

INCEPTION IMPACT ASSESSMENT			
TITLE OF THE INITIATIVE	Union strategy for the future use of the UHF broadcasting band (470-790 MHz), including the 700 MHz band (694-790 MHz)		
LEAD DG – RESPONSIBLE UNIT – AP NUMBER	DG CONNECT - SPECTRUM	DATE OF ROADMAP	22/09/2015
LIKELY TYPE OF INITIATIVE	Legislative proposal		
INDICATIVE PLANNING	<i>Insert hyperlink to forecast report</i>		
ADDITIONAL INFORMATION	<i>Insert link to "Commission decides" or to the specific website for the initiative</i>		
<p>This Inception Impact Assessment is provided for information purposes only and can be subject to change. It does not prejudice the final decision of the Commission on whether this initiative will be pursued or on its final content and structure.</p>			

A. Context, Subsidiarity Check and Objectives

Context
<p>Radio spectrum has increasingly become a strategic scarce resource in the digital world. The demand for pervasive wireless connectivity has exploded driven by smart devices and the consumption of video and Internet on the move as well as innovative services in various sectors such as transport, healthcare or energy. The Digital Agenda for Europe (DAE) and the Radio Spectrum Policy Programme (RSPP) set out targets for wireless broadband (WBB) spectrum and broadband deployment and promote the proliferation of innovative audiovisual services.</p> <p>The Commission Work Programme for 2015 identifies the Digital Single Market (DSM) strategy as a key priority. In this context, effective spectrum management is essential in order to ensure a fully connected European Union and a single market for ICT services and wireless equipment promoting economic growth and societal benefits. In addition to foreseeing an evaluation and review of the telecoms regulatory framework, the DSM strategy states that "<i>The Commission will make specific proposals regarding the coordinated release of the 700 MHz band, which is particularly well-suited for ensuring the provision of broadband services in rural areas, while accommodating the specific needs of audiovisual media distribution</i>". This priority action is largely based on the recommendations contained in the Report of Mr Pascal Lamy on the future use of the UHF broadcasting band and the RSPG Opinion on a long-term strategy on the future use of the UHF broadcasting band and also takes account of the preparatory work of the Union for the ITU World Radiocommunications Conference in 2015 (WRC-15). It is scheduled in advance of the review of the telecoms regulatory framework because of the pressing need for action to ensure a coherent approach across the EU to the future use of the UHF broadcasting band. The review of the telecoms regulatory framework is envisaged to address broader issues regarding the designation, authorisation and governance of spectrum at Union level.</p> <p>Audiovisual services are one of the the prime drivers of consumption in the digital age. These services are <i>inter alia</i> delivered via digital terrestrial television (DTT) operating in the UHF broadcasting band, which historically comprises the 470-862 MHz frequency range in the Union. In addition, the UHF broadcasting band is used also for programme making and special events (PMSE), namely wireless microphones which utilise the so-called 'white spaces' (regionally unused broadcasting frequencies given to PMSE users). On the other hand, it should be noted that audiovisual services are increasingly delivered also via alternative wireline and wireless platforms, including satellite, mobile broadband and through the Internet.</p> <p>The spectrum released in the 790-862 MHz ('800 MHz') band reduced the UHF broadcasting band to the range 470-790 MHz albeit without jeopardising the development of the DTT platform. The 800 MHz band was also part of the UHF broadcasting band until 2012 when the RSPP obliged Member States to make available the 800 MHz band for wireless broadband. An evaluation conducted in the context of the Report on the RSPP showed that the EU level process of repurposing the 800 MHz band for WBB became fragmented, as completion of the national authorisation processes was delayed until 2015, relative to the deadline laid down in the RSPP (1/1/2013), due to derogations granted to nearly half of the Member States. This in turn delayed the pan-European availability of 4G mobile services, in particular to rural areas. The derogations resulted from a lack of effective EU coordination and represented a major hurdle for the single market.</p> <p>The ITU World Radiocommunications Conference in 2012 (WRC-12) agreed on the co-primary allocation of another portion of UHF broadcasting spectrum – the 694-790 MHz ('700 MHz') band – to the mobile service, alongside the broadcasting service in ITU Region 1 (including the European Union) with immediate and binding effect for the Union after WRC-15. Thus after the digital switchover, broadcasters and PMSE users may give up</p>

another 30% portion of the UHF spectrum, which is currently the only resource for DTT (PMSE users avail of further capacity at higher frequencies). Effectively this means that, in the absence of any EU level coordinating measures, Union Member States may decide on their own to use the 700 MHz band for mobile broadband instead of broadcasting, as sharing between both types of services in the same band is technically problematic and in any case not viable in economic terms.

Learning from the difficulties encountered with repurposing the 800 MHz frequency band for wireless broadband, any future change of use of another portion of UHF broadcasting spectrum should benefit from a coordinated EU approach based on a commonly agreed transition roadmap of relevant actions and a related schedule. It should reconcile Member State diversity with single market objectives and promote a coherent European position on the international scene. Therefore, a long-term EU level strategy for the use of spectrum in the UHF broadcasting band (470-790 MHz) should be adopted. It must provide for an outcome which is beneficial for broadcasting and mobile sectors alike and a roadmap of EU action to achieve this vision. Such a strategy should be agreed at EU level in order to guarantee coherent and successful implementation through legislative and coordination measures, including in international fora.

Furthermore, in 2014 the Commission adopted an [Implementing Decision on audio PMSE](#), which caters for the basic requirements of that sector. The adopted measures also cover the UHF broadcasting band and further strategic discussions on this topic may take place in the Radio Spectrum policy Group (RSPG) in 2016 and 2017, taking into account the further development of policy for the UHF band resulting from this present initiative.

Issue

The issue addressed by this initiative is the growing competing demands for the scarce spectrum resources below 1GHz (which are optimal for ensuring both coverage and capacity) for wireless services, the bulk of which are audiovisual. A main driver for this is soaring mobile data traffic, which is growing at an average rate of 50% p.a., of which video represents more than the half (a trend confirmed by multiple sources, including industrial and ITU reports, and presented in the Commission [Report on the spectrum inventory](#)).

The provision of additional spectrum (i.e. the 700MHz frequency band) for wireless broadband use would cater for part of the anticipated increase in wireless broadband data traffic. UHF spectrum has unique benefits that cannot be provided by higher frequency bands, as its propagation qualities make it an essential means of providing rural and in-building coverage at low network cost. Therefore, UHF spectrum is central to achieving the Digital Agenda targets for universal and ubiquitous high-speed broadband access.

This initiative aims at resolving EU-wide disparities in spectrum management of the UHF broadcasting band, which threaten the Union's single market development and international standing. If no EU policy action is taken, a number of risks are likely to emerge.

Firstly, there is a risk of an *uncoordinated release of the 700MHz frequency band*, resulting in cross-border frequency coordination issues and slow take-up of services and equipment. If Member States act alone, an optimal outcome across the EU may not emerge – for instance if a Member State maintains high-power DTT transmission in the 700MHz frequency band, the potential benefits flowing from alternative use may be reduced and it is likely to significantly damage the interests of a neighbouring Member State. Action at the EU level is therefore justified by the potential for generating significant common benefits in economic, social and international policy terms compared to uncoordinated action by individual Member States. This may be aggravated by coordination problems at the Union's outer borders (such as with Russia).

Secondly, the *risk of fragmentation in the single market*. In this regard, several Member States (Germany, France, Sweden, Finland) decided after WRC-12 to repurpose the 700 MHz frequency band for wireless broadband. These Member States are already moving ahead with their plans, thus posing a risk of fragmentation in the single market as well as the risk of cross-border radio interference, which needs to be addressed through early coordination between neighbouring Member States

Thirdly, there is *risk of a reduced European role on the international scene, given that the mobile industry is a global one*. The ongoing process of international repurposing of the 700 MHz frequency band, and possibly further portions of UHF broadcasting spectrum, opens the opportunity for Europe to develop a future-oriented strategy for the entire UHF broadcasting spectrum, which is conducive to the European audiovisual landscape, thereby influencing developments in other regions of the world.

Finally, no EU action would lead to a *lack of regulatory certainty* for stakeholders and citizens, resulting in non-predictability, antagonism and lack of investment towards long-term efficient use of UHF spectrum. This in turn is detrimental to the provision/consumption of more and better digital services that deliver economic growth and societal welfare.

The stakeholders affected will be (i) citizens, who would benefit from more and better broadband services reaching rural areas and bridging the digital divide, in particular innovative on-demand and live streaming audiovisual services, but who may also be confronted with less choice of high-quality terrestrial broadcasting programmes, including free-to-air channels, in this spectrum band; (ii) mobile service providers, who would have

access to additional valuable sub-1GHz spectrum to respond to increasing demand for mobile data traffic, in particular for wide coverage such as in rural areas; (iii) providers of DTT and to a certain extent PMSE services, which cannot coexist with mobile services within the same frequency range.

Repurposing of the 700 MHz frequency band for wireless broadband would reduce spectrum availability for licensed EU broadcasters (public and private) and license-exempt PMSE users. At the same time, broadcasters have spectrum demands resulting from new TV formats such as high definition television (HDTV) and ultra-high definition television (UHDTV) and from a certain portfolio of national and regional programmes to remain a competitive platform. PMSE users would experience reduction of available 'white spaces' for their operations due to the loss of spectrum (in the 700 MHz frequency band or the whole UHF broadcasting band) and more intensive TV operations in the remaining UHF broadcasting band (i.e. 470-694 MHz or 'sub-700 MHz'). Mitigation of these effects would be achieved through a holistic spectrum approach and Union level coordination of the complex transition process within the UHF broadcasting band, in order to foster a regulatory environment for the sustainable development of all affected sectors, including migration of DTT to more spectrum-efficient (next-generation) technology in the sub-700 MHz frequency band. Concerning PMSE, following an Impact Assessment, the Commission adopted an Implementing Decision 2014/641/EU on harmonised technical conditions of spectrum use by PMSE equipment – a legal measure which designates and makes available frequency bands for wireless audio PMSE in spectrum ranges to be identified by the Member States. The Commission will monitor national developments and may consider further steps on harmonisation for audio PMSE in the future.

Subsidiarity check

EU action is based on the Treaties (primary legislation), the Radio Spectrum Policy Programme (Decision 2012/243/EU, secondary legislation) and the Radio Spectrum Decision (Decision 676/2002/EC, secondary legislation) and aims at ensuring EU-wide spectrum harmonisation, promoting a single market of equipment and services. Radio waves do not stop at national borders, therefore, binding supra-national coordination is more effective than national decisions to achieve the objectives, in compliance with the principle of subsidiarity.

The Radio Spectrum Decision established an EU level dimension of spectrum management, whereby the Commission was granted the authority to harmonise spectrum use assisted by the Radio Spectrum Committee. In particular Article 4 thereof provides the legal basis to harmonise the technical conditions for the availability and use of certain frequency bands for a specific application at EU level. The Radio Spectrum Policy Programme (RSPP) specifies that such harmonisation measures are expected to ensure more efficient use of spectrum and enhance the internal market. Article 3(b) of the RSPP states that Member States and the Commission shall cooperate to allocate sufficient and appropriate spectrum in a timely manner to support Union policy objectives and to best meet the increasing demand for wireless data traffic, thereby allowing the development of commercial and public services, while taking into account important general interest objectives such as cultural diversity and media pluralism; to that end, every effort should be made to identify... at least 1200 MHz of suitable spectrum by 2015. In addition, Article 7 of the RSPP stipulates that sufficient spectrum for the terrestrial or satellite provision of innovative audiovisual media services should be ensured while Article 8(5) addresses spectrum needs for PMSE.

Therefore, this initiative should be seen as an integral follow-up to the RSPP as it contributes to the fulfilment of Union spectrum policy objectives for wireless broadband, innovative audiovisual services and PMSE, as well as promoting international leadership of the Union in wireless services. It does not imply developing a new Union policy area.

Main policy objectives

The policy objectives are two-fold: (i) to pursue the DSM and RSPP policy objectives of promoting coordinated spectrum management in the Union in support of efficient and innovative use of spectrum and (ii) to ensure efficient use of the UHF broadcasting band in the long-term to the benefit of the Union's digital economy and society through appropriate coordinated measures. Benefits can be of qualitative or quantitative nature and can have a direct effect on innovation, economic growth, societal welfare, social cohesion and cultural diversity. They can be achieved through an appropriate balance in granting spectrum access both to new and existing users in the UHF broadcasting band. This initiative has an impact on various policy areas – audiovisual, broadband, industrial, culture and consumer.

B. Option Mapping

Baseline scenario – no EU policy change
The baseline scenario would be to maintain the current use for terrestrial broadcasting (DTT) services and licence-free PMSE in the whole UHF broadcasting band (470-790 MHz) and leave Member States to act independently. This would imply a missed opportunity of nearly global harmonisation of use of the 700 MHz frequency band for WBB and would deprive European mobile operators of additional spectrum to meet growing demand for audiovisual and Internet services in a coordinated way in Europe. Since some Member States are already moving forward, a lack of coordinated action would result in fragmentation of use of the UHF broadcasting band (with impact on services, roaming and equipment) and the risk of harmful radio interference at national borders. Furthermore, no EU-level action would be inconsistent with the level of ambition on spectrum set out by President Juncker's political guidelines and the DSM Strategy.
Options of improving implementation and enforcement of existing legislation or doing less/simplifying existing legislation
Given the fact that there is no regulation in place specifically covering the UHF broadcasting band, this option would effectively be equivalent to the baseline scenario above.
Alternative policy approaches
<p>Policy options for a long-term UHF strategy include:</p> <p>(1) coordinated designation and assignment of the 700 MHz frequency band for WBB services (and possibly other sectorial services) in the Union by 2020 and reserve ('freeze') of the use of the rest of the UHF broadcasting band (470-694 MHz) for DTT services and PMSE until at least 2030. This legal protection will be reassessed in 2025;</p> <p>(2) coordinated designation and assignment of the 700 MHz frequency band for WBB services (possibly considering other sectorial services) in the Union by 2020; designation of the rest of the UHF broadcasting band (470-694 MHz) for the prioritised provision of audiovisual services in downlink-only (unidirectional) mode of transmission until at least 2030 ('core audiovisual band') in accordance with demand; the latter designation could safeguard primary use of the 470-694 MHz frequency band for DTT but also allow flexibility for alternative terrestrial platforms (WBB-based, hybrid or converged) to be deployed and co-exist with DTT as soon as possible, according to national situations in the Member States; authorisation of new services on a shared basis must protect DTT-based audiovisual services retained by Member States subject to technical and regulatory conditions for co-existence (to be developed) such as interference mitigation techniques or spectrum re-farming; a review should be conducted at EU level until 2025 to assess the need for adapting the scope and/or schedule of such a spectrum management approach, i.e. regarding the role of various platforms for the provision of audiovisual services or the relevance of prioritising audiovisual services in the 470-694 MHz frequency band or limiting use of this band to downlink-only;</p> <p>(3) coordinated designation and assignment of the whole UHF broadcasting band (470-790 MHz) for WBB services (possibly considering other sectorial services) by 2020, linked to comprehensive coverage obligations for WBB in order to establish a fully connected Union; as a consequence, terrestrial broadcasting services would not be provided in this frequency band any longer after 2020. DTT households would have to migrate to alternative platforms (e.g. satellite);</p> <p>In addition to options 1, 2 and 3, it may be appropriate to develop an EU level spectrum strategy for PMSE during 2016 and 2017 in cooperation with the Member States (RSPG) in view of UHF spectrum loss as well as EU level guidance on the application of state aid rules upon migration of DTT use into the 470-694 MHz frequency band.</p>
Alternative policy instruments
Two regulatory instruments could be considered to reach the objectives of the EU intervention i) a stand-alone Commission proposal for a European Parliament and Council Decision on the UHF broadcasting band that would follow the recommendations of the Lamy report, in particular the '2020-2025-2030' model and the flexibility option for using the sub-700 MHz frequency band in a shared manner for both DTT and wireless broadband (in a combination according to national demand), and ii) a Commission Implementing Decision on the technical conditions for the 700 MHz frequency band that shall stipulate the technical conditions for designation of this frequency band for wireless broadband as well as the technical conditions for optional designation of parts of the

band (the duplex gap and guard bands not used for wireless broadband) for alternative use for RSPP priorities such as PPDR, PMSE and the Internet of Things.

Non-regulatory options are not well suited to ensuring effective management of the UHF band. Given that spectrum for the provision of services within the areas telecommunications, sound and television broadcasting, defence, emergency services, transport, scientific research, etc. is a limited resource, scarcity is one of its distinctive traits, in particular in the UHF broadcasting band. This idiosyncrasy implies a certain level of public management and regulation to guarantee fair access and prevent cross-border interference that cannot be achieved at a national level. In the context of the UHF broadcasting band the policy options envisaged are based on legislative action, given the need for legal certainty, coordinated EU action and protection of relevant services against interference, as borne out by the outcome of the public consultation.

Alternative/differentiated scope

Small enterprises are not excluded from the scope of the proposed legislation. On the contrary, the options under consideration by the Commission take into account the interests of the European cultural and creative sector that is largely made up of small and medium sized enterprises (SMEs). The cultural industries are a leading sector that can provide spill over effects for the economy and can attract a high-quality workforce, business and investment, and spur creativity and innovation across all sectors of the economy.

Options that take account of new technological developments

Both, option 1 and 2 foresee a review of the regulatory approach in the sub-700MHz band in 2025; the reassessment would be based on a market review of wired and wireless audiovisual platforms and wireless broadband services. This review would include, in particular, a revision of the consumption trends and patterns, technological and market developments – including platform competition and efficiency, audio-visual services distribution, as well as growth of and demand for wireless broadband.

Preliminary proportionality check

Option 1 would provide rigid protection to DTT services in the Union and might leave spectrum unused in the sub-700MHz band, e.g. in MS with a very low penetration of DTT where this platform may diminish or even disappear altogether.

Option 2 respects the principle of proportionality by proposing EU coordination only to ensure EU level spectrum policy objectives are met and by giving Member States flexibility to act according to specific national situations. The strategy for the UHF broadcasting band under this option follows recommendations in the Lamy Report, in particular, the '2020-2025-2030' model and the flexibility option for using the sub-700 MHz frequency band in a shared manner for both DTT and wireless broadband according to the national demand.

Option 3 would go beyond what is required to address the problem and the goals identified and may not take into account differences in the evolution of demand across Member States and the interests of different stakeholders.

C. Data Collection and Better Regulation Instruments

Data collection

This initiative is based on several EU level inputs.

The Lamy report (September 2014) provided a strategic advice to the Commission on a long-term strategy for the UHF broadcasting band based on the work of a high-level group from the broadcasting, mobile and PMSE industry. Its three elements are: (i) the '2020-2025-2030 model' for the whole UHF broadcasting band, (ii) a 'flexibility option' for the 470-694 MHz frequency band and (iii) a proposal for a coherent position of the Union against the co-primary allocation of the 470-694 MHz frequency band to the mobile services in ITU Region 1 at WRC-15.

The Radio Spectrum Policy Group (RSPG), in its Opinions on the future use of the UHF broadcasting band as well as on the Union position for WRC-15 (February 2015), recommends release of the 700 MHz frequency band for mobile services in the Union by 2020 and WBB downlink-only use of the 470-694 MHz frequency band

mainly for audio visual services in the long term, backed by a coherent Union position at WRC-15 that rejects changing the status of allocation of the latter frequency band. The RSPG Report on spectrum coordination approach for broadcasting in the case of a reallocation of 700 MHz frequency band (June 2013) outlines the approach for reaching cross-border coordination agreements.

Report from the Commission to the European Parliament and the Council on the Radio Spectrum Inventory COM(2014) 536final.

The Conference Europeene de Postes et Telecommunications (CEPT) adopted the ECC Report 224 (November 2014) on a long-term vision for the 470-694 MHz frequency band which analyses scenarios for the future use of this frequency band and gives conclusions on spectrum management.

The Commission issued a mandate to the CEPT to develop technical conditions for the introduction of wireless broadband in the 700 MHz frequency band as well as PMSE use. CEPT delivered the preliminary Report 53 (A) in December 2014. The final report is due in April 2016 after WRC-15.

The Commission services (DG GROW and DG CONNECT) are working with European Telecommunications Standard Institute (ETSI) to develop conditions for co-existence between mobile and cable equipment operating on same or adjacent frequencies. A Commission mandate is envisaged to ETSI in this regard by the end of 2015.

The Commission has procured a study on the convergence of broadcasting and broadband services. Its report was published in December 2014. Another Commission study on the socio-economic impact of releasing the 700 MHz from broadcasting services and its repurposing for mobile services is ongoing and its preliminary findings are due to become available in October 2015.

A significant amount of evaluator evidence is, thus, already available or will soon be available. Due to its varied nature, the major findings and conclusions will be compiled in a Staff Working Document (SWD).

Consultation approach

Stakeholders and experts have been consulted and invited to provide inputs on a regular basis, in particular on a number of deliverables relevant for the EU level decision-making process. Major examples are:

(i) Commission's Public Consultation on the Lamy Report (January-April 2015). The consultation on the Lamy report collected views from all interested stakeholders including consumer and citizens' organisations. The report itself is based on the work of a high level group from industry chaired by Mr. Pascal Lamy.

(ii) Public Consultations of the Radio Spectrum Policy Group on its Opinions on EU level spectrum strategy for the UHF broadcasting band as well as on a common EU position for WRC-15. The consultation took place early 2015.

(iii) Industrial and other stakeholders were broadly consulted in several related initiatives at EU and CEPT level:

- a former Commission study by Analysis Mason on the digital dividend (report published in 2009).
- the Commission study on the convergence of terrestrial broadcasting and wireless broadband networks (report published in December 2014);
- the CEPT Report 53 (A) on technical conditions for wireless broadband in the 700 MHz frequency band (December 2014);
- the CEPT/ECC Report 224 on the future use of the 470-694 MHz frequency band (November 2014).

Will an Implementation plan be established?

The implementation of the options will be done on the one hand through implementing act(s) under the Radio Spectrum Decision (comitology) in order to cover allocation and technical coexistence and co-decision instrument(s) in order to cover issues outside the scope of the Radio Spectrum Decision. Such instruments are proportionate due to the pan-European impact on use of UHF broadcasting band for the economy and society and the need to ensure a common approach to the management of this frequency band. In particular, a Commission implementing decision would designate and make available the 700 MHz frequency band for wireless broadband use in the Union based on harmonised technical conditions. It could also ensure designation of sub-700 MHz spectrum in the long-term. On the other hand, a co-decision instrument would lay down common deadlines for completing cross-border frequency coordination and putting spectrum into effective use (authorisation) and could also stipulate framework conditions for transition in spectrum use in part or the whole UHF broadcasting band. Furthermore, soft law such as guidance on the application of state aid rules will be

<p>needed.</p> <p>The Implementation Plan to steer this initiative consists of i) completion of the cross-border frequency coordination within the Union at end of 2017; ii) adoption of a national roadmap for the transition within the UHF broadcasting band upon release of the 700 MHz frequency band for wireless broadband, with an indication of the major deliverables to be included. These should cover frequency planning/coordination, reconfiguration of broadcasting networks, regulatory transition regime of broadcasting licensees taking into account Art. 9a FD, equipment upgrades and cost issues (including compensation measures in line with Union guidelines); iii) support actions will be set up to exchange information to a coordinated release of the 700MHz frequency band, the existing UHF WG in the Radio Spectrum Committee will be very well placed to fit this purpose.</p>
<p>D. Information on the Impact Assessment Process</p>
<p>The Impact Assessment work started in 2014.</p> <p>The Inter-Service Group met several times. Other units in Directorate General of Communications, Content, Networks and Technology G CONNECT, namely B1 Regulatory Coordination and Business, B5 Broadband and G1 Converging Media and Content as well as Directorate General of Internal Market, Industry, Entrepreneurship and SMEs, Directorate General of Competition, Directorate General of Mobility and Transport, Directorate General of Energy as well as Secretariat General were represented at the meeting and provided their input and comments on the roadmap as well as on the Terms of Reference, study on the 'Economic and social impact of repurposing the 700MHz frequency band for wireless broadband services in the European Union'.</p>
<p>E. Preliminary Assessment of Expected Impacts</p>
<p>Likely economic impacts</p>
<p>A coordinated and timely release and authorisation of the 700MHz frequency band for wireless broadband in Europe will have a number of positive economic impacts. The functioning of the single market will be improved as it will open up new revenue streams, facilitate new business models, drive efficiencies and improve the way existing services are delivered on-line.</p> <p>Safeguarding the DTT platform in the sub-700MHz frequency band is expected to allow network investments and updating of broadcast technologies while promoting innovative and further research on audio-visual platform distribution. Consequently, the audio-visual industry in Europe will continue to develop based on new technologies and a more competitive environment. However, less spectrum in the UHF broadcasting band will be available for wireless audio PMSE – existing wireless microphones will be usable and new more spectrum-efficient PMSE equipment may emerge in the UHF broadcasting band and other frequency bands.</p>
<p>Likely social impacts</p>
<p>Additional spectrum resources for mobile broadband in the 700MHz frequency band and in other frequencies below 700 MHz according to future national decisions will extend network capacity and coverage and support rural broadband and better connectivity for the digital single market.</p> <p>Digital Terrestrial Television services in the sub-700MHz frequency band will continue to develop based on a transition to more spectrum-efficient technology and simultaneously to advanced video quality formats (such as full HD) and promote values of cultural diversity and social inclusion; thus free-to-air distribution that facilitates social inclusion as well as plural and divers audio-visual content will be safeguarded.</p>
<p>Likely environmental impacts</p>
<p>It should be noted that the potential environmental impact of the policy options will not be assessed. This is because the policy initiative will have no direct impact on the environment and any potential indirect impacts of radio waves on the environment are subject to scientific research with recommendations issued by the WHO. Nevertheless, it is possible to describe the qualitative environmental impact of the increasing importance of wireless communication.</p>
<p>Likely impacts on simplification and/or administrative burden</p>
<p>No impacts on administrative burden are foreseen.</p>
<p>Likely impacts on SMEs</p>
<p>The proposed legislation will have an impact to the European cultural and creative sector – an industry that is largely made up of small and medium (SMEs) sized enterprises. It will enhance their potential to innovate, develop new business models and increase their customer base. Micro enterprises are not expected to be</p>

negatively impacted through any of the four options.

Likely impacts on competitiveness and innovation

The allocation of the 700MHz frequency band to wireless broadband will increase competitiveness as the expected investments and the roll-out of the new generation networks will be done on a European scale, the operating costs will be lower as frequencies will be harmonized at the EU level and mobile operators will benefit from economies of scale of equipment. As investment in connectivity will be facilitated by the timely access to sufficient spectrum, high speed connectivity will in turn enhance the introduction of innovative services such as the Internet of Things (IoT). Dedicated or integrated IoT networks would benefit from accessing the 700MHz frequency band to ensure coverage for ubiquitous and mission critical applications.

Likely impacts on public administrations

The designation and authorisation of the 700MHz frequency band for wireless broadband entails high administrative costs as broadcasting licenses will have to be withdrawn or amended in order to enable transition to mobile broadband services, for which licenses will have to be awarded (typically through auctions which in most cases lead to revenues that largely exceed overall costs). Broadcasting network re-planning to accommodate broadcasting services to the lower part of the UHF broadcasting band (490-694MHz) will also affect administrative costs.

The new administrative framework dedicated to wireless broadband services is likely to include coverage requirements for the 700MHz frequency band due to the good propagation features of the UHF broadcasting band – this will enhance high speed wireless coverage in rural areas (to be addressed in the social impact).

Likely impacts on third countries, international trade or investment

A harmonised European approach would be an incentive for neighbouring and other countries (e.g. in Africa) to follow with similar measures. This opens the opportunity for the Union to set a benchmark and increase its international role. Due to the international nature of radio communications, a number of Member States will have to set up bilateral agreements for cross-border coordination (i.e. with Russia and North African countries)