Arqiva submission to Ofcom's consultation, *Improving consumer access to mobile services at 3.6 GHz to 3.8 GHz*

Arqiva is grateful to Ofcom for a further opportunity to respond to its consultation, *Improving consumer access to mobile services at 3.6 GHz to 3.8 GHz.* We are a significant infrastructure provider for satellite downlink and broadcasting fixed links in this spectrum. We are also a provider of sites and associated facilities for those wireless operators who will deploy future 5G services. As a result, we have a clear interest in supporting Ofcom's formulation of a long-term policy for this band which best reflects the interests of both industry and consumers.

As stated in our response to Ofcom's first consultation of October 2016, we broadly support the overarching aim to release this spectrum for mobile 5G use in the medium to long term. In our submission to that consultation we set out our view on how best that could be achieved while minimising the adverse impacts on existing users of the spectrum. The criteria we proposed that Ofcom should follow were that:

- Sufficient time needs to be allowed for industry to respond to this policy. The length of time required will depend on the nature of the mitigations;
- Any mitigations that existing users put in place need to be accompanied by long-term regulatory certainty to underpin necessary new investments;
- Decisions on spectrum pricing should avoid undermining investment decisions and reflect that use of spectrum is already changing; and
- Existing users who had a legitimate expectation to use these frequencies, and who receive no benefit from the new services, should receive funding and other appropriate support to cover legitimately incurred incremental costs related to mitigation measures.

Our view remains that an orderly migration of existing services would need to recognise these four criteria. However, based on Ofcom's proposals, the introduction of services from this band would only partially adopt these measures. This would be regrettable as it would increase the risk that existing services would suffer undue disruption as a result of clearance. It could also, in the case of fixed links use of the band, jeopardise the timetable for introducing new 5G services.

Our specific concerns are that:

- Ofcom has given no guarantees of alternative replacement frequencies for our fixed terrestrial broadcasting links. This contrasts with its approach to DTT and PMSE services, moved from the 700 MHz band also as a result of facilitating 5G services;

- As a result of the above and in the absence of knowing what alternatives we will be able to adopt, it is unclear whether 5 years is a sufficient period of time to adjust to new arrangements;

- The proposed approach does not currently appear to provide funding for this migration which casts doubt on whether technical solutions to providing an alternative solution for Freeview backhaul services will be commercially viable;

- The policy, as it stands, appears to be leaving the issue of ongoing DTT backhaul provision in Northern Scotland and Southern Hampshire to the judgement of the market. This is in potential conflict with the public policy objective of the 700 MHz clearance programme to secure universal free to air TV. It is also in apparent conflict with Ofcom's statutory duties relating to the provision of TV services as well as its obligations to free to air TV provision to the Nations and Regions as enshrined in the 2017 BBC Agreement, and

- There is no commitment within Ofcom's proposed approach to support a long-term satellite allocation in the 3.8-4.2 GHz band, calling into question whether the satellite sector can migrate to this band with sufficient long-term confidence.

We remain committed to engaging constructively with Ofcom on these important issues, conscious that the momentum for 5G availability in the broader 3.4-3.8 GHz band is increasing. Our objective is that this should be realised with the minimal impact on satellite and broadcasting services, with a seamless experience for end users.

However, we also believe that a good deal more consideration needs to be given to these issues before Ofcom concludes the details of its policy. With that in mind, we would like to register our support for the careful approach taken by Ofcom by consulting for a second time on the details of clearing services from the 3.6-3.8 GHz band. This is a complex issue and it is sensible that the details of *how* existing services are migrated should be considered carefully and with the fullest information available.

About Arqiva

Arqiva is a communications infrastructure and media services company, operating at the heart of the broadcast and mobile communications industry. Arqiva provides much of the infrastructure behind television, radio, mobile and other wireless communications in the UK and we are at the forefront of network solutions and services in an increasingly digital world.

The company supports cellular, wireless broadband, video, voice and data solutions for public and private sector customers.

In the TV space, Arqiva is a founder member and shareholder of Freeview, Youview and Digital UK. Freeview is the largest TV platform in the UK delivering over 60 digital TV channels, including 15 HD channels, and 24 radio stations free to the UK public. Arqiva owns and operates the networks for all of the Freeview multiplex licence holders and is the licence holder for four of the DTT multiplexes, including the two interim HD multiplexes – Com 7 and 8. Our networks cover 98.5% of UK households with the public service channels, around 90% of households with commercial national services.

Our major customers include the BBC, ITV, Channel 4, Five, BSkyB, UKTV, Sony, AMC, Ideal World, QVC, Russia Today, Al Jazeera Networks, Global Radio, Bauer Media, BT and the four UK mobile operators.

Arqiva is a major player in the UK's satellite communications business, operating over 80 antennas to geostationary satellites, providing telemetry, tracking and command support services to some of the leading satellite operators. We are a major provider of permanent satellite services to both Freesat and Sky customers. We also provide global satellite based services to the broadcast, communications, security, oil/gas, and exploration sectors, using our five UK teleports as well as facilities in the Middle East, Asia and the Americas. Our satellite customers include Turner and NBCU.

Arqiva is owned by a consortium of infrastructure investors and has its headquarters in Hampshire, with major UK offices in London, Buckinghamshire and Yorkshire and operational centres in Greater Manchester, West Midlands and Scotland.

Responses to questions

Question 1: Do you agree with our proposed approach towards registered fixed link and satellite earth stations users of the 3.6 GHz to 3.8 GHz band?

Satellite

Although challenging, we support the proposal to remove downlink protection from our existing C-Band licences within the proposed timescale of June 2020. However, given the overarching objective of releasing the 3.6-3.8 GHz band at the same time as the 700 MHz band, we would suggest that Ofcom considers re-articulating its policy as removing protection at the same time as making the 700 MHz/3.6-3.8 GHz bands available, but no earlier than June 2020. This would signal that protection for satellite downlinks could be extended in the event that there was any delay in securing availability for the 700 MHz/3.6-3.8 GHz band for mobile.

We also question the rationale behind Ofcom's proposed approach of refusing new licence applications for downlink protection between 3.6-3.8 GHz before June 2020 given the removal of protections thereafter. This appears to serve no purpose.

In terms of Ofcom's approach to providing regulatory certainty for long-term access to the 3.8-4.2 GHz band, we were disappointed that there was no positive recognition of the importance of this in this latest consultation. This is of particular importance to UK stakeholders, given:

- The UK's previous attempt ahead of WRC-15 to promote the 3.8-4.2 GHz as a band suitable for future 5G mobile services; and
- The proposal within the joint Treasury and DCMS document *Next Generation Mobile Technologies: A 5G Strategy for the UK* that sharing opportunities should be explored in the 3.8-4.2 GHz band and promoted internationally.

In this environment, Ofcom should not be surprised that the satellite sector feels less than secure in its long-term access to the 3.8-4.2 GHz band. This is also particularly on the back of Ofcom's previous granting of recognised spectrum access in the 3.6-3.8 GHz band which users will have felt conferred some greater security of tenure that has proved to be the case.

It is our understanding that the UK government and Ofcom are now broadly committed at an international level to retaining satellite services in this spectrum and ensuring long-term access free from harmful interference. It would, therefore, be helpful if this position could be confirmed by Ofcom as part of its broader expression of confirmed policy for the 3.6-3.8 GHz band.

Fixed links

We have more significant concerns over Ofcom's proposals as they relate to terrestrial fixed links. In particular, we note that there is no commitment to find alternative spectrum for these links. Instead Ofcom has made a much weaker commitment to "*explore **whether*** [our emphasis] *alternative spectrum is available."* This approach is in conflict with the precedents

that Ofcom and Government have set where existing use has been cleared from spectrum to enable 5G services, namely:

- DTT is being cleared from the 700 MHz band with spectrum between 550-606 MHz being made available as an alternative;
- PMSE is being cleared from the 700 MHz band with the aeronautical band 960-1164 MHz being made available; and
- As noted elsewhere in this document the 3.8-4.2 GHz band is being retained for satellite use and will absorb existing use in the 3.6-3.8 GHz band.

Ofcom is aware that our use of 3.6-3.8 GHz in Scotland and Hampshire is to provide backhaul for Freeview services. This underpins a long-established UK public policy of providing universal and reliable free-to-air television and, in the case of Scotland particularly, plays a key role in enhancing national cohesion in the UK. This policy is further reflected in Ofcom's statutory duty "that a wide range of TV and radio services of high quality and wide appeal are available throughout the UK."

This service, therefore, has to continue in broadly its current form as recognised in the significant investment that the government is making to retain DTT services after the clearance of the 700 MHz band. Replacing microwave links with other technologies is unlikely to be a credible option. Fibre is commercially unviable. Satellite distribution as an alternative *in these particular circumstances* raises some significant challenges. These relate to costs, customer requirements and technical issues such as latency (timing is crucial to the PSBs), link budgets and security (encryption may be needed). It is unclear to us at this stage to what extent, if at all, these challenges can be overcome.

We are committed to engaging with Ofcom fully on this issue to find a solution. However, that work needs to be underpinned by the same assurances given to other sectors that alternative and suitable spectrum will be found to ensure that these important services will be continued.

One of the complications created by Ofcom on assessing whether five years a realistic timeframe for moving our links is that we have no visibility on where those links will be moved to. As a result of this, we do not know what work will be involved and when this work will start. Re-engineering links in this way is a non-trivial task with a number of technical and commercial variables that have to be accounted for in order to ensure that TV viewers will be able to continue to receive their Freeview services.

As an example, the choice of spectrum will directly affect the link length. In the initial build of this project, this required the construction of a new tower on a third party site which added to the cost and commercial complexity of the project. Additionally, the Freeview service is currently due to run until 2034. Such lengthy commitments require a high degree of diligence to ensure the most cost effective solutions are deployed to meet customers' long term requirements.

Ofcom current view on costs further complicates these issues. Where costs cannot be passed on to customers, decisions taken by us will inevitably need taken within the prism of whether they are commercially viable. Any decision *not* to provide funding for moving these links means that alternatives solutions may be commercially unviable to implement. Where

costs *can* be passed on, there will be specific impacts on our customers who operate within a network of long-term funding agreements. These customers will have their own concerns over Ofcom's approach.

This provides a potentially perverse position whereby government is funding ongoing DTT provision in the face of one 5G clearance (the 700 MHz band) but then relying on market decisions on commercial viability as to whether to continue DTT backhaul services as a result of another 5G clearance (the 3.6-3.8 GHz band).

We also note that Ofcom has a specific commitment as set out in the 2017 BBC Agreement[1] to:

> *Consider the need for the BBC to reflect, represent and serve audiences taking into account the needs of the diverse communities of the United Kingdom's nations and regions*

Moreover, the same agreement obligates the BBC "to ensure UK households can continue to receive the UK Public Television Services in digital form through a television aerial in accordance with the Coverage Plan".[2]

Finally, the 1990 Broadcast Act stipulates[3] that Channel 4 has an obligation to "broadcast so as to be available for reception by members of the public throughout so much of the C4 Area as is for the time being reasonably practicable by the holder of the C3/C4 multiplex licence."

We would argue that any policy position which creates risk for the provision of Freeview services in the North of Scotland and the Isle of Wight may be counter to these obligations.

We set out further thinking on the issue of funding below.

Funding

Ofcom did not make clear what evidence it used to come to its current view that funding should not be made available for clearing existing users from this spectrum. We appreciate that such decisions should be made on a case by case basis and taking into account the specific circumstances. However, there are some recent and close precedents to the 3.6-3.8 GHz clearance which stakeholders should reasonably be able to rely on as guidance on how Ofcom would proceed on this issue. These are:

- The funded clearance of DTT and PMSE from the 700 MHz band to facilitate the introduction of 5G services;
- The funded clearance of DTT and PMSE from the 800 MHz band to facilitate the introduction of 4G services;
- The funded clearance of Radio astronomy use from 606-614 MHz to facilitate PMSE migration from the 800 MHz band as a part of 4G clearance; and

[1] Schedule 2, Paragraph 2 (1) d
[2] Section 44 (1)
[3] Section 4 (1) (d)

- The funded learance of civil aviation radar from the 2.6 GHz band to facilitate the introduction of 4G services.

In each of these instances, funding was made available for existing users to enable clearances. We are unclear why the proposed clearance of 3.6-3.8 GHz to facilitate 5G services is being treated in a different way. In particular, when compared to the most recent clearance programme and with specific reference to the clearance of PMSE audio users, it appears to us that there is, if anything, a *greater* argument for funding in the case of our terrestrial fixed links:

Comparison of approach to funding for 5G clearances in 700 MHz and 3.6-3.8 GHz

	PMSE use of 700 MHz	Fixed link use of 3.6-3.8 GHz
Facilitates 5G use?	Yes	Yes
Licence lengths	1 year	1 year
Historical access to spectrum?	Yes	Yes
Expectation of renewal?	Yes	Yes
Replacement spectrum guaranteed	Yes	***No***
Notice given	7 years[4]	***5 years***

In other words, despite being given greater notice and guarantees of replacement spectrum, PMSE has been allocated funding where 3.6-3.8 GHz licensees have not. Ofcom has seemingly taken a preferential approach to another sector than in this case. There is, we would argue, clear precedent suggesting that funding should be provided as a matter of principle. As we note above, this unfortunate position is exacerbated because it occurs in the context of Ofcom not confirming that it will ensure that spectrum will be made available to continue Freeview provision to these TV viewers in the Nations.

We propose that Ofcom should enter into meaningful dialogue with industry and government to ensure that precedent is followed and that a fair settlement is put in place for those displaced from the 3.6-3.8 GHz band that protects TV viewers. Our view is that the 700 MHz clearance programmes should be expanded to capture all 5G clearances to keep administrative costs to a minimum.

Question 2: Do you have any comments on our assessment of the likely costs and benefits of our proposed approach?

It is difficult to assess with any great precision what costs are involved in migrating existing services from this spectrum until there is a firm steer as to what the alternative spectrum will be to provide those services after migration.

[4] Based on expected date of clearance (2022) when the announcement of funding was given (2015)

As we set out in our previous consultation response, we consider that the benefits of making this spectrum available for 5G services are likely to be significant. This is why we support the high level decision to make this spectrum available. The value from using the spectrum for 5G strengthens the case for ensuring that TV viewers do not suffer from Ofcom's decision to release this spectrum.