

CAA response to the Ofcom Consultation – Enabling drone innovation and security



The following comments have been provided by the CAA in response to Ofcom's consultation document – Enabling drone innovation and security.

Question 2. – Do you agree with our assessment of the 450 MHz and 5030-5091 MHz bands for drone control links? Do you agree there is demand for these bands in the UK (please identify any relevant use cases and locations in your response)? Are there any other frequency bands we should consider for control links?

Response: We welcome making these available for early adoption for commercial services noting these bands address differing market demands. The internationally assigned aeronautical spectrum 5030 – 5091MHz is seen as a good and important option for mission critical BVLOS command and control UAS communication. Particularly in specific and certified category airspace environments.

450MHz spectrum offers many benefits particularly in respect to its propagation characteristics. However, the CAA is mindful that due to this band of spectrum being shared with business radio services and its limited licence availability in built up city and urban areas, its use may be limited to use- cases in rural areas. Further discussion may be needed between the CAA and Ofcom as to how this limitation is managed and the operational requirement to use 450MHz as part of a command-and-control link is fitted into UAS, Drone BVLOS operation policy.

The CAA would need to be confident of the operational resilience and the coordination and protection provided, limiting interference from other business radio users caused by poor equipment installation and operation.

Question 3. - Do you have any comments on our proposed approach to coordinating drones with other users of the 450 MHz band? In your response, please indicate whether it relates to co-channel or adjacent channel use, and provide evidence for any coexistence issues raised.

Maps showing where 450MHz spectrum might be available with a finer granularity than 100km by 100km could help the industry adopt this band as a licensed longer range radio line of sight solution. We would welcome any steps that can be implemented to minimise the license process overhead for the sector.

This would also assist in the development of policy on the adoption of 450MHz for command-and-control use and where this is likely to be viable.

Question 4: -Do you have any comments on our proposed 450 MHz drone authorisation approach? Please provide any specific views (including technical justification where relevant) on:

- **the proposed technical conditions, including operating height AGL, power, channel bandwidth, designated service area, and number of base stations;**
- **the proposed non-technical conditions, including licence fees and term, frequency flexibility and complying with CAA rules and radio equipment standards; and**
- **reviewing our initial authorisation approach.**

In general, we are very comfortable with this proposed frequency. We are keen to explore whether the maximum operating height could be increased to 120m (400') AGL to align with the common practises in other UAS communications categories (eg. Cellular) and with Open category operations

Question 5: Do you have any comments on our proposed 5030-5091 MHz drone authorisation approach? Please provide any specific views (including technical justification where relevant) on:

- **the portion of the band proposed for early release (5040-5060 MHz);**
- **the proposed technical parameters and approach to coordinating drones and/or protecting other users of the band; and**
- **the proposal to phase out licences once there is global harmonisation, the required transition period and sunset clause.**

We welcome making this band available for early adoption for commercial service and support following the specifications proposed. However, the CAA would be keen to

understand if the duplexing could be widened to allow both / either TDD or FDD (time or frequency division duplex), noting that any eventual system is likely to combine these approaches.

Question 8: Have you identified any other frequency bands we should consider for drone control links in the longer term?

We will keep monitoring operations and vendors from around the world and share this with Ofcom from time-to-time. Likewise, we are interested to see the feedback from other responders. The two bands identified are good in that there are vendors supporting these already however given that the two bands identified have capacity and coverage limits, and that cellular services appear to be constrained in altitude we recommend that this question remains under consideration and review as the market sector grows.

Question 9: Do you have any comments relating to the satellite frequencies available for drone control links?

It might be worth explicitly allowing the use of D2D NTN (direct to device, non-terrestrial network) to complement the use of TN cellular connections

Question 10: What are your needs and priorities for accessing spectrum for drone safety? Do you have interest in future use of 15 GHz and/or 76 GHz, or other specific frequencies and bands for similar drone safety use?

The CAA is interested to see the development of these bands for CUAS and DAA operations. We understand that industry is developing technology for these applications in both the 15GHz and 76GHz areas of spectrum. However, the CAA needs to be confident about the operation of CUAS and DAA radar in respect to coordination and licencing in order to understand the operational capability and resilience of both when operating in close proximity to each other.

Question 12: Are you interested in or do you have any plans to trial the use of ISAC for drone detection purposes?

We have no specific plans in this area but recognise its potential benefits and would welcome involvement in any trials.