



Response to Ofcom Consultation

Enabling Drone Innovation and Security: Additional Frequency Bands for Drone Control and Drone Detection Radar

Submitted by Motorola Solutions, Inc.

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I INTRODUCTION AND BACKGROUND

Motorola Solutions, Inc. (“MSI”) respectfully submits this response to Ofcom’s consultation entitled “Enabling Drone Innovation and Security: Additional Frequency Bands for Drone Control and Drone Detection Radar,” published 16 July 2026 (the “Consultation”).

MSI is a global leader in mission-critical safety and security technologies for public safety, government, defense, critical infrastructure, and enterprise customers. MSI’s business is focused on safety and security, driven by its commitment to help create safer communities, safer schools, safer hospitals, safer businesses, and, ultimately, safer nations.

As a provider of Land Mobile Radio (“LMR”) systems including Business Radio in the United Kingdom and globally, MSI has a direct interest in the proposed use of the 450 MHz band for drone control links, which currently supports tens of thousands of business radio (LMR) operations. MSI’s LMR systems are relied upon by public safety agencies and business enterprises for mission-critical voice and data communications.

Moreover, MSI’s public safety and critical infrastructure operators are increasingly deploying drones as well as drone detection capabilities. To that end, MSI supports innovation in spectrum policy that enhances public safety, enables and protects Business Radio while enabling new use cases. MSI welcomes Ofcom’s proactive approach to facilitating both drone control links and drone detection radar through dedicated spectrum authorisations.

MSI, as explained below, focuses on two primary objectives: protecting critical incumbent systems in the 450 MHz band from harmful airborne interference, setting caps on the maximum channels available for drones in this band, and ensuring that new allocations (such as the 5 GHz band) are provisioned with sufficient bandwidth to truly support advanced drone operations. Additionally, we outline a pragmatic security posture regarding drone detection, emphasizing proven, deployable mitigation systems.

MSI’s specific responses to the Consultation questions are set forth below.

II. RESPONSES TO CONSULTATION QUESTIONS

Question 1: Do you have any comments on our impact assessments as set out in Annex 1? Please specify whether your comments relate to:

- our wider impact assessment;
- our equality impact assessment; or
- our Welsh language impact assessment.

MSI does not have specific comments on the impact assessments set out in Annex 1.

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?

MSI agrees with Ofcom's assessment that the 450 MHz band can accommodate drone control links alongside existing business radio users, provided that coexistence protections are maintained. The 450 MHz band remains a core band for Land Mobile Radio operations (including Business Radio users) in the United Kingdom. The declining licensing trend cited by Ofcom (paragraph 4.16 of the Consultation) should be interpreted with caution, as licenses increased again last year and the changes could also be associated with changing business and macroeconomic environments impacting business radio users among others. Business Radio land mobile users continue to rely heavily on this part of the UHF band for their business and mission-critical communications and are faced with challenges securing enough interference free channels for their deployments especially in and around cities.

Supporting narrowband drone control in the 450 MHz band, rather than broadband repurposing, preserves the band's existing narrowband character and is consistent with the interests of incumbent LMR users, many of which utilize drones in support of their day-to-day operations for maintenance and inspection of existing infrastructure. Authorising narrowband drone control links is a constructive means of bringing new use cases into the band while preserving its narrowband character and the operational expectations of incumbent LMR licensees.

However, as an incumbent supplier of Business Radio and an operator of Public Protection and Disaster Relief (PPDR) networks, we recognize that drone control links operate as Aeronautical Mobile (AM) services. Operating at altitude significantly expands the line-of-sight footprint and potential interference area over ground receivers.

MSI also supports 5030–5091 MHz for drone control links, given its nationwide availability and the relative absence of incumbent users. As noted in the consultation, this band is explicitly allocated for drone command and non-payload communications, under ITU Radio Regulations (RR) Article 5 (specifically the AM(R)S and AMS(R)S allocations established at WRC-12). Several countries, including the U.S. and Canada are moving forward with authorizing UAS command, non-payload communications in the band.

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.

As an incumbent supplier of Business Radio and operator of PPDR networks, MSI's primary interest is to ensure that existing services are fully protected and that little, if any, new interference is introduced to the 450 MHz band. As indicated in the Consultation, there are more than 41,000 licenses already issued and utilizing this band. Drones pose a greater coordination challenge than typical ground-based business radio due to their operational altitude, mobility, and significantly expanded radio line-of-sight footprint. The victim's ability to detect and validate interference is more difficult especially when drones are operated for a shorter period of time and at different operational conditions and heights.

In order to ensure adequate protection to incumbent services, MSI emphasizes the following key coordination requirements:

Guaranteed Protection of Incumbents: We support the proposed geographic separation calculations to protect co-channel business radio users, which utilize the [ITU-R P.452-18](#) propagation model to calculate drone blocking areas based on worst-case horizontal and vertical boundaries. However, these protections must be enforced rather than treated as a flexible baseline or a percentage of time. Ofcom must ensure that drone licensees are strictly bound to non-interference conditions.

Strict Guard Bands for PPDR (Adjacent Channel): We note Ofcom's proposed mid-band packing policy; which prioritizes assigning drone channels in the middle of business radio blocks to maintain a 25 kHz (two-channel) separation from adjacent non-business radio services, such as blue-light emergency services (PPDR). This 25 kHz spectral separation must be strictly applied and enforced for all drone deployments. Any degradation of adjacent-channel performance in the emergency services spectrum is unacceptable for incumbent users including public safety.

Non-Interference Designation (Secondary Status): New drone control link licences must be explicitly designated as secondary and non-interfering to Business Radio. New drone systems must not receive priority over established Business Radio and Emergency Service allocations, nor should they restrict the operational flexibility or geographical expansion of existing networks.

Enforcement and Spectrum Surveillance: Because drone operations and airborne channel utilization are inherently transient, mobile, and location-varying, incumbent Business Radio (PMR) and PPDR operators (Emergency Services) are fundamentally unequipped to detect, measure, or isolate the source of airborne interference. Standard ground-based users lack the specialized RF monitoring infrastructure required to log intermittent interference during channel idle states, capture transient receiver desensitization, or document subtle coverage degradation caused by elevated airborne transmitters (operating at altitudes up to 100m AGL). Consequently, the burden of identifying and proving interference must not be shifted onto incumbent spectrum holders. Ofcom should establish a proactive enforcement framework that mandates comprehensive flight and RF transmission logging for drone licensees, implements active spectrum monitoring in shared bands, and guarantees a rapid-response investigation protocol to remediate reported airborne interference before it compromises critical business or emergency communications. Ofcom should

also require limited evidence of interference from Business Radio licensees, when they report it, to carry out field monitoring and enforcement.

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.

MSI has serious concerns regarding the potential capacity density of drone channels and the displacement of incumbent services in the scarce 450 MHz spectrum. We propose the following technical restrictions to protect the band's integrity:

Support for the 12.5 kHz Bandwidth Restriction: Ofcom has proposed that airborne drone transmissions only be permitted to operate within 12.5 kHz channels. We support imposing channel width restrictions on UAS transmissions to minimize impact to incumbent services by providing a safeguard to prevent wideband signals from impacting multiple adjacent channel operations. MSI suggests, however, that users should be able to combine two 12.5 kHz channels for a combined bandwidth of 25 kHz to ensure sufficient data transfer rates for secure command and control links. **Establishment of a 5% Spectrum Capacity Cap:** There are 418 possible 12.5 kHz channels in the 450 MHz band coordinated business radio plan. To ensure that drone integration does not crowd out or displace incumbent services, we strongly recommend a firm capacity cap: drone deployments must not occupy or be assigned more than 5% of the total channels available for Business Radio (a maximum of approximately 20 channels of 12.5 kHz across the UK). This ensures the remaining 95% remains open for continued use and expansion of critical terrestrial systems. We oppose any assignments on co-channel with the channels used for Simple UK Light Licence or Suppliers Light as their licenses are not site specific and can be used anywhere within the UK.

Strict Operating Power Limits: We support Ofcom's proposal to restrict maximum operating power and recommend a limit of 4W ERP as opposed to the standard 25W ERP for mobile stations. This reduction of approximately 7.96 dB is essential to limit the size of the drone's blocking area and protect ground-based incumbent business radio receivers from saturation. Four watts ERP is appropriate given the lesser path losses between the terrestrial station and the drone flying at altitudes up to 100 metres above ground.

In addition, MSI supports the proposed authorisation approach, including the three-year initial term and the commitment to review. MSI supports the proposed 100-metre AGL altitude limit and proposes 4W ERP maximum, along with 12.5 kHz channel bandwidth with the right to combine a maximum of two channels. The proposed ERP limit of 4W for drone stations—lower than the 25W maximum for standard business radio mobile stations—should be appropriate to reduce interference risk from airborne transmitters.

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.

MSI supports the proposed approach for 5030–5091 MHz, including alignment with the United States release of 5040–5060 MHz and the 2032 sunset clause. This band does not raise the same coexistence concerns as 450 MHz, given the fewer incumbent users and flexibility during the near term transition should be emphasized. MSI does have strong concerns regarding the proposed 250 kHz maximum channel bandwidth limit. We believe this bandwidth cap in this band is a limiting factor that will hinder, rather than enable, the UK drone sector's potential. We strongly urge Ofcom to allow for wider channel options, up to 5 MHz, based on the following justifications:

Contradiction of Band Objectives: Ofcom's consultation rightly states that the 5030–5091MHz band's key strength is its 'relatively large amount of contiguous bandwidth,' which 'provides scope to support more advanced use cases.' Restricting innovators to legacy, narrowband 250 kHz channels severely limits the data throughput of C2 links, making it impossible to transmit the high-resolution, low-latency video and sensor feeds required for safe BVLOS piloting and dense urban navigation. Video transmitted to the remote pilot can be a necessary navigational aid for remote pilots during, for example, search and rescue missions. Enhancing the pilot's situational awareness through the acquisition of data, including video, elevates the safety of life and property and should be encouraged

Need for Robust Spread-Spectrum Technologies: To operate safely in complex environments, modern aviation-grade C2 links utilize robust spread-spectrum modulations (such as Direct Sequence Spread Spectrum or wideband frequency hopping) to ensure resilience against localized interference and multipath fading. These safety-critical technologies natively require wider channel allocations (such as 1.25 MHz, 2.5 MHz, or 5 MHz) to function effectively.

Spectrum Efficiency Through Dynamic Assignment: Because this band is currently relatively unused in the UK (with Microwave Landing Systems not in operation), there is no immediate congestion justifying such extreme spectral starvation. Rather than a rigid 250 kHz cap, Ofcom should adopt a flexible bandwidth model up to 5 MHz, subject to regional coordination and geographic separation requirements.

Proposed Wider Channel Framework: We recommend that the interim framework allow a tiered licensing approach: (1) Narrowband Tier (up to 250 kHz) for legacy, basic telemetry-only C2 links; and (2) Wideband Tier (1.25 MHz to 5 MHz) for advanced, high-reliability BVLOS operations requiring integrated high-definition video, multi-spectral sensor telemetry, and spread-spectrum link robustness.

MSI urges Ofcom to allow for greater bandwidths, up to 5 MHz to accommodate the transmission of video used specifically for RPA operations. Video transmitted to the remote pilot can be a necessary **navigational** aid for remote pilots during, for example, search and rescue missions. Enhancing the pilot's situational awareness through the acquisition of data, including video, elevates the safety of life and property and should be encouraged.

The consultation proposes a maximum EIRP of 60 dBm (1000 watts) for the terrestrial station and maximum EIRP of 40 dBm (10 watts) for transmissions originating from the aircraft. For Small UAS operations under 100 meters, these power levels may be excessive. For these applications,, we recommend that a lower power class be utilized, with a maximum EIRP for both the terrestrial and drone transmitters of 4 watts .

Question 6 : Do you have comments on our proposal to create a new drone detection radar licence for the 24 GHz band, including the proposed technical and non-technical conditions, the proposed draft licence in Annex 12, and our coexistence analysis in Annex 6? Please provide evidence for any issues raised.

Please see response to Question 7

Question 7: Do you have comments on our proposal to create a new drone detection radar licence for the 16 GHz band on a case-by-case basis, including the proposed technical and non-technical conditions and proposed draft licence in Annex 12? Please provide evidence for any issues raised.

MSI supports Ofcom's proposal to create a drone detection radar licences at 24 GHz and 16 GHz. Drone detection radar is an important enabler of airspace awareness, supporting safe drones deployments and counter-UAS ("CUAS") operations for public safety.

The proposed technical conditions appear reasonable. However, MSI notes an apparent inconsistency between the EIRP and ERP figures (23.9 dBW) in the Consultation and both draft licences, and suggests that Ofcom clarify whether the stated value is EIRP or ERP. MSI supports the UK-wide authorisation, the indefinite licence term, and the proportionate fee structure.

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

To fully unleash the potential of UAS for commercial, public safety, and critical infrastructure operations, Ofcom should adopt an "all of the above" spectrum strategy that does not presumptively restrict UAS operations to using only a narrowly prescribed set of spectrum bands. An expansive strategy is necessary because today's drones require other data-heavy applications beyond those needed to support basic command and control and payload functions. A single set of limited spectrum bands with narrowly circumscribed use cases cannot meet these needs. To best support growth in the drone sector, Ofcom should signal its openness to considering spectrum

availability for any bands that can technically support UAS, rather than limiting its inquiry to certain, specific bands. By more broadly considering potential spectrum resources for drones, Ofcom will future proof its UAS spectrum policies to support innovation.

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

MSI does not have specific comments on the satellite frequencies currently available for drone control links.

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?

MSI supports Ofcom's monitoring of 15 GHz and 76 GHz for onboard detect-and-avoid ("DAA") radar. Safe airspace integration of drones depends on reliable onboard sensing capabilities, and spectrum access is a prerequisite. MSI also would encourage Ofcom to investigate opportunities for drone detection radars in radiolocation bands located near 10 GHz. Frequencies in this range are used in other countries so existing products already exist and the frequencies offer excellent propagation characteristics for drone detection.

Question 11: Do you have any interest in ground based UAT to complement the aerial component in 978 MHz licences?

MSI supports ground-based universal access transceiver ("UAT") infrastructure to complement the aerial component at 978 MHz. Enhanced electronic conspicuity supports safe drones operations by improving situational awareness for all airspace participants.

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

MSI notes that integrated sensing and communication ("ISAC") technology remains in early development. While ISAC may offer a complementary drone detection capability in the longer term, it should not delay or substitute for the dedicated radar authorisations proposed in this Consultation.

We follow the ongoing international development of Integrated Sensing and Communications (ISAC) and the CEPT's harmonisation efforts in the 3.4–3.8 GHz mobile bands. At this stage in development, the practical applications of ISAC for drone detection and control remains to be demonstrated and validated. We believe Ofcom's long-term outlook on ISAC must be balanced against several critical technical, operational, and physical limitations:

Complete Absence of Mitigation Capabilities: ISAC is fundamentally a radar-like sensing technology designed to track the physical coordinates of objects. It offers no mechanism for mitigation or control. It is a partial solution that can serve only as an element of a more comprehensive CUAS

solution that not only detects and identifies rogue drones but also allows security forces to safely take control of the aircraft and land it in a designated safe zone. A detection system that lacks a non-disruptive, integrated mitigation path does not meet the security requirements for protecting critical national infrastructure.

The Problem of Small Radar Cross-Sections (RCS) and Clutter: Small commercial drones are primarily constructed of plastic and carbon fiber, resulting in an exceptionally small radar cross-section. Relying on passive reflections from terrestrial cellular signals (ISAC) is highly susceptible to high false-alarm rates caused by environmental clutter, urban obstacles, and birds. Using ISAC will require additional layers of detection that can help verify or classify any detection.

Conflicts with Terrestrial Mobile Performance: Mobile networks are designed and optimized for ground-level, high-throughput consumer communications. Adapting these networks for skyward sensing (such as adjusting antenna up-tilting, altering power configurations, or dedicating base-station processing power to radar algorithms – a tradeoff that is expected to be necessary to gain an effective detection ability) risks degrading terrestrial network performance—the primary revenue driver for mobile operators.

Unrealistic Timelines for the Current Threat Landscape: As Ofcom notes, CEPT is not scheduled to conclude its final report on ISAC technical conditions until March 2028, meaning mature commercial deployments are years away and would require serious infrastructure investments. Given the immediate, rapidly escalating security risks posed by malicious drone use, critical infrastructure operators cannot afford to wait for a theoretical, unproven cellular technology when highly effective, dedicated counter-drone solutions are commercially mature and operational today.

Question 13: Do you have any other comments on this consultation document?

Drafting Corrections. MSI notes apparent drafting errors: the EIRP/ERP inconsistency (23.9 dBW) identified in relation to Questions 6 and 7, and the 16 GHz band definition inconsistency between the consultation text and the draft licence. MSI recommends that Ofcom issue a corrigendum or clarify these points in its statement of decision.

Ad Hoc Licensing Pending 2027 Decision. MSI supports Ofcom's stated willingness to consider ad hoc or interim licensing requests pending its anticipated early 2027 decision on drone detection radar. Interim authorisations will enable operators to deploy drone detection capabilities at critical sites without unnecessary delay.

Support for Drone Control Link Proposals. MSI generally supports the proposals for 450 MHz and 5030–5091 MHz drone control links as beneficial to the drone ecosystem. As a provider of LMR systems for Business Radio and Emergency Services, MSI reiterates the importance of maintaining robust coexistence protections for incumbent users including their ability to grow and expand their licenses. Subject to those protections, the proposed authorisation framework is well-designed and proportionate.

III. CONCLUSION

MSI appreciates the opportunity to respond to this Consultation. MSI supports Ofcom's proposals to authorise additional spectrum for drone control links and drone detection radar. MSI's principal interest lies in ensuring that the 450 MHz band continues to support incumbent LMR (Business Radio) operations through robust coexistence protections, and in promoting spectrum access for drone control and drone detection radar that will enable safe enterprise drones and drones as first responder programs and counter-UAS operations for public safety.

MSI stands ready to provide further information or technical analysis as may be of assistance to Ofcom in reaching its decision.

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