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**COMMISSION DECISION**

**of 7 April 2008**

**on harmonised conditions of spectrum use for the operation of mobile communication services on aircraft (MCA services) in the Community**

*(notified under document number C(2008) 1256)*

**(Text with EEA relevance)**

(2008/294/EC)

(OJ L 98, 10.4.2008, p. 19)

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# COMMISSION DECISION

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THE COMMISSION OF THE EUROPEAN COMMUNITIES,

Having regard to the Treaty establishing the European Community,

Having regard to Decision No 676/2002/EC of the European Parliament and of the Council of 7 March 2002 on a regulatory framework for radio spectrum policy in the European Community (the Radio Spectrum Decision) <sup>(1)</sup>, and in particular Article 4(3) thereof,

Whereas:

- (1) The i2010 — European Information Society strategic framework <sup>(2)</sup> — promotes an open and competitive digital economy in the European Union and emphasises ICT as a driver of inclusion and quality of life. Development of additional means of communicating could be beneficial for work productivity and for growth in the mobile telephony market.
- (2) Airborne connectivity applications are, by nature, pan-European as they will be used mostly for cross-border flights within the Community and beyond. A coordinated approach to regulate mobile communication services on aircraft (MCA services) will support the objectives of the Single Market.
- (3) Harmonisation of the rules on the use of radio spectrum across the Community will facilitate timely deployment and uptake of MCA services within the Community.
- (4) Commercial operation of MCA services is currently considered only for GSM systems operating in the 1 710-1 785 MHz band for uplink (terminal transmit and base station receive) and the 1 805-1 880 MHz band for downlink (base station transmit and terminal receive), in accordance with ETSI standards EN 301 502 and EN 301 511. However, in the future it may be extended to other terrestrial public mobile communication systems, operating in accordance with other standards and in other frequency bands.

<sup>(1)</sup> OJ L 108, 24.4.2002, p. 1.

<sup>(2)</sup> COM(2005) 229 final, 1.6.2005.

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- (5) Pursuant to Article 4(2) of Decision No 676/2002/EC, the Commission has given a mandate <sup>(1)</sup> to the European Conference of Postal and Telecommunications Administrations (hereinafter the CEPT) to undertake all activities required to assess specific issues concerning technical compatibility between the operation of airborne GSM 1800 systems and a number of radio services potentially affected. This Decision is based on the technical studies undertaken by the CEPT under the EC mandate, as presented in CEPT Report 016 <sup>(2)</sup>.
- (6) The MCA system considered in the CEPT report consists of a network control unit (NCU) and an aircraft base transceiver station (aircraft BTS). The system is designed to ensure that signals transmitted by ground-based mobile systems are not detectable within the aircraft cabin and that the user terminals on the aircraft only transmit at a minimum level. The technical parameters for the NCU and aircraft BTS were derived from theoretical models.
- (7) Spectrum use by terrestrial mobile electronic communication networks is outside the scope of this Decision. They will be addressed, inter alia, by a Commission Decision on the harmonisation of the 900 MHz and 1 800 MHz frequency bands for terrestrial systems capable of providing pan-European electronic communication services.
- (8) Authorisation terms and conditions for MCA services are also outside the scope of this Decision. Coordination of national authorisation conditions for MCA services is addressed by Commission Recommendation 2008/295/EC <sup>(3)</sup> pursuant to Directive 2002/21/EC of the European Parliament and of the Council of 7 March 2002 on a common regulatory framework for electronic communications networks and services (the Framework Directive) <sup>(4)</sup>.
- (9) Equipment for MCA services covered by this Decision falls within the scope of Directive 1999/5/EC of the European Parliament and of the Council of 9 March 1999 on radio equipment and telecommunications terminal equipment and the mutual recognition of their conformity <sup>(5)</sup>. Presumption of conformity with the essential requirements of Directive 1999/5/EC for equipment used for MCA services in the European Union may be demonstrated by compliance with ETSI Harmonised Standard EN 302 480 or by using the other conformity assessment procedures set out in Directive 1999/5/EC.
- (10) Issues relating to air safety are of paramount importance and no provision in this Decision should be contrary to maintaining optimum air safety conditions.

<sup>(1)</sup> Mandate to the CEPT on mobile communication services on board aircraft, 12.10.2006.

<sup>(2)</sup> Report from CEPT to the European Commission in response to the EC Mandate on mobile communication services on board aircraft (MCA), 30.3.2007.

<sup>(3)</sup> See page 24 of this Official Journal.

<sup>(4)</sup> OJ L 108, 24.4.2002, p. 33. Directive as amended by Regulation (EC) No 717/2007 (OJ L 171, 29.6.2007, p. 32).

<sup>(5)</sup> OJ L 91, 7.4.1999, p. 10. Directive as amended by Regulation (EC) No 1882/2003 (OJ L 284, 31.10.2003, p. 1).

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- (11) MCA services may be provided only on condition that they fulfil air safety requirements via appropriate airworthiness certification and other relevant aeronautical provisions, together with electronic communication requirements. Airworthiness certificates valid for the whole Community are issued by the European Aviation Safety Agency (EASA) pursuant to Commission Regulation (EC) No 1702/2003 of 24 September 2003 laying down implementing rules for the airworthiness and environmental certification of aircraft and related products, parts and appliances, as well as for the certification of design and production organisations <sup>(1)</sup>.
- (12) This Decision does not address spectrum issues relating to the communication links between the aircraft, the satellite space station and the ground which are also required to provide MCA services.
- (13) For the purpose of ensuring that the conditions specified in this Decision are still relevant and given the rapid changes in the radio spectrum environment, national administrations ought to monitor, where possible, use of the radio spectrum by equipment for MCA services, in order to keep this Decision under active review. Such review should take into account technological progress and verify that the initial assumptions concerning operation of MCA services are still relevant.
- (14) The measures provided for in this Decision are in accordance with the opinion of the Radio Spectrum Committee,

HAS ADOPTED THIS DECISION:

*Article 1*

The purpose of this Decision is to harmonise the technical conditions for the availability and efficient use of radio spectrum for mobile communication services on aircraft in the Community.

This Decision shall apply without prejudice to any other relevant Community provisions, in particular Regulation (EC) No 1702/2003 and Recommendation 2008/295/EC.

*Article 2*

For the purposes of this Decision:

- 1. ‘mobile communication services on aircraft (MCA services)’ means electronic communication services, as defined in Article 2(c) of Directive 2002/21/EC, provided by an undertaking to enable airline passengers to use public communication networks during flight without establishing direct connections with terrestrial mobile networks;

<sup>(1)</sup> OJ L 243, 27.9.2003, p. 6. Regulation as last amended by Regulation (EC) No 287/2008 (OJ L 87, 29.3.2008, p. 3).

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2. ‘non-interference and non-protected basis’ means that no harmful interference may be caused to any radiocommunication service and that no claim may be made for protection of these devices against harmful interference originating from radiocommunication services;
3. ‘aircraft base transceiver station (aircraft BTS)’ means one or more mobile communication stations located in the aircraft supporting the frequency bands and systems specified in Table 1 in the Annex;
4. ‘network control unit (NCU)’ means equipment to be located in the aircraft that ensures that signals transmitted by ground-based mobile electronic communication systems listed in Table 2 in the Annex are not detectable within the cabin by raising the noise floor inside the cabin in mobile communication receive bands.

*Article 3*

As early as possible, and no later than six months following the entry into force of this Decision, the Member States shall make the frequency bands listed in Table 1 in the Annex available for MCA services on a non-interference and non-protected basis, provided such services meet the conditions set out in the Annex.

*Article 4*

The Member States shall set the minimum height above ground for any transmission from an MCA system in operation in accordance with section 3 of the Annex.

Member States may impose greater minimum heights of MCA operation where justified by national topographical and ground network deployment conditions. This information, supported by appropriate justification, shall be notified to the Commission within four months of adoption of this Decision and shall be published in the *Official Journal of the European Union*.

*Article 5*

Member States shall keep use of spectrum by MCA services under scrutiny, in particular with regard to actual or potential harmful interference and to the continued relevance of all the conditions specified in Article 3, and shall report their findings to the Commission to allow a timely review of this Decision if necessary.

*Article 6*

This Decision is addressed to the Member States.



## ANNEX

## 1. FREQUENCY BANDS AND SYSTEMS ALLOWED FOR MCA SERVICES

Table 1

Type	Frequency	System
GSM 1 800	1 710-1 785 MHz (uplink) 1 805-1 880 MHz (downlink)	GSM complying with the GSM Standards as published by ETSI, in particular EN 301 502, EN 301 511 and EN 302 480, or equivalent specifications.
UMTS 2 100 (FDD)	1 920-1 980 MHz (uplink) 2 110-2 170 MHz (downlink)	UMTS complying with the UMTS Standards as published by ETSI, in particular EN301 908-1, EN 301 908-2, EN 301 908-3 and EN 301 908-11, or equivalent specifications.
LTE 1 800 (FDD)	1 710-1 785 MHz (uplink) 1 805-1 880 MHz (downlink)	LTE complying with LTE Standards, as published by ETSI, in particular EN301 908-1, EN301 908-13, EN301 908-14 and EN301 908-15, or equivalent specifications.

## 2. PREVENTION OF CONNECTION OF MOBILE TERMINALS TO GROUND NETWORKS

During the period when operation of MCA services is authorised on an aircraft, mobile terminals receiving within the frequency bands listed in Table 2 must be prevented from attempting to register with mobile networks on the ground.

Table 2

Frequency band (MHz)	Systems on the ground
460-470	CDMA2000, FLASH OFDM
791-821	LTE
921-960	GSM, UMTS, LTE, WiMAX
1 805-1 880	GSM, UMTS, LTE, WiMAX
2 110-2 170	UMTS, LTE
2 570-2 620	UMTS, LTE, WiMAX
2 620-2 690	UMTS, LTE

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## 3. TECHNICAL PARAMETERS

(a) **Equivalent isotropic radiated power (e.i.r.p.), outside the aircraft, from the NCU/aircraft BTS**

Table 3

The total e.i.r.p., outside the aircraft, from the NCU/aircraft BTS/aircraft Node B must not exceed:

Height above ground  (m)	Maximum e.i.r.p. density produced by NCU/aircraft BTS/aircraft Node B outside the aircraft					
	460- 470 MHz	791-821 MHz	921-960 MHz	1 805- 1 880 MHz	2 110- 2 170 MHz	2 570- 2 690 MHz
	dBm/ 1,25 MHz	dBm/10 MHz	dBm/200 kHz	dBm/200 kHz	dBm/ 3,84 MHz	dBm/ 4,75 MHz
3 000	-17,0	-0,87	-19,0	-13,0	1,0	1,9
4 000	-14,5	1,63	-16,5	-10,5	3,5	4,4
5 000	-12,6	3,57	-14,5	-8,5	5,4	6,3
6 000	-11,0	5,15	-12,9	-6,9	7,0	7,9
7 000	-9,6	6,49	-11,6	-5,6	8,3	9,3
8 000	-8,5	7,65	-10,5	-4,4	9,5	10,4

(b) **Equivalent isotropic radiated power (e.i.r.p.), outside the aircraft, from the onboard terminal**

Table 4

The e.i.r.p., outside the aircraft, from the mobile terminal must not exceed:

Height above ground  (m)	Maximum e.i.r.p., outside the aircraft, from the GSM mobile terminal in dBm/ 200 kHz	Maximum e.i.r.p., outside the aircraft, from the LTE mobile terminal in dBm/ 5 MHz	Maximum e.i.r.p., outside the aircraft, from the UMTS mobile terminal in dBm/ 3,84 MHz
	GSM 1 800 MHz	LTE 1 800 MHz	UMTS 2 100 MHz
3 000	-3,3	1,7	3,1
4 000	-1,1	3,9	5,6
5 000	0,5	5	7
6 000	1,8	5	7
7 000	2,9	5	7
8 000	3,8	5	7

**▼ M1****(c) Operational requirements**

- I. The minimum height above ground for any transmission from an MCA system in operation must be 3 000 metres.
- II. The aircraft BTS, while in operation, must limit the transmit power of all *GSM* mobile terminals transmitting in the 1 800 MHz band to a nominal value of 0 dBm/200 kHz at all stages of communication, including initial access.
- III. The aircraft Node B, while in operation, must limit the transmit power of all *LTE* mobile terminals transmitting in the 1 800 MHz band to a nominal value of 5 dBm/5 MHz at all stages of communication.
- IV. The aircraft Node B, while in operation, must limit the transmit power of all *UMTS* mobile terminals transmitting in the 2 100 MHz band to a nominal value of – 6 dBm/3,84 MHz at all stages of communication and the maximum number of users should not exceed 20.