



Brussels, 14 December 2010
DG INFSO/B4

**SHORT RANGE RADARS IN VEHICLES FOR ROAD SAFETY
CALL TO STAKEHOLDERS FOR THEIR VIEWS ON THE PROPOSED AMENDMENT TO
COMMISSION DECISION 2005/050/EC**

Scope of the Call

The European Commission is hereby submitting for public consultation a draft amendment to Commission Decision 2005/050/EC on the harmonisation of the 24 GHz range radio spectrum band for the time-limited use by automotive short-range radar (SRR) equipment in the Community¹.

Comments from all stakeholders are welcome, including from those who did not take part in the general public consultation organised in 2008 on the topic of SRR. Interested parties will certainly include representatives from the automotive sector and related industries, from sectors potentially affected by SRR, such as radio astronomy, earth observation, satellite operators, telecom companies and the defence sector, as well as from organisations involved in road safety and road users, and academic/research entities. The views of regulatory and standardisation agencies are also very relevant.

The closing date for comments is 15 February 2011. Comments are to be sent to the Radio Spectrum Committee Secretariat (info-rsc@ec.europa.eu). Responses will be published on the European Commission's website on radio spectrum policy² except where otherwise specified by the respondent.

Background

Automotive SRR systems have been identified by the EU policy initiative *eSafety*³ as a significant technology for the improvement of road safety in Europe by active means, and as one of a number of active and passive measures that could be introduced together to address the overall policy goal of reducing road fatalities in Europe.

Access to sufficient radio spectrum resources harmonised throughout the EU is essential to a significant take-up of SRR applications in the European automotive market.

¹ Official Journal of the European Union, L21 of 25.1.2005, p. 15

² See http://ec.europa.eu/information_society/policy/radio_spectrum/index_en.htm

³ See http://europa.eu.int/information_society/programmes/esafety/index_en.htm

Although all such radars are ultimately expected to use the 79 GHz (in the range 77-81 GHz) band pursuant to decision 2004/545/EC of July 8th, 2004, the use of the 24 GHz spectrum range (21.65 - 26.65 GHz) has been authorised on a temporary basis by Decision 2005/050/EC of January 17th, 2005.

In accordance with the 24 GHz Decision, a fundamental review of the Decision was carried out which showed the continuing relevance of the initial technical assumptions concerning the operation of automotive short-range radar in the 24 GHz range radio spectrum band.

However, there are strong indications that the development of SRR technology in the 79 GHz range is not progressing in such a way as to ensure that SRR applications operating in that spectrum range would be readily available by 1 July 2013. Furthermore it appears that there will be considerable further delay before wideband road safety radar applications operating in the 79 GHz range will be available on a commercial basis in motor vehicles. Therefore, the European Commission proposes an extension of the use of the 24GHz band for automotive short-range radar applications until 1 January 2022, in order to ensure the continued availability of SRR on the market and avoid any technological gap before the final move to the 79 GHz band.

At the same time, in order to avoid compatibility problems with the passive radio services operating in the lower part of 24 GHz band, the Commission intends to reduce the 24 GHz band to the upper part of original band, i.e. to the range of 24.25- 26.65 GHz radio spectrum. The limits to the penetration rate would remain unchanged as well as the emission characteristics.

Annex 1: Document for public consultation showing the proposed amendments to Commission Decision 2005/050/EC on the harmonisation of the 24 GHz range radio spectrum band for the time-limited use by automotive short-range radar equipment in the Community

Annex 2: Working document to show how the articles of the existing Decision would read if the proposed amendments to the Decision are introduced.

Document for Public Consultation in view to the amendment of Decision 2005/50/EC on the harmonisation of the 24 GHz range radio spectrum band for the time-limited use by automotive short-range radar equipment in the Community

Based on the Radio Spectrum Decision No 676/2002/EC, the Commission is proposing to modify its decision 2005/50/EC; the context, objectives and limits thereof are explained below.

On 7 November 2008, the European Commission issued a mandate to CEPT to undertake technical studies on automotive short-range radar systems in support of the fundamental review pursuant to Article 5.2 of Decision 2005/50/EC and to undertake radio compatibility studies with regard to possible alternative approaches to the use of the 24 GHz range.

CEPT reports 36 and 37 delivered pursuant to this mandate and the fundamental review carried out pursuant to Decision 2005/50/EC on evolution regarding the 24 GHz and 79 GHz bands indicate that the reference date of 30 June 2013 provided in article 2.5 is still valid, and that considering the current absence of harmful impact on other users of the 24 GHz band, there is no need to move it forward.

Development of automotive short-range radar technology in the 79 GHz range is progressing; however, there are strong indications that integration in car manufacturing of the applications of that technology will not be achieved by the deadline set for short-range technology in the 24 GHz range and that, considering the time still necessary for the development, integration and testing phases, it is likely that integration of 79 GHz radars in cars to allow for a mass market distribution will not be feasible before 2018 at the earliest.

Moreover, an additional period of three years might be necessary to ensure the transition from the 24 GHz technology to the 79 GHz technology on car lines using 24 GHz technology which will exist at the time of appearance of new car lines equipped with the 79 GHz technology.

It is essential to ensure a continuity of the existing and forthcoming production of cars equipped with 24 GHz radars considering their importance for traffic safety and the need to encourage the development of such applications in the largest proportion of existing vehicles possible; therefore a discontinuity of usable spectrum for radars must be avoided and a temporary solution is necessary to ensure the transition between 1 July 2013 and 1 January 2022.

However, it is expected that the date of 1 January 2022 be the ultimate date beyond which the use of the 24 GHz band shall cease to be available for radars in new vehicles. As already expressed in Decision 2005/50/EC, the opening of the 24 GHz band for short range radars in 2005 should remain temporary and exceptional due in particular to the fact that the 24 GHz band is allocated to the fixed service on a primary basis in the ITU Radio Regulations and is extensively used by fixed links to meet the infrastructure requirement for mobile communications networks and to further develop broadband wireless services, as well as to the fact that such radars must ultimately use the 79 GHz band as provided by Decision 2004/545/EC. No extension beyond the date of 2022 should therefore be

allowed, even as a result of the active scrutiny and review of the presumptions and precautions set by that decision.

Considering international protection granted to radio astronomy, earth exploration satellite and space research passive services in the 23.60 GHz to 24 GHz band, and the exceptional character of the designation of that band for short range radars by Decision 2005/50/EC, a prolongation of such designation is not a viable option. Moreover, the band 24 GHz to 24.25 GHz has been designated for industrial, scientific and medical purposes (ISM band).

CEPT compatibility studies, including some military systems, indicate that the 24.25 GHz to 27.50 GHz band may be a technically feasible alternative solution. The band above 26.50 GHz has been identified by NATO as a planned military band for fixed and mobile systems.

The threshold of 7% penetration rate imposed by Decision 2005/50/EC should be maintained as there is no indication that such limit would be exceeded before the switch over to the 79 GHz band and to stress that the 24 GHz band remains a transitory solution.

The Commission assisted by the Member States should continue to monitor the application of this decision, in particular regarding the threshold limit, the absence of harmful interference to other users of the band or neighbouring bands, the threshold of 7% being surpassed or not.

The main article of the amendment would read as follows (a consolidated version of the articles of the Decision is also available separately).

"Decision 2005/50/EC is amended as follows:

(a) Point 5 of Article 2 shall be replaced by the following:

'5. 'reference dates' means 30 June 2013 for the frequency between 21,65 and 24,25 GHz and 1 January 2022 for the frequency between 24,25 and 26,65 GHz;'

(b) In the second paragraph of Article 3, the words 'reference date' shall be replaced by 'reference dates';

(c) In the third paragraph of Article 3, the words 'that date' shall be replaced by 'those dates';

(d) In point (d) of the first paragraph of Article 5, the words 'the reference date' shall be replaced by 'the reference dates'.

(e) Paragraphs 2 and 3 of Article 5 shall be deleted and paragraph 4 of Article 5 shall read as follows: "The Member States shall assist the Commission to carry out the scrutiny referred to in paragraph 1 by ensuring that the necessary information is collected and provided to the Commission in a timely manner, in particular the information set out in the Annex."

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Annex to document for public consultation

Consolidated version of the articles of COMMISSION DECISION 2005/50/EC on the harmonisation of the 24 GHz range radio spectrum band for the time-limited use by automotive short-range radar equipment in the Community

after its proposed amendment

Article 1

The purpose of this Decision is to harmonise the conditions for the availability and efficient use of the 24 GHz range radio spectrum band for automotive short-range radar equipment.

Article 2

For the purposes of this Decision, the following definitions shall apply:

- (1) '24 GHz range radio spectrum band' means the 24.15 +/- 2.50 GHz frequency band;
- (2) 'automotive short-range radar equipment' means equipment providing road vehicle-based radar functions for collision mitigation and traffic safety applications;
- (3) 'automotive short-range radar equipment put into service in the Community' means automotive short-range radar equipment originally installed or replacing one so installed in a vehicle which will be or which has been registered, placed on the market or put into service in the Community;
- (4) 'on non-interference and non-protected basis' means that no harmful interference may be caused to other users of the band and that no claim may be made for protection from harmful interference received from other systems or services operating in that band;
- (5) 'Reference Dates' means 30 June 2013 [for the frequency between 21.65 and 24.25 GHz and 1 January 2022 for the frequency between 24.25 and 26.65 GHz](#);
- (6) 'Transition Date' means 30 June 2007;
- (7) 'vehicle' means any vehicle as defined by Article 2 of Directive 70/156/EC;
- (8) 'deactivation' means the termination of emissions by automotive short-range radar equipment.
- (9) 'exclusion zone' means the area around a radio astronomy station defined by a radius equivalent to a specific distance from the station.

- (10) 'duty cycle' means the ratio of time during any one hour period when equipment is actively transmitting

Article 3

The 24 GHz range radio spectrum band shall be designated and made available as soon as possible and no later than 1 July 2005, on a non-interference and non-protected basis, for automotive short-range radar equipment put into service in the Community which complies with the conditions laid down in Article 4 and Article 6.

The 24 GHz range radio spectrum band shall remain so available until the Reference Dates, subject to the provisions of Article 5.

After those dates, the 24 GHz range radio spectrum band shall cease to be available for automotive short-range radar equipment mounted on any vehicle except where that equipment was originally installed, or is replacing equipment so installed, in a vehicle registered, placed on the market or put into service before that date in the Community.

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Article 4

The 24 GHz range radio spectrum band shall be available for the ultra-wide band part of automotive short-range radar equipment with a maximum mean power density of -41.3 dBm/MHz effective isotropic radiated power (e.i.r.p.) and peak power density of 0 dBm/50MHz e.i.r.p., except for frequencies below 22 GHz, where the maximum mean power density shall be limited to -61.3 dBm/MHz e.i.r.p.

The 24.05-24.25 GHz radio spectrum band is designated for the narrow-band emission mode/component, which may consist of an unmodulated carrier, with a maximum peak power of 20 dBm e.i.r.p and a duty cycle limited to 10% for peak emissions higher than -10 dBm e.i.r.p.

Emissions within the 23.6-24.0 GHz band that appear 30° or greater above the horizontal plane shall be attenuated by at least 25 dB for automotive short-range radar equipment placed on the market before 2010 and thereafter by at least 30 dB.

Article 5

1. The continued availability of the 24 GHz range radio spectrum band for automotive short-range radar applications shall be kept under active scrutiny to ensure that the main premise of opening this band to such systems remains valid, which is that no harmful interference is caused to other users of the band, in particular through the timely verification of:

- (a) the total number of vehicles registered, placed on the market or put into service equipped with 24 GHz automotive short-range radar in each Member State, to verify that this number does not exceed the level of 7% of the total number of vehicles in circulation in each Member State;
- (b) whether adequate information has been made available by Member States or by manufacturers and importers regarding the number of 24 GHz short-range

radar-equipped vehicles for the purpose of monitoring effectively the use of the 24 GHz band by automotive short-range radar equipment;

(c) whether the individual or cumulative use of 24 GHz automotive short-range radar is causing or is likely to cause within a short period of time harmful interference to other users in the 24 GHz band or in adjacent bands in at least one Member State, whether or not the threshold referred to in (a) has been reached;

(d) the continuing appropriateness of the Reference Dates.

2. The Member States shall assist the Commission to carry out the scrutiny referred to in paragraph 1, by ensuring that the necessary information is collected and provided to the Commission in a timely manner, in particular the information set out in the Annex.

Article 6

1. Automotive short-range radar equipment mounted on vehicles shall only operate when the vehicle is active.
2. Automotive short-range radar equipment put into service in the Community shall ensure protection of the radio astronomy stations operating in the radio spectrum band 22.21-24.00 GHz defined in Article 7 through automatic deactivation in a defined exclusion zone or via another method providing equivalent protection for these stations without driver intervention.
3. By way of derogation to paragraph 2, manual deactivation will be accepted for automotive short-range radar equipment put into service in the Community operating in the 24 GHz range radio spectrum band before the Transition Date.

Article 7

Each Member State shall determine the relevant national radio astronomy stations to be protected pursuant to Article 6(2) in its territory and the characteristics of the exclusion zones pertaining to each station. This information, supported by appropriate justification, shall be notified to the Commission within six months after adoption of this Decision, and published in the Official Journal of the European Union.

Article 8

This Decision is addressed to the Member States.

Deleted: 2. In addition to the review process in paragraph 1, a Fundamental Review shall be carried out by 31 December 2009 at the latest to verify the continuing relevance of the initial assumptions concerning the operation of automotive short-range radar in the 24 GHz range radio spectrum band, as well as to verify whether the development of automotive short-range radar technology in the 79 GHz range is progressing in such a way as to ensure that automotive short-range radar applications operating in this radio spectrum band will be readily available by 1 July 2013.¶
3. The Fundamental Review may be triggered by a reasoned request by a Member of the Radio Spectrum Committee, or at the Commission's own initiative.¶

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