Non-confidential

# Award of 1492-1517 MHz spectrum for mobile services

## Consultation on Ofcom's proposed Competition Assessment

**BT's response to consultation issued on 18 July 2025**

Issue: 1.0

12 September 2025

BT Group

# Contents

# Executive summary

BT welcomes the opportunity to comment on Ofcom's provisional competition assessment for the award of 25 MHz of spectrum in the 1492-1517 MHz band[1]. The importance of this award and competition assessment cannot be overstated. This award is potentially the UK's last low band auction for the next decade. Additionally, merger commitments restrict future spectrum trading opportunities by requiring most of VF3's spectrum to be deployed.[2] This means that the 1400 MHz auction may be the last opportunity for the foreseeable future to address asymmetries in mobile capacity. At the most, if BT won all the spectrum, this award could increase BT's low band capacity share (and its contribution to overall competition) from 10% to 22% or reduce it to only 8% if BT were to win none of the spectrum. This demonstrates the award's competition importance, and why Ofcom should be concerned about the risk of potential strategic bidding behaviours.

### Competition and consumer outcomes are driven by capacity, not just spectrum

Strong competition in mobile markets is crucial to ensure that UK consumers benefit from the latest innovations and a high-quality user experience, alongside greater choice and lower prices. This inherently necessitates a competitive balance of network capacity to support good competitive market outcomes. However, there is a significant risk that this award will exacerbate existing network capacity asymmetries, making it harder for competitors like BT to challenge VodafoneThree's (VF3's) clear market leadership in capacity after the merger. This award therefore carries a risk of further weakening competitive constraints in the market post-merger, leading to higher prices, and reduced service quality.

Spectrum is only one of three key inputs to network capacity, alongside sites and technology. While earlier evaluations of spectrum asymmetry were adequate when UK MNOs had comparable and consistent site counts, this is no longer the case. One of the most significant developments impacting this assessment is the VF3 merger. This created a 3-player market with significant differences in operator site counts, such that spectrum shares no longer accurately reflect capacity shares. The VF3 merger has resulted in a fundamental change to the distribution of capacity between MNOs, leading to highly asymmetric shares of capacity.[3] However, Ofcom's introduction to its assessment states: *"We have not assessed shares of mobile capacity because we consider that analysing the share of MHz [spectrum] is sufficient as a proxy for capacity and network abilities".*[4]

[1] Consultation: Award of 1492-1517 MHz spectrum for mobile services – competition assessment

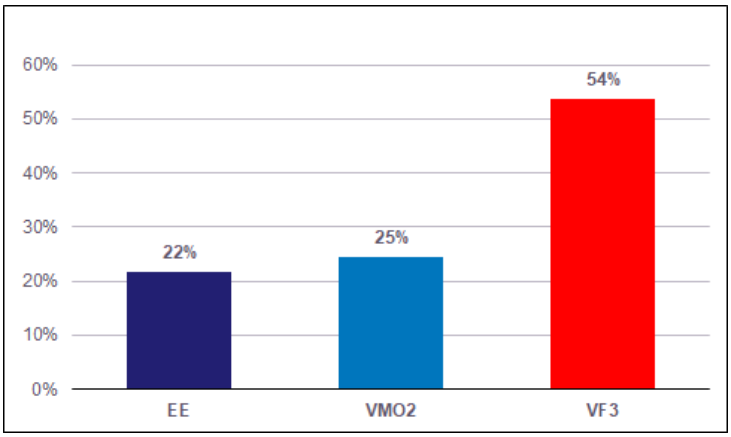
[2] VF3 has committed to deploy all but 10 MHz of its low band spectrum as part of the merger. It will likely want to keep the 10 MHz to leave it some flexibility in what it deploys where.

[3] Capacity shares for each operator can be estimated using: (i) the available amounts of spectrum held in each band; (ii) the average spectrum efficiency that is achieved in each band; and (iii) the number of sites/sectors.

[4] Consultation para 3.12.

Figure 1 shows VF3 currently has a usable[5] capacity share of around 54%[6] compared to 22% for BT and 25% for VMO2. VF3's share of usable total capacity is more than twice the average of its competitors going into the award - a degree of asymmetry Ofcom has previously found would result in detrimental effects on competition.[7]

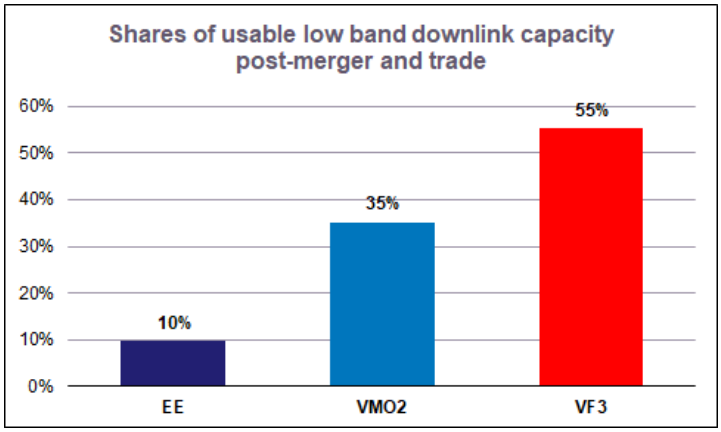
**Figure 1: Current shares of usable total downlink capacity: post-merger and spectrum trade**




Source: BT internal analysis

Figure 2 shows the capacity asymmetry is even more pronounced when looking at low band frequencies, with VF3 having 55% share of usable capacity vs 10% for BT.

**Figure 2: Current shares of usable low band downlink capacity: post-merger and spectrum trade**




Source: BT internal analysis

There is a significant risk of this capacity asymmetry being exacerbated further after the award given VF3's ability and incentive to behave strategically in any award process. In any event, whether VF3 behaves commercially or strategically, its behaviour may distort competition, leading to higher prices or lower quality services. For higher band spectrum, such asymmetries could result in slower average speeds and less ability to meet peak traffic demand. For low band

[5] When assessing capacity shares it is appropriate to focus on immediately useable spectrum as only this is relevant when assessing the capabilities of MNOs to provide mobile services. Therefore, the 700 MHz SDL spectrum, i.e. 20 MHz, or 2%, of total mobile spectrum, for which there is no existing devices ecosystem available and for which we consider it will take several years before this becomes well established in the devices ecosystem, has been excluded from all analyses in this response.

[6] We have been conservative in our estimates of spectrum efficiency for some bands e.g. massive MIMO in 3.5GHz. As these bands likely have a higher efficiency factor and given VF3's significant holdings in this band, our estimate of VF3's share of capacity should be viewed as a lower bound estimate.

[7] Statement: Award of the 700 MHz and 3.6-3.8 GHz spectrum bands, paragraph 4.76. "*"In a four-player market… the MNO with 40% of overall spectrum therefore has twice as much as the average of its rivals. We consider… detrimental effects on competition outlined above may arise at this level of asymmetry".*

spectrum there are risks posed for competition and comparative quality for indoor and rural coverage for capacity intensive services including eMBB and IoT.

## Ofcom should focus specifically on low band capacity shares

Ofcom's consultation does not focus on low band spectrum, based on its past policy to reject competition thresholds (caps) to sub-bands including low band. This decision[8] is 5 years old and needs to be reassessed in light of observed trends since. In 2020, Ofcom asserted that asymmetries in low band were not a problem given Wi-Fi based services could substitute for low-band uses. This has not proven to be the case.

Ofcom should re-examine the risks of exacerbating existing and highly asymmetric low-band capacity shares and review the validity of its previous assumptions in relation to low band capacity based on the latest evidence. This is particularly the case given Ofcom has identified lack of sufficient capacity as a key factor leading to poor mobile experiences and the reason for the latest mobile coverage mapping thresholds (following an exchange of letters between the UK Government and Ofcom).[9, 10] We consider 1400 MHz is key to BTs ability to compete on capacity intensive services indoors and in rural areas. We note that if BT wins all 25 MHz our share of low band capacity would more than double, from 10% to 22%, making BT a stronger competitive constraint on VF3 in relation to [✂]. Conversely, if VF3 were to win all of the spectrum, BT's low band capacity share would fall to only 8%.

## Merger remedies alone are not sufficient to allow this award to proceed without competition interventions

The VF3 merger remedies do not lessen the need for competition measures in this new spectrum award. This is especially the case given the asymmetry in capacity holdings and VF3's ability and incentive to behave strategically (or commercially) in any award process. The CMA has found that there would be incentives for competitors to respond to VF3's market leadership in capacity post-merger. However, for this to remain possible competitors need the mechanisms to respond, including unconstrained by strategic behaviour or competition distortions in future awards including the1400 MHz award.

## Ofcom's competition assessment is wrongly focused on spectrum alone (rather than capacity) and ignores concerns in low band spectrum

Ofcom's assessment states *"We have not assessed shares of mobile capacity because we consider that analysing the share of MHz is sufficient as a proxy for capacity and network abilities."*[11] By not examining capacity asymmetry under the current market structure and dynamics, Ofcom has reached the wrong conclusion in its competition assessment against four of the factors Ofcom says matter for competition:

---

[8] Statement: Award of the 700 MHz and 3.6-3.8 GHz spectrum bands, March 2020.

[9] Ofcom, Map Your Mobile coverage checker: methodology – August 2025 at the following link: https://www.ofcom.org.uk/siteassets/resources/documents/phones-telecoms-and-internet/comparing-service-quality/2025/map-your-mobile-2025-threshold-methodology.pdf?v=401713

[10] Letter from Minister of State, 28 August 2024; Letter from Dame Melanie Dawes to Minister of State, 31 October 2024

[11] Consultation paragraph 3.12.

- **Unmatchable product advantage:** Ofcom incorrectly focuses on the 'incremental' benefit of 1400 MHz to new products, omitting a critical assessment of the current market structure and dynamics that suggests if VF3 wins further spectrum on top of its significant capacity advantage, VF3 can entrench unmatchable product advantages, [✂]. It will likely lead to weaker competition and therefore higher prices or lower quality services in the longer term.
- **Spectrum hoarding**: Withholding 1400 MHz spectrum from BT would confer a significant strategic advantage on VF3. VF3 already has the greatest share of network capacity and therefore 1400 MHz may have less value to VF3 given its capacity strength. This could suggest that any interest VF3 has in this spectrum could only be strategic (rather than intrinsic). The payoff for VF3 from buying and hoarding the spectrum (i.e., denying BT the spectrum) could be significant noting the ability of VF3 to raise prices and lower network quality in the longer run, to the detriment of competition and consumers.
- **Unmatchable cost advantage**: First, Ofcom did not include an assessment of whether, at present, i.e. prior to award, VF3 has an unmatchable cost advantage. For instance, the CMA found that VF3 would have lower unit costs of (expanding) capacity but that the market leader's capacity position may encourage competitors to enhance their own capacity through further investment in order to close the gap. However, even if that were the case, awarding further spectrum (capacity) to VF3 would fundamentally undermine such competitive dynamics. Second, incumbents in the band have already prepared their network to exploit their existing 1400 MHz holdings and therefore will likely have a low or zero cost of deploying the additional 1400 MHz spectrum. In contrast, BT would need to undertake costly physical deployment of new radio and antenna equipment requiring thousands of site visits. Third, Ofcom has not considered the cost BT faces to match VF3 capacity if we were not to get this spectrum – i.e. our opportunity cost (see our comments on lack of alternatives to spectrum to increase network capacity below).
- **Weakened competitor:** Given VF3's (and potentially VMO2's) existing adjacent holdings of 1400 MHz, both MNOs are likely to already have a high intrinsic value for the marginal lot required for strategic investment: i.e. the lower 5 MHz (or 10 MHz) blocks, suggesting the cost of strategic investment above intrinsic value might be minimal (to foreclose BT acquiring 25 MHz). Additionally, the payoff to VF3 (and potentially VMO2) of depriving BT of low frequency spectrum is likely to be high as it is likely that this would have a material impact on competition: [✂]. As mentioned above, if BT wins all 25 MHz, its share of low band capacity would more than double, from 10% to 22%, making BT a stronger competitive constraint on VF3 in relation to [✂].

## There are few practical alternatives to gaining more spectrum to expand network capacity and respond to VF3's clear capacity leadership

Further spectrum award is crucial to future market competitiveness given the lack of available alternatives to expanding capacity via more sites or greater use of existing spectrum. For instance:

- Currently available low band spectrum cannot be deployed on more sites to increase capacity in places that cannot be reached with other bands (e.g. midbands) as it becomes heavily congested.
- It is practically very difficult and mostly not economically viable to find additional sites to deploy spectrum to increase network capacity (especially for indoor coverage and rural). Although some small cells deployment will be possible, this alone will not be sufficient to maintain or improve experience of customers in places that rely on low band spectrum to deliver service.
- Use of WiFi to grow capacity of coverage is not a viable solution to address coverage in rural areas in places where higher frequencies do not reach. In relation to indoor coverage, while important as a solution in many scenarios today, e.g. in homes with good, fixed broadband where mobile customers can attach to their WiFi and enable WiFi calling on their devices, it is not a viable alternative solution in many public places (e.g. in car parks, office buildings, shops and other public buildings, where MNOs are not able to deploy new WiFi, or where the public does not have rights to access existing deployed WiFi).

This means this spectrum award, even if only relatively small, is important to ensuring competitors such as BT can respond to VF3's clear market leadership in capacity.

### To properly assess competition, Ofcom needs to update competition measures for a 3-player market

Ofcom accepts past awards have considered the need for competition measures based on total spectrum share thresholds, namely that a share above 37% or below 10-15% would indicate possible competition concerns in a market with 4 MNOs. However, Ofcom has offered no view on relevant thresholds today beyond saying 'previous thresholds are no longer appropriate in a market with three MNOs. We do not think Ofcom can reach an informed view on market competitiveness and competition measures without a view on what is 'too much' or 'too little' capacity. We consider such thresholds remain relevant and imply a share threshold above 49% or below 13-20% raise competition concerns in a market with 3 MNOs. On that basis this award raises serious competition concerns.

### BT recommendation

An assessment of competition risks in mobile means VF3 should be excluded from participating in the 1400 MHz award given the asymmetry in capacity holdings and VF3's ability and incentive to behave strategically in any award process. Specifically, BT recommends:

- no MNO should be able to obtain (or entrench) a share of usable total capacity that is twice (or more) than the average of competitors in the award. This is consistent with the Ofcom policy position on asymmetry in the 2021 5G award.[12] This would imply a 49% cap on share of usable total capacity in the current 3-player market. This means VF3 should be restricted from participating in the award given VF3's very high share of usable total

[12] Statement: Award of the 700 MHz and 3.6-3.8 GHz spectrum bands, para 4.76.

capacity, and the risk of increasing its share even further in the award leading to harmful outcomes for competition and consumers.

- no MNO should be able to obtain (or entrench) a share of usable low band capacity that is twice (or more) than the average of competitors in the award i.e. an additional 49% sub-cap on shares of usable low band capacity. This sub-cap would also have the effect of restricting VF3 from participation in the award, aiming to mitigate the risk of significantly increasing asymmetry in low band capacity shares with potentially adverse effects on competition and consumers.
- the award should minimise the risk that any individual MNO's share of usable total capacity falls to 13-20% or below consistent with Ofcom's position in the 2018 5G award.[13] Combined with VF3's incentives to behave strategically, this would also be consistent with restricting VF3 from participating in the award to reduce the risk of BT's share declining further, which could negatively affect competition and consumers.

BT's approach would ensure competitive tension remains in the auction as VMO2 and BT would competitively bid for the spectrum and where neither VMO2 nor BT is guaranteed to obtain any spectrum and whichever wins it will become a stronger competitor to VF3.

[13] 2017 Statement, para 1.38, 6.51, 6.57

# 1 Impact of VF3 merger and subsequent spectrum trades on capacity asymmetry

In summary, this section will explain the following:

- The VF3 merger has resulted in a fundamental change to the distribution of spectrum and capacity between MNOs leading to highly asymmetric shares of capacity.
- There is a significant risk of this capacity asymmetry being exacerbated further after the award with implications for the competition assessment.

## 1.1 Pre-auction spectrum and network capacity

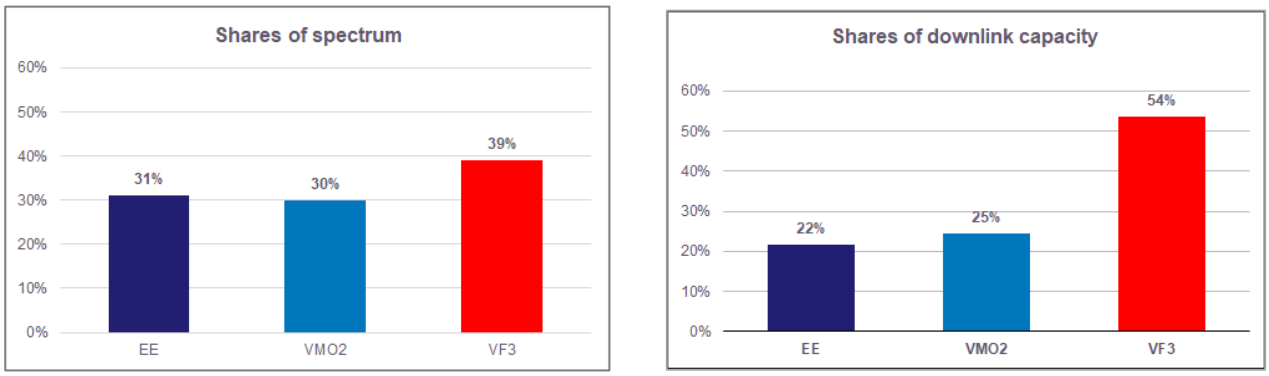
### The VF3 merger has led to highly asymmetric shares of capacity

As Ofcom acknowledges, capacity drives competition and innovation in mobile, not spectrum. Spectrum is only one of three key inputs to network capacity, alongside sites and technology. While earlier evaluations of spectrum asymmetry were adequate when UK MNOs had comparable and consistent site counts, this is no longer the case. Since the merger, there is a material asymmetry in site count, in addition to more spectrum than BT[14] and VMO2. This fundamentally changes the distribution of capacity between MNOs and has led to highly asymmetric capacity shares.

We therefore consider that comparison of downlink capacity[15] is the more relevant metric to assessing competition. Such an assessment needs to consider for each MNO: (i) the available amounts of spectrum held in each band; (ii) the average spectrum efficiency that is achieved in each band;[16] and (iii) the number of sites/sectors.

We compare current spectrum shares with downlink capacity shares in Figure 3 below to highlight why including sites in capacity share metrics matters.

**Figure 3: Comparing shares of usable spectrum[17] and usable downlink capacity post-merger and trade**




Source: BT internal analysis

[14] Both BT and EE are referenced in our submission and are used interchangeably.
[15] Downlink capacity reflects the binding constraint on use (in contrast to uplink capacity which does not).
[16] See Annex 2 for spectrum efficiency parameters.

Current shares include all usable spectrum following the VF3 merger and trade sale. This is because only immediately useable spectrum is relevant when assessing the capabilities of MNOs to provide mobile services. We therefore excluded from our analysis, the 700 MHz SDL spectrum, for which there is no devices ecosystem available at present, or likely to be available in the next few years.[18] For more information on spectrum holdings see Annex 1.

After the merger, VF3 will initially have 36,000 sites, but this is expected to decrease to 26,000 due to decommissioning, compared to BT and VMO2 with [✂] and 18,000 respectively. As shown in Figure 3 above, VF3's share of spectrum (estimate of 39%) significantly understates its underlying share of downlink capacity (estimate of 54%) which correctly includes VF3's significantly higher number of de-duplicated sites.

We consider our comparison of shares of downlink capacity between MNOs to be consistent with Ofcom's approach in previous competition assessments. For instance, Ofcom's concerns regarding asymmetries in overall spectrum are "*driven by the relationship between spectrum shares and the ability to provide* capacity" – Ofcom notes that its overall spectrum threshold of 37% is the degree of spectrum asymmetry where "*competition concerns about asymmetry in relation to capacity and average speeds may generally arise*".[19] We note Ofcom's 37% share threshold converts to 49% in the current 3-player market which we discuss further in section 1.2. It also acknowledges that while MNOs can increase network capacity in different ways, alternatives to the deployment of additional spectrum (for example, network densification) generally take longer to implement and are more expensive and technically challenging.

Spectrum availability is therefore a key constraint on an MNO's capacity, especially when data traffic growth is significant.[20] For this reason, if the asymmetry of spectrum distribution between MNOs increases further, that will increase the risk of reduced competition.[21] For Ofcom, we understand that network capacity is the competition issue, and spectrum the lever to regulate it.

### Shares of total downlink capacity

Prior to the VF3 merger, there was a modest asymmetry in network capacity with the smallest capacity MNO (VMO2) holding 23% of capacity and the highest capacity MNO (BT) holding 27% (see Figure 4 below).

The merger changed this situation fundamentally. BT estimates that, even when taking account of the subsequent spectrum trade from VF3 to VMO2, there will remain a significant capacity asymmetry between MNOs going into the 1400 MHz auction. Specifically, Figure 4 shows VF3 will have a usable capacity share of 54% compared to 22% and 25% for BT and VMO2, respectively. VF3 will therefore have a share of usable total capacity that is more than twice the average of its competitors going into the 1400 MHz auction.

[18] We have also excluded 1900 MHz TDD spectrum assignments which are not currently used for mobile. In addition these licences will expire in 2029 in accordance with the licence revocation taken by Ofcom last year)

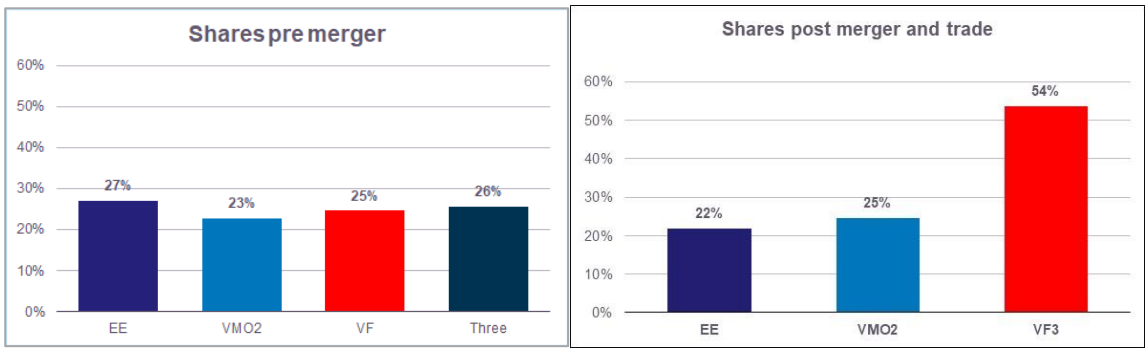
[19] Statement: Award of the 700 MHz and 3.6-3.8 GHz spectrum bands (ofcom.org.uk), paragraphs 4.103 and 4.81.

[20] Mobile traffic growth has slowed and is currently below previous forecasts. However, traffic levels remain very high in absolute terms and are projected to increase significantly year-on-year. According to Ericsson, over the period 2024-2030 mobile data traffic in Western Europe a compound annual growth rate (CAGR) of 13% is forecast. Ericsson Mobility Report June 2025

[21] *Ibid*, paragraph 4.29 and Ofcom's Statement on the Award of the 2.3 and 3.4 GHz spectrum bands, paragraph 6.27.

We further note that we have taken a conservative approach in our estimates of spectrum efficiency for some bands e.g. massive MIMO in 3.5GHz (see Annex 2). As these bands likely have a higher efficiency factor and given VF3's significant holdings in this band, our estimate of VF3's share of capacity should be viewed as a lower bound estimate.

**Figure 4: Shares of usable total downlink capacity: pre- and post-merger and trade**




Source: BT internal analysis

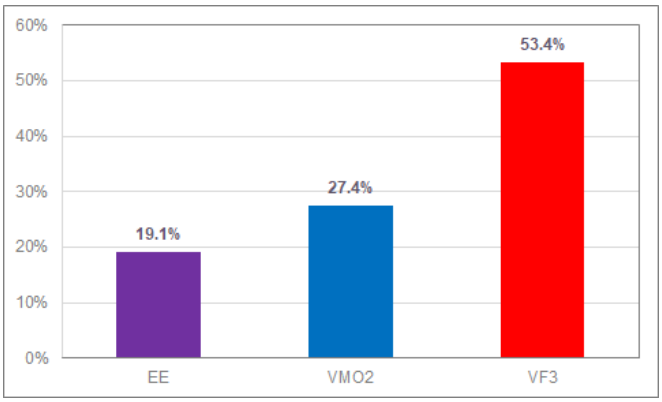
VMO2 will also have access to additional sites under their network sharing agreement Beacon 4.1 with VF3 signed in July 2024, i.e. potentially up to 5,000 3UK sites.[22] These additional sites have not been included in VMO2's site count or share of capacity in the above figures, as the precise number of additional sites is not available to BT. Therefore, Figure 4 (and later Figure 6) may overstate BT's and VF3's share and understate VMO2's share of capacity. However, estimates of capacity shares reported by industry commentators including Enders align with VMO2's published statements, as illustrated in Figure 5 below, where VMO2 is assumed to have access to 23,000 sites (5,000 more sites than BT's estimate of 18,000 sites for VMO2)[23] . Based on post-Beacon 4.1 site counts, Enders estimates that VF3 has almost three times the capacity share of BT (53% compared to 19%).[24] Ofcom could seek confirmation from VMO2 of the precise additional number of VF3 sites it can access, to accurately estimate VMO2's total site count and thereby capacity shares for all MNOs.

[22] VMO2_response_to_the_provisional_findings.pdf. "*Moreover, the Beacon 4.1 Agreements provide a process for VMO2 to [%] join additional 3UK sites.29 As the CMA has recognised "the Merged Entity intends to integrate c. 5,000 existing 3UK sites into the Beacon network in the MORAN areas and VMO2 will have the right to place demand on all of those sites". This will give VMO2 the opportunity to access around [%]% more sites in MORAN areas, compared to the current Beacon site grid. There are strong financial incentives on MergeCo to ensure that such sites can be accessed by VMO2, together with obligations on MergeCo.31 [%].32 [%].*" para 3.12

[23] Enders' capacity shares of 19.1%, 27.4% and 53.4% in Figure 5 assume a site count of 20k, 23k and 26k for EE, VMO2 and VF3, respectively. We note Enders site counts are similar to BT's used for both EE and VF3. See also Enders, Soft market, cautious tone: UK mobile markets in Q1 2025, 1 July 2025.

[24] While BT has an existing reciprocal sharing arrangement with CTIL (c 2k sites) we do not expect to gain access to (additional) Beacon sites given we are an MNO competitor to VMO2 and VF3 both of whom are parties to the Beacon agreement.

**Figure 5: Shares of usable total downlink capacity: post-merger and trade (Enders' view)**

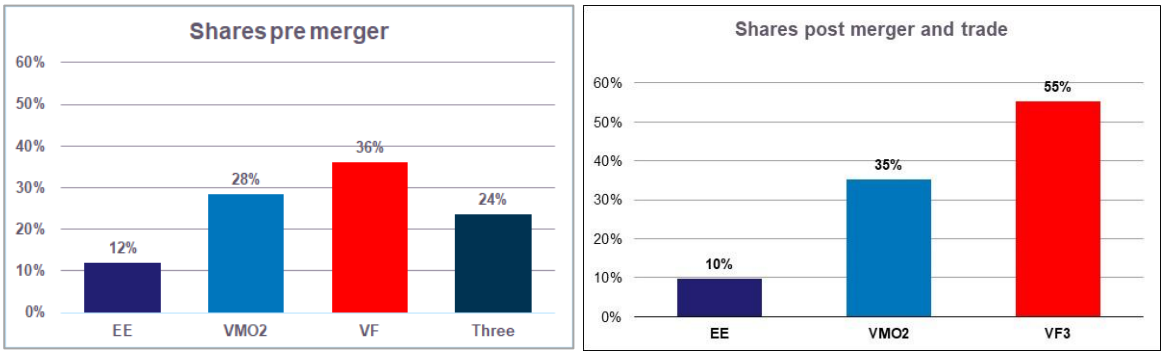



Source: Enders, July 2025[25] (post-Beacon 4.1 site counts)

### Shares of low band downlink capacity

The capacity asymmetry is even more pronounced when looking at low band frequencies.[26] As shown in Figure 6 below, VF3 will have a usable capacity share of around 55% compared to 10%-35% for competitors, with BT's share falling to just 10%, going into the 1400 MHz auction.

**Figure 6: Shares of usable low band downlink capacity: pre- and post-merger and trade**




Source: BT internal analysis (assumes pre-Beacon 4.1 site counts)

## 1.2 Potential auction outcomes and related competition considerations

### There is a significant risk of this asymmetry being exacerbated further after the auction of additional 1400 MHz SDL spectrum.

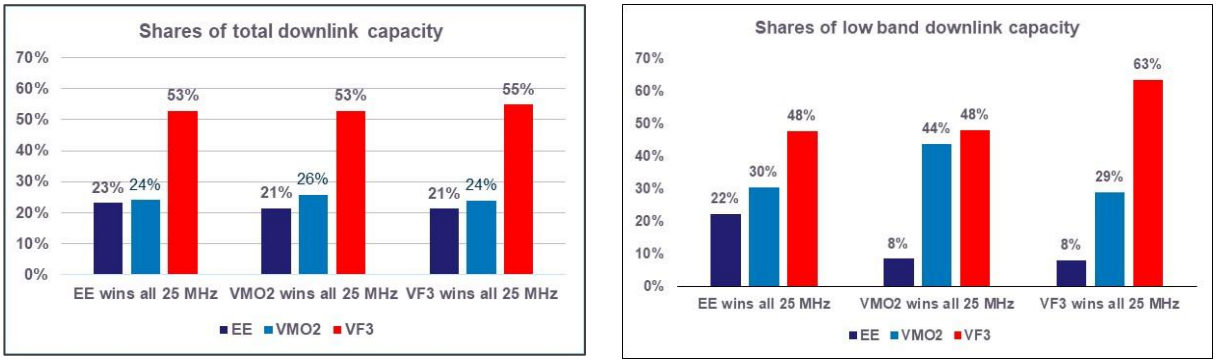
The following charts illustrate how existing highly asymmetric shares of capacity could become even more asymmetric under certain spectrum auction outcomes particularly given VF3's ability and incentive to behave strategically in any award process.

[25] Enders Analysis, *Astute, tentative steps VodafoneThree launch*, 12 June 2025, Figure 3, page 5

[26] We agree with Ofcom's previous statements that 1.4 GHz SDL is functionally equivalent to sub 1 GHz spectrum.

Figure 7 below shows that in relation to shares of usable total downlink capacity, VF3's share will remain above 49% even if EE or VMO2 win all 25MHz and will further increase to 55% if VF3 wins all 25 MHz. In relation to shares of usable low band downlink capacity, EE's share would drop from 10% to 8% if either VMO2 or VF3 acquire all 25 MHz, while VF3's share could rise to 63% if it wins all 25 MHz, making its share of low band capacity more than three times the average share of its competitors. We provide further information on why more symmetric low band capacity outcomes would benefit customer in Annex 3.

**Figure 7: Shares of useable total and low band capacity in some 1400 MHz auction outcome scenarios**




Source: BT internal analysis (pre-Beacon 4.1 site counts)

In previous spectrum auction competition assessments, Ofcom has identified excessive spectrum asymmetry as a specific competition risk. For instance, Ofcom states: "*We consider that using additional spectrum is an important way of adding capacity, and have assessed that, if the distribution of spectrum between MNOs becomes very asymmetric, the market could develop in a way that reduces competition for some services or customers (even if there remain four credible MNOs). And because competition is influenced by a relative comparison of one MNO to its rivals, it is appropriate to consider the share of total mobile spectrum to which an MNO has access (rather than just the absolute amount of spectrum).*" [27]

Ofcom has previously imposed spectrum caps as a result of its competition assessments. In setting this policy, Ofcom was concerned competition may be weakened absent such intervention, due to significant spectrum asymmetries. In particular, Ofcom expressed concerns relating to excessive or highly asymmetric spectrum shares giving an MNO the ability to act strategically.

For instance, in assessing spectrum asymmetries (equivalent to capacity asymmetries in a 4 player market where MNOs had comparable and consistent sites counts), Ofcom has previously considered that a market leader with twice as much as the average of its rivals would result in detrimental effects on competition.[28] This has led Ofcom to apply a maximum cap of 37% on total spectrum (i.e. capacity) held by any individual MNO.

We note Ofcom's maximum 37% cap related to all spectrum, and not solely immediately usable spectrum. However, we consider that the threshold should only include immediately usable spectrum for the reasons set out in Section 1 above.

[27] Ofcom's Statement on the Award of the 2.3 and 3.4 GHz spectrum band, paragraph 6.27.

[28] Statement: Award of the 700 MHz and 3.6-3.8 GHz spectrum bands, para 4.76 "*"In a four-player market… the MNO with 40% of overall spectrum therefore has twice as much as the average of its rivals. We consider… detrimental effects on competition outlined above may arise at this level of asymmetry".*

In addition, Ofcom has also considered *"MNOs with much smaller … shares may not be able to add capacity as cost effectively as MNO with the highest share, which may tend to weaken competition. Even if credible, MNO holding only 10-15% may not be as strong a competitor."*

Ofcom acknowledges past awards have considered the need for competition measures based on total spectrum share thresholds, namely that a share above 37% or below 10-15% would indicate possible competition concerns in a market with 4 MNOs. However, Ofcom has offered no view on relevant thresholds post the VF3 merger beyond saying 'previous thresholds are no longer appropriate in a market with three MNOs. We consider Ofcom cannot reach an informed view on market competitiveness and competition measures without a view on what is 'too much' or 'too little' capacity. We consider such thresholds remain relevant and should be adjusted to a share above 49% or below 13-20%, as a threshold for competition concerns in a market with 3 MNOs.

We illustrate Ofcom's maximum and minimum relative share thresholds in the table below, including conversion to a 3-player market.

**Table 1: Ofcom's total spectrum (capacity) thresholds beyond which competition problems will likely arise**

| Ofcom spectrum (capacity) thresholds | Previous 4-player market | Current 3-player market (adjusted) |
|---|---|---|
| **Maximum share** | 37% | 49%[29] |
| **Minimum share** | 10-15% | 13-20%[30] |

Given existing capacity shares are already highly asymmetric, any increased capacity asymmetry arising from the auction would further limit MNOs' ability to effectively compete with VF3's market leadership, harming competition and consumers in downstream retail and wholesale mobile markets.

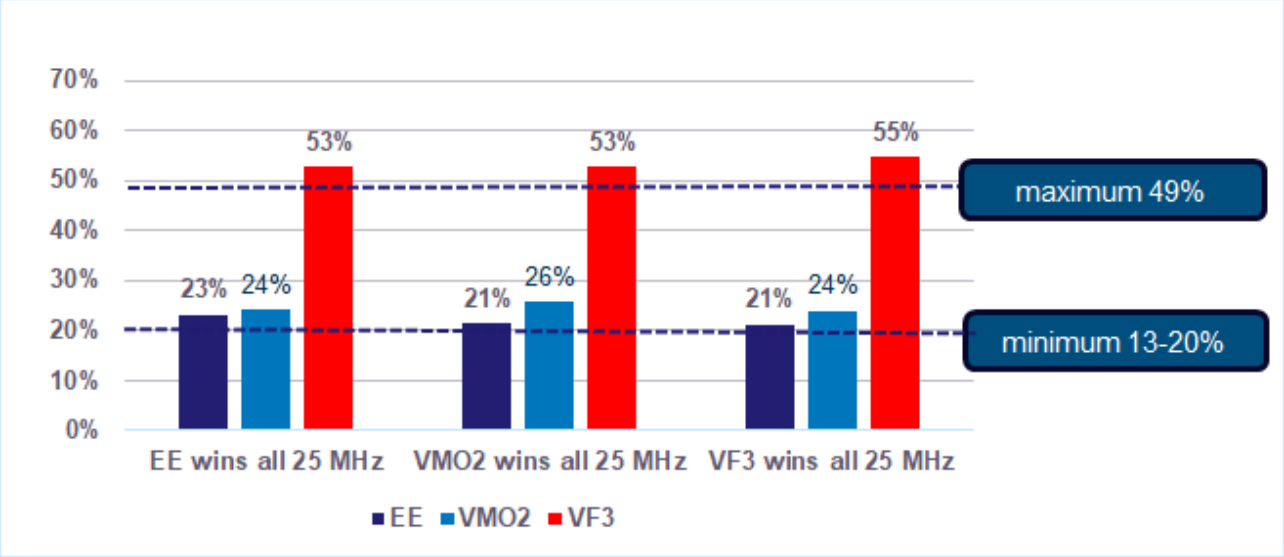
Merger remedies alone (e.g. Time Limited Retail Customer Protections and Time Limited Wholesale Access Terms) are not sufficient to allow this award to proceed without competition interventions. This is especially the case given the asymmetry in capacity holdings and VF3's ability and incentive to behave strategically in any award process. The CMA has said there would be incentives for competitors to respond to VF3's market leadership in capacity post-merger. However, for this to remain possible competitors also need the mechanisms to respond, including unconstrained by strategic behaviour or competition distortions in future awards including the1400 MHz award.

This concern is illustrated below in Figure 8 where we overlay Ofcom's previous caps (adjusted for a 3-player market) in Table1 against capacity shares in Figure 7.

[29] For maximum cap: 37%/25%=148%; 33%*148% = 49%

[30] For minimum cap:10%/25% - 40%; 33%*40% = 13%. 15%/25% = 60%; 33%*60% = 20%

**Figure 8: VF3 usable total capacity share already exceeds Ofcom's maximum cap (adjusted) and may increase further above the cap after the award**

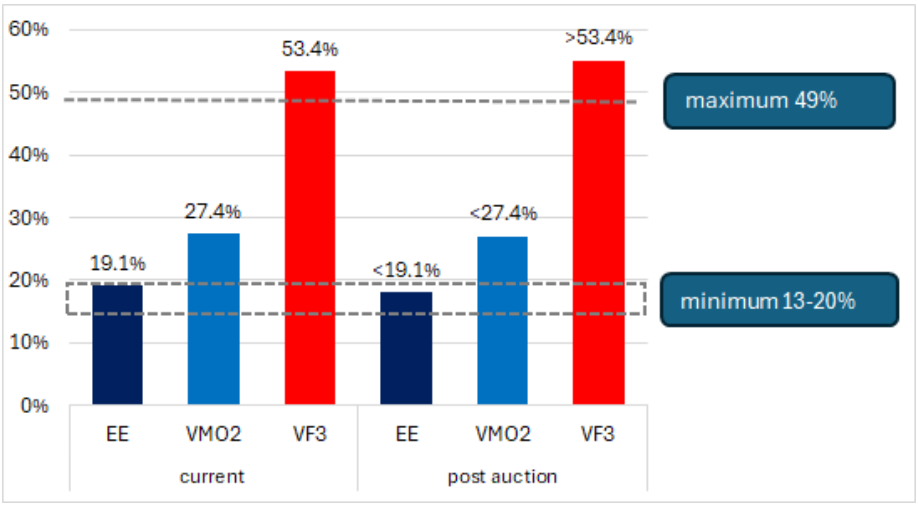



Source: Internal BT analysis based on Figure 7 (pre-Beacon 4.1 site counts)

We note that in addition to VF3's share above the maximum threshold, BT's share lies just outside Ofcom's minimum range (21% vs 13-20%). However, the above analysis overstates BT's share by excluding VMO2 access to additional VF3 sites. We therefore also show estimates published by Enders in Figure 9 below (which include VMO2's access to additional sites and thus more accurately reflects MNOs' capacity shares).

It is significant that both Ofcom's minimum and maximum competition thresholds would likely be exceeded going into the award. In addition, given VF3's ability and incentive to behave strategically in any award process, these asymmetries are likely to be exacerbated further in the 1400 MHz award.

**Figure 9: MNO shares may exceed both minimum and maximum share thresholds and may become even more asymmetric after the award (if VF3 wins all 25 MHz)**



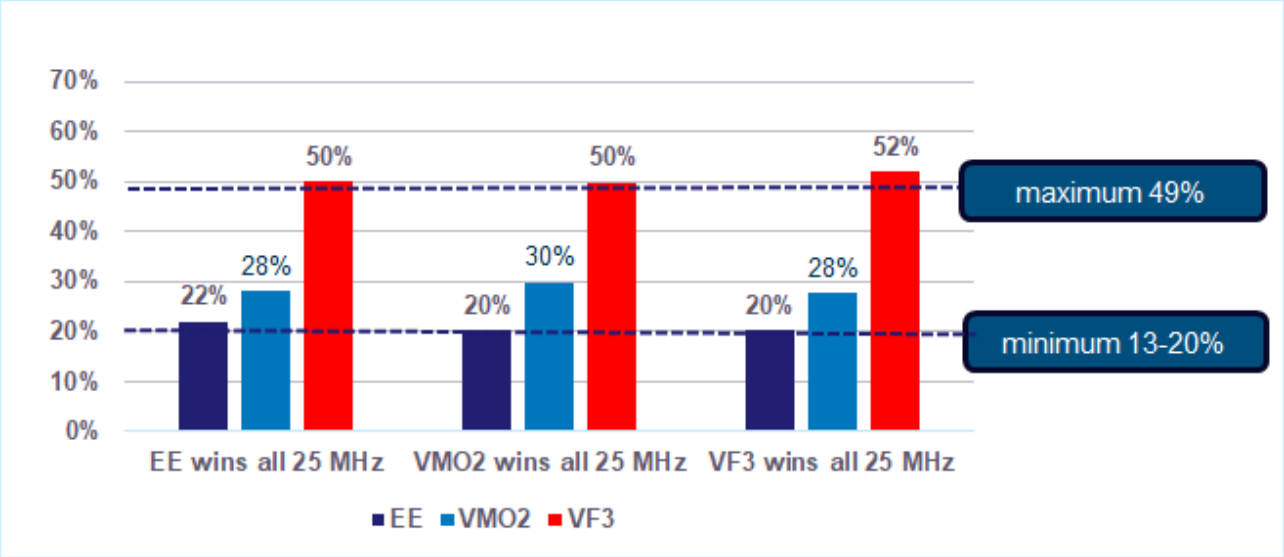

Source: Current shares taken from Enders July 2025 (post-Beacon 4.1 site counts)

We have, as a further sensitivity, separately estimated capacity shares using BT internal analysis assuming VMO2 has, under the extended Beacon agreement with VF3, access to up to 5,000 3UK sites. This approach based on BT's internal capacity share information (including as shown

in Annex 2) is similar to that taken by Enders. The logic for this approach is that VMO2 appears to have a right to access “up to 5000 sites", noting that a harmonised site portfolio in the MORAN area would enable network optimisation to be effective for both networks.

To be conservative we have estimated that rights to 4k of the 5k sites are taken up by VMO2, i.e. 22,000 sites in total (rather than18,000 previously assumed by BT). Under this further sensitivity, VF3 is projected to have a share of 51% going into the award rising to 52% after the award, if VF3 wins all 25 MHz. This sensitivity also suggests BT’s share would fall from 21% to 20% if either VMO2 or VF3 wins all 25 MHz (i.e. within Ofcom’s minimum competition threshold of 13-20%). This is illustrated below in Figure 10.

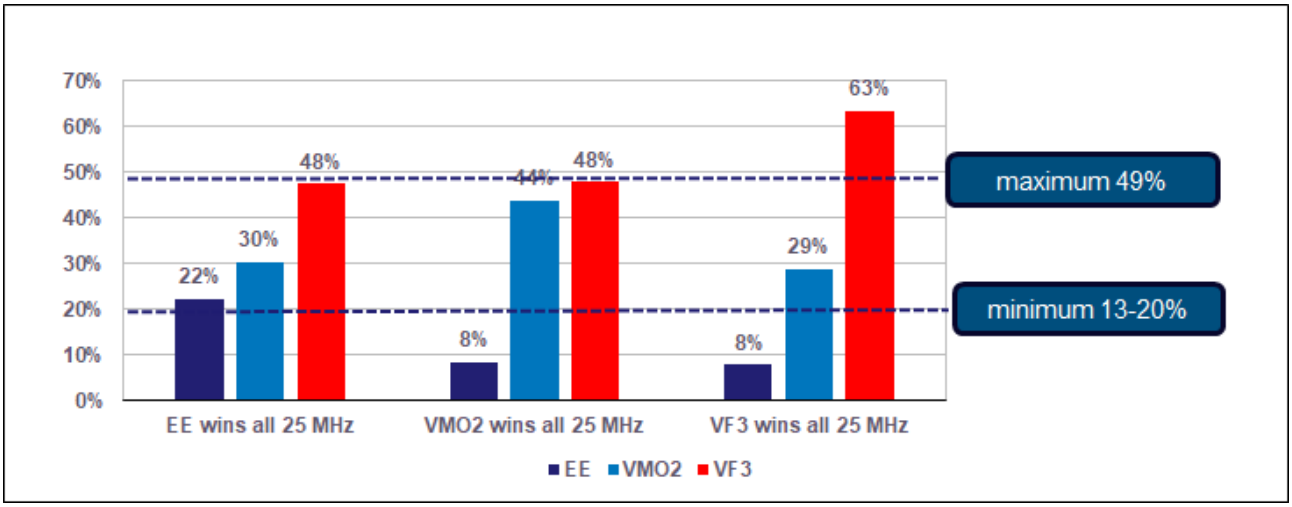
**Figure 10: Sensitivity adjusting VMO2’s site count from 18k to 22k to reflect Beacon 4.1**




Source: BT internal analysis (post-Beacon 4.1 site counts)

We further note that low band capacity shares will be even more asymmetric and lie further outside Ofcom’s competition thresholds after the award, if VF3 wins all 25 MHz shown below in Figure 11 (see also section 2.1).

**Figure 11: VF3’s low band capacity share could increase significantly the award (if VF3 wins all 25 MHz); BTs share could fall significantly (if VMO2 or VF3 wins all 25 MHz)**




Source: BT internal evidence (pre-Beacon 4.1 site counts)

We consider there is a real risk that, by allowing highly asymmetry capacity shares to be further exacerbated by the award, Ofcom undermines the CMA's position that competitors would respond to a clear market leader that the VF3 merger creates.

As set out below, we consider that Ofcom has reached the wrong conclusion in its competition assessment by not considering capacity shares going into, and after the award. Such analysis would have shown the competition law risk associated with this award and support BT's recommendation to exclude VF3 from participating in the auction, which will likely harm competition and consumers in downstream wholesale and retail markets.

# 2 Ofcom's competition assessment must consider asymmetry in capacity, not spectrum alone

**Competition and consumer outcomes are driven by capacity, not just spectrum.**

Strong competition in mobile markets is crucial to ensure that UK consumers benefit from the latest innovations and a high-quality user experience, alongside greater choice and lower prices. This necessitates a competitive balance of network capacity to support good competitive market outcomes. However, there is a significant risk that this award could exacerbate existing network capacity asymmetries. That risk is higher, given VF3's ability and incentive to behave strategically in any award process, making it harder for competitors like BT to effectively compete and challenge VF3's significantly higher share of capacity after the merger.

This award therefore carries a risk of further weakening competitive constraints in the market post-merger, leading to higher prices, and reduced service quality. For higher band spectrum, such asymmetries could result in slower average speeds and less ability to meet peak traffic demand. For low band spectrum there are risks for competition and thus quality of indoor and rural coverage for capacity intensive services including eMBB and IoT.

The importance of the award and competition assessment for 1400 MHz SDL cannot be overstated. This award is potentially the UK's last low band auction for the next decade. Additionally, merger commitments restrict future spectrum trading opportunities by requiring most of VF3's spectrum to be deployed.[31] This means that the 1400 MHz auction may be the last opportunity for the foreseeable future to address asymmetries in capacity especially in low band.

One of the most significant developments impacting this assessment is the VF3 merger that created a 3-player market with significant differences in operator site counts, such that spectrum shares no longer accurately reflect capacity shares. The VF3 merger has resulted in a fundamental change to the distribution of capacity between MNOs leading to highly asymmetric shares of capacity. However, Ofcom's introduction to its assessment states:

> *"We have not assessed shares of mobile capacity because we consider that analysing the share of MHz is sufficient as a proxy for capacity and network abilities."*[32]

This statement is surprising, considering the VF3 merger's major impact on market structure and competitive dynamics, with capacity shares widely seen by MNOs and industry commentators as the key metric for assessing competitive dynamics.[33]

---

[31] VF3 has committed to deploy all but 10 MHz of its low band spectrum as part of the merger. It will likely want to keep the 10 MHz to leave it some flexibility in what it deploys where.

[32] Consultation para 3.12.

[33] CMA Phase 1 Decision, Figure 11, Full text decision; Final Merger Notice submitted by VF3 to the CMA on 25 January 2024, Figure 24.8, BT response to CMA Statement of Issues, published 2 May 2024, BT_s_response_to_the_issues_statement.pdf and Enders Analysis, *Astute, tentative steps VodafoneThree launch*, 12 June 2025, Figure 3, page 5. [do we need referencing other than Enders?]

Ofcom's focus on spectrum shares, rather than capacity, diverts from its past approach, and overlooks important evidence of highly asymmetric capacity shares that could be exacerbated after the auction, harming competition and consumers. By not examining capacity asymmetry, Ofcom has reached the wrong conclusion in its competition assessment against four of the factors it says matter for competition.

We set out our views on Ofcom's theories of harm (including analysis and findings) below.

### Unmatchable product advantage

Ofcom finds limited evidence of unmatchable product advantages arising from the auction:

> *"Our provisional view is that the maximum 25 MHz to be awarded is not sufficient spectrum to enable the introduction of an unmatchable new product, although we expect it to be used to improve quality of coverage. This spectrum is SDL, which must be paired with another low-frequency band and, as such, it is unlikely that this band on its own will allow for new services to be launched or to improve the quality of an MNO's coverage to an extent that it would give it an unmatchable advantage."*

We disagree with Ofcom's analysis and findings. Ofcom incorrectly focuses on the 'incremental' benefit of 1400 MHz to new products, omitting a critical assessment of the current market structure and dynamics that suggests if VF3 wins further spectrum on top of its significant capacity advantage, VF3 can entrench unmatchable product advantages. VF3 currently has such a high relative share of capacity that it can offer superior services that its rivals are unable to replicate. For example, with 3x the share of total capacity compared to BT (53% vs 19%, as reported by Enders) VF3 can offer [✂]. In addition, with 5x the share of low band capacity compared to BT (55% vs 10%) VF3 has an unmatchable advantage in the provision of [✂].

Whilst these unmatchable advantages may benefit consumers in the short term, it will likely lead to weaker competition and therefore higher prices and/or lower quality services in the longer term. There is a real risk that this dynamic will be exacerbated if VF3 acquires further spectrum thereby harming competition and consumers.

### Spectrum hoarding

Ofcom finds limited evidence of spectrum hoarding arising from the auction:

> *"We consider that there is little incentive for an MNO to use this spectrum award to claim spectrum it does not need. This is a small addition to the total amount of available mobile spectrum for MNOs – an increase of approximately 2% – and responses to our October call for input suggested multiple stakeholders may be interested. We expect that this interest stems from the intention to deploy the spectrum rather than strategic considerations, as the spectrum to be awarded is a small share of any operator's current holdings, and preventing a competitor from using it will provide no great strategic advantage. Furthermore, those who purchase the spectrum will have made an investment and they will only obtain a return on this investment by deploying it."*

BT considers this to be an unevidenced finding. Withholding 1400 MHz spectrum from BT does confer a significant strategic advantage to VF3, since VF3 is incentivised to entrench its significant share of network capacity in the upcoming award, allowing it to further increase

market share and raise prices and/or lower quality of services. VF3 already has a significant share of network capacity and therefore 1400 MHz may have less value to VF3 given its capacity strength. This could suggest that any interest VF3 has in this spectrum could only be strategic (rather than intrinsic). The value of the payoff for VF3 from buying and hoarding the spectrum (i.e. denying BT the spectrum) is likely to be greater than the cost (noting the ability of VF3 to raise prices and lower network quality in the longer run to the detriment of competition and consumers).

We further consider that Ofcom is mistaken to claim the spectrum has no strategic value given it represents only a small addition of 2% of available spectrum. For instance, were BT to win the 25 MHz our share of low band capacity would more than double, from 10% to 22%, making BT a stronger competitive constraint on VF3 in relation to [✂].

VF3 must deploy most of its spectrum as part of the VF3 merger commitments, hence hoarding is less likely in relation to VF3's existing holdings. However, in the case of the additional 1400 MHz, VF3 may have an incentive to invest (bid) strategically, buy and hoard the additional spectrum for the reasons set out above.

As we outline below, it is possible that VF3 may not even need to purchase and withhold the entire 25 MHz; for example, VF3 could bid for 5 MHz, which would prevent BT from acquiring the full 25 MHz ([✂]) thereby denying BT the spectrum.

### Unmatchable cost advantage

Ofcom finds limited evidence of unmatchable cost advantages arising from the auction:

> *"Our analysis of the potential differences in spectrum shares above suggests that this small amount of spectrum is unlikely to make a material difference in spectrum holdings and, therefore, to the costs to rolling out an MNO's network."*

We disagree with Ofcom's analysis and findings for the following reasons.

First, Ofcom did not include an assessment of whether, at present, i.e. prior to award, VF3 has an unmatchable cost advantage. For instance, the CMA has stated:

> *"[W]e consider that the Network Commitment will, in time, and in combination with the impact of Beacon 4.1 lead to a **lower incremental cost of capacity** due to the increase in mobile network capacity compared to the Parties' and VMO2's expected positions in the counterfactual, and to a **longer-term reduction in their unit cost of expanding capacity**. Second, we consider that the Network Commitment will, in time, lead to significant and long-lasting quality improvements in a way that positively affects customer experience."* [34]

The CMA also noted that the market leader's capacity position may encourage competitors to enhance their own capacity through further investment in order to close the gap with the market leader:

> *"We would expect that this increase in the capacity of two MNOs would lead to downward pressure 16 on prices (compared to the situation absent this increase in*

[34] CMA Summary of final report, paragraph 76

> *capacity) as the Merged Entity and VMO2 would have the incentive to fill that capacity by making more attractive offers to customers, and BTEE would likely respond by increasing the attractiveness of its own offers."* [35]

However, awarding further spectrum (capacity) to VF3 would fundamentally undermine such competitive dynamics.

We further note that Ofcom does not reference the fact that VF3 holds three times the capacity share of BT (19% compared to 53%, as reported by Enders), which means in some places [✂]or equivalently VF3's unit cost of delivering the [✂] as BT are likely to be significantly lower than BT. Nor does Ofcom reference that VF3 holds 5x the low band capacity share of BT (10% compared to 55%, BT internal analysis) with likely cost advantages in delivering services uniquely reliant on low band spectrum including [✂].

Second, Ofcom has not presented evidence regarding the costs associated with network expansion. For instance, incumbents in the band have already prepared their network to exploit their existing 1400 MHz holdings and therefore will likely have no/low additional cost of deploying the additional 1400 MHz spectrum. In contrast, BT would need to undertake costly physical deployment of new radio and antenna equipment requiring site visits across its site grid. [36] The service quality benefits of 1400 MHz to BT should not be significantly different to that of incumbents in the band. Thus, BT's overall valuation, taking account of its greater cost, will be significantly less than the incumbents'. Allocative efficiency may favour incumbents in the band winning the additional spectrum, due to a higher valuation. However, any static gains must be balanced against the risk of reducing competition and losing dynamic efficiency, especially if incumbents are permitted to exclude new entrants from the band, due to unmatchable cost advantages. As Ofcom has previously stated:

> *"Bidding based on a high intrinsic value may still result in an allocation of spectrum that could weaken competition. In this case, there may be a trade-off for consumers between benefits from the spectrum going to the MNO which will make the best use of it, and weaker competition as a result of a more asymmetric allocation of spectrum. The net benefit may be positive or negative for consumers."*[37]

Third, Ofcom has not considered the cost BT faces to match VF3 capacity if we were not to get this spectrum – i.e. opportunity cost.

In summary, given VF3's unmatchable cost advantage, Ofcom cannot simply infer from BT's lack of existing 1400 MHz band holdings, that BT necessarily has a higher marginal valuation and will therefore likely secure 25 MHz of 1400 MHz.

### Weakened incumbent

Ofcom finds limited evidence of a weakened incumbent arising from the auction:

---

[35] CMA Summary of final report, paragraph 78

[36] [✂].

[37] Statement: Award of the 700 MHz and 3.6-3.8 GHz spectrum bands, paragraph 4.39.

> *"Our analysis above finds that, under any potential award outcome, all three MNOs will have sufficient amounts of spectrum, including sub 1500 MHz spectrum, to remain competitive."* [38]

Ofcom's analysis and conclusions are flawed as they do not consider strategic investments or highly asymmetric shares of capacity.

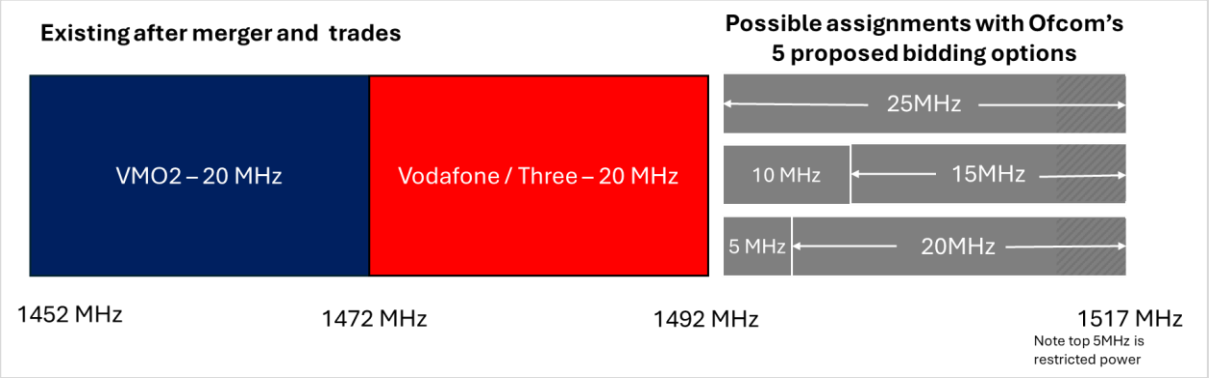
***The conditions for strategic bidding to weaken BT as a competitor are present in this award***

In an auction, strategic bidding can be expected to arise where an MNO bids in excess of its intrinsic value for spectrum, to deny a competitor that spectrum i.e. foreclose the spectrum band. Specifically, VF3 (and VMO2) are likely to have an incentive to act in this way if, by denying spectrum to BT, BT's position will be weakened sufficiently that VF3 (or VMO2 or both) can win customers or increase prices. The value of this payoff is likely to be greater than the cost beyond the intrinsic value to the strategic investor of buying the spectrum.

For instance, given VF3's (and VMO2's) existing adjacent holdings of 1400 MHz, both MNOs are likely to already have a high intrinsic value for the marginal lot required for strategic investment, i.e. lower 5 MHz (or 10 MHz), suggesting the cost of strategic investment above intrinsic value might be minimal (to foreclose BT acquiring 25 MHz). Additionally, the payoff to VF3 (and VMO2) of depriving BT of low frequency spectrum is likely to be high, as it would likely have a material impact on competition, [✂].[39]

Figure 12 below illustrates the likely strategic investments in marginal lots of 5 and 10 MHz that could deny BT acquiring 25 MHz (i.e. the only lot size commercially viable for BT to deploy).[40]

**Figure 12: Existing 1400 MHz SDL holdings (post trading) and proposed auction packages**




***BT's share of total and low band capacity is currently low and is likely to decrease further following the award***

[38] Consultation, para 3.22(d)

[39] We note that in contrast to unmatchable cost advantages, where bidding based on high intrinsic value may entail a trade-off for consumers, eg allocative vs longer term dynamic efficiencies, bidding based on strategic investment value ie to weaken a competitor, involves no trade off and outcomes will always be harmful for consumers

[40] Given technical and operational constraints on use of the award spectrum, a small assignment comprising only part of the award spectrum is unlikely to be attractive, other than to existing mobile licensees in the adjacent band. See BT's response to Q17 of Ofcom's February consultation here: BT - questions 16-19.

First, as shown in the previous section, BT currently holds 22% of total capacity and 10% of sub 1500 MHz capacity. If either VMO2 or VF3 were to acquire all 25 MHz, these shares would decrease to 21% and 8%, respectively.

This degree of capacity asymmetry should be of concern to Ofcom given it has previously considered shares of total spectrum below 10-15% would be problematic (or adjusted to 13-20% in the post VF3 merger 3-player market).[41]

Whilst we do not have information on VMO2's likely access to additional VF3 sites, we consider (based on Enders' published estimates) that once these additional sites are taken into account, BT's shares will likely fall below the adjusted threshold which triggers competition concerns (i.e. decreasing from a share of 19% estimated by Enders, in July 2025, to an even lower share after the award). Thus, BT's share of total capacity, the award might lead to BT's shares falling below the threshold where Ofcom is likely to find a weakening of competitive constraints in the market.

Concerns over shares of total capacity are even more pronounced when looking at shares of low band capacity, i.e. VF3 has 55% share compared to BT's10% share of low band capacity going into the award and falling to 8% if either VMO2 or VF3 win all the 25 MHz.

Ofcom's consultation does not focus on low band spectrum, given its past policy to reject competition thresholds (caps) to sub bands. However, as Ofcom's decision[42] is now 5 years old, it needs to be reassessed in light of observed trends since. Specifically, Ofcom's expectation in 2020, that Wi-Fi based services could substitute for low-band uses, has not proven to be the case.

Ofcom should re-examine the risks of exacerbating existing highly asymmetric low-band capacity shares and review the validity of its previous assumptions based on latest evidence. If BT wins all 25 MHz, its share of low band capacity would more than double, from 10% to 22%, making BT a stronger competitive constraint on VF3 in relation to [✂]. Conversely, if VF3 were to win all the spectrum, BT's low band capacity share would fall to only 8%, making it an even weaker competitor.

We provide further information on why more symmetric low band capacity outcomes would benefit customer in Annex 3.

[41] Consultation, paragraph 3.23

[42] Statement: Award of the 700 MHz and 3.6-3.8 GHz spectrum bands, March 2020.

# 3 Competition measures

BT considers an accurate assessment of competition risks in mobile means VF3 should be excluded from participating in the 1400MHz award, given the asymmetry in capacity holdings and VF3's ability and incentive to behave strategically in any award process. Specifically, BT recommends:

- no MNO should be able to obtain (or entrench) a share of usable total capacity that is twice (or more) than the average of competitors in the award. This is consistent with Ofcom's policy position on asymmetry in the 2021 5G award.[43] This would adjust to a 49% cap on share of usable total capacity in the current 3-player market. This means VF3 should be restricted from participating in the award given VF3's current high share of usable total capacity, and the risk of increasing its share even further in the award, leading to harmful outcomes for competition and consumers.
- no MNO should be able to obtain (or entrench) a share of usable low band capacity that is twice (or more) than the average of competitors in the award i.e. an additional 49% sub-cap on shares of usable low band capacity. This sub-cap would also have the effect of restricting VF3 from participation in the award, aiming to mitigate the risk of significantly increasing asymmetry in low band capacity shares with potentially adverse effects on competition and consumers.
- the award should minimise the risk that any individual MNO's share of usable total capacity falls to 13-20% or below consistent with Ofcom's policy position in the 2018 5G award.[44] Combined with VF3's incentives to behave strategically, this would also be consistent with restricting VF3 from participating in the award.

That would ensure competitive tension remains in the auction as VMO2 and BT would competitively bid for the spectrum.

We note that VMO2 has expressed similar concerns on highly asymmetric shares of capacity[45]:

> *"VMO2 is concerned that spectrum imbalances could again become an issue for competition in the future, and Ofcom must consider this risk for future awards. One may reasonably suppose that Vodafone-Three divested only the minimum quantity of spectrum necessary to secure regulatory approval for the merger, and therefore it is now at or close to a maximum level of spectrum holdings, above which there may be concerns for downstream competition. In the new context of a three-MNO market, we would welcome a renewed commitment from Ofcom to consider total holdings across all mobile bands when formulating competition measures for spectrum awards.*

We support VMO2's general stance on overall caps but respectfully disagree with their view that caps are unnecessary for the 1400 MHz award and only needed for future awards. For instance, VMO2 states:

---

[43] Statement: Award of the 700 MHz and 3.6-3.8 GHz spectrum bands, para 4.76.

[44] 2017 Statement, para 1.38, 6.51, 6.57

[45] Virgin Media O2 response to Ofcom Consultation: Award of 1492-1517 MHz spectrum for mobile services (Questions 16 – 19) July 2025 Non-Confidential Version VMO2 - questions 16-19

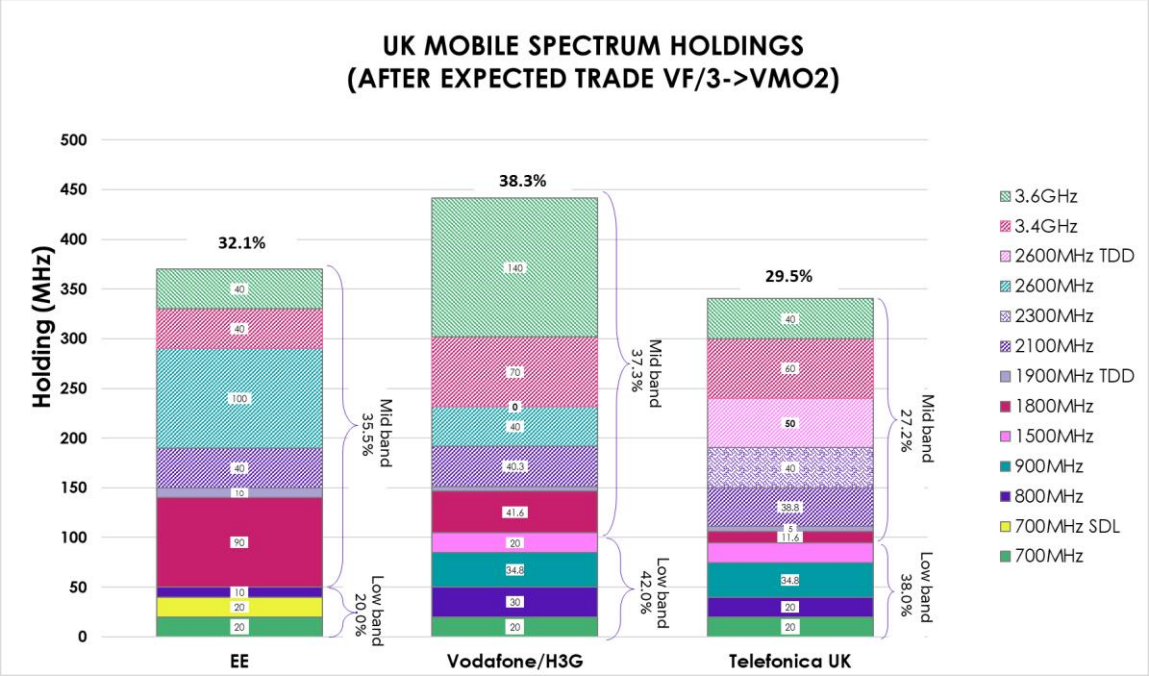
> *"The spectrum for sale in this award has an underdeveloped ecosystem but is in due course expected to become part of a core European mobile band at 1500 MHz, which will provide supplementary downlink with excellent propagation. Accordingly, we do not expect the allocation of this spectrum to have any short-term impact on the competitiveness of an MNO that acquires the frequencies, but it will be become increasingly relevant to competitiveness over the medium-to-long term. Over this timeframe, we anticipate that other larger frequency bands, such as 600 MHz and 6 GHz, may become available for mobile use. Therefore, it is our opinion that no spectrum caps are required for this award.*

We respectfully disagree with VMO2 that VF3 should not be restricted from participating in this award. First, many 5G devices, such as the iPhone 15 and 16, now support the 1492-1517 MHz band. This compatibility is expected to increase further by the anticipated award date, likely in 2027. Therefore, material and significant impacts on competitiveness of MNOs are likely to follow from the award of this spectrum. Second, there are no current plans for the 600 MHz award, which likely won't occur until the mid-2030s. Accordingly, we cannot rely on this low band auction to address asymmetries in capacity for the foreseeable future. Third, while it may be the case that U6 GHz could be awarded in the near term, this cannot address spectrum imbalances going into, and likely after, the 1400 MHz award, by which time harm to competition in downstream wholesale and retail markets would have already occurred.

# Annex 1: Overview of pre-auction spectrum situation

The consolidation of the Vodafone and Three's spectrum assets and sites, and subsequent trading of spectrum to VM02 has significantly altered the capabilities of two of the three competing UK MNOs and resulted in changes to the licensees in the existing 1400 MHz SDL band.

**Figure A1: Spectrum holdings (all bands) post VF/3 merger and trades**




Note: in this chart the 1900 MHz TDD spectrum assignments are included, although these will expire in 2029 in accordance with the licence revocation decision taken by Ofcom last year.

**Table A1: Spectrum holdings after completion of known trades**

| Band | EE | Vodafone/ H3G | Telefonica UK |
|---|---|---|---|
| **700MHz** | *20* | *20* | *20* |
| **700MHz SDL (not immediately useable)** | *20* | *0* | *0* |
| **800MHz** | *10* | *30* | *20* |
| **900MHz** | *0* | *34.8* | *34.8* |
| **1500MHz** | *0* | *20* | *20* |
| **1800MHz** | *90* | *41.6* | *11.6* |
| **1900MHz TDD (until 2029)** | *10* | *5* | *5* |
| **2100MHz** | *40* | *40.3* | *38.8* |
| **2300MHz** | *0* | *0* | *40* |
| **2600MHz** | *100* | *40* | *0* |
| **2600MHz TDD** | *0* | *0* | *50* |
| **3.4GHz** | *40* | *70* | *60* |
| **3.6GHz** | *40* | *140* | *40* |
| **Totals** | **370.0** | **441.7** | **340.2** |

# Annex 2: Spectrum efficiency parameters

**Table A3: Downlink spectrum efficiency and Downlink-only multiplier of different bands**

| Bands | Spectral efficiency parameters in Bits/s/Hz | Downlink-only multiplier |
|---|---|---|
| 700MHz | 1.50 | 50% |
| 700MHz SDL | 1.50 | 100% |
| 800MHz | 1.50 | 50% |
| 900MHz | 1.50 | 50% |
| 1400MHz | 1.50 | 100% |
| 1800MHz | 1.50 | 50% |
| 2.1GHz | 1.50 | 50% |
| 2.3GHz | 2.00 | 75% |
| 2.6GHz FDD | 2.00 | 50% |
| 2.6GHz TDD | 2.00 | 75% |
| 3.5GHz | 4.00 | 75% |

*Source: BT internal analysis and forecasts for spectral efficiency parameters, Analysys Mason for Downlink only multiplier*

# Annex 3: Why a more symmetric low-band capacity award outcome would benefit consumers

While competition concerns apply in relation to asymmetry in both total and low band capacity, they are more pronounced in low band capacity. For instance, as shown above, BT had a very small share of low-band capacity of 12% before the VF3 merger compared to its rivals at 24%-36%. Following the VF3 merger and trade, BT's share fell further to 10% creating an even bigger gap compared to its rivals at 35%-55%.

Given existing low band capacity shares, any increased capacity asymmetry arising from the auction would further limit BT's ability to effectively compete with VF3 in services that rely on low-band spectrum.

Low-band spectrum is uniquely able to serve customers with sufficient capacity in areas where other frequencies do not propagate well – including indoor and large cells in rural areas. Having sufficient low-band capacity in these areas is key to an MNO's ability to launch and maintain key dimensions of network quality such as network reliability and accessibility, network speed, data, call and text performance, and price. Ofcom has identified lack of sufficient capacity as key factor leading to poor mobile experiences and the reason for mobile map thresholds.[46]

We explain in more detail below why low band frequency spectrum is needed to offer good customer experience.

## Low band frequency spectrum is needed to offer good customer experience

A consistent and reliable mobile service offering a good customer experience relies upon deep indoor coverage and wide and rural area coverage. [✂].

Specifically low band is essential for providing a consistent and reliable mobile service for the following key reasons:

- **Deep indoor coverage is critical to providing a good consumer experience**. Low band spectrum provides improved in-building coverage as lower frequencies are better able to penetrate obstacles, walls, windows, etc. In built-up urban areas, navigating multiple obstructions is challenging, so even before getting to a particular building 1800 MHz spectrum may have been blocked by other obstacles, which low band spectrum can penetrate through.
- **Gaps in indoor coverage and areas with very low indoor capacity are very acutely felt by customers**. This is because such coverage issues are not transient (like capacity during the busy hour) and therefore are felt each time a customer enters those areas. It is the repetitive nature of the customer experience that causes customer frustration – for

[46] Ofcom, Map Your Mobile coverage checker: methodology – August 2025 at the following link: https://www.ofcom.org.uk/siteassets/resources/documents/phones-telecoms-and-internet/comparing-service-quality/2025/map-your-mobile-2025-threshold-methodology.pdf?v=401713

instance, a data session dropping each time a customer enters a lift or on part of a commute to work [✂].

- **A lack of capacity in low band leads to operators restricting the coverage to protect the customer experience.** [✂].
- **Service continuity matters for rapidly moving customers**. Customers on the move (e.g. commuters on trains), moving between the coverage of two different base stations, must complete a handover procedure to maintain the service (e.g. data session). The handover procedure requires the device to send measurements to the network and receive configuration and acknowledgement from the network. The time during which a handover can be performed is a result of the speed the user is travelling and the distance over which the device can measure the coverage of both base stations. Because the distance over which low band can be measured is greater, it performs better for service continuity.

### There are few practical alternatives to gaining more spectrum to expand network capacity and respond to VF3's capacity leadership

Further spectrum award is crucial to future market competitiveness given the lack of available alternatives to expanding capacity via more sites or greater use of existing spectrum.

- Currently available low band spectrum cannot be deployed on more sites to increase capacity in places that cannot be reached with other bands (e.g. midbands) as it becomes heavily congested.
- It is practically difficult and not economically viable to find additional sites to deploy spectrum to increase network capacity (especially for indoor coverage and rural). Although some small cells deployment will be possible, this alone will not be sufficient to maintain or improve experience of customers in places that rely on low band spectrum to deliver service.
- Use of WiFi to grow capacity of coverage is not a viable solution to address coverage in rural areas in places where higher frequencies do not reach, and it is not a viable alternative solution in many public places, for example, in car parks, office buildings, shops and other public buildings, where MNOs are not able to deploy new WiFi, or where the public does not have rights to access existing deployed WiFi.

There is no other spectrum than 1400 MHz SDL, that Ofcom has committed to make available in the next decade. The 600 MHz TV spectrum has been identified by BT as of interest for mobile in future, but to date Ofcom has given no commitment that this will be in its future mobile spectrum roadmap.

The already available 1800 MHz does not have the same reach as 1400 MHz and, in any event, as it is already deployed on all available sites, it does not offer a solution to the requirement for additional capacity in places that are hardest to cover.

This means this spectrum award, even if only relatively small, is important to ensuring competitors such as BT can effectively compete.

## Examples of services reliant on low band spectrum

We provide three examples below of key services reliant on low band spectrum to further illustrate the competition issues.

- [✂].
- [✂].
- [✂]
  a) [✂][47]
  b) [✂]. As demand for IoT bandwidth increases - the capacity in low band will become increasingly important - including indoor coverage which is important for the IoT industry.

[47] [✂].

12 September 2025

Find out more at bt.com

# Offices worldwide



Registered office: 1 Braham Street, London E1 8EE

Registered in England No. 1800000

BT Group