



Electronic Communications Committee (ECC)
within the European Conference of Postal and Telecommunications Administrations (CEPT)

ECC RECOMMENDATION (02)09

PROTECTION OF AERONAUTICAL RADIO NAVIGATION SERVICE IN THE BAND 2 700 – 2 900 MHZ FROM INTERFERENCE CAUSED BY THE OPERATION OF DIGITAL CORDLESS CAMERAS

Recommendation adopted by the Working Group "Frequency Management" (WGFM)

INTRODUCTION

ECC REC 25-10 contains a list of harmonised tuning ranges for this kind of applications. However in some exceptional cases administrations may need to make assignments in some additional frequency bands.

Some CEPT countries intend to use the frequency band 2700-2900 MHz for digital cordless cameras. Since there is no allocation to the mobile service in this band, CEPT administrations permitting this use have to ensure that the existing uses of the band by the aeronautical radio navigation and the radiolocation services are protected.

The band 2 700 – 2 900 MHz is used by radars operating mostly in the aeronautical radio navigation service but also in the radiolocation service (RR 5.423). As digital cordless cameras (mobile service) would be operating under RR 4.4¹, they shall not cause harmful interference to radar stations. Any assignment to a digital cordless camera in this band has to be carefully co-ordinated with the radars operating in the band. This Recommendation provides the conditions for use of the band 2700-2900 MHz by digital cordless cameras and guidelines to administrations for the co-ordination procedures.

¹ **No. 4.4 of the ITU Radio Regulations:**

Administrations of the Member States shall not assign to a station any frequency in derogation of either the Table of Frequency Allocations in this Chapter or the other provisions these Regulations, except on the express condition that such a station, when using such a frequency assignment, shall not cause harmful interference to, and shall not claim protection from harmful interference caused by, a station operating in accordance with the provisions of the Constitution, the Convention and these Regulations.

“The European Conference of Postal and Telecommunications Administrations,

considering

- a) that the band 2 700 – 2 900 MHz is allocated to the aeronautical radio navigation service and the radiolocation service;
- b) that primary radars for air traffic control purposes are operated in the band 2700 – 2900 MHz;
- c) that radars need protection from the possibility of interference;
- d) that radars using this band differ in number and characteristics between various countries;
- e) that most primary radar systems in this band fulfil a safety of life function in accordance with No. 4.10 of the ITU Radio Regulations;
- f) that there is no allocation to mobile service in the band 2 700 – 2 900 MHz;
- g) that administrations permitting the operation of cordless cameras on a national basis in the band 2 700-2 900 MHz are responsible for ensuring that these cameras do not interfere with radars in affected countries;
- h) that ECC Report 6 describes the technical impact of digital cordless cameras on primary radar systems and suggests that ITU-R P.452 could be used for detailed calculations;
- i) that the impact of radars in the band 2 700 – 2 900 MHz on cordless cameras is not covered by ECC Report 6 or other CEPT studies.

recommends

- 1) that digital cordless cameras to be used in the band 2700 – 2900 MHz should be in accordance with the characteristics given in the Annex;
- 2) that administrations intending to use digital cordless cameras in this band shall ensure that harmful interference to radar stations is avoided, in their own and other potentially affected countries;
- 3) that in order to avoid harmful interference to radars, Administrations wishing to use the band 2700 – 2900 MHz for cordless digital cameras restrict such use only to cases, where frequencies for each camera operation may be assigned on a case-by-case basis after advance submission of a formal application, allowing sufficient time for fully analysing the technical details and for evaluating potential interferences, including cases where agreement of affected countries is required;
- 4) that the use of digital cordless cameras within a distance of 10 km to any radar operating in the band 2700 – 2900 MHz should not be authorised;
- 5) that an administration is considered to be affected and its agreement has to be obtained if the field strength produced by a digital cordless camera exceeds the trigger level of $-2 \text{ dB}\mu\text{V/m}$ at or within its border;
- 6) that the field strength referred to in recommends 5 is to be calculated by the administration wanting to operate the digital cordless camera using the latest version of Recommendation ITU-R P.452, assuming $p=0.001\%$, considered together with a topographical data base;
- 7) that when calculating the field strength referred to in recommends 5 no account should be taken of building shielding effects."

Note:

Please check the CEPT web site (<http://www.CEPT.org>) for the up to date position on the implementation of this and other ECC Recommendations.

Annex

CHARACTERISTICS OF CORDLESS DIGITAL CAMERAS

Digital cordless cameras are handheld or otherwise mounted cameras with integrated transmitter, power pack and antenna for carrying broadcast video together with sound signals over short distances. This kind of equipment will be used for producing live pictures in situation where a flexible position of the camera is required. A typical application will be at sport events such as pit lane picture from car races. The distance between camera and the receiver will be in the order of 100m. For a successful co-ordination all details of the operation of the equipment needs to be known in advance.

The EIRP is limited to 0dBW using a DVB-T (EN 300 744) modulation with omnidirectional antenna. Digital cordless cameras will only be used on the ground (typically 2 m above ground).

The following technical characteristics have been developed within ECC Report 2 for candidate video links for the band 2 700 – 2 900 MHz.

Type of Link	Typical Tx antenna characteristics			Maximum EIRP (dBW)	Typical Environment
	Height (agl)	Directivity	Gain (dBi)		
Digital Cordless Cameras	2 m	Omnidirectional (in the horizontal plane)	5	0	Indoor, Outdoor (e.g. within sports stadium)