Decision to make the Wireless Telegraphy (Mobile Communication Services on Aircraft) (Exemption) Regulations 2017
Implementing a European Commission Decision

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About this document

This statement relates to Ofcom’s decision to make new regulations by statutory instrument that would enable airline passengers to use mobile devices (with 2G, 3G and 4G technologies) on board aircraft, if certain standards and requirements are met, without the need for a wireless telegraphy licence. These regulations implement a recent decision by the European Commission, and replace similar exemption regulations we made in 2014.

To give proper effect to the European Commission decision, it is also necessary to vary aircraft radio wireless telegraphy licences in order to ensure that operators comply with the new technical and operational requirements. This will be implemented through a Notice of Variation to the aircraft licence.

The Regulations will come into force on 15 June 2017.
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Section 1

Executive summary

1.1 This document sets out our decision to make the Wireless Telegraphy (Mobile Communication Services on Aircraft) (Exemption) Regulations 2017 (the “Regulations”). The Regulations implement the requirements of the European Commission (“EC”) Implementation Decision of 16 December 2016 (2016/2317/EU) (the “2016 Amending Decision”) which aims to simplify the regulatory framework and operation of mobile communication services on aircraft (“MCA”).

1.2 MCA systems enable airline passengers to use mobile apparatus (mobile devices such as handsets, tablets or laptop dongles) during their flight without connecting directly with land mobile networks. MCA systems normally consist of an aircraft base transceiver station (“aircraft BTS”) and Network Control Unit (“NCU”) to which the mobile apparatus used by air passengers must connect to. The MCA operates, in essence, similar to a land base station.

1.3 On 11 April 2017, we published on a Statutory Notice (the “Notice”) detailing our intention to revoke and replace the Wireless Telegraphy (Mobile Communication Services on Aircraft) (Exemption) Regulations 2014 (the “2014 MCA Exemption Regulations”). The 2014 MCA Exemption Regulations permit the use of MCA services in Global System for Mobile communication (“GSM”) 1710 to 1785 MHz and 1805 to 1880 MHz (the “1800 MHz” frequency band), Universal Mobile Telecommunications Service (“UMTS”) in 1920 to 1980 MHz and 2110 to 2170 MHz (the “2100 MHz” frequency band) and Long Term Evolution (“LTE”) in 1710 to 1785 MHz and 1805 to 1880 MHz (the “1800 MHz” frequency band) on a licence exempt basis.

1.4 The 2014 MCA Exemption Regulations required the presence of the NCU as part of the MCA equipment on-board an aircraft to actively prevent on-board mobile apparatus in a number of frequency bands (currently 450 MHz, 800 MHz, 900 MHz, 1800 MHz, 2100 MHz and 2600 MHz) from connecting to, or interfering with land base stations.

1.5 The Regulations, as a result of the 2016 Amending Decision, removes the mandatory requirements of using an NCU to prevent mobile apparatus using GSM and LTE technologies from connecting to land base stations, whilst retaining the mandatory requirements preventing the connection of mobile apparatus to UMTS ground networks when on-board an MCA enabled aircraft. All European Member States are required to implement the 2016 Amending Decision.

1.6 Ofcam is responsible for authorising use of the radio spectrum. We permit the use of the radio spectrum either by granting wireless telegraphy licences under the Wireless Telegraphy Act 2006 (the “WT Act”) or by making statutory regulations exempting users of particular equipment from the requirement to hold such a licence. It is unlawful and an offence to install or use wireless telegraphy apparatus without holding a licence granted by Ofcam, unless the use of such equipment is exempted.

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1.7 In order to meet the requirements of the 2016 Amending Decision, we made the Regulations which:

i) revokes and replaces the 2014 MCA Exemption Regulations;

ii) continues to permit, on a licence exempt basis, passengers’ use of mobile apparatus in GSM, UMTS and LTE technologies connecting to MCA services (in the 1800 MHz and 2100 MHz bands) (subject to complying with various terms, provisions and limitations); and

ii) updates the technical parameters that the MCA systems (to which passengers’ mobile apparatus must be directly connected) must meet in order to be exempt from the need to hold a wireless telegraphy licence.

1.8 Separately to airline passengers’ use of mobile apparatus (to the extent exempted under the Regulations), the use of MCA systems themselves is authorised under Ofcom’s practice via a Notice of Variation (“NoV”) to the existing aircraft WT Act licences. In order for Ofcom to authorise the deployment and use of both the aircraft base station and NCU on an aircraft, we have amended the NoV as proposed in the Notice, incorporating the changes set out in the 2016 Amending Decision. The NoV sets out the new technical conditions and operational requirements under which MCA systems would be licensed for operation in a UK aircraft.

1.9 Before deciding to make the Regulations, in accordance with the requirements of section 122(4) of the Wireless Telegraphy Act 2006 (the ‘WT Act’), we published on 11 April 2017 the Notice setting out our proposals to make them. The Notice contained a draft of the proposed regulations. It also invited, by 12 May 2017 any comments from stakeholders on the drafting of the proposed regulations and information on any relevant equivalent specifications to the standards referred to in the proposed regulations.

1.10 We received two non-confidential responses to the Notice. One of the responses was from AeroMobile Communications Ltd which welcomed our proposal. The other was from Mr Roger Lapthorn who was not happy with the general policy of allowing mobile phone use on aircraft. The responses are published in full on our website.4

1.11 In accordance with section 122(4)(c) of the WT Act, we have considered the comments that were raised. After doing so, and for the reasons set out in this document, we have decided to adopt the regulations (as proposed, the details of which can be found in Section 3). This statement confirms that the Regulations will come into force on 15 June 2017.5

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3 Subject to harmonised European Telecommunications Standards Institute (ETSI) standards or equivalent specifications
5 Copies of the Regulations can be obtained through the National Archives. A link to the online version can be found at http://www.legislation.gov.uk
Section 2

Background

Background on MCA systems

2.1 Mobile communication services on aircraft ("MCA") enable airline passengers to use mobile apparatus (mobile devices such as handsets, tablets, laptops etc.) during their flight without connecting directly with land mobile networks. MCA systems normally consist of an aircraft base transceiver station (aircraft BTS) and Network Control Unit ("NCU") to which mobile apparatus used by air passengers must connect. The MCA system operates, in essence, similar to a land base station.

2.2 The aircraft BTS and NCU are designed to ensure that the mobile apparatus within the aircraft cabin does not connect with land mobile base stations and that the mobile apparatus on the aircraft only transmit at a minimum level. In particular, the NCU ensures that mobile service land networks in various frequency bands (currently 450 MHz, 800 MHz, 900 MHz, 1800 MHz, 2100 MHz and 2600 MHz) are not visible to mobile apparatus on-board the aircraft.

2.3 On 7 April 2008, the European Commission ("EC") introduced rules to harmonise the technical conditions for the use of Global System for Mobile communication ("GSM") 2G technologies when connecting to a MCA service in the 1710 to 1785 MHz and 1805 to 1880 MHz (the "1800 MHz" frequency band) (2008/294/EC) (the “2008 MCA Decision”).6 We implemented the 2008 MCA Decision by making the Wireless Telegraphy (Mobile Communication Services on Aircraft) (Exemption) Regulations 2008 (the “2008 MCA Exemption Regulations”)7 which permitted air passengers using MCA systems on GSM mobile devices in 1800 MHz band on a licence exempt basis.

2.4 The EC amended its 2008 MCA Decision by making the “Commission Implementing Decision of 12 November 2013 amending Decision 2008/294/EC to include additional access technology and frequency bands for mobile communications services on aircraft (MCA services)” (2013/654/EU) (the “2013 MCA Decision”).8 The 2013 MCA decision extended the harmonisation of MCA services to cover Universal Mobile Telecommunications Service ("UMTS") 3G technologies in 1920 to 1980 MHz and 2110 to 2170 MHz (the “2100 MHz” frequency band) and Long Term Evolution ("LTE") 4G technologies in 1710 to 1785 MHz and 1805 to 1880 MHz (the “1800 MHz” frequency band) on-board MCA equipped aircraft.9

2.5 We implemented the 2013 MCA Decision by making the Wireless Telegraphy (Mobile Communication Services on Aircraft) (Exemption) Regulations 2014 (the “2014 MCA Exemption Regulations”),10 which replaced the 2008 MCA Exemption Regulations. In addition to use of GSM technologies on MCA equipped aircraft, the 2014 MCA Exemption Regulations also allowed the use of mobile devices for UMTS and LTE

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9 Article 2 of the 2013 MCA Decision postponed the use of 4G technology in the 2570 to 2 690 MHz (2.6 GHz) band for MCA systems until 1 January 2017, pending agreement of the technical parameters for Network Control Unit (NCU), by competent aeronautical certification authorities.
technologies on MCA equipped aircraft, on a licence exempt basis (subject to complying with technical and operational requirements).\textsuperscript{11}

**The 2016 Amending Decision**

2.6 On 7 October 2015, the European Conference of Postal and Telecommunications Administrations ("CEPT") was tasked with undertaking technical studies regarding the need to keep the use of NCU mandatory on MCA enabled aircrafts. On 17 November 2015, CEPT provided its report (CEPT Report 63)\textsuperscript{12} to the EC. The report concluded that it would be possible to make the use of NCU optional for GSM and LTE technologies considering that MCA operations without NCU guaranteed a reasonable protection against interference for ground based networks.

2.7 However, the report recommended that for UMTS technologies, an NCU would be necessary to prevent connection of mobile devices on a MCA enable aircraft to land mobile networks. Any resulting connection would cause a partial and temporary reduction in capacity for the connecting and neighbouring land based cells.\textsuperscript{13} The report recommended that mobile apparatus using UMTS technologies should be prevented from attempting to access land networks by the inclusion of a NCU, and/or an aircraft fuselage shielding to further attenuate the signal entering and leaving the cabin.

2.8 The EC adopted the CEPT recommendation by making the Commission Implementing Decision of (EU) 2016/2317 of 16 December 2016 amending Decision 2008/294/EC and Implementing Decision 2013/654/EU, in order to simplify the operation of mobile communications on board aircraft (MCA services) in the Union (the "2016 Amending Decision")\textsuperscript{14}. All European Member States are required to implement the 2016 Amending Decision.

2.9 From a spectrum management perspective, the key objective is that MCA services should not generate any harmful interference to ground based networks. To ensure minimal risk to such networks, the use of MCA services is restricted to aircraft at an altitude of 3000 metres or above. However, it should be noted that there is no mandatory requirement on airlines to install MCA systems. Ultimately, any decisions roll out or deploy MCA services is the responsibility of the aircraft owner or airline operator.

**The Notice**

2.10 We make exemption regulations by means of a statutory instrument. Before making any such regulations, we are required by section 122(4) of the WT Act to give notice of our proposal to do so. Under section 122(5), the notice must state that we propose to make the regulations in question, set out their general effects, specify an address from which a copy of the proposed regulations or order may be obtained, and specify a time period of at least one month during which any representations with respect to the proposal must be made to us.

\textsuperscript{11} However, the 2014 MCA Exemption Regulations did not include Article 2 requirements in relation to the NCU parameters for the 2.6 GHz band.

\textsuperscript{12} http://www.erodocdb.dk/Docs/doc98/official/pdf/CEPTREP063.PDF

\textsuperscript{13} The report also added that the requirement in Article 2 of the 2013 MCA decision for MCA systems to provide an NCU in 2.6 GHz band from 1 January 2017 was no longer required.

\textsuperscript{14} http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32016D2317&from=EN
2.11 On 11 April 2017, we published a consultation document entitled ‘Notice of proposals to make the Wireless Telegraphy (Mobile Communication Services on Aircraft) (Exemption) Regulations 2017’ (the “Notice”), meeting the statutory requirements explained above. The Notice set out our intention to implement the 2016 Amending Decision by making the Wireless Telegraphy (Mobile Communication Services on Aircraft) (Exemption) Regulations 2017 (the “Regulations”). The Notice included a copy of the draft regulations and it gave any person or party who wished to do so until 12 May 2017 to make representations.

2.12 The Notice proposed to:

i) revoke and replace the 2014 MCA Exemption Regulations;

ii) continue to permit, on a licence exempt basis, the use of mobile apparatus in GSM, UMTS and LTE technologies connecting to MCA services (in the 1800 MHz and 2100 MHz bands) (subject to complying with various terms, provisions and limitations); and

iii) update the technical parameters that the MCA systems in the 1800 MHz and 2100 MHz bands must meet in order to be exempt from the need to hold a wireless telegraphy licence.

2.13 In the Notice, we also set out our intention to amend the Notice of Variation (“NoV”) in line with the 2016 Amending Decision. The deployment and use of both the aircraft base station and NCU on an aircraft is authorised under Ofcom’s practice via the NoV to the existing aircraft WT Act licences. However, we were not seeking comments on the draft NoV as it is implementing the mandatory EU obligations in the 2016 Amending Decision and the variation of relevant aircraft radio wireless telegraphy licences through an NoV is done at the request of the holders of such licences. The NoV sets out the new technical conditions and operational requirements under which MCA systems would be licensed for operation in a UK aircraft.

2.14 We received two non-confidential responses to the Notice. They are addressed in the next section of this statement.

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Section 3

Responses to the Notice

Introduction

3.1 This Section outlines the comments we received to the Notice and our response to them. Having considered the comments, we have decided to proceed with our proposal to make the Regulations.

3.2 We received two non-confidential responses. They are published in full on our website.  

Stakeholder responses to the Notice

3.3 We received one response from AeroMobile Communications Limited, which stated that, as an MCA equipment provider, it approves of Ofcom’s decision to implement the 2016 Amending Decision by making the Regulations and supports Ofcom’s decision to amend the NoV authorising of the deployment and use of both the aircraft base station and NCUs.

3.4 Another respondent, Mr Roger Lapthorn, expressed concern that, in his view, this was a backward move. He questions why Ofcom was proposing to permit the use mobile phones on aircraft at all and he raised concern about mobile phones constantly ringing, adding that passengers could manage without the use of mobile phones on flights.

Ofcom’s response

3.5 We thank both respondents for their responses to the Notice.

3.6 In response to Mr Lapthorn, the use of mobile phones on aircrafts has been permitted in the UK since 2008 for GSM (a 2G technology). In 2014, the use of mobile devices was further extended to UMTS 3G and LTE 4G technologies as a result of European Commission decisions.

3.7 Our proposal in the Notice pertains to the implementation of the 2016 Amending Decision. The outcome of the 2016 Amending Decision is a mandatory requirement for Member States to make the use of NCU optional for GSM and LTE technologies when connecting to MCA systems but continue to make NCU mandatory for UMTS technologies. As a Member State of the European Union, the UK is bound by the terms of the 2016 Amending Decision and the requirement to implement them. However, in making the Regulations, we do not actually mandate the installation of MCA equipment on aircraft. Such installation remains entirely up to individual aircraft operators to determine whether (or not) they wish to deploy MCA services.

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Section 4

Scope of the Regulations

4.1 This Section summarises our decision to make the Regulations.

The Legislative Framework

4.2 We are responsible for authorising civil use of the radio spectrum and achieve this by granting wireless telegraphy licences under the WT Act and by making regulations exempting users of particular equipment from the requirement to hold such a licence.

4.3 Under section 8(1) of the WT Act, it is an offence to install or use equipment to transmit without holding a licence granted by us unless the use of such equipment is exempted. We can exempt the installation or use of wireless telegraphy equipment by making Regulations under section 8(3) of the WT Act.

4.4 Under section 8(4) of the WT Act, we have to make regulations to exempt equipment if its installation or use is not likely to:

- involve undue interference with wireless telegraphy;
- have an adverse effect on technical quality of service;
- lead to inefficient use of the part of the electromagnetic spectrum available for wireless telegraphy;
- endanger safety of life;
- prejudice the promotion of social, regional or territorial cohesion; or
- prejudice the promotion of cultural and linguistic diversity and media pluralism.

4.5 In accordance with the requirements of section 8(3B) of the WT Act, the terms, provisions and limitations specified in the regulations must be:

- objectively justifiable in relation to the wireless telegraphy stations or wireless telegraphy apparatus to which they relate;
- not such as to discriminate unduly against particular persons or against a particular description of persons;
- proportionate to what they are intended to achieve; and
- transparent in relation to what they are intended to achieve.

Ofcom’s decision

4.6 On 25 May 2017, Ofcom made the Regulations as proposed in the Notice. The Regulations come into force on 15 June 2017. They are summarised below.
Extent of application

4.7 The Regulations will apply in the United Kingdom, the Channel Islands and the Isle of Man.

The Regulations

4.8 The Regulations implement the 2016 Amending Decision.

4.9 Regulation 1 explains that the Regulations come into force on 15 June 2017;

4.10 Regulation 2 revokes the 2014 MCA Exemption Regulations.

4.11 Regulation 3 provides interpretation of the expressions used in the Regulations.

4.12 Regulation 4 exempts the use of apparatus on board an aircraft which is an aircraft registered in the British Islands, and flying over the British Islands and the territorial waters adjacent thereto, or, for the time being, beyond the British Islands and the territorial waters adjacent thereto. That exemption is, however, not absolute. It only applies where the terms, provisions and limitations in regulation 5 are met.

4.13 Regulation 5 sets out the terms, provisions and limitations that must be met for the exemption in regulation 4 to apply to the apparatus on board an aircraft.

4.13.1 Regulations 5(1) and 5(2) provides that the exemption shall apply only if the apparatus (mobile devices such as handsets, tablets or computer dongles) comply with the European Telecommunications Standards Institute (“ETSI”) standards listed in the Regulations. We have updated in the Regulations references to the most recent versions of the standards published in the Official Journal of the European Union. In the Notice, we raised the issue of possible equivalent standards to those referred to in the Regulations. We continue to invite stakeholders on an ongoing basis to draw our intention to any relevant equivalent standards or specifications as demonstrated to be in compliance with the essential requirements by using the conformity assessment procedures that we discussed in the Notice. As any such equivalent standards or specifications become available, we intend to amend the Regulations to make reference to them.

4.13.2 Regulation 5(3) provides that the apparatus must only operate in the 1800 MHz and 2100 MHz bands.

4.13.3 Regulation 5(4) outlines what the apparatus must be used for, when it can be used, and the applicable operational and technical requirements. It states that the apparatus can only be used for mobile communication services on aircraft and only at a height of 3000 metres above ground level. It also sets out power limits that the apparatus must be limited to based on the technology in use. Regulation 5(4)(d) sets out the maximum e.i.r.p. limit outside the aircraft that the apparatus transmits at by referencing Table 1 of the Schedule to the Regulations.

4.13.4 Regulation 5(5) provides that the apparatus must not cause or contribute to undue interference to other wireless telegraphy.

4.13.5 Regulation 5(6) provides that the apparatus must connect directly a relevant network that complies with the requirements set out in regulation 5(7).
4.13.6 Regulation 5(7)(a) sets out the requirements for the aircraft fuselage shielding or NCU to be installed to prevent the apparatus in 900 MHz and 2100 MHz bands from connecting with UMTS networks on the ground.

4.13.7 Regulation 5(7)(b) sets out the requirements for the maximum e.i.r.p. outside the aircraft that an NCU, if used, in the 900 MHz band must operate within at different heights above the ground. The power limits are set out in Column 2 of Table 2 of the Schedule to the Regulations.

4.13.8 Regulation 5(7)(c) sets out the requirements for the maximum e.i.r.p. outside the aircraft that an aircraft base station in the 1800 MHz band must operate within at different heights above the ground. The power limits are set out in Column 3 of Table 2 of the Schedule to the Regulations.

4.13.9 Regulation 5(7)(d) sets out the requirements for the maximum e.i.r.p. outside the aircraft that an aircraft base station and NCU, if used, in 2100 MHz band must operate within at different heights above the ground. The power limits are set out in Column 4 of Table 2 of the Schedule to the Regulations.

4.13.10 Regulation 5(7)(e) sets out the maximum e.i.r.p. outside the aircraft for other frequency bands other than the 900 MHz and 2100 MHz bands (currently 450 MHz, 800 MHz, 900 MHz, 1800 MHz, 2100 MHz and 2600 MHz) if an operator decides to deploy an NCU. The limits for these optional frequencies are set out in Table 3 of the Schedule to the Regulations.

4.13.11 Regulation 5(7)(f) and (g) provide the ETSI standards that the aircraft base station and NCU must comply with and these are listed in the Regulations.
Annex 1

List of respondents

AeroMobile Communications Ltd

Mr Roger Lapthorn
Annex 2

Abbreviations

- BTS - Base Transceiver Station
- CEPT - European Conference of Postal and Telecommunications Administrations
- EC - European Commission
- ETSI - European Telecommunications Standards Institute
- GHz - Gigahertz
- GSM - Global System for Mobile Communications
- LTE - Long Term Evolution
- NoV - Notice of Variation
- NCU - Network Control Unit
- MHz – Megahertz
- UMTS - Universal Mobile Telecommunications System
- WT Act - Wireless Telegraphy Act 2006