Arqiva Submission: Ofcom Consultation 'Expanding access to the 6 GHz band for commercial mobile and Wi-Fi services'

Arqiva welcomes the opportunity to respond to the Ofcom consultation on Expanding access to the 6 GHz band for commercial mobile and Wi-Fi services.

Arqiva is a communications, infrastructure and media services company at the heart of the broadcast and utilities sectors in the UK. We deliver broadcast television and radio services nationally and provide satellite data and gateway services. We also provide machine-to-machine connectivity for smart metering and other utilities communications requirements within the energy and water sectors.

Set out below is our response to the consultation questions.

Background – Arqiva use of upper 6GHz band spectrum

Arqiva has a number of fixed links licensed by Ofcom in the upper 6 GHz band spectrum. These are primarily used for the distribution and monitoring of broadcast transmission services to transmitting stations that provide digital terrestrial television along with analogue and DAB radio services for broadcasters to the public. As such, these services have a constant traffic load and are used to provide services with very high performance and availability expectations to large numbers of viewers and listeners.

Any interruption to service will result in a real-time impact on the service provided. This is different to many mobile broadband services that have buffering and re-send capabilities to manage periodic service interruptions.

The networks using the fixed links have been designed to achieve the contracted performance levels based on technical parameters agreed with Ofcom for the use of the particular licensed frequencies for the sites involved. This includes Arqiva recently refreshing the commercial contracts for these links and investing for the next decade or more.

Response to consultation questions

Question 1

What interest do you have in deploying outdoor or standard power Wi-Fi or other licence exempt RLANs in the Lower 6 GHz band? Please provide details of the types of expected deployments.

Arqiva does not provide any response on this.

Question 2

Are you interested in providing or developing AFC databases for use in the Lower 6 GHz band in the UK?

Arqiva does not provide any response on this.

Question 3

Do you have any views on the operational considerations of setting up and running AFC databases?

Arqiva does not provide any response on this.

Question 4

Do you have any views on how we should manage the approval process for AFC databases and, in particular, whether we should rely on parts of the FCC process rather than requiring the whole process to be re-run in the UK?

Arqiva does not provide any response on this.

Question 5

Please provide any other comments on our proposals for extending access to standard power Wi-Fi and outdoor use, including the overall approach, any details on technical parameters and the running of the AFC databases in this band.

Arqiva does not provide any response on this.

Question 6

Do you have any comments on our proposal to use a "phased" approach, or on the alternative to wait for European harmonisation?

Arqiva does not provide any response on this.

Question 7

Do you have any comments on the above suggestion to manage any "legacy" Wi-Fi devices, or alternative suggestions?

Arqiva does not provide any response on this.

Question 8

Do you have a view on the amount of spectrum that should be prioritised for Wi-Fi under the prioritised spectrum split option? Please provide evidence for your view.

Arqiva does not provide any response on this.

Question 9

Do you have any comments on our plan for a "phase 1" when Wi-Fi will be introduced?

Arqiva does not provide any response on this.

Question 10

One variation on "phase 1" would be to only authorise Wi-Fi in client devices to "seed" the market. Would you have any views on this, or suggestions for other variations?

Arqiva does not provide any response on this.

Question 11

Do you have any comments on our plan for a "phase 2" when mobile will be introduced?

Arqiva is keen that the coordination and interference monitoring processes that Ofcom has established and operates for the efficient management of spectrum use in a number of existing spectrum bands, and the reporting and investigation of related issues, are put in place and tested ahead of the introduction of the new spectrum use for Wi-Fi or mobile services. As Arqiva operates many services over the installed fixed links that are used continuously for critical communications services, it is important that any new sources of interference can be reported and investigated promptly in the event of operational issues being found, despite the prior technical analysis and designed implementation.

Question 12

Do you have a view on the amount of spectrum that should be prioritised for mobile under the prioritised spectrum split option? Please provide evidence for your view.

Arqiva does not provide any response on this.

Question 13

Do you have any evidence or views about the geographical extent of mobile networks' likely deployment in Upper 6 GHz?

Arqiva does not provide any response on this.

Question 14

Do you have any comments on our proposed phased approach to authorisation of both Wi-Fi and mobile in the Upper 6 GHz band?

As in our response above to question 11, we are keen to ensure that any coordination, reporting and investigation processes for interference caused by the new use of the spectrum are established and tested ahead of the new spectrum use for Wi-Fi or mobile services.

Question 15

Do you have any comments on our proposal to not include very low power portable devices in the Upper 6 GHz band at this stage, but to keep this under review?

Arqiva does not provide any response on this.

Question 16

Do you have any comments on our proposal to authorise the use of low-power indoor Wi-Fi access points and client devices to use 6425–7125 MHz?

Arqiva does not provide any response on this.

Question 17

Do you have any comments on the proposed technical conditions?

Arqiva does not provide any response on this.

Question 18

Do you have any comments on the proposed VNS draft?

Arqiva does not provide any response on this.

Question 19

Do you have any suggestions for an appropriate mechanism for enhanced sensing, or comments on the proposed solution above?

Arqiva does not provide any response on this.

Question 20

Do you agree with our proposal to restrict Wi-Fi from transmitting in the 6650-6675.2 MHz band to protect the radio astronomy service? Please provide any technical evidence to support your view.

Arqiva does not provide any response on this.

Question 21

Do you agree with our assessment of Wi-Fi coexistence with existing users of the band? If not, please provide details.

As in our response above to question 11, we are keen to ensure that any coordination, reporting and investigation processes for interference caused by the new use of the spectrum are established and tested ahead of the new spectrum use for Wi-Fi or mobile services.

Question 22

Do you have any evidence about the costs to operators of moving fixed links in and around "high density" areas (such as urban centres) to other bands?

Arqiva would like to refresh the submission that was made for the previous related Ofcom consultation on Hybrid sharing: enabling both licensed mobile and Wi-Fi users to access the upper 6 GHz band in September 2023. These points are still as relevant now and we would appreciate Ofcom considering them as to how any change of spectrum use and the detailed implementation is considered.

Arqiva regularly reviews the networks that it uses. The use of the upper 6GHz band for fixed links is not seen as a preferred band to use due to the equipment sizes required for installation.

We would like it to be recognised that in many cases Arqiva has previously sought alternative frequency bands for fixed links from Ofcom, such as in the 7.5 GHz and 13 GHz bands. These have not been available, either from the frequencies that Ofcom can license, or with other links not being able to provide the capacity required for the fixed link distribution service for the broadcast customers. Often, even in technology refresh programmes, Arqiva has had to continue to use the upper 6GHz spectrum as the only band available to meet the communications requirements it needs to deliver.

Arqiva supports the initial analysis that if the upper 6 GHz band were to be deployed for high power outdoor licensed mobile sharing on existing mobile network operator sites, a significant proportion of the fixed links in the UK could potentially suffer unacceptable interference.

We recognise the keyhole shape for the separation zone that has been used and would point out that some of the fixed link paths that we use currently are nearly 50km in length.

In terms of the alternative options to consider, Arqiva uses licensed fixed links for communications with sites across the UK. These are often in locations remote from metropolitan areas where telecommunication infrastructure will not be established for other purposes.

For a number of links, Arqiva has previously had to migrate fixed links to allow for technology changes or spectrum management reasons for Ofcom. The alternatives can include a migration to alternative frequencies in the same band or alternative bands. This can also involve additional expenditure to implement additional sites so as to be able to re-route fixed links via a higher number of mid-point sites. This adds both additional expense and operational risk from the use of these additional sites.

We would like it to be recognised that in many cases Arqiva has previously unsuccessfully sought alternative frequency bands for fixed links, such as in the 7.5 GHz and 13 GHz bands. These have not been available, either from the frequencies that Ofcom can license or being able to provide the capacity required for the fixed link distribution service for the broadcast customers. Often Arqiva has had to continue to use the upper 6GHz spectrum as the only band available to meet the communications requirements it needs to deliver.

Arqiva has looked at some of the areas defined by Ofcom for other purposes as “high density” areas. We see that much of some of the existing fixed link paths are over sea rather than built up areas. We would expect that it would be appropriate to reconsider the defined areas for “high density” and in some cases to review if they are appropriate as the defined rectangular area. This may allow for a limited number of fixed links to remain adjacent to the “high density” areas.

Arqiva would be keen to work with Ofcom over a handful of particular licences and consider if both the fixed link and the possible mobile use can use the spectrum efficiently.

Question 23

Do you have any comments on our initial assessment of our likely approach to coexistence between future mobile use and current users in the Upper 6 GHz band?

As in our response above to question 11, we are keen to ensure that any coordination, reporting and investigation processes for interference caused by the new use of the spectrum are established and tested ahead of the new spectrum use for Wi-Fi or mobile services.

Question 24

Do you have any other comments on our policy proposals or any of the issues raised in this document?

Arqiva does not provide any further response on this.

About Arqiva

Arqiva is at the heart of the broadcast and utilities sectors in the UK and beyond, providing critical communications infrastructure and media services. Arqiva is the only national provider of terrestrial television and radio broadcasting and provides a machine-to-machine connectivity network for smart metering and other uses within the utilities sector.

Arqiva's history can be traced back to 1922 when it broadcast the world's first national radio service. In 1936 it carried the BBC's first television broadcast. In 1978 it enabled Europe's first satellite TV test. By the 1990s Arqiva was working with the UK's mobile operators to bring mobile telecommunications to UK businesses and consumers. In this decade we also launched the UK's national DAB radio and Digital Terrestrial Television networks. Most recently, Arqiva has played a pioneering role in the roll-out of the national smart energy and water metering networks.

Arqiva was a founder member of Digital UK (DUK), Freeview, YouView and Digital Radio UK (DRUK). Freeview is the largest TV platform in the UK delivering over 100 TV and Radio channels to the UK public. Arqiva owns and operates the networks for all of the Freeview multiplex licence holders and is the licence holder for two of the national DTT multiplexes. DRUK has worked previously to promote digital radio via liaison with the UK supply chain, business-to-business and consumer marketing. We are also a member of WorldDAB.

We are a shareholder and operator for both commercial national DAB radio multiplexes and transmission provider for the BBC national DAB radio multiplex. We also provide end-to-end transmission services for analogue and digital radio networks for customers including the BBC, Global Radio, Bauer Media and Wireless as well as other independent radio groups.

Through our wholly owned subsidiaries Arqiva operates 25 local DAB digital radio multiplexes. These multiplexes cover a number of regions of the UK, predominantly in the Midlands, South West and the south of England.

Our major customers include the BBC, Bauer Media, Global Radio, Wireless, ITV, Channel 4, Five, Sky, UKTV, and GB News.

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 the Midlands and Scotland.