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COMMISSION OF THE EUROPEAN COMMUNITIES

Brussels,
C (2008)

Draft

COMMISSION DECISION

of [...]

**on the harmonisation of the 2500-2690 MHz frequency band for terrestrial systems
capable of providing electronic communications services in the Community**

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on the harmonisation of the 2500-2690 MHz frequency band for terrestrial systems capable of providing electronic communications services in the Community

(Text with EEA relevance)

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 (Radio Spectrum Decision)¹, and in particular Article 4(3) thereof,

Whereas:

- (1) The Commission has supported a more flexible use of spectrum in its Communication on "Rapid access to spectrum for wireless electronic communications services through more flexibility"², which *inter alia* addresses the 2500-2690 MHz band. Technological neutrality and service neutrality have been underlined by Member States in the Radio Spectrum Policy Group (RSPG) opinion on Wireless Access Policy for Electronic Communications Services (WAPECS) of 23 November 2005 as important policy goals to achieve a more flexible use of spectrum. Moreover, according to this opinion, these policy goals should not be introduced abruptly, but in a gradual manner to avoid disruption of the market.
- (2) The designation of the 2500-2690 MHz band for systems capable of providing electronic communications services is an important element addressing the convergence of the mobile, fixed and broadcasting sectors and reflecting technical innovation. The services provided in this frequency band should mainly target end-user access to broadband communications.
- (3) It is expected that the wireless broadband electronic communications services for which the 2500 – 2690 MHz band is to be designated will to a large extent be pan-European in the sense that users of such electronic communications services in one Member State could also gain access to equivalent services in any other Member State.

¹ OJ L 108, 24.4.2002, p. 1.

² COM(2007)50.

- (4) Pursuant to Article 4(2) of Decision 676/2002/EC, on 5 July 2006 the Commission gave a mandate to the European Conference of Postal and Telecommunications Administrations (hereinafter the “CEPT”) to develop least restrictive technical conditions for frequency bands addressed in the context of WAPECS.
- (5) In response to that mandate, the CEPT has issued a report (CEPT Report 19) on least restrictive technical conditions for frequency bands addressed in the context of WAPECS. This report contains technical conditions and guidance for the application of least restrictive conditions to base stations and terminal stations operating in the 2500-2690 MHz band, which are appropriate to manage the risk of harmful interference within as well as outside of national territories, without requiring that any type of particular technology is used, based on optimised parameters for the most likely use of the band.
- (6) In accordance with CEPT Report 19 this Decision introduces the concept of Block Edge Masks (BEM), which are technical parameters that apply to the entire block of spectrum of a specific user, irrespective of the number of channels occupied by the user's chosen technology. These masks are intended to form part of the authorisation conditions for spectrum usage. They cover both emissions within the block of spectrum (i.e. in-block power) as well as emissions outside the block (i.e. out-of-block emission). They are regulatory requirements aimed at managing the risk of harmful interference between neighbouring networks and are without prejudice to limits set in equipment standards under 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 (*the R&TTE Directive*)³.
- (7) The designation and making available of the 2500-2690 MHz band in accordance with the results of the mandate to CEPT recognises the fact that there are other existing applications. Appropriate sharing criteria for coexistence between some systems have been developed in the Electronic Communications Committee's ECC Report 45. For other systems and services appropriate sharing criteria for coexistence may be based on national considerations.
- (8) To achieve compatibility a separation of 5 MHz is needed between the edges of spectrum blocks used for unrestricted TDD (time division duplex) and FDD operation (frequency division duplex) or in the case of two unsynchronised networks operating in TDD mode. Such separation should be achieved by either leaving these 5 MHz blocks unused as guard blocks; or through usage that complies with parameters of the restricted BEM when adjacent to an FDD (uplink) or between two TDD blocks; or through usage that complies with parameters of either restricted or unrestricted BEMs when adjacent to an FDD (downlink) block. Any usage of a 5 MHz guard block is subject to an increased risk of interference.
- (9) The results of the mandate to the CEPT should be made applicable in the Community and implemented by the Member States without delay given the increasing requirements identified in studies at European and global levels for terrestrial electronic communications services providing broadband communications.

³ OJ L 91, 7.4.1999, p. 10. Directive as amended by Regulation (EC) No 1882/2003 of the European Parliament and of the Council (OJ L 284, 31.10.2003, p. 1).

- (10) Harmonisation under this Decision should not exclude the possibility for a Member State to apply, where justified, transitional periods that could include radio spectrum sharing arrangements, pursuant to Article 4(5) of the Radio Spectrum Decision.
- (11) In order to ensure effective use of the 2500-2690 MHz band also in the longer term, administrations should continue with studies that may increase efficiency and innovative use. Such studies should be taken into account when considering a review of this Decision.
- (12) The measures provided for in this Decision are in accordance with the opinion of the Radio Spectrum Committee.

HAS ADOPTED THIS DECISION:

Article 1

This Decision aims at harmonising the conditions for the availability and efficient use of the 2500-2690 MHz band for terrestrial systems capable of providing electronic communications services in the Community.

Article 2

- (1) No later than 6 months after entry into force of this Decision Member States shall designate and subsequently make available, on a non-exclusive basis, the 2500-2690MHz band for terrestrial systems capable of providing electronic communications services, in compliance with the parameters set out in the Annex to this Decision.
- (2) By way of derogation from paragraph 1, Member States may request transitional periods that may include radio spectrum sharing arrangements, pursuant to Article 4(5) of Decision 676/2002/EC.
- (3) Member States shall ensure that systems referred to in paragraph 1 give appropriate protection to systems in adjacent bands.

Article 3

Member States shall keep the use of the 2500-2690 MHz band under scrutiny and report their findings to the Commission to allow regular and timely review of this Decision.

Article 4

This Decision is addressed to the Member States.

Done at Brussels, [...]

For the Commission
Member of the Commission

ANNEX
Parameters referred to in Article 2

The following technical parameters called Block Edge Mask (BEM) shall be applied as an essential component of conditions necessary to ensure co-existence in the absence of bilateral or multilateral agreements between neighbouring networks, without precluding less stringent technical parameters if agreed among the operators of such networks. Member States should ensure that network operators are free to enter into bilateral or multilateral agreements to develop less stringent technical parameters and, if agreed among all affected parties, these less stringent technical parameters may be used.

Equipment operating in this band may also make use of equivalent isotropically radiated power (e.i.r.p.) limits other than those set out below provided that appropriate mitigation techniques are applied which comply with Directive 1999/5/EC and which offer at least an equivalent level of protection to that provided by these technical parameters.

A) General parameters:

- (1) The assigned blocks shall be in multiple of 5.0 MHz.
- (2) Within the band 2500 – 2690 MHz, the duplex spacing for FDD operation shall be 120 MHz with terminal station transmission (up link) located in the lower part of the band starting at 2500 MHz (extending to a maximum limit of 2570 MHz) and base station transmission (down link) located in the upper part of the band starting at 2620 MHz.
- (3) The sub-band 2570 – 2620 MHz can be used by TDD or other usage modes complying with the BEMs in this annex. Outside of the sub-band 2570 – 2620 MHz such usage can be decided at national level and shall be in equal parts in both the upper part of the band starting at 2690 MHz (extending downwards) and the lower part of the band starting at 2570 MHz (extending downwards).

B) Unrestricted BEM for Base Stations:

The BEM for an unrestricted spectrum block is built up by combining Tables 1, 2 and 3 in such a way that the limit for each frequency is given by the higher value out of the baseline requirements and the block specific requirements.

Frequency range in which out-of-block emissions are received	Maximum mean e.i.r.p. (integrated over a 1 MHz bandwidth)
Frequencies allocated to FDD down link and +/- 5 MHz outside the range of frequency blocks allocated to FDD down link.	+ 4 dBm/MHz
Frequencies in the band 2500-2690 MHz not covered by the definition above.	- 45 dBm/MHz

Table 1: Baseline requirements - Base Station out-of-block e.i.r.p. BEM

Maximum in-block e.i.r.p.	+ 61 dBm/5MHz
Note: Member States can relax this limit to 68dBm/5MHz for specific deployments e.g. in areas of low population density provided that this does not significantly increase the risk of terminal station receiver blocking.	

Table 2: Block specific requirements - Base Station in-block e.i.r.p. BEM

Offset from relevant block edge	Maximum mean e.i.r.p.
Start of band (2500MHz) to -5 MHz (lower edge)	Baseline requirement level
- 5.0 to -1.0 MHz (lower edge)	+ 4 dBm/ MHz
- 1.0 to -0.2 MHz (lower edge)	+ 3 + 15(Δ_F + 0.2) dBm/30kHz
- 0.2 to 0.0 MHz (lower edge)	+ 3 dBm/30kHz
0.0 to +0.2 MHz (upper edge)	+ 3 dBm/30kHz
+ 0.2 to +1.0 MHz (upper edge)	+ 3 - 15(Δ_F - 0.2) dBm/30kHz
+ 1.0 to +5.0 MHz (upper edge)	+ 4 dBm/ MHz
+ 5.0 MHz (upper edge) to end of band (2690 MHz)	Baseline requirement level
Where: Δ_F is the frequency offset from the relevant block edge (in MHz)	

Table 3: Block specific requirements - Base Station out-of-block e.i.r.p. BEM

C) Restricted BEM for Base Stations:

The BEM for a restricted spectrum block is built up by combining Tables 1 and 4 in such a way that the limit for each frequency is given by the higher value out of the baseline requirements and the block specific requirements.

Maximum in-block e.i.r.p.	+ 25 dBm/5MHz
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Table 4: Block specific requirements - Base Station in-block e.i.r.p. BEM for restricted block

D) Restricted BEM for Base Stations with restrictions on antenna placement:

In cases where antennas are placed indoors or where the antenna height is below a certain height, a Member State may use alternative parameters in line with Table 5, provided that at geographical borders to other Member States Table 1 applies and that Table 4 remains valid nationwide.

Offset from relevant block edge	Maximum mean e.i.r.p.
Start of band (2500MHz) to -5 MHz (lower edge)	- 22 dBm/ MHz
- 5.0 to -1.0 MHz (lower edge)	- 18 dBm/ MHz
- 1.0 to -0.2 MHz (lower edge)	- 19 + 15(Δ_F + 0.2) dBm/30kHz
- 0.2 to 0.0 MHz (lower edge)	- 19 dBm/30kHz
0.0 to +0.2 MHz (upper edge)	- 19 dBm/30kHz
+ 0.2 to +1.0 MHz (upper edge)	- 19 - 15(Δ_F - 0.2) dBm/30kHz
+ 1.0 to +5.0 MHz (upper edge)	- 18 dBm/ MHz
+ 5.0 MHz (upper edge) to end of band (2690 MHz)	- 22 dBm/ MHz
Where: Δ_F is the frequency offset from the relevant block edge (in MHz)	

Table 5: Block specific requirements - Base Station out-of-block e.i.r.p. BEM for restricted block with additional restrictions on antenna placement

E) Limits for Terminal Stations:

	Maximum mean power (including Automatic Transmitter Power Control (ATPC) range)
Total Radiated Power (TRP)	31 dBm/5MHz
E.i.r.p.	35 dBm/5MHz
Note: E.i.r.p. should be used for fixed or installed Terminal Stations and the TRP should be used for the mobile or nomadic Terminal Stations. TRP is a measure of how much power the antenna actually radiates. The TRP is defined as the integral of the power transmitted in different directions over the entire radiation sphere.	

Table 6: In-block power limits for Terminal Stations