234). The CEPT comprises 48 European countries, including all EU member states. Although CEPT has a broader scope than the EU, finalising ECPs before negotiating with the rest of the world encourages EU member states to speak with one voice at WRCs.

To summarise, the EU involvement in WRCs’ negotiations is articulated in three levels, which include the EC, the EU member states, and the CEPT. However, only the EU member states are entitled to participate in the WRC decision-making process. In order to create a common EU position prior to WRCs, the EC cooperates with the RSPG in order to create consensus among EU member states on a strategic level. Furthermore, the work at CEPT is fundamental to create consensus on a technical level. In addition, the EC is an observer at WRCs, supervising the conduct of the EU member states during negotiations.

4. WRCs: EU’s objectives and WRCs’ outcomes

This section contains a description of the three WRCs held in 2007, 2012 and 2015, considered for the analysis. In particular, the EU’s objectives prior to each WRC and the outcomes of each WRC are outlined.

4.1 World Radiocommunication Conference 2007 (WRC-07)

WRC-07 is held from 22 October to 16 November 2007, in Geneva (Switzerland). The agenda for WRC-07 is agreed upon by ITU member states at the previous WRC-03. In particular, two Agenda Items (AIs) deal with radio spectrum regulation for mobile broadband services: AI 1.4 and AI 1.9. AI 1.4 refers to identification of additional frequency bands to be allocated to mobile broadband services.⁸ According to the CPM Report, the following bands are to be further discussed at WRC-07: 410-430 MHz; 450-470 MHz; 407-862 MHz; 2.3-2.4 GHz; 2.7-2.9 GHz; 3.4-4.2 GHz; and 4.4-4.99 GHz (ITU, 2007a).⁹ AI 1.9 regards possible changes in the conditions of use of the 2500-2690 MHz band to reduce the risk of harmful interference.

At WRC-07, two specific bands, the 470-862 MHz band (UHF band) and the 3.4-4.2 GHz band (C-band), are major sources of conflicts between the countries of Region 1. Conflicts are due to the fact that the UHF band and the C-band are largely used for different services in different countries (e.g. Ofcom, 2007a). This makes it difficult to

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⁸ The exact wording of AI 1.4 is: “to consider frequency-related matters for the future development of IMT-2000 and systems beyond IMT-2000 taking into account the results of ITU-R studies in accordance with Resolution 228 (Rev.WRC-03)”. According to Resolution 228, WRC-03 decided to conduct studies on “the spectrum requirements and potential frequency ranges suitable for the future development of IMT-2000” (ITU, 2003).

⁹ It has been reported that some ITU member states participating in the CPM meetings did not provide their consensus on some of the frequency bands indicated (ITU, 2007a).
reach an agreement on which bands should be used for mobile broadband services. In fact, the UHF band is used, to a great extent, for terrestrial television broadcasting services, in particular in the EU, and the C-band is largely used for satellite services, in both Arab (also referred to as the Middle East) and African countries (e.g. Tjelta et al., 2008, RSPG, 2007).

4.1.1 EU’s objectives
According to the ECPs for WRC-07, the EU position with regard to AI 1.4 is to seek no change of use of the UHF band, because of the need to verify whether co-existence of mobile broadband and television broadcasting services in the same band is possible without causing harmful interference. According to the EU, potential changes to the RR, regarding the use of the UHF band, should be discussed at the next WRC-12 (Frederich, 2007; COM(2007) 371; Tjelta et al., 2008; Ofcom, 2007b). On the contrary, the EU’s proposal with regard to the C-band is to modify the RR to allow the use of the band for mobile broadband services. More specifically, since the C-band is used for satellite services in Africa and the Middle East, the EU proposes to allocate the C-band portion between 3.4-3.8 GHz to mobile broadband services, while guaranteeing priority of use for satellite services in the 3.8-4.2 GHz sub-band (COM(2007) 371). With respect to AI 1.9, the EU aims to obtain a treaty provision which ensures protection from potential interference caused by satellite systems (COM(2007) 371). The EU plans to use the 2500-2690 MHz band for mobile broadband services in the future. However, the fact that the same band is used for satellite services in countries neighbouring Europe creates risk of harmful interference.

4.1.2 WRC-07’s outcomes
With respect to AI 1.4, WRC-07 deliberates for the allocation to mobile broadband services of a number of frequency-bands in Region 1, including the UHF band portion between 790-862 MHz (800 MHz) and the C-band portion between 3.4-3.6 GHz (Billquist, 2008). The new allocation of the 800 MHz band will become effective only in 2015, in line with the requirements set by the Geneva 2006 (GE06) Agreement. In the meantime, compatibility studies will be carried out to ensure that the 800 MHz band can be used for different services with no risk of harmful interference. The results of these studies will be discussed at WRC-12. Countries are allowed to use the 800 MHz band for mobile broadband services before 2015, by signing coordination agreements with neighbouring countries (Rancy, 2007). With respect to AI 1.9, WRC-07 decides for a limitation of the satellite power flux density at the border and a coordination procedure to limit the risk of harmful interference (ITU, 2007b; Frederich, 2007).

4.2 World Radiocommunication Conference 2012 (WRC-12)
WRC-12 is held from 23 January to 17 February 2012, in Geneva. AI 1.17 of the agenda for WRC-12, as approved at the previous WRC-07, deals with radio spectrum regulation for mobile broadband services. In particular, AI 1.17 refers to the possibility to modify the RR provisions regarding the use of the 800 MHz band on the basis of the results of the compatibility studies commissioned by WRC-07. The compatibility studies are conducted in the period between WRC-07 and WRC-12 to verify whether co-existence between television broadcasting and mobile broadband services require additional regulatory and technical measures.

4.2.1 EU’s objectives
With respect to AI 1.17, the EU believes that in order to use the 800 MHz band for mobile broadband services, the obligations contained in the GE06 Agreement are sufficient to guarantee protection to television broadcasting.

\[11\] It is interesting to know that there was a conflict between the EC and CEPT with regard to the use of the UHF band. In fact, while CEPT had submitted an ECP on the UHF band supporting no change of use, the EC recommended an allocation of the UHF band to mobile broadband (COM(2007) 371), and EU member states were of different opinions going from allocating the whole band to mobile broadband to opposing any change of use (Sims, 2007).

\[10\] In 2006, Europe, Africa, the Middle East and the Republic of Iran signed an agreement in Geneva, to set a new frequency plan for analogue and digital terrestrial television broadcasting in the 174-230 MHz and 470-862 MHz bands. The 17 June 2015 is set as the deadline for the transition from analogue to digital terrestrial television broadcasting (ITU, 2006).

\[12\] The 450-470 MHz and 2.4 GHz bands are also allocated to mobile broadband services in Region 1 at WRC-07.
services. In addition, the EU aims to obtain new regulatory provisions to allow for equitable access to the 800 MHz band by both mobile broadband and aeronautical radionavigation services (e.g. RSPG, 2012).

4.2.2 WRC-12’s outcomes
On the basis of the results of the compatibility studies, WRC-12 concludes that no additional regulatory measures, beyond those specified in the GE06 Agreement, need to be introduced in order to guarantee protection from harmful interference to television broadcasting services. Furthermore, cross-border coordination agreements are signed by countries operating aeronautical radionavigation services and countries aiming at using the 800 MHz band for mobile broadband services. In addition, WRC-12 decides for the allocation of the 694-790 MHz (700 MHz) band to mobile broadband services, although the 700 MHz band is not part of the agenda for WRC-12. This allocation would come into effect only after WRC-15. Compatibility studies are commissioned to verify whether additional measures are necessary to allow for the use of the 700 MHz band both for mobile broadband and other radio-based services that already use the band (CEPT, 2012).

4.3 World Radiocommunication Conference 2015 (WRC-15)
WRC-15 is held from 2 to 27 November 2015, in Geneva. In the agenda for WRC-15, defined at the previous WRC-12, two AIs address the use of the radio spectrum for mobile broadband services: AI 1.1 and AI 1.2. AI 1.1 deals with the need to identify additional candidate bands for mobile broadband services. The purpose of AI 1.2 is to consider the results of the compatibility studies commissioned by WRC-12 to verify whether additional technical and regulatory conditions are necessary for mobile broadband and television broadcasting services to co-exist in the 700 MHz band. In addition, a decision has to be taken on the lower edge of the spectrum allocated to mobile broadband services (at or below 694 MHz).

4.3.1 EU’s objectives
With regard to AI 1.1, the EU formulates proposals for the use of a number of bands for mobile broadband services, including the 1427-1518 MHz band (L-band), the C-band portion between 3400-3800 MHz, the UHF band portion between 470-694 MHz and the 5 GHz band. More specifically, the EU wants to promote the allocation of the L-band and the C-band portion between 3400-3800 MHz to mobile broadband services, while opposes changes of use of the UHF band and the 5 GHz band. On the content of AI 1.2, the EU proposes not to add additional regulatory and technical measures to the GE06 Agreement for the protection of television broadcasting services. Furthermore, the EU aims to set the lower band edge of the spectrum to be allocated to mobile broadband services at 694 MHz, since the 470-694 MHz band is heavily used to deliver television broadcasting services in almost all EU countries.

4.3.2 WRC-15’s outcomes
WRC-15 concludes on 27 November 2015, with a number of decisions. In particular, the L-band band is identified for mobile broadband services, but a special arrangement is introduced for Europe, due to coordination difficulties with Russian aeronautical telemetry. Furthermore, the 3400-3600 MHz band is allocated to mobile broadband services, gaining the status of Regional allocation, while ensuring protection for satellite services. The co-primary allocation of the 700 MHz band to mobile broadband services in Region 1 is confirmed, without additional regulatory constraints to safeguard television broadcasting services. Finally, no changes are introduced to the use of the 470-694 MHz and 5 GHz bands. However, WRC-15 decides that the use of the 470-694 MHz band will be reviewed at WRC-23 (e.g. Ofcom, 2015a; CEPT, 2015b).
5. EU effectiveness at WRCs

In this section, the EU’s objectives prior to each WRC and the outcomes of each WRC are compared to assess the EU’s effectiveness in international negotiations on radio spectrum regulation.

5.1 EU effectiveness at WRC-07

Table 1 summarises the EU’s objectives and the WRC-07’s outcomes with regard to radio spectrum bands under consideration for mobile broadband services.

Table 1. WRC-07: Comparing EU objectives and WRC-07’s outcomes

<table>
<thead>
<tr>
<th>AI</th>
<th>Bands</th>
<th>EU Objectives</th>
<th>WRC-07 Outcomes</th>
<th>Match</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.4</td>
<td>470-862 MHz (UHF band)</td>
<td>No change of use</td>
<td>Allocation of the 800 MHz band to mobile broadband services</td>
<td>No</td>
</tr>
<tr>
<td>3.4-4.2 GHz (C-band)</td>
<td>Portion between 3.4-3.8 MHz to mobile broadband services</td>
<td>Portion between 3.4-3.6 MHz to mobile broadband services</td>
<td>Partial</td>
<td></td>
</tr>
<tr>
<td>1.9</td>
<td>2500-2690 MHz</td>
<td>Mobile broadband services</td>
<td>Mobile broadband services</td>
<td>Yes</td>
</tr>
</tbody>
</table>

A comparison of the EU’s objectives and WRC-07’s outcomes shows that the EU was partially effective at WRC-07. As shown in Table 1, the EU failed to oppose changes of use of the UHF band.\(^\text{13}\) WRC-07 decided to allocate a portion of the UHF band, the 800 MHz band, to mobile broadband services, although the UHF band had just been re-planned for digital terrestrial television broadcasting services in Region 1, in 2006. The EU’s aim to allocate the C-band to mobile broadband services was partially satisfied. In fact, the C-band portion between 3600-3800 MHz did not see any change of use, contrary to the EU’s expectations. Furthermore, the allocation to mobile broadband services of the C-band portion between 3400-3600 MHz band did not gain the status of Regional allocation. The Regional allocation of the 3400-3600 MHz band was opposed by the Arab countries (and Russia), which make an extensive use of the C-band to provide satellite-based services (Ofcom 2007b; Frontier Economics, 2015). Interestingly, the Arab countries even obtained stringent technical and regulatory conditions to protect the satellite use of the C-band (Ofcom, 2007b).

5.2 EU Effectiveness at WRC-12

As shown in Table 2, the EU’s effectiveness at WRC-12 was rather limited.

Table 2. WRC-12: Comparing EU objectives and WRC-12’s outcomes

<table>
<thead>
<tr>
<th>AI</th>
<th>Bands</th>
<th>EU Objectives</th>
<th>WRC-12 Outcomes</th>
<th>Match</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.17</td>
<td>800 MHz (UHF band)</td>
<td>No additional measures for mobile broadband use</td>
<td>No additional measures for mobile broadband use</td>
<td>Yes</td>
</tr>
<tr>
<td>700 MHz (UHF band)</td>
<td>Item not in the agenda</td>
<td>Allocation to mobile broadband services</td>
<td>No</td>
<td></td>
</tr>
</tbody>
</table>

Although no regulatory and technical measures were introduced for the use of the 800 MHz band for mobile broadband services, as sought by the EU, WRC-12 introduced a significant change to the RR, with strong implications for radio spectrum use in the EU. In fact, WRC-12 decided to allocate the 700 MHz band to mobile broadband services, although the 700 MHz band was not included in the WRC-12 agenda. In fact, the 700 MHz band was included in AI 1.17 at the beginning of the conference. Clearing the 700 MHz band is expected to be costly and time consuming for the EU, since the band is heavily used for television broadcasting services in almost all EU member states.

The proposal to allocate the 700 MHz band to mobile broadband services came from the African and Arab countries (Ofcom, 2012). These countries make little use of the 700 MHz band for television broadcasting,

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\(^{13}\) Formally, the EU’s objective was to decide at WRC-07 for no allocation change for the 470-862 MHz (UHF) band, because this is what EU member states agreed upon in the ECP. However, it must be noticed that the allocation of the 800 MHz band to mobile broadband was in fact in line with the position of the EC, which aimed for a co-primary allocation of the mobile and broadcasting services in the UHF band (COM(2007) 371), as well as of some of the EU member states (e.g. RSPG Secretariat, 2007).
contrary to the EU. Furthermore, they have limited access to broadband infrastructure and therefore strongly rely on mobile broadband services. In this context, African and Arab countries are particularly interested in expanding the amount of spectrum allocated to mobile broadband services (e.g., Standeford, 2012a). Since the 700 MHz band was not included in the agenda, the EU did not formulate any clear objectives on the issue. When the issue was raised at the beginning of WRC-12, the EU member states, through CEPT, opposed the proposal of the Arab and African countries (CEPT, 2012). Similarly, the position of the EC was to include the 700 MHz band issue into the agenda of the next WRC-15 (e.g., Standeford, 2012b). Eventually, WRC-12 decided for the allocation of the 700 MHz band to mobile broadband services, in co-primary allocation with television broadcasting services, with effect after WRC-15. Arab and African countries were able not only to raise an issue which was not considered during the process of agenda setting for WRC-12, but also to obtain a decision at the same WRC-12.

5.3 EU Effectiveness at WRC-15

As shown in Table 3, the effectiveness of the EU at WRC-15 can be described as partially successful.

<table>
<thead>
<tr>
<th>AI</th>
<th>Bands</th>
<th>EU Objectives</th>
<th>WRC-15 Outcomes</th>
<th>Match</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1</td>
<td>1427-1518 MHz (L-band)</td>
<td>Allocation to mobile broadband services</td>
<td>Allocation to mobile broadband services (special regulatory arrangement for Europe)</td>
<td>Partial</td>
</tr>
<tr>
<td></td>
<td>3400-3800 MHz (C-band)</td>
<td>Allocation to mobile broadband services</td>
<td>Allocation of the 3400-3600 MHz band to mobile broadband services. No change for the 3600-3800 MHz band.</td>
<td>Partial</td>
</tr>
<tr>
<td>1.2</td>
<td>700 MHz (UHF band)</td>
<td>No additional regulatory measures</td>
<td>No additional regulatory measures</td>
<td>Yes</td>
</tr>
</tbody>
</table>

With regard to AI 1.1, the allocation to mobile broadband services of the C-band portion between 3400-3600 MHz obtained Regional status, in line with the EU’s objectives. However, no change of use of the C-band portion between 3600-3800 MHz was registered, contrary to the EU’s expectations. Furthermore, a special arrangement for Europe was introduced in the L-band to accommodate the Russia’s use of the band for aeronautical telemetry.

With regard to AI 1.2, WRC-15 decided to maintain the existing status of the 470-694 MHz band in Region 1, which will then be reviewed at WRC-23. Although this could be seen as a success for the EU (e.g., CEPT, 2015a; Ofcom, 2015b), one has to keep in mind that the UHF band is largely used for television broadcasting services in the EU and that the EU aims to safeguard the use of the 470-694 MHz band for television broadcasting until 2030 (EC, 2014). Contrary to the EU situation, African and Arab countries make little use of terrestrial television broadcasting services. Therefore, they are particularly interested in using the 470-694 MHz band for delivering mobile broadband services. In recent years, Africa and the Middle East have registered an increasing demand for mobile broadband services, while radio spectrum available to support the provision of these services is lacking (Miller et al., 2015). This situation has encouraged them, to be more active in international negotiations, pushing for more radio spectrum to be allocated to mobile broadband services. Although interested in expanding the amount of radio spectrum for mobile broadband services, both African and Arab countries opposed the EU proposal to allocate the 3600-3800 MHz band to mobile broadband services, as already happened at WRC-07, because of their use of this C-band portion for satellite services (Ofcom, 2015a). Furthermore, some of the outcomes of WRC-15, which seem to be compliant to the EU’s objectives, could also be interpreted as non-decisions. For instance, the fact that no change of use was introduced for the 470-694 MHz band could be seen as a consequence of unsuccessful negotiations, which inevitably concluded with the decision to postpone discussions on the same AIs at forthcoming WRCs.
6. Conclusions

The EU has historically dominated negotiations on radio spectrum regulation in Region 1 (Shahin, 2011) and influenced the decision-making process at WRCs by controlling the votes of its African colonies during WRCs (El-Moghazi et al., 2014 & 2015). However, the situation has recently changed. The outcomes of WRC-07, WRC-12 and WRC-15 have shown the emergence of African and Arab countries as strong actors, while the EU has gradually lost its capability to lead international negotiations on radio spectrum regulation. The declining effectiveness of the EU could be explained in several ways. Firstly, the EU has not been able to keep coalitions in support of its objectives. In 2006, all countries from Region 1 (except Mongolia) and Iran agreed on allocating the 800 MHz band to television broadcasting, in line with the EU’s objectives. Only one year later, the same countries decided for the allocation of the 800 MHz band to mobile broadband services. Secondly, the EU failed to contain the pressure exercised by Arab and African countries. Arab and African countries were able to place the 700 MHz band issue into the WRC-12 agenda and obtain a decision on that issue at the same WRC-12, with no preparatory work being previously conducted. On the contrary, the EU was not able to obtain the allocation to mobile broadband services of the C-band portion between 3600-3800 MHz at WRC-15, despite this issue being a salient issue for the EU since WRC-07. A third factor can help explain the declining effectiveness of the EU: it has been observed a more active participation in WRCs by an increasing number of developing countries (e.g. Ito, 2016). In particular, African and Arab countries have recently shown greater interest in radio spectrum regulation. They have established their own regional organisations, which are able to conduct sophisticated technical studies in support of their views on radio spectrum use. African and Arab countries have put great effort in preparatory work prior to WRCs and this has given them the power to make their voices heard at WRCs and succeed in promoting their interests (Soliman, 2010; El-Moghazi et al., 2015). Greater engagement of African and Arab countries in designing radio spectrum regulation is due to the fact that radio spectrum for mobile broadband services is vital for them, mobile communications being a key driver of economic growth (e.g. Frontier Economics, 2015; GSMA, 2016). This emerging situation would suggest that the effectiveness of the EU as global actor in shaping radio spectrum regulation has diminished also because the number of active ITU member states has increased, as well as the number and variety of interests at stake. As a consequence, promoting the EU’s interests at international level has gradually become more difficult (Ofcom, 2015a; Mumford, 2015; Youell, 2015).

Overall, it appears that the effectiveness of the EU in determining the outcomes of WRCs not only rests on the four-week negotiations held in Geneva every three to four years, but, mostly, on the preparatory work conducted prior to WRCs. Given the three levels of participation of the EU in WRCs, the EC is encouraged to take a pro-active role in promoting intra- and inter-Regional cooperation in order for the EU to restore its leading position. In particular, the EC could act as facilitator of the dialogue between CEPT, ATU, ASMG and RCC,\textsuperscript{14} in order to reach mutually acceptable compromises prior to WRCs. The work of the EC as facilitator would add to the existing ITU intra-Regional preparatory workshops and the regular interaction of CEPT with the other regional organisations in Region 1. The ultimate aim would be to formulate a single Regional proposal. The current four sub-regional proposals from ITU Region 1 represent an additional level of complexity to the WRC negotiations. In addition, the EC could act as facilitator of the dialogue between CEPT and the regional organisations operating in Region 2 and 3, such as CITEL and APT. Decisions at WRCs are taken by consensus and ITU member states are the only actors who have the right to participate in the decision-making process. Therefore, building coalitions prior to WRCs might help the EU promote its interests at WRCs, since the larger the number of actors that support the EU’s objectives, the stronger may be the influence of the EU on the process of agenda-setting and decision-making. Because of the increasing number of ITU member states and current changes in power balance between countries, the sustainability of the whole WRC decision-making process could be compromised in the long-run. Outdated regulatory provisions might be kept in place only because of unsuccessful negotiations, if the most crucial issues are not discussed and agreed upon prior to WRCs.

\textsuperscript{14} With regard to radio spectrum regulation for mobile communication, RCC and the countries it represents seem to occupy a secondary role in international negotiations compared to European, African and Arab countries and their regional organisations.
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