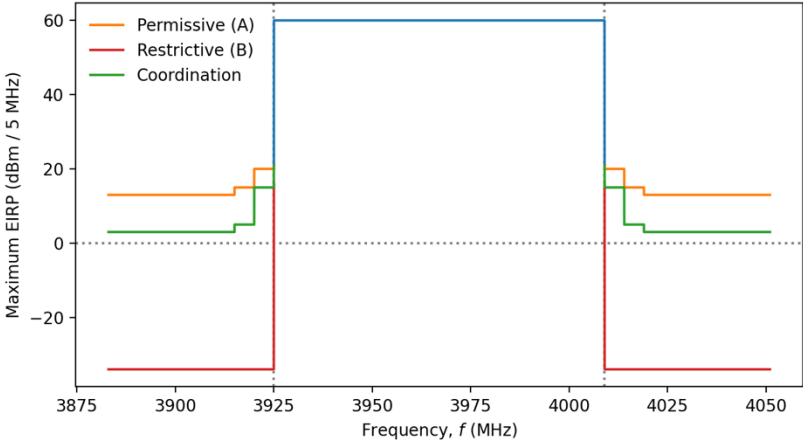
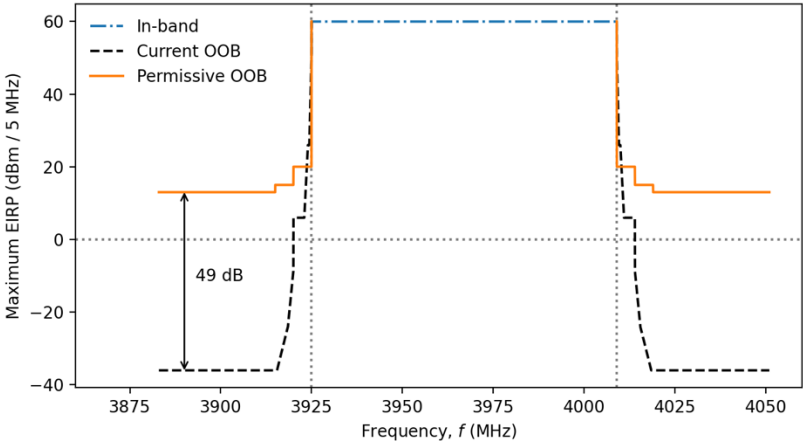


Your response

Question	Your response
<p>Question 1: Do you agree with our proposed technical changes to the licence?</p>	<p>Confidential? – N</p> <p>The transmit power 60 dBm/5MHz is in keeping with similar licences (e.g. in n40 and n78). However, compared with the original 53 dBm/MHz EIRP it does represent a five-fold increase in Tx power. We note that the power (original and/or proposed) is very high compared to neighbouring low/medium power SAL licences. Without careful management, we anticipate that such high-power use of the 3.9 GHz spectrum will have several interference implications for adjacent (as well as co-channel) low/medium power SAL users.</p>  <p>The requested technical changes include relaxation of the transmission mask to bring the licence in line with similar licences in other bands (e.g. n40, n78, ...). We recognise the attraction and motivation for this change for H3G.</p>  <p>However, we object to the significant increase to the allowed out-of-block power – equivalent to a 49 dB increase! With commercial hardware exhibiting up to 100 MHz of adjacent channel contribution, this</p>

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	<p>is of significant concern to low/medium power adjacent channel users (particularly those using different frame structures), where total EIRP as low as 28 dBm are licensed.</p> <p>We agree with the requirement to restrict this allocation to fixed wireless access, and not include mobile connectivity.</p>
<p>Question 2: Do you agree with our assessment of the impacts of our proposed technical changes to the licence?</p>	<p>Confidential? – N</p> <p>We agree that the technical changes will introduce minimal risk of interference with co-channel services, provided that they are synchronised and are compatible with frame structure A (to be used by H3G). We disagree, therefore, with the assessment 3.13 that co-channel Shared Access users may not suffer from increased risk of interference.</p> <p>We agree with statement 3.14 that increases to the acceptable out-of-block transmission power will increase the risk of interference for adjacent channel users. However, while we welcome the use of the relaxed coordination transmission mask (3.15-3.16) to allow for denser network deployment and potentially more efficient spectrum use, we note that it will present a significant interference risk for adjacent Shared Access users, particularly for uplink-biased configurations. Statement 4.32 does not only apply to co-channel users.</p> <p>We agree with statement 4.38, that there is a low risk of interference to H3G from Shared Access users (regardless of TDD frame structure used).</p> <p>We note that the use of ~26,000 3.9 GHz spectrum assignments at ~9,000 sites (2.10) using 60 dBm/5MHz and the proposed transmission mask will have substantial negative impact on existing and future Shared Access users. Moreover, based on the figures provided in Table 1, a Shared Access user is paying more for their low/medium power SAL than the H3G high power site (~£80/location or ~£27/assignment), yet is more likely to receive interference.</p> <p>We recognise the obstacles (4.43 – 10 fixed links and ~150 SALs) with moving the H3G allocation to align with 3800 MHz. However, there are substantial benefits to reassigning the spectrum licence (4.42). With the fixed links all being in SE England, we question how many of H3G's sites would actually be disrupted if the fixed links could not be reallocated and were protected such that the sites were no longer available to H3G? H3G stands to gain a significant advantage over competitors with access to this spectrum for 5G fixed access services, the loss of a comparatively small number of sites that may not end up developed anyway could be viewed as a reasonable sacrifice. Likewise, the Shared Access users with active licences in 3800-3884 MHz</p>

Question	Your response
	<p>could be canvassed to identify if their hardware could accommodate a change. Furthermore, the duration of the existing SALs should be taken into consideration – do they expire within 3.5 years from the time of the licence variation? Could H3G be approached to assist with replacement hardware costs? Statement 4.44 should be reconsidered.</p> <p>Finally, we note spectrum that is currently <i>actually</i> available for SAL:</p> <ul style="list-style-type: none"> • 3800-3815 MHz (15 MHz) • 3875-3925 MHz (50 MHz) • 4009-4135 MHz (126 MHz) • 4195-4200 MHz (5 MHz) <p>Out of the 400 MHz advertised, potential only 196 MHz is available for use.</p>
<p>Question 3: Do you agree with our proposal to introduce a use clause, including the specific timeframes proposed?</p>	<p>Confidential? – N</p> <p>A use clause is essential to allow for efficient spectrum use and future Shared Access.</p> <p>We believe that the initial 3.5-year period for H3G to develop plans regarding which of its sites it intends to use is too long. We disagree with statement 4.12 and instead feel that H3G should have a good idea of its position and intentions within the first 2 years.</p> <p>We recognise the potential complexity of developing a new cell site and appreciate that an 18-month use clause is suggested to allow for site development. We suggest that a standard 12-month use clause would be more appropriate, with an extension to 18 months if sufficient evidence for development can be provided. We feel that a site that has not had any development within the first 12 months is unlikely to be operational by 18 months.</p>
<p>Question 4: Do you agree with our assessment of the impacts of our proposed use clause?</p>	<p>Confidential? – N</p> <p>We agree with statements 4.21, 4.23 and 4.24, and would go further to consider allowing Shared Access to 3.9 GHz spectrum at undeveloped sites during the initial period. While opening up 3.9 GHz for Share Access in unused locations is very welcomed, this spectrum potentially lying fallow for 5 years seems a waste of resources. Given the noted timescales to develop each site, short-duration SALs (<i>e.g.</i> for events) could be accommodated.</p>

Question	Your response
<p>Question 5: Do you have any other comments on our proposed use clause?</p>	<p>Confidential? – N</p> <p>Given that, under the proposal, all 26,000 existing assignments are protected for 5 years, the registration of further assignments should be prevented until H3G release its plans for intended site development. Details of the intended active sites should be made publicly available for transparency.</p>
<p>Question 6: Do you agree with our proposal to update coordination with Shared Access users to assume synchronisation?</p>	<p>Confidential? – N</p> <p>Yes, assuming GPS synchronisation for managing network coordination is encouraged, not just for coordination with H3G. As noted in statement 4.32, Shared Access users are unlikely to cause interference to H3G, but there is significant risk that users with a more up-link-biased frame structure will be subject to interference from H3G – not just co-channel (but due to increased out-of-block transmission power). This interference can be minimised by time synchronisation, allowing for denser in-channel and adjacent network deployments. In order for synchronisation to have the desired effect, it will require H3G (as the high-power operator) to be open about the exact timing source and explicit frame structure being used.</p> <p>The ability to use different frame structures to support different applications is an essential part of the Shared Access paradigm. We recognise and strongly agree with statement 4.30 that Ofcom does not propose to mandate a frame structure within or around 3.9 GHz.</p> <p>We are neutral regarding statement 4.34 and the preference to first allocate Shared Access users with spectrum options outside of the 3.9 GHz band. However, the presence of an active nearby H3G assignment would be important information when planning low/medium power deployments.</p>
<p>Question 7: Do you agree with our proposal to remove adjacent channel protections of H3G assignments from Shared Access users?</p>	<p>Confidential? – N</p> <p>Yes, as noted in statement 4.38, the risk of interference to H3G from lower-power Shared Access users is low, and we agree with the proposal to only consider co-channel users when evaluating protection of H3G assignments. As above, it would be useful for co- and adjacent channel Shared Access users to be made aware of active nearby H3G assignments.</p>
<p>Question 8: Do you have any comments on our impact assessment (to the</p>	<p>Confidential? – N</p> <p>Shared Access (even temporary) to the 3.9 GHz band during the roll out period would be a significant benefit for Shared Access community and would also reduce spectrum sterilisation.</p>

Question	Your response
extent not covered by previous questions)?	
Question 9: Do you have any comments on our Equality impact assessment?	Confidential? – N No.
Question 10: Do you have any comments on our Welsh Language impact assessment?	Confidential? – N N/A
Question 11: Do you have any other comments on our proposals?	<p>Confidential? – N</p> <p>The change of licence to allow H3G to deploy high-power <u>5G fixed</u> wireless access services in 3.8 – 4.2 GHz will have a negative impact on the Shared Access band. The high-power transmission and increased out-of-block emissions will negatively impact adjacent SAL users, particularly uplink-biased applications. From our experience of deploying non-public networks in proximity to high-power networks, allowing such a high-power licence with the proposed “acceptable”: adjacent channel leakage characteristics in the middle of the Shared Access band will have a catastrophic effect on the ability to deploy lower-power, uplink-biased networks. With protection for legacy fixed links, Shared Access spectrum is already not as available as it appears, and the approval of this licence will render what spectrum is available as unusable for uplink-biased Shared Access users.</p> <p>This proposal does not align with Ofcom’s and DSIT’s ambitions and the objectives of the Shared Access band. We further note the (draft) ECC Decision 24(01) and expected CEPT Report, that reflects the objective of CEPT to harmonise the 3.8-4.2 GHz band for Europe: with “the harmonised least restrictive technical conditions (LRTC) for the shared use of the 3.8-4.2 GHz frequency band by terrestrial Wireless Broadband systems providing local-area (i.e. low/medium power) network connectivity (WBB LMP) and existing services.” A high-power assignment in this band is, therefore, also misaligned with the CEPT objectives and EU Mandate.</p> <p>We note that the merger with Vodafone will provide H3G with access to 61% of MNO spectrum – which is 3 times more than the next largest MNO. The ability to deliver 5G fixed wireless access services in this spectrum provides H3G with a significant competitive advantage.</p>

Question	Your response
	Therefore, it is imperative that appropriate compromises should be considered to ensure and promote the protection of existing FWA services and Shared Access users' requirements.

Please complete this form in full and return to liz.hall@ofcom.org.uk