

<b>Title:</b> Power for Ofcom to align Multiplex (Mux) and Public Service Broadcast (PSB) licences (Communications Review)  <b>IA No:</b> DCMS072  <b>Lead department or agency:</b> DCMS  <b>Other departments or agencies:</b> Ofcom	<b>Impact Assessment (IA)</b>			
	<b>Date:</b> 15/03/2013			
	<b>Stage:</b> Development/Options			
	<b>Source of intervention:</b> Domestic			
	<b>Type of measure:</b> Primary legislation			
<b>Contact for enquiries:</b> Robert Burles Robert.Burles@culture.gsi.gov.uk <b>020 7211 6100</b>				

<b>Summary: Intervention and Options</b>	<b>RPC Opinion:</b> RPC Opinion Status
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Cost of Preferred (or more likely) Option			
Total Net Present Value	Business Net Present Value	Net cost to business per year (EANCB on 2009 prices)	In scope of One-In, Measure qualifies as One-Out?
n/a	n/a	n/a	Yes   IN

**What is the problem under consideration? Why is government intervention necessary?**

The UK's digital terrestrial television platform (DTT) uses Ultra High Frequency (UHF) spectrum which is in high demand, particularly from mobile broadband. But, the Multiplex (Mux) licencing regime that underpins the platform does not provide Ofcom with the flexibility to manage this spectrum efficiently. Five of the six muxes that form the DTT platform are licensed under the Broadcasting Act 1996, which provides for 12 year licence terms only with an option for one renewal for a further 12 years only. The legislation relating to the closely linked Public Service Broadcast (PSB) licences for Channels 3 and 5 is similarly restrictive, stipulating 10 year terms only. The end dates of the Mux and PSB licences do not, and cannot be, aligned.

**What are the policy objectives and the intended effects?**

To provide Ofcom, with Secretary of State consent, with the power to align end dates of the existing Mux licences, to be able to align these with end dates of the existing PSB licences, and to be able to align end dates of future Mux and PSB licences. This will enable Ofcom to take strategic decisions about the UHF spectrum used by DTT at the end of licence periods. These could include: moving the DTT around the UHF band in order to facilitate more efficient usage across the whole band; a reduction in the amount of UHF spectrum assigned to DTT, either through new technology and/or a reduction in the number of multiplexes; or, in the longer term, a potential switch off of DTT due to the adoption of alternative technology.

**What policy options have been considered, including any alternatives to regulation? Please justify preferred option (further details in Evidence Base)**

Option 2 – Do Nothing: Ofcom's current powers to align Mux and PSB licences are limited. This may impact upon the UK's ability to manage its DTT platform and deliver maximum economic value from UHF spectrum by, for example, ensuring that there is sufficient capacity to meet ever growing demand for mobile broadband which currently has higher economic value to the UK than broadcasting.

Option 1 (preferred): Grant powers to align existing licence terms by providing Ofcom, with Secretary of State consent, with the powers to extend the duration of existing Mux licences by up to four years; extend the duration of existing PSB licences by up to two years; and reduce the duration of existing multiplex licences by up to two years; and vary the duration of future licences when issued rather than being constrained to 12 and 10 years respectively.

**Will the policy be reviewed?** It will be reviewed. **If applicable, set review date:** 04/2018

Does implementation go beyond minimum EU requirements?	N/A				
Are any of these organisations in scope? If Micros not exempted set out reason in Evidence Base.	<b>Micro</b> No	<b>&lt; 20</b> No	<b>Small</b> No	<b>Medium</b> No	<b>Large</b> No
What is the CO <sub>2</sub> equivalent change in greenhouse gas emissions? (Million tonnes CO <sub>2</sub> equivalent)	<b>Traded:</b> n/a		<b>Non-traded:</b> n/a		

*I have read the Impact Assessment and I am satisfied that, given the available evidence, it represents a reasonable view of the likely costs, benefits and impact of the leading options.*

Signed by the responsible SELECT SIGNATORY: \_\_\_\_\_ Date: \_\_\_\_\_

# Summary: Analysis & Evidence

# Policy Option 1

**Description:** Increase flexibility of end dates of existing PSB and Mux licences.

## FULL ECONOMIC ASSESSMENT

Price Base Year na	PV Base Year na	Time Period Years na	Net Benefit (Present Value (PV)) (£m)		
			Low: Optional	High: Optional	Best Estimate: na

COSTS (£m)	Total Transition (Constant Price) Years	Average Annual (excl. Transition) (Constant Price)	Total Cost (Present Value)
Low	Optional	Optional	Optional
High	Optional	Optional	Optional
Best Estimate	na	na	na

Description and scale of key monetised costs by 'main affected groups'

**Other key non-monetised costs by 'main affected groups'**

Current and new multiplex licence holders, excluding the BBC, may have their licences reduced in length. Increased business uncertainty resulting in less innovation.

BENEFITS (£m)	Total Transition (Constant Price) Years	Average Annual (excl. Transition) (Constant Price)	Total Benefit (Present Value)
Low	Optional	Optional	Optional
High	Optional	Optional	Optional
Best Estimate	na	na	na

Description and scale of key monetised benefits by 'main affected groups'

**Other key non-monetised benefits by 'main affected groups'**

Current and new multiplex and PSB licence holders, excluding the BBC, may have their licences increased in length. Improved spectrum management, benefiting businesses and consumers.

**Key assumptions/sensitivities/risks**

Discount rate (%)

na

Granting power to Ofcom, with Secretary of State consent, for use in the future means there is a risk that exercising alignment powers will in fact result in higher welfare gains. This risk is mitigated by requiring consent from the Secretary of State and issuing an Impact Assessment before exercising these powers. Regulatory uncertainty risk from the use of extension and reduction power.

## BUSINESS ASSESSMENT (Option 1)

Direct impact on business (Equivalent Annual) £m:			In scope of OIOO?	Measure qualifies as
Costs: na	Benefits: na	Net: na	Yes	IN

# BACKGROUND:

## Economic value of spectrum

Access to electromagnetic spectrum is key to innovation and competition in the fast-growing information and communications technology sector as well as to a wide range of other commercial and non-commercial applications, including defence, safety-of-life and emergency services and science.

Wireless technology is increasing in importance to meet rising demand for communication and entertainment while on the move. The report for DCMS and BIS by Analysys Mason published on the 5<sup>th</sup> November 2012 estimates that spectrum contributed £52bn to GDP in 2011, an increase in real terms of 25% since 2006. Of this, 60% was attributable to mobile communications, and 20% to broadcasting. Spectrum is an important factor in economic growth, but relies on effective spectrum management.

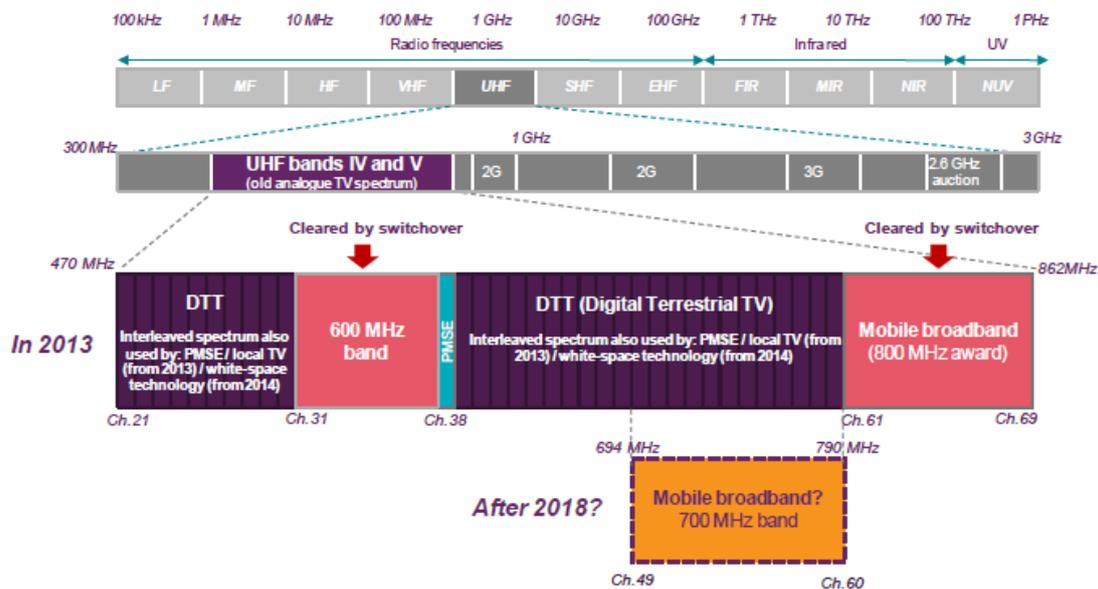
Spectrum is a common good because it is rivalrous and non-excludable. Rivalrous means that if someone is using a resource then others cannot. In the context of spectrum, signal interference implies that no user will be able to exploit the full potential of the available spectrum and this is the root of the rivalrous characteristic. Non-excludable refers to the fact that anyone can transmit and use up valuable radio waves if they have the equipment.

Interference is avoided through the use of licences. Sets of frequencies are assigned to users, for a specific use and duration. The longer the duration of a licence the greater the incentive for firms to invest in services within respective spectrum assignments. This encourages technological development and dynamic efficiencies.

Effective management of spectrum, in particular with the UHF bands IV and V is important due to its high economic value. The spectrum involved, UHF bands IV and V, is of significant commercial value, and it is therefore important to achieve efficient spectrum usage. Demand for mobile broadband capacity is increasing at an unprecedented rate, driven by the use of video and data services in smart phones and tablet PCs. This means that any unused or underutilised spectrum of this type will involve significant losses of public value.

## UHF bands IV and V

Figure 1



(Source: Ofcom)

The diagram sets out the allocation of spectrum relative to frequency. The frequency range for the UHF band is 300MHz – 3GHz (3000MHz) and referred to as the ‘sweet spot’. The UHF bands IV and V are of particularly high commercial value compared to the rest of spectrum and therefore of particular focus for this impact assessment. The range has an ideal combination of data transfer rate and distance the data can travel, thereby characterised by high market demand and relative scarcity.

Digital TV switchover replaced analogue terrestrial television signals with wholly digital signals, known as Digital Terrestrial Television (DTT). The more efficient use of spectrum by the digital signal has allowed a significant amount of spectrum to be cleared. Figure 1 shows the clearance of channels 31 to 38 (the “600MHz” band) and channels 61 to 69 (the “800MHz” band). Future plans, as indicated in Figure 1, are likely to see television cleared from the 700MHz band with mobile broadband services subsequently introduced.

### **Multiplex Technology and Licensing Regime**

Currently the DTT spectrum band is managed through the use of a licensing regime facilitating the use of multiplex technology, in order to maximise economic benefits. Multiplex is a method of sending and receiving multiple signals over a single communication channel without loss of information or interference. In comparison, analogue signals only allow for a single signal over a communication channel. The technology allows broadcasters to adjust for available transmitters and geographical location, which in turn facilitates regional broadcasting.

### **Legal Framework**

Assignment of multiplex signals is underpinned by the Broadcasting Act 1996. This provides for the award of 12 year Mux licences which can be renewed only once and then only for another fixed term of 12 years. The expectation was that all Mux licences would be issued at the same time, and end on the same date. The first Mux licences were issued at the same time in 1998, which means they would have finally expired after renewal in 2022. However in 2002, ONdigital / ITV Digital, which was at the time operating Mux B, C and D, collapsed. The licences for those Muxes were re-issued for 12 years (due to expire in 2014). These licences have been renewed and will expire in 2026.

### **Current Multiplex Licences**

If Mux licences are re-issued in 2014.

<b>Multiplex Licences</b>	<b>Operator</b>	<b>Expiry</b>
“ 1 “	BBC - not is licensed by Ofcom, instead under Royal Charter and agreement with the Secretary of State for Culture, Media and Sport	NA
“ 2 “	Operated by Digital 3 and 4 Ltd (jointly owned by Channel 3 and Channel 4) and the capacity on this multiplex is split between Channel 3 (48.5%), Channel 4 (48.5%) and the Public Teletext service (3%)	2022
“ A “	SDN Ltd (controlled by ITV plc) and 50% of the capacity on this multiplex is reserved for Channel 5 and (in Wales) S4C	2022
“ B “	BBC Free to View Ltd	2026
“ C “	Arqiva Limited	2026
“ D “	Arqiva Limited	2026

(Ofcom 2011 – Digital Television Programme Service)

In total there are six multiplex licences that utilise multiplex technology. In total they use 32 channels in the UHF band and form the UK's DTT platform (known as the Freeview service). The BBC Mux is not licensed under the Broadcasting Act 1996.

In addition, the position is complicated by a separate but closely connected system of content licensing for Public Service Broadcasts (PSB). A PSB licence is a content licence which obliges the licensee to provide certain content in exchange for guaranteed right of carriage on a terrestrial multiplex (and certain other rights). Currently, a renewal of their existing PSB licences is being offered to Channel 3 and 5, so that they will expire in December 2024. These renewals are being offered to Channel 3 and 5 under the Communications Act 2003 which stipulates that the renewal is for ten years.

## Problem under consideration:

So, in summary, the digital terrestrial television platform uses highly valuable UHF frequency spectrum from 470-790 MHz. To manage the use of this spectrum effectively we need to have the Mux licences that underpin the DTT platform operating on the same timescales, and the ability to align those with the end dates of the closely connected PSB licences for Channels 3 and 5. However, the expiry dates of the five Mux licences cannot coincide, because of the unforeseen collapse of ITV Digital, and nor can the expiry dates of the Mux and PSB licences because of the different statutory durations for both.

The BA 1996 does not allow Mux licences to be extended so currently the only way of aligning existing Mux licences would be to agree a four year reduction with the 2026 Mux licence holders to bring them into line with the 2022 Mux licences. If we wanted to align the 2024 PSB licences with the 2022 Mux licences, it would be necessary to agree a two year reduction with the licence holders. In any event, such negotiations would only enable Mux and PSB alignment on a specific date, after which the Mux and PSB licences would diverge again due to the different statutory durations of both.

The other theoretical alternative would be to not relicence the 2022 Muxes until 2026. This is not realistic, however, since the UK would be failing to use the highly valuable UHF spectrum set aside for the 2022 Muxes for four years, not relicensing the Muxes that currently carry content from ITV, Channel 4 and Channel 5, and thereby seriously affecting the coherence and viability of the DTT platform on which c.40% of the UK population rely for their primary viewing.

## Rationale for intervention:

As market and technologies change it may become necessary to reassign or reallocate spectrum to ensure efficiency. However when licences, assigned to blocks of spectrum, end at different times it becomes difficult to achieve this, particularly if there is no mechanism to align them.

Relating to Mux and PSB licences, the measure proposed will enhance Ofcom's ability to manage the DTT platform and ensure maximum economic benefits from the UHF spectrum. This is in the context of demand for UHF spectrum increasing from mobile broadband, and the spectrum requirements for DTT potentially declining due to technological changes, which will enable DTT to transmit more effectively with, possibly, a reduced number of multiplexes and/or the demand for DTT as a platform declining in the longer term (e.g. if Internet Protocol Television, when combined with the cable and satellite platforms, becomes a viable substitute for DTT).

## Policy objective:

The objective is to provide Ofcom with the powers to align the end dates of Mux and PSB licences between 2024 and 2026, and no longer be constrained by fixed and inflexible duration dates when issuing future licences in order to provide Ofcom with the flexibility to manage the highly valuable spectrum within which the DTT platform sits more efficiently.

## Description of options considered (including do nothing):

### **Option 1: (preferred) extension and reduction of current licences and varying the duration of new licences**

The measure under consideration gives Ofcom the power to:

- 1) Extend the duration of existing Mux licences for up to four years.
- 2) Extend PSB licences for up to two years.
- 3) Reduce the duration of existing Mux licence by up to two years.
- 4) Being able to vary the duration of a licence when issued rather than being constrained to 12 and 10 years respectively.

These tools provide increased flexibility for the management of licences. They also give a number of different possible scenarios to consider. The degree of variability arises from the many potential alignment dates between 2024 and 2026. The usage of powers is for alignment purposes and not exercised individually for alternative purposes.

The exercise of these powers will be subject to a full Impact Assessment by Government.

### **Option 2: Do Nothing - no extension and reduction of current licences and no variation of the duration of new licences**

Without the ability to extend or reduce the duration of licences and having to set the duration of new Mux and PSB licences for a period of 12 and 10 years respectively, the current regulatory framework and economic circumstances remain the same. As a consequence, it will not be possible to re-allocate or re-assign the spectrum involved without it being unused for a number of years. The net benefit is zero and sets the base for this IA.

## Monetised and non-monetised costs and benefits of each option (including administrative burden);

It should be noted that the impacts of this measure are additional to those identified by the Spectrum Management and Teletext Removal IAs previously considered by RPC.

The Preferred Option is to provide powers to enable the alignment of Mux and PSB licences. There is no proposal to use this power at present. Hence, it is not possible to ascribe costs and benefits to the policy except in a hypothetical way. For this reason, any estimates made would be speculative and by nature imprecise. Exercising these powers would require an Impact Assessment by the Government and consent from SoS. For these reasons, we have neither attempted to estimate nor monetise precise costs and benefits of the policy nor computed OITO at this stage.

What is clear is however, is that spectrum, particularly the UHF spectrum bands IV and V in which DTT sits, is highly valuable. The cost benefit analysis that the DTI and DCMS conducted in 2005 for the digital switchover programme, which replaced analogue terrestrial television with digital terrestrial television estimated that the net present value (NPV) from the re-use of released spectrum value was £1,181m (2004 figure). This was based on the greater efficiency of digital signals which meant 14 frequency channels, each of which were 8MHz, could be cleared of television use. Accounting for inflation, £1,181m in 2004 becomes £1,392m in 2011. In addition, and as noted above, the recent report for DCMS and BIS by Analysys Mason estimates that spectrum contributed £52bn to GDP in 2011, of which the majority - 60% - was attributable to mobile communications.

It is equally apparent that demand for spectrum is increasing, particularly for mobile broadband. Ofcom has recently auctioned licences for 4G mobile broadband in the 800 MHz band (791MHz – 862 MHz), following the clearance of analogue terrestrial television from that band, in order to help meet this growing demand. The auction raised over £2.3bn in receipts for the Government.

However, demand for mobile broadband will continue to increase, driven by the growing use of video and data services on smart phones and tablet PCs. In a report for Ofcom, Real Wireless estimated that under a mid-level growth scenario, mobile data capacity demand will experience an 80 fold increase between 2012 and 2030, and a 300 fold increase under a high-growth scenario. Whilst mobile operators might be able to meet part of this demand through the adoption of more efficient technologies, it is likely that more spectrum will also be required.

Without the power for Ofcom to align the end dates of the five Mux licences licenced under the BA 1996, and the ability to align the closely connected PSB licences with those Mux licences, strategic decisions about the allocation of spectrum to DTT within the UHF spectrum, and its reallocation to other uses, could potentially be delayed, meaning that the UK may be failing to realise the full economic potential of highly valuable spectrum.

Examples of the main cost and benefits in an eventual IA if alignment powers were to be exercised are provided below. These will be developed further in the full IA that the Government has committed to produce before these powers are exercised.

### **Costs**

- *Reducing the duration of a licence* – The cost incurred is the value of holding a multiplex licence and the associated spectrum allocation. The scale of costs will be dependent on the number of licences and the period by which they are reduced.
- *Administrative burden* – The potential release, reassignment and reallocation may require a spectrum auction to be performed thereby incurring organisational costs.

### **Benefits**

- *Extending the duration of a licence* – The benefit incurred is the value of holding a multiplex licence and the associated spectrum allocation. The scale of benefits will be dependent on the number of licences and the period in which they are extended.
- *Avoiding opportunity cost* – Compared to the Do Nothing option, achieving alignment by waiting for all licences to expire incurs an opportunity cost from unused multiplex and PSB licences over a period of time and foregoing economic activity.
- *Efficient allocation of spectrum* – If alignment powers results in the release of spectrum, then its reassignment and reallocation to those that value it the most will result more efficient allocation of spectrum.
- *Technology adaption and diffusion* – From more efficient allocation of spectrum, additional services can be introduced and the investment into these services encourages technological innovation.

### **Opportunity cost estimation**

Since the key rationale for alignment of licences is to avoid the opportunity cost of the Do Nothing option, it would be useful to estimate the Gross Value Added (GVA) of a Mux licence for one year in order to give an indication scale of opportunity costs under consideration.

According to the Annual Business Survey (ABS), television programming and broadcasting activities (section J, item 60.1) had an approximate GVA of £4,407m and a total turnover of £10,043m in 2011. Underlying these figures are several platforms, including satellite, cable and DTT transmission.

Sky and Virgin Media dominate the satellite and cable television segments. According to the Competition Commission's investigation into the movies on pay TV market, Sky had an estimated 9.5 million pay TV subscribers in 2011; more than 60% of market share for several years; and an estimated average revenue per user (ARPU) of £500 in 2011.

Sky	9.5m subscribers	65% market share*
Total	14.6m subscribers **	

\* greater than 60%

\*\*  $9.5\text{m subscribers} / 65\% = 14.6\text{m}$

With the assumption that all firms in market have a ARPU of £500, the total revenue for the satellite and cable television broadcasting industry is estimated to be 14.6 million subscribers \* £500 ARPU = £7,300m.

By comparing this to ABS total turnover of £10,000m, it is estimated that DTT accounts for  $(£10,000\text{m} - £7,300\text{m}) / £10,000\text{m} = 27\%$  of industry turnover. By applying this ratio to approximate GVA figures, the DTT platform accounts for  $27\% * £4,407\text{m} = £1,190\text{m}$  of the total industry GVA. If one assumes the contribution of each Mux to GVA is equal then  $£1,190\text{m} / 5 \text{ Mux licences} = £238\text{m GVA per multiplex}$ .

Foregoing a multiplex licence therefore results in a GVA opportunity cost of £238m.

#### **Mitigating factors include:**

- Consumers switching to cable and satellite platforms.
- Efficiency upgrades allowing the same number of services to be carried on fewer multiplexes and thereby releasing unused spectrum with economic benefit in efficiency and output.

#### **High estimate:**

By including PSB licences into the analysis, alignment through the Do Nothing option may undermine the use of PSB licencing regime. The same applies to PSB licensing if there is insufficient capacity on the DTT platform. Finally, if the product offering on the DTT platform is insufficient, it may place the usage of the platform in jeopardy.

### **Rationale to justify level of analysis (proportionality):**

As stated earlier there is no proposal to use alignment powers at present. Instead the measure gives Ofcom the flexibility to deal with a changing market and its spectrum usage. Hence, it is not possible to ascribe costs and benefits to the policy except in a hypothetical way. For this reason, any estimates made would be speculative and by nature imprecise. Exercising these powers would require an Impact Assessment by the Government and consent from SoS. For these reasons, we have neither attempted to estimate nor monetise costs and benefits of the policy nor computed OITO.

### **Risk and assumptions:**

*Regulatory Uncertainty Risk from Reduction Powers* – The power to reduce the duration of an existing licence may increase the risk of doing business resulting in reduced long-term investment. This can be mitigated by 1) restricting the time period by which the licence can be reduced and 2) providing a reasonable notice period before the licence may be reduced.

*Regulatory Implementation Risk* – If alignment powers are exercised with the intention to release spectrum, the subsequent cost benefit analysis would be dependent on determining the value of this spectrum.

### **Direct costs and benefits to business calculation (OOIO)**

There is no proposal to use alignment powers at present. However exercising these powers could have a significant impact depending on how they are used. As such the powers are not fully transferred Ofcom to be used at its discretion. Instead exercising alignment powers would require an Impact Assessment by the Government and consent from SoS. Although it is not known whether or not the powers will be used,

it is true that there is a non-zero probability that a business may ultimately be affected by this measure at an unknown time in the future. For this reason, the measure has been counted as within scope of OITO and as an IN. On the other hand, the absence of these powers will also affect businesses, since Ofcom will be unable to manage this spectrum flexibly for the benefit of all users and to maximise economic value for the UK.

If ever the measure is employed the usage of alignment powers will have significant impact on some businesses, current licence holders and new licence holders. The reduction of current licences would be detrimental to the licence holder. However, this cost is significantly less compared to Do Nothing option of waiting for all licences to expire in order to achieve alignment.

## Wider Impact

### Economic and financial

- Accelerated spectrum reassignment and reallocation allows for greater innovation

### Social

- Since the UHF spectrum is ideal for television broadcasts and the mobile communication industry, it is the backbone of communication industry and thereby influences how people communicate with each other. However this is outside the scope of this impact assessment.

### Environmental

- There are no foreseeable consequences to the environment from the proposed measures.

## Summary, preferred option and description of implementation plan:

This is a legislative change that adds powers to Ofcom and adds regulation to the statute books. Exercising these powers would require an additional Impact Assessment in order to determine if alignment has welfare gains. Consent from the SoS would also be required. Ofcom would take into consideration alternative options to achieve alignment before exercising these powers.