

Your response

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Section 2: The quality of mobile connectivity we want to see - What are your views on the use of the Map Your Mobile good performance metric and how should the measure evolve over time? What are your views on the usefulness of: - the 90% figure as a benchmark applicable across geographies and based on crowdsourced data?, and - Whether the 90% benchmark is realistic and sufficiently ambitious?	Confidential? – N Sadly the Map your Mobile tool seems to rarely represent the actual coverage in many rural areas which is our focus. We use the tool to determine if it is worth us installing a coverage solution, and more times than not, MYM says good coverage on at least one network but the reality is different. It's possible there is some seasonal drift due to foliage etc. and this should be compensated for. N/A N/A
Section 3: Market-led improvements in mobile network quality - What information do customers need about network quality to choose the best network for their needs, and where are the main gaps in current provision of that information? - How well does Map Your Mobile currently meet customer and stakeholder needs, and what specific improvements would make it more useful?	Confidential? – N
Section 4: Connectivity in busy areas What do you think are the biggest barriers to achieving better mobile performance in town and city centres and why?	Confidential? – N Many of the JOTS street furniture based solutions do not seem to have proper mobility between them and the macro layer (most likely not X2 connected) which inevitably means that the device must break the connection (go to RRC idle) before moving to the street based layer – and vice versa. This is possibly due to the relatively young nature of this kind of connectivity model, but it

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• What do you think should be Ofcom's main priorities for our future work in this area? • What information would stakeholders, especially local authorities / planning authorities find useful for Ofcom to provide further insights on and why?	would not be an effective solution during a call or non-interactive data session. Varied session based testing to determine full layer migration. Partial RRC idle mode vs full RRC connected modes, with results of successful coverage layer migration. Otherwise, there can be great coverage if you flight mode your phone every time you turn a street corner (slight exaggeration but the principle is sound). Actual reliability metrics vs pure coverage.
Section 5: Connectivity in indoor, shared public places • What do you think are the biggest barriers to achieving better mobile performance indoors and why? • What do you think should be Ofcom's main priorities for our future work in this area? • What information would you find useful for Ofcom to provide further insights on in relation to connectivity indoors and why?	Confidential? – N The lack of MOCN use, coordinated frequency planning and one radio, all operators. With this scenario all radios provides coverage for all, and you can have more radios per site with less overall power consumption as you can sleep radios when capacity is not required. If MOCN isn't an option for "legislative reasons", at least considering supporting a National Roaming operator. It's not enough to "not object", there are commercial and technical reasons why roaming offers a viable solution to coverage issues but the big three resist it based on legacy rules. Wavemobile is already operating a network that services over 1.2 million devices a year using near-shore roaming on an all British platform. The technology works and it's cost effective – it is not perfect but with true National Roaming it could be close. We are not popular for suggesting this, but this is about effective use of technology and resources, and we would challenge anyone to explain why this isn't a workable solution. Indoor coverage is challenging to monitor the user experience of for other reasons, the biggest one being WiFi. Normally the first question anyone asks is "what's the WiFi password" and there are some great, inexpensive WiFi infrastructure vendors now – plus WiFi calling works well once you're inside and on it. For hotels and residences I am not sure indoor cellular at high capacity needs significant cellular investment when OpenRoaming on WiFi will do almost as much.
Section 6: Connectivity on trains • What do you think are the biggest barriers, technical and	Confidential? – N The biggest barriers to decent coverage on trains is one of legacy arrogance. There is a significant attitude of this

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commercial, to achieving better mobile performance on trains? Which are most significant and why? • Do you agree with our proposal to work with government to support improvements in train connectivity? • What information would you find useful for Ofcom to provide further insights on in relation to connectivity on trains and why?	is how we have always done it, so this is how we will do it. Modern trains are pretty much faraday cages, so the sensible thing to do is to put the signal inside the train. An independently operated set of small cells, possibly with a micro LTE/5GSA core on board, backhauled over Starlink and load balanced cellular modems, will provide seamless coverage where there is outdoor coverage or a good view of the sky. For tunnels and cuttings, install a private 5GSA network and load balance onto that. Where the coverage completely fails, due to there being a microcore on board the cells stay up, the phones stay connected and there is a brief interruption in User Plane data. Wavemobile has already done this and offers it's public cellular network via a 1mW OFCOM licenced cell on a bus in Wales (the Starbws), it works. We would like to cut through the bureaucracy and try it on a train. We believe this is the best solution as the coverage for the train originates inside the train – the signal levels are consistent and reliable. We agree that OFCOM has a real chance to innovate in this area and not just make it an MNO led, government funded extension of the SRN. All options should be considered, especially those which serve British business and technology partners. Just transparency. We have no real expectation that anything will change – challenging the norm doesn't seem to make a difference so we are expecting more of the same.
Section 7: Connectivity in rural areas • What do you think are the biggest barriers to achieving better mobile performance in rural locations and why? • What do you think should be Ofcom's main priorities for our future work in rural locations and what outcomes should we aim to achieve?	Confidential? – N Geography and topology clearly influences mobile signals. There will never be 100% coverage, but getting close to that where people are is possibly achievable but not using the current model. The SRN/EAS network has been a success to a point but - it is unnecessarily complex with big towers that all three operators live on, and the power supply requirements for them to serve 10 people and 1,000 sheep is unrealistic, and not commercially viable unless the Government is co-funding it. So, there need to be another way... At least consider supporting a National Roaming operator. It's not enough to "not object", there are commercial and technical reasons why roaming offers a viable solution to coverage issues

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• What solutions (technical, commercial, policy or delivery) could improve rural mobile performance? • What information would you find useful for Ofcom to provide further insights on in relation to rural connectivity and why?	but the big three resist it based on legacy rules. Wave-mobile is already operating a network that services over 1.2 million devices a year using near-shore roaming on an all British platform. Since day one we have connected with over five million devices. The technology works and it's cost effective – it is not perfect but with true National Roaming it could be close. We are (still) not popular for suggesting this, but this is about effective use of technology and resources, and we would challenge anyone to explain why this isn't a workable solution. Lots of "all operator" mini-macro cells will provide a patchwork of coverage, that, when augmented with home MNO and NTN will be the best hybrid solution. There isn't a "one size fits all" for this, and O2's Starlink solution is effectively extra-terrestrial national roaming so why not support a terrestrial network that, unlike NTN, supports emergency calls? OFCOM should do a study into the effect of enforcing National Roaming. It would open up the market to healthy competition and there could be rules surrounding what is acceptable in terms of minimum signal for acquisition etc. A flat "NO" from the operators isn't helpful to anyone, especially the bill paying public. An alternative to National Roaming could be all operators one radio with native PLMN (such as 23404), then splitting the S1 at a gateway into the existing JOTS backend. This would give the operators more visibility, but not control, thus allowing truly independent network operators to serve the locations that are simply impractical and too expensive to serve other ways. Again, transparency. We often wonder just how many devices does it take for people to say "ok, how can we help make this work better for our customers". We have built a network in spite of the UK MNO's, with zero support – in fact one operator mocked wavemobile for supporting ultra rural scenarios. Rural coverage is an issue, but now, thanks to LEO and significant FTTP penetration, getting a small cell deployed is trivial. Deploying three is farcical however for a small hamlet. Finally, it is incredibly disappointing that wavemobile is not even mentioned in the report – we hold an OFCOM registered MNC, and licence all of our cells through a mixture of SAL's and LAL's. You would imagine that over

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	four million connected devices since in the past four years might get a mention even in passing.

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