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# Amending Arqiva's 28 GHz spectrum access licence

Variation decision

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**STATEMENT:**

Publication date: 24 March 2023

# 1. Overview

In this document we set out our reasons for granting Arqiva's request to vary its 28 GHz spectrum access licence (0307328). Arqiva made its variation request on spectrum efficiency grounds because it currently only lightly uses its national spectrum block. It plans to return the unused near-national spectrum to be reauthorised by Ofcom and retain three locations in which it currently supports satellite services.

## **What we have decided – in brief**

Ofcom has decided to agree to Arqiva's variation request, submitted on 7 February 2023, to reduce the scope of its national licence to three locations and limit its duration. We received three responses to our consultation on the variation.

This overview is a high-level summary only. Our decision and reasoning are set out below in full.

## 2. Background

- 2.1 On 7 February 2023<sup>1</sup>, Arqiva requested that we vary its [national 28 GHz spectrum access licence, licence number 0307328](#) (originally awarded in 2008<sup>2</sup>, and subsequently varied on 27 April 2016 and again on 18 May 2021) ('the Licence'). The Licence authorises use of 2x224 MHz in the 28 GHz band (27.8285-28.0525 GHz paired with 28.8365-29.0605 GHz).
- 2.2 The Licence has been used for both fixed wireless services (fixed links) and earth-to-space services connecting gateways used for non-geostationary orbit (NGSO) satellite operators, who primarily provide satellite broadband services. Arqiva has entered into commercial arrangements with a satellite operator which enable that operator to provide satellite gateway services at three locations – Goonhilly, Morn Hill and Chalfont Grove - using Arqiva's 28 GHz spectrum.
- 2.3 Ofcom has a broad discretion under the [Wireless Telegraphy Act 2006](#) (the WTA 2006) to vary spectrum licences (see Annex A1 for more detail on our applicable legal powers).
- 2.4 On 15 February, we published a consultation<sup>3</sup> setting out our provisional decision that we were minded to agree to Arqiva's variation request, and invited comments from stakeholders over a four-week period. We received three responses to our consultation.

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<sup>1</sup> Arqiva initially submitted a licence variation request on 15 November 2022

<sup>2</sup> [Award of 10 GHz, 28 GHz, 32 GHz and 40 GHz spectrum](#)

<sup>3</sup> [Arqiva 28 GHz spectrum access licence: consultation on proposed variation](#)

## 3. Our consideration of the variation request

### Arqiva's request

- 3.1 Arqiva requested that we amend its Licence to reflect the geographical boundaries and limited duration as detailed below, and that we determine the variation ahead of the annual licence fee regulations being put in place for this spectrum in 2023.
- 3.2 Arqiva requested the following changes to its Licence:
- that condition 17 (*Geographical Boundaries*) of the Licence be amended, with three geographic areas replacing the existing national authorisation. The three areas in which Arqiva wish to continue to be authorised to establish, install and use radio equipment (Goonhilly, Morn Hill and Chalfont Grove) are defined by a national grid reference (NGR) point, and include a 2-3 km zone around each site;
  - that condition 2 (*Licence Term*) be amended so that the licence for the remaining three areas has a fixed term, ending on 31 July 2026; and
  - that references to the fee payment date on the front page and in condition 8 are amended (from 21 February 2023) to reflect the updated relevant timetable and reduced geographical boundaries of the licence.

### Arqiva's rationale

- 3.3 As explained in our consultation, Arqiva stated that the basis for its request is spectrum efficiency, as it currently only lightly uses its national spectrum block. Arqiva believes its request to reduce the geographical scope (and duration) of its licence to three locations (and thereby returning the unused near-national spectrum, to be reauthorised by Ofcom) is consistent with our duty under the Communications Act 2003 to secure the optimal use of spectrum. It would ensure that it can continue to support existing NGSO satellite gateway services, thereby protecting consumers and services using innovative developments including satellite broadband services. This would also allow Ofcom to address any alternative use of the spectrum nationally, and provide time to put in place longer term arrangements for access to spectrum for gateway services.
- 3.4 Arqiva considered its request to be wholly aligned with our [2021 spectrum management strategy](#)'s increased focus on *Supporting wireless innovation*, *Licensing to fit local and national services*, and *Promoting spectrum sharing*. Furthermore, Arqiva said that it supports the objectives in our [2022 space spectrum strategy](#), by enabling space sector growth and more NGSO services in the UK, given that use of this spectrum is related to the satellite industry's wider use of the Ka band (i.e. 27.5-30 GHz).
- 3.5 Lastly, Arqiva noted similarities between this request and other spectrum access 28 GHz licences it holds with geographical restrictions (in the wider 28 GHz band), which were obtained under spectrum trading. These existing location-based licences are used for earth-to-space satellite services for satellite gateways.

- 3.6 Arqiva believed the limited nature of the varied Licence (in terms of geographical areas and licence term) and its focus on existing services meant there is no impact on other users.

## Consideration of consultation responses

- 3.7 We received three responses to our consultation, from satellite operators Amazon (Kuiper Systems), Avanti, and Viasat. Both Avanti and Viasat generally supported our provisional decision given limited current use of the spectrum, noting it would free up unused 28 GHz band spectrum for satellite services. Amazon did not comment on the variation itself, but focused on future use of the frequencies, should we accept Arqiva's variation request.

## Protection of gateways

- 3.8 Avanti explained its concern that the Licence is not an appropriate authorisation mechanism for satellite gateway sites. It suggested that gateway sites operating in the frequencies covered by the Licence should be subject to the same conditions that exist in the PES (permanent earth station) licence or NGSO gateway licence. Avanti also noted its expectations (arising from its PES licences) of protection against harmful interference, and also International Telecommunication Union (ITU) obligations on the limits that apply to Avanti's coordinated satellites.
- 3.9 It therefore requested that either we add relevant conditions to the Licence (aligned with PES licences), or that Arqiva or the holder of the spectrum licence lease apply for a licence product specifically designed for gateways.

## Our response

- 3.10 We note Avanti's concern over the use of a Spectrum Access licence for authorising NGSO gateways, and we will consider this issue as part of our work on future reauthorisation of this spectrum (see paragraph 4.3). However, Avanti has not provided any reasons as to why the specific variation request sought by Arqiva is not objectively justified and should be refused. Beyond limiting the territorial extent and licence period of the Licence, the terms of the authorisation (including as to interference) would remain the same after the variation as they are now.
- 3.11 We understand that Avanti is requesting we make additional changes to the terms of the Licence (and to other Spectrum Access licences in the Ka band more generally), or that we require gateway operators to use a licence product specifically designed for gateways. We do not consider that this justifies Ofcom refusing Arqiva's variation request.
- 3.12 Nevertheless, we do not consider there to be a material risk of harmful interference to Avanti's PES. At paragraph 2.2 of the consultation, we noted Arqiva has commercial arrangements with a satellite operator, and as such the Licence provides access to a block of 28 GHz spectrum for that satellite operator under spectrum leasing. Appropriate additional licence(s) are held by the satellite operator, so the gateways operating at the three (small) locations remaining are already licensed under Ofcom's NGSO processes<sup>4</sup>. We

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<sup>4</sup> [Non-geostationary satellite earth stations: Licensing guidance](#)

consider these arrangements to be sufficient to ensure that existing satellite services are protected from harmful interference from these gateways.

- 3.13 We also have an existing mechanism in Arqiva's Licence, if we identify any harmful interference in the future. Under licence conditions 4 and 5, Arqiva must comply with such coordination procedures as may be necessary and notified to it by Ofcom.

## Geographical boundaries

- 3.14 Viasat did not support the geographical boundaries for the three locations remaining in Arqiva's licence, and suggested that we do not adopt the 'geographic boundary' concept for site-specific licences. In the interests of spectrum efficiency, it argued that it is possible to establish conditions for other users without any predefined exclusion zones to protect each site (given that it did not consider the radius at each of the sites represented an exclusion zone protecting radio equipment at the locations from potential interference from other spectrum users).

## Our response

- 3.15 The approach taken at the three sites with respect to geographic boundaries is the same as for other location-based spectrum access licences, as we noted at paragraph 3.5 of the consultation<sup>5</sup>. Rather than representing an 'exclusion zone', the geographical boundaries simply define the area where Arqiva is licensed to use wireless telegraphy equipment (currently the licence covers the whole of the UK, but Arqiva has asked to reduce this licensed area to three small locations). Furthermore, the licence defining these areas will expire in July 2026.
- 3.16 We consider it important to include this detail within the licence in order to provide clarity to Arqiva and other spectrum users about the extent of its spectrum authorisation, and do not consider that this justifies Ofcom refusing Arqiva's variation request.

## Future authorisation approach for the 28 GHz band

- 3.17 All respondents submitted views on how we should reauthorise the returned block of spectrum, to increase the capacity available for satellite services in the Ka band.
- 3.18 Amazon noted the difficulties satellite operators would face if one operator had exclusive control of the frequencies, as access would be at that licensee's discretion with no obligation to lease spectrum to other satellite operators. It deemed an exclusive approach to be inefficient because it considered this would deprive satellite operators of access to this important satellite broadband spectrum band. It noted that this approach also introduces deployment risks, increasing time, cost and uncertainty, particularly given that spectrum leasing does not provide satellite operators with certainty about future spectrum access. It therefore suggested enabling access under existing NGSO licences to more effectively facilitate Ofcom's broadband connectivity policy objectives, and foster competition between satellite operators in a balanced way.

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<sup>5</sup> Arqiva's 28 GHz licences can be found on our [website](#).

- 3.19 Avanti reflected that Arqiva's application to vary their licence is evidence that the strongest future demand for this spectrum is for satellite services, rather than mobile broadband as assumed under previous auctions in the UK. It cited evidence contrasting cancelled 28 GHz mobile broadband licences in South Korea, with recent regulatory decisions by Ofcom to licence the Ka band for NGSO gateways and user terminals, and decisions by the World Radiocommunication Conference enabling use by Earth Stations in Motion globally. Avanti suggested Ofcom take advantage of this increased demand by extending current licence exemptions or licence products into the returned spectrum block.
- 3.20 Viasat highlighted that fragmented spectrum unnecessarily constrains the ability of satellite networks to connect UK users to high speed, low cost broadband. It argued that the return of a near-national block of spectrum provides Ofcom with an opportunity to reduce the current segmentation of the 28 GHz band in the UK. Amazon and Avanti also discussed the benefits of creating a contiguous block of spectrum for satellite services in the Ka band, for example, to realise the full potential of innovations in satellite network technologies.
- 3.21 Amazon further noted that although our consultation identified demand for accessing 28 GHz spectrum for satellite gateways, it was silent on the band's additional importance for operating satellite terminals. To provide a national service, Amazon stated that terminals with access to national spectrum will also need to be deployed ubiquitously across the UK. For this reason, it requested that Ofcom avoid an authorisation approach which constrains the band's availability for national use, such as making assignments in blocks or smaller segments. Avanti and Viasat also noted the importance of terminal deployment in Ka band, with Viasat asking Ofcom to extend authorisations to a larger range of frequencies within Ka band to facilitate advanced satellite services to UK users.
- 3.22 Lastly, Amazon requested these frequencies be reauthorised as a priority, noting that many commercial and planning decisions cannot be made by satellite operators in the absence of certainty from Ofcom on our plans to enable access to the band.

## Our response

- 3.23 We note these comments and suggestions for reauthorising these frequencies. However future policy on the 28 GHz band, and our approach to reauthorisation including any future coordination arrangements, lies outside the scope of whether to agree to this variation decision. We explain at paragraph 4.3 below our process for reauthorising this spectrum, and will consider the comments above as part of that work.

## Our decision

- 3.24 We are satisfied that granting Arqiva's request to reduce the scope of its Licence will facilitate efficient use of spectrum, given its current use is localised in only a small part of the UK. We consider that there will be particular benefits from freeing up unused spectrum in the 28 GHz band.
- 3.25 The 28 GHz band is currently used by fixed links and satellite earth stations/gateways, and these spectrum users are able to coordinate with each other. Without prejudice to any

future Ofcom decision on the authorisation of this block of paired spectrum, the return of unused geographic regions could help to increase spectrum available for these uses. In our 2022 space spectrum strategy, we noted interest from stakeholders in improving access to 28 GHz spectrum for satellite gateways (and terminals), and that we would continue to monitor developments in demand and supply of 28 GHz spectrum for the space sector. There may also be other potential users with an interest in this band.

- 3.26 We also note that the policy applied to the 28 GHz spectrum licences when the spectrum was allocated would allow Arqiva to achieve a similar outcome to the variation through spectrum trading. Specifically, the Licence was originally awarded on flexible terms: paragraph 3.14 of the award statement<sup>6</sup> explained that *“licences will be tradeable and total or partial transfers of the spectrum rights will be possible; partial transfers could be for either geographical or spectrum partitions”*.<sup>7</sup> While the original policy did not consider the surrender of parts of the band to Ofcom, we have considered the variation request on its merits, and have decided that the variation request in these circumstances would not be inconsistent with our original policy. Arqiva will retain spectrum rights that permit existing satellite gateway services to continue to be provided under the varied Licence.
- 3.27 In light of these considerations, we consider that Arqiva’s variation request is objectively justifiable and we have therefore decided to agree to it.

## Licence conditions

- 3.28 Our decision to agree the variation request will be reflected in the Licence as follows:

### Licence areas

- 3.29 Condition 17 (Geographical Boundaries) will be amended to read as follows:

This Licence authorises the Licensee to establish, install and use the Radio Equipment only within the circular areas which have:

- a radius of 3km around Goonhilly, Cornwall with NGR SU723214;
- a radius of 2 km around Morn Hill, Hampshire with NGR SU516292; and
- a radius of 2 km around Chalfont Grove, Buckinghamshire with NGR SU983917.

### Licence term

- 3.30 Condition 2 (Licence Term) will be amended to read as follows:

This Licence shall continue in force until 31 July 2026, unless revoked by Ofcom or surrendered by the Licensee.

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<sup>6</sup> [Award of available Spectrum: 10, 28, 32 and 40 GHz Bands](#)

<sup>7</sup> Regulation 7 of the [Wireless Telegraphy \(Spectrum Trading\) Regulations 2012](#) (as amended) permits the partial transfer of rights and obligations arising under a wireless telegraphy licence (including, subject to certain conditions, parts of frequency channels and geographic areas).



## Fees

- 3.31 The Licence will be subject to the payment of annual fees, the level of which are under consultation and will be determined in due course (and is being considered separate to this variation process). For consistency with those proposals, we would calculate fees on the same basis as for other location-based licences in the 28 GHz band.
- 3.32 Regarding Arqiva's request to amend the payment date in the Licence, we do not consider it necessary. The payment date of 21 February 2023 was conditional upon Ofcom having made regulations under the WTA 2006. As Ofcom has not yet made a final decision on the fees which should apply to this particular spectrum (and no fees regulations have yet been made), the payment was not due on 21 February 2023. Ofcom also emailed licensees on 16 February 2023, to confirm to them that fees would not be due before 17 April 2023.

## 4. Next steps

- 4.1 Following our decision as set out in this document, we have now varied Arqiva's Licence.
- 4.2 As a result of this variation, the near-national 2x224 MHz block of spectrum (27.8285-28.0525 GHz paired with 28.8365-29.0605 GHz), excluding the three locations still licensed to Arqiva until July 2026, has been returned to Ofcom for reauthorisation.
- 4.3 We plan to seek stakeholder views on our future authorisation approach on this 2x224 MHz block of spectrum, as well as any future coordination arrangements, within the coming months. We expect to take account of interest from a range of users, including satellite operators as recognised in the space spectrum strategy.

# A1. Legal context

## Ofcom's power to vary licences

- A1.1 Ofcom has a broad discretion under Schedule 1 paragraph 6 of the WTA 2006 to vary licences, subject to certain limitations. Pursuant to para 6A of the WTA 2006, any variation must be objectively justifiable.

## The duties imposed by the Communications Act 2003

- A1.2 Section 3 of the [Communications Act 2003](#) (the Communications Act) sets out Ofcom's general duties, including its principal duty:
- a) to further the interests of citizens in relation to communications matters; and
  - b) to further the interests of consumers in relevant markets, where appropriate by promoting competition.
- A1.3 In carrying out its functions, section 3(2) provides that Ofcom is required, amongst other things, to secure the optimal use for wireless telegraphy of the electro-magnetic spectrum and the availability throughout the UK of a wide range of electronic communication services.
- A1.4 Section 3(3) of the Communications Act provides that in performing its duties, Ofcom must in all cases have regard to the principles of transparency, accountability, proportionality and consistency, as well as ensuring that its actions are targeted only at cases in which action is needed.
- A1.5 Section 3(4) of the Communications Act requires Ofcom, in performing its duties, to have regard to a number of factors as appropriate, including the desirability of promoting competition, encouraging investment and innovation in relevant markets, encouraging the availability and use of high speed data transfer services throughout the UK, the different interests of persons living in rural and in urban areas and the different needs and interests of everyone who may wish to use the spectrum for wireless telegraphy.
- A1.6 Section 4 of the Communications Act requires Ofcom to act in accordance with six requirements when carrying out certain specified functions, including our functions under the WTA 2006. These include a requirement to promote competition in relation to the provision of electronic communications networks and electronic communications services, and to take account of the desirability of carrying out its functions in a manner which, so far as practicable, does not favour one form of electronic communications network, electronic communications service or associated facility, or one means of providing these, over another.

## The duties imposed by the WTA 2006

- A1.7 Section 3 of the WTA 2006 imposes a number of further duties relating to spectrum management. Amongst other things, in carrying out its spectrum functions Ofcom is required to have regard to: a) the extent to which spectrum is available for use, or further use, for wireless telegraphy; b) the demand for use of the spectrum for wireless telegraphy; and c) the demand that is likely to arise in future for the use of the spectrum for wireless telegraphy.
- A1.8 Section 3 also requires Ofcom to have regard to the desirability of promoting:
- a) the efficient management and use of the part of the electromagnetic spectrum available for wireless telegraphy;
  - b) the economic and other benefits that may arise from the use of wireless telegraphy;
  - c) the development of innovative services; and
  - d) competition in the provision of electronic communications services.

## Impact Assessment

- A1.9 The consultation constituted our impact assessment for the purpose of section 7 of the Communications Act. In the consultation, we explained our provisional view that it was unlikely that there would be adverse impacts to other users from the variation, and that it would further our statutory duties. Respondents did not identify any material impacts.
- A1.10 Section 7 of the Communications Act requires us to carry out and publish an assessment of the likely impact of implementing a proposal which would be likely to have a significant impact on businesses or the general public, or when there is a major change in Ofcom's activities. As a matter of policy Ofcom is committed to carrying out and publishing impact assessments in relation to the great majority of our policy decisions, although the form of that assessment will depend on the particular nature of the proposal.

## Equality Impact Assessment

- A1.11 Section 149 of the Equality Act 2010 (the "2010 Act") imposes a duty on Ofcom, when carrying out its functions, to have due regard to the need to eliminate discrimination, harassment, victimisation and other prohibited conduct related to the following protected characteristics: age; disability; gender reassignment; marriage and civil partnership; pregnancy and maternity; race; religion or belief; sex and sexual orientation. The 2010 Act also requires Ofcom to have due regard to the need to advance equality of opportunity and foster good relations between persons who share specified protected characteristics and persons who do not.
- A1.12 Section 75 of the Northern Ireland Act 1998 (the "1998 Act") also imposes a duty on Ofcom, when carrying out its functions relating to Northern Ireland, to have due regard to the need to promote equality of opportunity and regard to the desirability of promoting good relations across a range of categories outlined in the 1998 Act. Ofcom's Revised

Northern Ireland Equality Scheme explains how we comply with our statutory duties under the 1998 Act.

- A1.13 To help us comply with our duties under the 2010 Act and the 1998 Act, we assess the impact of our proposals on persons sharing protected characteristics and in particular whether they may discriminate against such persons or impact on equality of opportunity or good relations. We fulfil these obligations by carrying out an Equality Impact Assessment ('EIA'), which examines the impact our policy is likely to have on people, depending on their personal circumstances. EIAs also assist us in making sure that we are meeting our principal duty of furthering the interests of citizens and consumers, regardless of their background and identity.
- A1.14 We do not consider this decision has equality implications under the 2010 Act or the 1998 Act.