Your response

Question	Your response
Question 1: (Section 3) Do you agree with our proposal for a single authorisation approach for new users to access the three shared access bands and that this will be coordinated by Ofcom and authorised through individual licensing on a per location, first come first served basis? Please give reasons supported by evidence for your views.	Confidential? – Y / N
Question 2: (Section 3) Are there other potential uses in the three shared access bands that we have not identified?	Confidential? – Y / N
Question 3: (Section 3) Do you have any other comments on our authorisation proposal for the three shared access bands?	Confidential? – Y / N
Question 4: (Section 3) What is your view on the status of equipment availability that could support DSA and how should DSA be implemented?	Confidential? – Y / N
Question 5: (Section 4) Do you agree with our proposal for the low power and medium power licence? Please give reasons supported by evidence for your views.	Confidential? – Y / N
Question 6: (Section 4) Are there potential uses that may not be enabled by our proposals? Please give reasons supported by evidence for your views.	Confidential? – Y / N
Question 7: (Section 4) Do you agree with our proposal to limit the locations in which medium power licences are available? Please give reasons supported by evidence for your views.	Confidential? – Y / N
Question 8: (Section 4) Do you have other comments on our proposed new licence for the three shared access bands?	Confidential? – Y / N
Question 9: (Section 4) Do you agree that our standard approach to non-technical licence conditions is appropriate? Please give reasons supported by evidence for your views.	Confidential? – Y / N
Question 10: (Section 4) Are you aware of any issues regarding numbering resources and Mobile Network Codes raised by our proposals which we have not considered here?	Confidential? – Y / N

Question 11: (Section 5) Do you agree with the proposed technical licence conditions for the three shared access bands? Please give reasons supported by evidence for your views.	Confidential? – N Please see attached response.
Question 12: (Section 5) Are there other uses that these bands could enable which could not be facilitated by the proposed technical licence conditions? Please give reasons supported by evidence for your views.	Confidential? – Y / N
Question 13: (Section 5) Do you agree with our proposed coordination parameters and methodology? Please give reasons supported by evidence for your views.	Confidential? – N In general we have no issues with the co-ordination approach. However please see our response to question 11 with reference to the power limits for terminal stations in the 3.8-4.2GHz band.
Question 14: (Section 5) What is your view on the potential use of equipment with adaptive antenna technology (AAS) in the 3.8-4.2 GHz band? What additional considerations would we need to take into account in the technical conditions and coordination methodology to support this technology and to ensure that incumbent users remain protected?	Confidential? – Y / N
Question 15: (Section 5) Do you agree with our proposal not to assign spectrum to new users in the 3800-3805 MHz band and the 4195-4200 MHz band?	Confidential? – Y / N
Question 16: (Section 6) Do you agree with our fee proposal for the new shared access licence? Please give reasons supported by evidence for your views.	Confidential? – Y / N
Question 17: (Section 7) Do you agree with our proposal to change the approach to authorising existing CSA licensees in the 1800 MHz shared spectrum? Please give reasons supported by evidence for your views.	Confidential? – Y / N
Question 18: (Section 8) Do you agree with our proposal for the Local Access licence? Please give reasons supported by evidence for your views.	Confidential? – Y / N
Question 19: (Section 8) Do you have any other comments on our proposal?	Confidential? – Y / N
Question 20: (Section 8) What information should Ofcom consider providing for potential applicants in the future and why would this be of use?	Confidential? – Y / N

Question 21: (Section 8) Do you agree with our proposal to have a defined licence period and do you have any comments on the proposed licence term of three years?	Confidential? – Y / N
Question 22: (Section 8) Do you have any other comments on the proposed Local Access licence terms and conditions?	Confidential? – Y / N
Question 23: (Section 8) Do you agree with our fee proposal for the new local access licence? Please give reasons supported by evidence for your views.	Confidential? – Y / N

Response to Question 11

We do not agree with the proposed technical conditions for medium power operation in the 3.8GHz to 4.2GHz band.

Technology Neutrality

Clause 5.2 states that the technical conditions for the new shared licences should be technically neutral. However subsequent clauses mandate a TDD frame structure consistent with LTE and 5G. A range of different technology platforms may be suited to offer cost effective fixed wireless access in rural areas, not just LTE based solutions. There is indeed non-LTE equipment from at least two wireless vendors already on the market that covers this frequency band and could be used for such deployments. In rural areas it is highly unlikely that multiple operators will install base stations in close proximity, so a mandatory frame structure will bring no practical benefit.

Station Power Limit

We agree with the medium power base station maximum EIRP of 42dBm per carrier in Clause 5.5. However we do not agree with the limiting of terminal station EIRP to 23dBm in Clause 5.6. Whilst such an approach may make logical sense for a mobile/nomadic network where there is a significant difference in antenna gain between base station and terminal, a 23dBm limitation will cripple the economics of a rural broadband network. In fixed broadband the terminal station has a high gain directional antenna so that base station and terminal station antennas have broadly similar gains. Therefore a 19dB difference between base station and terminal station power limits will dramatically reduce the achievable coverage from a base station. For line of sight high speed broadband connections, cell radius will reduce from a typical 4 kilometres to well under 1 kilometre. We can compare this with the light licensing regime at 5.8GHz where both base station and terminal station are permitted to operate at power levels up to 36dBm EIRP.

The argument given in Clause 5.7 for this onerous limitation is that since fixed terminals are not specifically co-ordinated a reduced level is required to avoid potential interference to other uses such as fixed links which may have directional antennas with main beam pointing at a terminal rather than the coordinated base station. We see this argument as fallacious for a number of reasons:

1. According to Ofcom's 2016 Report "3.8-4.2 GHz band: Opportunities for Innovation" there were only 65 fixed links licensed in the UK in 2015 and only one of these was in the whole territory between London and Aberdeen. Therefore the probability of a cochannel fixed link in the same neighbourhood is minuscule.
2. Terminal stations have directional antennas which are oriented towards their serving base station. Therefore simple geometry indicates that a fixed link which has its main beam pointing towards a terminal station will also be pointing towards the coordinated base station (since if it was positioned between terminal station and base station it would be operating on a different frequency). Given that in Clause 5.52 it is proposed that base stations are always co-ordinated using an omnidirectional radiation pattern, co-ordination of the base station will cover such rare circumstances.
3. Terminal station antennas are typically mounted at lower heights above ground level than base stations and are located at less prominent geographical locations.
4. There is unlikely to be a shortage of available spectrum in rural areas. Indeed Clause 6.8 states "As a result, we consider it likely that (in the vast majority of cases) there will be sufficient spectrum available for all users who wish to deploy these services in a given area"