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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)

Amended by:

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► <u>M1</u>	Commission Implementing Decision 2013/654/EU of 12 November 2013	L 303	48	14.11.2013
► <u>M2</u>	Commission Implementing Decision (EU) 2016/2317 of 16 December 2016	L 345	67	20.12.2016



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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;
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.

▼ M2

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 (down-link)	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 (down-link)	UMTS complying with the UMTS Standards as published by ETSI, in particular EN 301 908-1, 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 (down-link)	LTE complying with LTE Standards, as published by ETSI, in particular EN 301 908-1, EN 301 908-13, EN 301 908-14, and EN 301 908-15, or equivalent specifications.

2. Prevention of connection of mobile terminals to ground networks

Mobile terminals receiving within the frequency bands listed in Table 2 must be prevented from attempting to register with UMTS mobile networks on the ground:

- by the inclusion, in the MCA system, of a Network Control Unit (NCU), which raises the noise floor inside the cabin in mobile receive bands, and/or
- by aircraft fuselage shielding to further attenuate the signal entering and leaving the fuselage.

Table 2

Frequency bands (MHz)	Systems on the ground
925-960 MHz	UMTS (and GSM, LTE)
2 110-2 170 MHz	UMTS (and LTE)

MCA operators may also decide to implement an NCU in the other frequency bands listed in Table 3.

Table 3

Frequency bands (MHz)	Systems on the ground
460-470 MHz	LTE (1)
791-821 MHz	LTE
1 805-1 880 MHz	LTE and GSM
2 620-2 690 MHz	LTE

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Frequency bands (MHz)	Systems on the ground
2 570-2 620 MHz	LTE

(1) On a national level, administrations could use LTE technology for different applications such as BB-PPDR, BB-PMR or Mobile Networks.

3. Technical parameters

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

Table 4

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. of the System outside the aircraft in dBm/channel		
	NCU	Aircraft BTS/Aircraft Node B	Aircraft BTS/Aircraft Node B and NCU
	Band: 900 MHz	Band: 1 800 MHz	Band: 2 100 MHz
	Channel Bandwidth = 3,84 MHz	Channel Bandwidth = 200 kHz	Channel Bandwidth = 3,84 MHz
3 000	- 6,2	- 13,0	1,0
4 000	- 3,7	- 10,5	3,5
5 000	- 1,7	- 8,5	5,4
6 000	- 0,1	- 6,9	7,0
7 000	1,2	- 5,6	8,3
8 000	2,3	- 4,4	9,5

(b) Equivalent isotropic radiated power (e.i.r.p.), outside the aircraft, from the on-board terminal

Table 5

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

When MCA operators decide to implement an NCU in the frequency bands listed in Table 3, the maximum values indicated in Table 6 apply for the total e.i.r.p. outside the aircraft, from the NCU/aircraft BTS/aircraft Node B, in conjunction with the values mentioned in Table 4.

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Table 6

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

(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.