Your response

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Question 1: Do you agree with the proposal to license drone equipment rather than to licence exempt? If you disagree, please provide the evidence that would support any disagreement with the proposals.	Confidential? – N Yes, Inmarsat agrees with the proposal to license drone equipment rather than to licence exempt.
Question 2: Do you agree with the proposed licensing approach for UAS? If you disagree, please provide the evidence that would support any disagreement with the proposals.	Confidential? – N Inmarsat agrees with the approach to license the UAS operator. In this regard, it should be noted that in some cases, UAS communications requirements may be provided by a "Command and Control link communications Service Provider" (C2CSP). The C2CSP entity is envisaged to manage connectivity on behalf of a UAS operator. The C2CSP may provide and manage multiple mobile communication services and satellite communication services to the UAS operators. This will eliminate the need for the UAS operators to seek individual service agreements from each MNO and/or satellite operator they intend to subscribe to. Inmarsat proposes that the new UAS licence should also be available to a "C2CSP".
Question 3: Do you have any comments on the proposed licence conditions?	Confidential? – N Inmarsat supports in general the proposed licence conditions, but has several comments on the proposed technical conditions, as described in the answer to Question 4. Inmarsat wishes to highlight that in many cases UAS will operate internationally, flying between countries, and flying in international airspace in some cases. Currently, there does not seem to be a harmonised international framework for UAS operations and Inmarsat encourages Ofcom to actively support the development of such an arrangement, for example in the CEPT. In the meantime, some countries may adopt a different regime to the UK – for example

	requiring a licence for each UAS. That could lead to a complicated and unwieldy process for UAS operators. Some UAS used in the UK may require an aircraft licence to be able to operate in the airspace of other countries, and Ofcom should therefore be open to some flexibility in the UK arrangements to meet potential requirements for international UAS flights. In section 3.24, Ofcom proposes that the UAS would only be allowed to use a satellite terminal that is part of a network that has been authorised by Ofcom. Inmarsat agrees in principle, but it is important to clarify what is meant by an authorised network. In some frequency bands, Ofcom issues satellite network licences for non-GSO FSS systems. However, a network licence is not required for other satellite networks which provide service in the UK, including MSS systems like Inmarsat, for which authorisation is provided through the ship/aircraft licence or through licence exemption of the terminals. Similarly, GSO Ka-band systems that provide service in the UK do not require a network authorisation but are authorised through licence exemption of terminals or ship/aircraft radio licences. For both these examples, it is important that UAS are able to use such networks in the UK, even if no formal "network authorisation" exists. We propose that an authorised satellite network should include those networks for which operation in the UK is provided through licence exemption regulations or through a ship/aircraft radio licence.
Question 4: Do you have any comments on the proposed list of equipment and associated conditions?	Confidential? – N Proposed list of equipment We strongly urge Ofcom to consider and add the following to the list: 1. Satellite Earth Stations using Extended L-band (1518-1525 MHz and 1670-1675 MHz). This band is currently available for MSS operations in the UK and elsewhere and is ideal for UAS communications, in addition to the

	parts of L-band already identified in Table 1 (1525-1660.5 MHz). The extended L-band frequencies are not currently available for licensed UK aircraft earth stations, which we understand is primarily due to concerns with possible interference to UK radio astronomy stations operating in the band 1660-1670 MHz. However, there is ample opportunity for UAS to operate in the extended L-band frequencies without causing interference to radioastronomy stations, in particular if they operate beyond line of sight of the radio astronomy telescope. To ensure that UK radio astronomy requirements are not impacted, Ofcom could include a condition similar to that proposed in Table 1 for the satellite earth stations using the band 14-14.25 GHz. For example, UAS operations in extended L-band could be subject to the condition that "Earth station operations shall meet the conditions given in footnote 5.379C of the Radio Regulations, so as not to cause harmful interference to radio astronomy stations". Inmarsat would ensure that UAS operations using its network in the UK would remain sufficiently separated from licensed UK radio astronomy stations to avoid exceeding the protection criterion. 2. Terminals using the European Aviation Network (EAN), which operates in S-band frequency range (1980-1995 MHz and 2170-2185 MHz). The EAN network covers geographical Europe, 27 EU and several non-EU countries, providing service to multiple airlines for passenger WiFi connectivity. The EAN It comprises two major parts: o The satellite segment, provided by an Inmarsat operated GSO satellite and Satcom terminals fixed to the top of the fuselage. o Air-to-Ground network – a conventional LTE network spanning across Europe, communicating with terminals fixed to the underside of the aircraft. The trans-European coverage provided by the EAN, together with the dual communications links (satellite and terrestrial) make the

	EAN ideal for supporting some of the envisaged UAS requirements. UAS operations within the EAN would operate under the same technical conditions as current aircraft, including the power/altitude conditions. 3. Ka-band systems. Inmarsat agrees that Ka-band ESOMPs should be available for UAS licensed operations. We note that certain parts of the 27/28 GHz band are not included in Table 1, presumably because they are not currently available for ESOMP authorisation in the UK. The recently adopted revision to ECC Decision (13)01, amended 2 July 2021, now establishes that ESOMPs on aircraft may be authorised in all parts of the band 27.5-30 GHz, subject to meeting PFD limits to protect terrestrial services in certain sub-bands. These conditions would allow UAS to operate in the bands currently missing from Table 1 (27.8185 - 28.4545 GHz and 28.8265 - 29.4625 GHz). In its Space Spectrum Strategy published in March 2022, Ofcom proposed to consider additional capacity for ESIMs in the 28 GHz band in the near future. In its response to that consultation, Inmarsat supported that the work on "additional capacity for ESIMs" is prioritised by Ofcom. It may be that authorisation of UAS in the missing bands is premature at this time, pending the planned consultation on spectrum for ESIMs, but it is suggested that Ofcom ensures that any new regulations for UAS are capable to being expanded to the missing bands in the future.
Question 5: Do you agree with Ofcom's assessment on whether to introduce UAS operator licences? If you disagree, please provide further information.	Confidential? – N Yes, Inmarsat agrees with Ofcom's assessment to introduce UAS operator licences.