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COMMISSION IMPLEMENTING DECISION

of 12 November 2013

amending Decision 2008/294/EC to include additional access technologies and frequency bands for mobile communications services on aircraft (MCA services)

(notified under document C(2013) 7491)

(Text with EEA relevance)

(2013/654/EU)

(OJ L 303, 14.11.2013, p. 48)

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Article 1

The Annex to Decision 2008/294/EC is replaced by the text in the Annex to this Decision.

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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

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

▼B**(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.