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for everyone

Connected Nations **2019**

England report

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Overview

This annual report measures progress in broadband and mobile services in the UK and sets out the role Ofcom plays in helping to further improve them.

This report highlights the work Ofcom is doing, alongside UK and devolved governments and communications companies, to improve the availability of fixed and mobile services across the UK. Ofcom wants people in the UK to be able to easily access good broadband and mobile connections wherever they live, work and travel.

Alongside this report, we publish reports on broadband and mobile availability in each of the UK's nations. We also provide an interactive dashboard, allowing people to see data for different areas, services and coverage levels. We are also making it easier for people to access our data, so they can create their own interactive services. We have two application programming interfaces (APIs), which allow others to use our data creatively to develop services, such as apps and widgets to benefit consumers and businesses.[1]

Ofcom is also releasing the International Broadband Scorecard 2019 . This compares the UK's recent position on broadband availability with a number of other European nations.

[1] More than 50 organisations are now looking to exploit this capability

Key findings:

- 2.5 million premises (10%) in England now have access to full-fibre broadband connections; an increase from 6% last year. These connections can deliver much higher download speeds, of up to 1 Gbit/s and are also much more reliable than older, copper-based broadband.
- 95% of homes now have access to superfast (at least 30 Mbit/s) broadband, a slight improvement from 94% in 2018 although the pace of rollout has slowed from a few years ago. In rural areas residential coverage remains lower, with 81% of homes having access to high speed services.
- The deployment of wireless home broadband from BT/EE on their mobile network reduces the number of premises that cannot get a decent broadband service (unable to get 10 Mbit/s download and 1 Mbit/s upload speeds). We now estimate that as few as 111,000 homes in England should be unable to access a decent fixed broadband service, subject to confirmation of individual premises coverage. From March, those homes unable to get a decent connection will be able to request one from BT2.[3]
- 5G services have been launched by all four mobile network operators over the past year and are now operating in over 40 towns and cities across England.
- 4G coverage remains largely unchanged over the year. Individual operator coverage of England's landmass varies, with the highest (EE) being 93% and the lowest (O2) 88%.
- 97% of England has access to good 4G outdoor mobile coverage from at least one of the operators. The 3% of England that does not have good outdoor 4G coverage from any operator is predominantly in rural areas. The proposed Shared Rural Network programme being negotiated between the operators and Government, with support from Ofcom, will aim to extend coverage for all operators to 91% of England's landmass by 2026.
- Although 81% of homes and businesses should be able to get good 4G indoor coverage from all operators, one in five premises are unable to do so.
- We estimate that 27,000 premises in England cannot access either a decent fixed broadband service or get good 4G coverage indoors (from any operator).

[2] Or KCOM in the Kingston-upon-Hull area.
[3] Subject to eligibility criteria

Contents

Fixed broadband services in England

Fixed broadband scorecard for 2019

Coverage of broadband:	England	UK
Superfast broadband residential coverage (>=30 Mbit/s): % of residential premises	95%	95%
Urban	97%	97%
Rural	81%	79%
Ultrafast broadband (>=300Mbit/s)	55%	53%
Full-fibre coverage	10%	10%
Unable to get 10 Mbit/s download & 1 Mbit/s upload speed: % of premises (homes and businesses)	2%	2%
Urban	1%	1%
Rural	8%	10%
Average broadband speeds and data use:		
Average download speed	62Mbit/s	60Mbit/s
Urban	64Mbit/s	64Mbit/s
Rural	46Mbit/s	43Mbit/s
Average upload speed	9Mbit/s	9Mbit/s
Data use (monthly average) [4]	325GB	315GB
Urban	334GB	335GB
Rural	259GB	259GB

Source: Ofcom analysis of operator data

Introduction

A key priority for Ofcom is to encourage investment in full-fibre, which provides greater speed and reliability than copper-based telecoms networks. We are also taking action to ensure that those who cannot currently get a decent connection are able to legally request one to be installed.

For this report, we have expanded the number of companies contributing data to our analysis, incorporating coverage information from fixed wireless access providers and smaller full-fibre network providers.

In the main Connected Nations report, we also highlight some of the developments in the preparation for migrating voice services to be delivered over fibre broadband connections.

[4] Data usage in urban and rural areas of England is slightly higher than the UK averages. However, the overall average data use in England is slightly lower than the UK average. This difference is due to relative weighting and usage patterns across the nations.

Key highlights:

- Full fibre broadband services are now available to 10% of residential premises in England
- Superfast broadband coverage to homes in England stands at 95%, broadly similar to 2018 (94%). Superfast coverage to homes in rural areas remains lower at 81%.
- 2% of premises (homes and businesses) in England are unable to access a decent broadband service, which is approximately 412,000 premises. Around 274,000 of these are in rural areas.
- Factoring in the coverage from fixed wireless providers, we now estimate that as few as 111,000 homes in England should be unable to access a decent broadband service, subject to confirmation of individual premises coverage.
- In 2019, the average download speed in England was 62 Mbit/s and upload speeds 9 Mbit/s. In rural areas, the average download (46 Mbit/s) remains lower than urban areas (64 Mbit/s).
- Average data usage per residential connection in England stood at 325GB per month, slightly above the UK figure (315GB), and a rise of around 80GB over the year. Homes in rural areas consume less (259GB) than urban counterparts (334GB).

Fixed broadband coverage

Fixed broadband coverage has increased across England

There has been continued investment in fixed networks resulting in improvements in the availability of superfast, ultrafast and full-fibre broadband across England. As a consequence, the number of homes that do not receive decent broadband (a download speed of at least 10 Mbit/s and an upload speed of at least 1 Mbit/s) has also declined.

Fixed broadband coverage has increased across England

There has been continued investment in fixed networks resulting in improvements in the availability of superfast, ultrafast and full-fibre broadband across England. As a consequence, the number of homes that do not receive decent broadband (a download speed of at least 10 Mbit/s and an upload speed of at least 1 Mbit/s) has also declined.

Access to a superfast broadband service continues to increase although at a slower pace than previous years

Ofcom defines superfast broadband as a service which delivers a minimum download speed of at least 30 Mbit/s.

Over the past year, the coverage of superfast broadband to residential homes across England stands at 95%, broadly similar to last year.

Superfast availability for UK business or commercial properties is somewhat lower (86%) than for residential premises. This may be due in part to lower availability in business parks, due to the costs involved in rolling out technology these areas and the higher use of business broadband services to such areas (such as private lines).

There is also a significant difference between the availability of superfast broadband in urban and rural areas, with 97% of homes in urban areas having access to superfast broadband compared to 81% of in rural areas. This is broadly consistent with the rest of the UK.

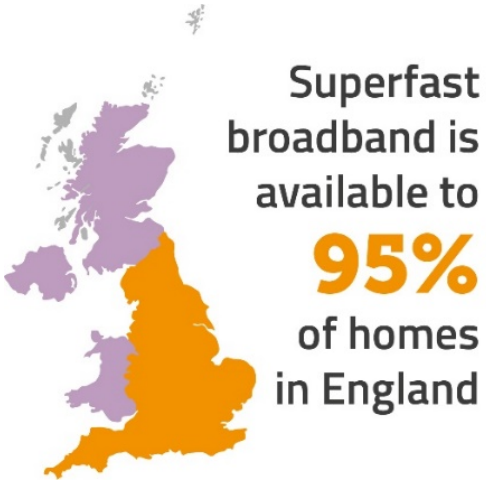


Figure 1: Coverage of residential superfast broadband (≥30Mbit/s), urban / rural breakdown

	England	UK
Total	95%	95%
Urban	97%	97%
Rural	81%	79%

Source: Ofcom analysis of operator data

Although 95% of premises (homes and businesses) in England have access to superfast broadband, take up remains lower with only 49% of premises signed up to them.

We expect superfast broadband coverage to increase to increase across England as a number of public sector interventions are currently underway:

- As part of the Autumn 2018 Budget, the Chancellor announced that £200m would be made available to pilot innovative approaches to the deployment of full-fibre via the Rural Gigabit Connectivity Programme. The Government is initially prioritising sites in Cornwall, Cumbria and Northumberland (as well as Pembrokeshire), where the programme will trial a model connecting local public sector buildings in rural areas, starting with primary schools.
- Building Digital UK (BDUK) has extended 24Mbit/s coverage to 95% of the UK, and estimates that by 2020 this coverage will be extended to at least a further 2% of UK homes and businesses. Via the Superfast Broadband Programme, local bodies across England continue to deliver projects designed to improve broadband speeds.
- The Local Full Fibre Networks Programme ('LFFN') is allocating £200m to local projects to incentivise and accelerate commercial investment in full-fibre broadband. As part of the LFFN programme, a £67m Gigabit Broadband Voucher Scheme was launched to help small businesses and the local communities around them to contribute to the installation cost of faster connections using gigabit-capable infrastructure.

Ultrafast broadband deployment continues to increase in England

Ultrafast services are defined as being able to deliver broadband speeds that are greater than or equal to 300 Mbit/s. This definition includes G.fast[5], cable networks and full fibre technologies. G.fast services deliver very high speeds over very short telephone lines, so only premises close to the serving cabinet will be able to receive ultrafast broadband.

Figure 2: Ultrafast coverage (residential)

	Coverage, % of residential premises with download speeds of at least		
	100Mbit/s	300Mbit/s	1Gbit/s
UK	57%	53%	10%
England	59%	55%	10%

Source: Ofcom analysis of operator data

10% of premises in England have access to a full fibre connection

In a 'full fibre' or Fibre to the Premises network, fibre optic cables are connected all the way from the local exchange to the home or small business, and offer reliability and speeds of 1Gbit/s or more.[6]

The number of homes with full fibre services available has also risen in the past year to approximately 2.4 million (10%). This is an increase from around 6% in 2018.

Coverage of commercial properties with "full-fibre" broadband access services stands[7] at around 13%, which is likely to be the result of operators selecting areas for deployment that contain a larger number of businesses to maximise take-up. A full list of the providers who contributed coverage data can be found in our Methodology Annex.

We expect deployment to continue to increase with established and alternative providers announcing plans to expand their full fibre networks. These include a range of initiatives in England such as:

- Openreach's 'Fibre First' programme, which aims to rollout full-fibre broadband to 3 million UK homes and small businesses by the end of 2020. In 2019, Openreach announced 11 new locations, including Croydon and Salford, as part of the Fibre First programme.
- In 2019, CityFibre announced a further 14 towns and cities, including Bradford, Rotherham and Swindon, to join its 'Gigabit City' programme for full-fibre deployment.
- Country Broadband, who specialise in delivering broadband to rural areas, has announced plans to deliver fibre connections to around 30,000 homes and businesses in East Anglia.
- Jurassic Fibre, which aims to deliver ultrafast, full fibre-optic broadband to premises across Devon, Somerset and Dorset.

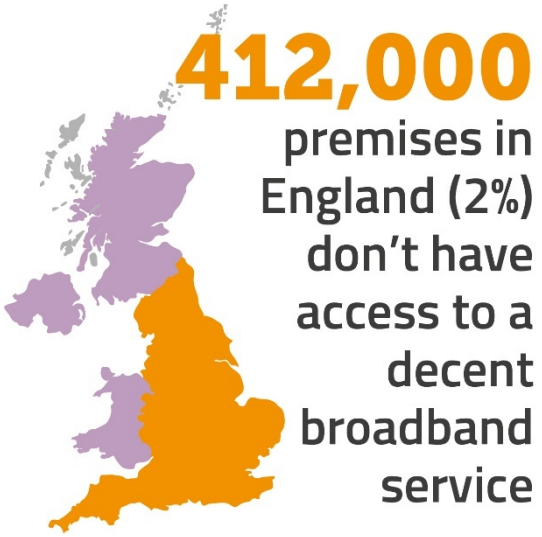
[5] G.fast is a fixed line technology that reuses the existing copper connection to a cabinet, and makes use of a greater number of frequencies to deliver faster services than current fibre to the cabinet services that use VDSL technology.

[6] We define full fibre coverage as where the network has been rolled out to a "lead-in" that will serve the consumer end premise and where the consumer would expect to pay a standard installation charge for that connection.

[7] "Full-fibre" broadband access services are those delivered to the mass market primarily to deliver internet connectivity and have some degree of contention in the network. Uncontended "leased line" services over fibre are also available at higher price points for corporate networks and other applications.

The number of premises (homes and businesses) unable to access decent broadband has fallen again

While superfast and ultrafast coverage continues to increase, there remain premises that do not have access to decent broadband.



In March 2018, the UK Government introduced legislation for a Broadband Universal Service Obligation, which will give eligible homes and businesses the right to request a broadband connection that delivers a decent broadband service of at least 10 Mbit/s download speed and 1Mbit/s upload speed. Ofcom is responsible for implementing the USO.

We have designated BT and KCOM as the broadband universal service providers and from March 2020 consumers can start to request USO connections.

Around 412,000 premises (2%) cannot get a decent broadband from a fixed line connection. Of these, we estimate that around 111,000 could be potentially eligible for the broadband USO when it launches in March 2020[8].

This is because of the launch and substantial expansion of 4G fixed wireless services has meant that a decent broadband service can be delivered over a wireless connection (see further detail in the section below).

Whilst the percentage of English premises unable to access a decent broadband service appears lower than other UK Nations, England's large population means the number of people affected is highest of all the UK Nations.

Figure 3: Premises unable to access a decent broadband service from a fixed line

	% of premises	No. of premises
UK	2%	610,000
England	2%	412,000
Northern Ireland	6%	50,000
Scotland	4%	98,000
Wales	3%	50,000

Source: Ofcom analysis of operator data

Differences in decent broadband availability also remain between urban and rural areas. Homes and businesses without access to decent broadband in England are more likely to be rural. Only 1% of urban premises (138,000) did not have access to such services, compared with 8% (274,000) of rural premises in England.

Figure 4: Unable to access a decent broadband service: urban / rural breakdown (homes and businesses)

	% of premises	No. of premises
England	2%	412,000
England urban	1%	138,000
England rural	8%	274,000

Source: Ofcom analysis of operator data

[8] Subject to eligibility criteria

Of these premises, we estimate that around 111,000 could be potentially eligible for the broadband USO when it launches in March 2020[9]. This is because of the launch and substantial expansion of 4G fixed wireless services has meant that a decent broadband service can be delivered over a wireless connection (see further detail below).

Fixed Wireless Access as a means of delivering broadband

Fixed Wireless Access (FWA) networks use a wireless link for the final connection to a home or business, avoiding the installation of a line into the building. The capacity in the wireless access network is shared between multiple users. FWA services can be delivered on networks that only serve customers at a fixed location, by Wireless Internet Service Providers (WISPs). In the UK, these networks most commonly use licence exempt or light licensed spectrum such as the 5 GHz band. They can also be delivered on mobile networks, where the capacity of the network is shared with mobile users, using 4G and 5G technologies.

Fixed Wireless Access by WISPs

The results of our modelling show that, in principle, as many as 1.1 million[10] unique homes and businesses in England could have a medium or high chance of being able to receive a decent broadband service from a WISP[11]. Of these, 39,000 currently have no other means of accessing a decent fixed broadband service.

There are many more WISPs who have not given us their coverage data, so coverage from these providers could be higher. We intend to continue to collate and analyse data from these providers and monitor changes to the sector.

Further details on this can be found in our main Connected Nations report.

Fixed Wireless Access via mobile technologies

Over the past year, mobile network operators (MNOs) have launched new FWA services, in some cases making use of the increased capacity of their 5G networks. Some MNOs have also continued to offer FWA services on their 4G networks. For example, earlier this year EE (part of the BT group) trialled a 4G home broadband solution across Northern Fells in Cumbria, delivering speeds of over 100Mbp/s.

Mobile FWA Services are mainly delivered directly to an indoor router. For areas with poor indoor coverage, EE offers an external antenna for its 4G FWA service. Three offers an external antenna to customers of its 4G FWA service in parts of Swindon. There are currently no providers offering an external antenna for their 5G FWA service.

In the majority of cases, these services share the network capacity with mobile users and MNOs do not market the services based on speed. We intend to carry out more research into the performance of these services.

[9] Subject to eligibility criteria

[10] The network infrastructure that is currently deployed by the providers we have obtained information from would need to be extended significantly to support any larger proportion of this total nominal capability beyond the current level.

[11] This consists of data from 13 providers, of which 5 provided updated data for this year. The increase in the number of premises compared to last year is due to data from one additional provider.

We estimate that EE has FWA coverage over 401,000 UK premises that do not currently have access to a decent broadband service from a fixed line or a WISP.

Taking this and the WISP coverage into consideration means that we estimate that there are currently only around 111,000 premises in England that could be eligible for the Broadband USO[12].

Performance of fixed broadband services

Average broadband data usage per month has risen by 84GB in England

Consumers are also consuming more data over their fixed connections. Data use on fixed networks has increased to an average of 325GB per connection per month, from 241GB in 2018.

Average download speeds have also increased by 12 Mbit/s in the last year, increasing to 62Mbit/s across England. Download speeds in rural areas remain lower at 46Mbit/s.

Figure 5: Average speeds and data usage

	Download speeds (Mbit/s)	Upload speed (Mbit/s)	Monthly data use (GB)
England	62 (↑12 Mbit/s)	9 (↑2 Mbit/s)	325 (↑84GB)
England Urban	64 (↑12 Mbit/s)	9 (↑2 Mbit/s)	334 (↑84GB)
England Rural	46 (↑12 Mbit/s)	12 (↑5 Mbit/s)	259 (↑83GB)

Source: Ofcom analysis of operator data

Local Authority coverage data

This section provides an overview of some of the data available at local authority level in England. More detailed information on this as well as Westminster constituency level data is available via the interactive portal on the Ofcom website

Coverage of faster broadband is higher in urban areas

Broadband services and speeds vary across England between urban and rural areas. This is reflected in the availability of these services by local authority area, with faster services and speeds available in more urban, densely populated areas.

In Ealing, there is near universal coverage of superfast broadband with 98% of premises having access to services that can deliver >=30 Mbit/s.

Superfast coverage is lower in those local authorities which are more rural. West Devon (77%), Mid Devon (77%) and Forest of Devon (78%) have the lowest availability of superfast broadband.

Rural areas have more premises without decent broadband

Local authorities that are more rural have a higher number of premises without access to decent broadband. This is a service that can deliver at least 10 Mbit/s download and 1 Mbit/s upload speeds.

West Devon, Torridge and Eden (12%) have the highest percentage of premises unable to get a decent broadband service. Mid Devon (11%) also has a significant number of premises that fall into this category.

[12] Subject to the individual premise network coverage variations.

Mobile services in England

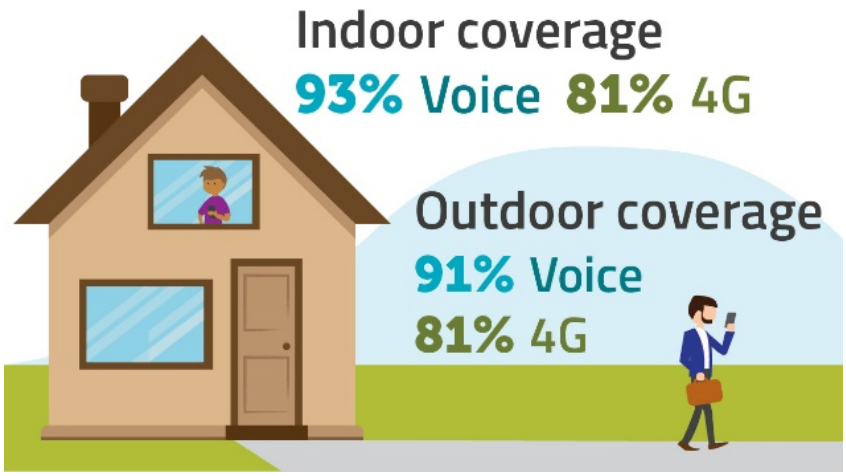
Introduction

People expect to be able to make calls and get online where they live, work and travel. In this section, we provide an update on coverage both outside and inside premises across England's landmass, and on roads.

Key findings

Coverage from all 4 operators	England	UK
Outdoor geographic coverage		
4G	81%	66%
Voice	91%	79%
Indoor premises coverage		
4G	81%	80%
Voice	93%	93%
Major roads coverage (in vehicle)		
4G	68%	62%
Voice	87%	81%

Source: Ofcom analysis of operator data



Key highlights:

- Voice services from all four operators are available (outdoor) to 91% of England's landmass.
- 81% of homes and businesses in England have good 4G coverage from all four network operators.
- Good 4G services from all four operators are available (outdoor) across 81% of England's landmass.
- 68% of England's major roads have good in-vehicle 4G coverage.
- The commercial rollout of 4G is approaching completion and MNOs are focusing further investment to deliver improvements where demand is concentrated. As a result, both England premises coverage and outdoor geographic show small improvements. Outdoor coverage is now available in the majority of places where people live and work.
- However, coverage of England's landmass remains patchy, especially in rural areas. The UK Government announced in-principle support for the network operators' proposed Shared Rural Network which would deliver new coverage in many rural areas of England.

5G is here

This year marked the launch of 5G in the UK. The UK is a 5G leader in Europe, because it is one of the first countries where all the Mobile Network Operators (MNOs) have started 5G deployment.

These initial 5G networks target mobile broadband services, providing several enhancements over 4G networks, including higher speeds and the capability to deliver extra capacity where needed, such as in urban areas or sports stadiums. Future evolutions of these initial 5G networks will enable additional services that rely on a near instantaneous network response (a latency of the order of only a few milliseconds) and need high reliability, with applications in sectors such as manufacturing, logistics, agriculture, transport/automotive, energy, media & entertainment, and healthcare. Examples of applications include controlling vehicles at distance, e.g. in mines, or enabling robots in automated factories to communicate with each other.

All UK MNOs have launched 5G this year

EE, O2, Three and Vodafone are offering 5G in some form in more than 40 English cities and towns, from Birmingham to Bristol and from Southampton to Warrington. Rollout has so far focused on areas with higher populations, where capacity demands are likely to be greatest. In the near term, operators are likely to continue rollout in areas where 5G will deliver significant quality of service improvements needed to meet consumer demand.

5G will also benefit organisations and businesses

Public mobile networks, in addition to providing broadband services for consumers, could also be used to provide specialist services to organisations and businesses.

Organisations and businesses could also decide to access 5G services via a local private 5G network, either self-deployed or deployed by a third party. This option guarantees a high

level of security and full control on data ownership. In February 2019 we outlined a range of technological approaches and business models to support organisations and businesses in developing their digital infrastructure. We expect the new spectrum sharing framework to provide support for organisations and businesses interested in deploying wireless services via private solutions using 4G or 5G. From December 2019, it has been possible to apply for a local licence.

Our approach to reporting on mobile coverage

Methodology

In this section we report on coverage both outside and inside premises, on geographic coverage and on coverage along roads. We report on the availability of voice services, via either 2G, 3G or 4G, and on the availability of 4G data connections. Our definition of 4G coverage reflects a level of service that supports nearly all 90-second telephone calls being completed without interruption and data connections that deliver a connection speed of at least 2 Mbit/s (fast enough to browse the internet and watch glitch-free mobile video).

The mobile coverage figures provided in this report rely on the accuracy of coverage prediction data supplied by the mobile operators. We note that operators continue to update and improve their prediction models, which is welcome. The data used in this report includes predictions provided to us by EE using a newly developed coverage prediction model, which has seen some changes in the coverage it predicts for landmass and premises. EE has provided us with information on the validation work it has undertaken to date.

We take the accuracy of the data supplied to us seriously given its importance to policy making and to ensuring people are well informed about available coverage. We will continue to monitor, through drive testing, the accuracy of all operators' coverage predictions.

4G coverage growth has been slowing but the SRN is designed to change this

Introduction

During 2017 and 2018 we saw significant growth in 4G rollout as MNOs deployed 4G by upgrading existing infrastructure, spurred on by the coverage obligations that fell in December 2018. Since then, 4G coverage has continued to improve, but at a lower rate than in previous years. Generally, the MNOs' focus has more recently been on targeted rollout and capacity enhancement to deliver key improvements to meet consumer demand.

However, in October 2019, the UK Government announced in-principle support for the network operators' proposed Shared Rural Network. The Shared Rural Network proposal would see mobile operators sharing existing and new infrastructure to provide significantly improved and extended coverage in rural areas.

Coverage outside premises

91% per cent of England's geographic area is now covered by all four operators for telephone calls.[13] This remains unchanged from 2018.

Outdoor access to 4G has dipped slightly from 82% in 2018 to 81% in 2019.

Figure 6: Geographic mobile coverage

		% of landmass covered by all operators	No coverage from any operator
Voice	England	91%	1%
	UK	79%	5%
4G	England	81%	3%
	UK	66%	9%

Source: Ofcom analysis of operator data

England's relatively good coverage figures can hide rural and urban variation. 97% of urban areas have 4G outdoor access to all four operators in contrast to 78% of rural areas.

Figure 7: Geographic 4G coverage by rurality

	4G all operators (outdoor)	4G at least one operator (outdoor)	4G no operators (outdoor)
Total	81%	97%	3%
Urban	97%	100%	0%
Rural	78%	97%	3%

Source: Ofcom analysis of operator data

Figure 8: Geographic voice coverage by rurality

	Voice all operators	Voice at least one operator	Voice no operators
Total	91%	99%	1%
Urban	99%	100%	0%
Rural	90%	99%	1%

Source: Ofcom analysis of operator data

Indoor coverage

Nine in ten premises have indoor telephone coverage from all operators

93% of homes and businesses in England have indoor telephone call and texts coverage from all four mobile networks. This remains unchanged from 2018.

Figure 9: Indoor coverage - % of premises covered

	% of premises with indoor coverage from all operators	No coverage from any operator
Voice	93%	0.2%
4G	81%	1%

Source: Ofcom analysis of operator data

Eight in ten (81%) of homes and businesses in England receive 4G signal from all operators, a slight increase from 78% in 2018. Whilst we welcome the improvement, indoor coverage is important for people and more must be done to increase it. Indoor coverage is significantly poorer in rural areas. For example, in urban areas 4G services are available from all operators in 87% of premises while in rural areas 4G services are available from all operators in only 42% of premises.

[13] These figures include voice calls over 4G Long Term Evolution (LTE™) services. LTE is the predominant 4G technology used in the UK.

Mobile coverage and not spots by rurality

Our metric of 'complete not-spots' reflects areas where there is no coverage from any operator, and this will be lower than 'not-spot' figures for any particular operator. To understand the coverage an individual consumer would receive, coverage by individual operators is included in figure 12.

Of the entire English landmass, 3% is unserved by any operator for 4G data services (a slight increase from 2% in 2018). This is focused in rural areas.

Figure 10: Complete not-spots and coverage by all operators

		Indoor voice (premise)	Indoor 4G (premise)	Voice (geographic)	4G (geographic)
Complete Not-spots	Overall	0%	1%	1%	3%
	Urban	0%	0%	0%	0%
	Rural	1%	5%	1%	3%
Coverage from all operators	Overall	93%	81%	91%	82%
	Urban	97%	87%	99%	97%
	Rural	68%	42%	90%	78%

Source: Ofcom analysis of operator data

Between 90% and 96% homes and businesses have 4G coverage indoors, whilst outdoor coverage of landmass varies between 88% to 93%.

Figure 11: Mobile coverage by provider

	O2	Vodafone	EE	Three
Indoor premises coverage				
4G	96%	94%	93%	90%
Voice	99%	99%	97%	96%
Outdoor geographic coverage				
4G	88%	91%	93%	92%
Voice	98%	98%	94%	95%

Source: Ofcom analysis of operator data

There are 27,000 premises in England that do not have decent fixed broadband or indoor 4G mobile coverage

Premises are considered to have access to a decent fixed connection if the broadband speed is a download speed of at least 10Mbit/s and an upload speed of at least 1Mbit/s and to have good mobile coverage if indoor 4G mobile coverage is available. Using this approach, we estimate that 27,000 premises are unable to access either.

Although we have observed an increase in the figure reported in last year's report, the way in which we identify premises has changed, which is discussed further in our Methodology Annex.

Roads coverage

Increasingly people need to be connected on roads, from communication, navigation, and infotainment services to safety aids.

87% of major roads (motorway and A roads combined) in England have voice coverage from all four operators, unchanged from 2018. 68% of major roads have in-car 4G coverage from all operators, a slight decrease from 70% in 2018.

Figure 12: Major roads mobile coverage

		Coverage from all four operators		No coverage from any operator	
		4G	Voice	4G	Voice
UK	Total	62%	81%	3%	1%
	Urban	83%	94%	0%	0%
	Rural	51%	75%	4%	1%
England	Total	68%	87%	1%	0%
	Urban	84%	95%	0%	0%
	Rural	57%	81%	2%	0%

Source: Ofcom analysis of operator data

Initiatives to improve mobile communications

Coverage is improving, but expectations are increasing and more must be done. We continue to work with Governments and companies to improve mobile services in the UK.

The Shared Rural Network will address patchy rural network coverage across England

Following detailed discussions between the MNOs and the UK Government (supported by Ofcom), in October 2019 the UK Government announced in-principle support to fund the MNOs' proposed 'Shared Rural Network'.

Under the Shared Rural Network, each operator's coverage would expand to 91% of England's landmass by 2026.

The Shared Rural Network proposal is subject to final agreement by the mobile operators and the UK Government. The UK Government's intention is to reach a formal agreement in early 2020.

Further details on this can be found in our main Connected Nations report.

Taking steps to improve coverage in rural areas by and on rail services

We have supported steps to improve coverage in rural areas by addressing barriers and reducing costs. These included changes to the Electronic Communications Code and to planning laws, to make it easier and cheaper to deploy mobile infrastructure.

Ofcom has provided advice to the UK Government following technical analysis of a variety of options to improve mobile coverage. The advice focused on public subsidy, rural wholesale access (commonly known as rural roaming), infrastructure sharing and planning reform.

We have also recently published our advice to Government on current and future demand for data services from passengers on the UK's mainline railways.