

**EUROPEAN RADIOCOMMUNICATIONS COMMITTEE**

ERC Decision  
of 1 December 1995  
on the frequency bands to be designated  
for the introduction of DCS 1800  
(ERC/DEC/(95)03)





## EXPLANATORY MEMORANDUM

### 1. INTRODUCTION

Within Europe, there is an increasing interest in public mobile communications. The use of public mobile communications has dramatically increased and the market prospects are excellent for the years to come. What started out with analogue technology is now evolving into a digital scenario with GSM at 900 MHz and DCS 1800 at 1800 MHz playing leading roles in the implementation of cellular mobile networks in Europe and around the globe.

From a standards point of view GSM and DCS 1800 are very similar. Nevertheless there are differences. The most obvious difference, is of course, the higher frequency band in which DCS 1800 is located. Higher frequencies result in lower propagation distances which means that base stations must be located closer together than in the GSM network in order to ensure the same coverage.

On the one hand, the provision of more base stations in a certain area (smaller cell size) results in higher costs for a DCS 1800 operator compared to a GSM operator. On the other hand, the smaller cell size has the advantage of a better frequency reuse which finally results in a higher subscriber capacity for the DCS 1800 operator.

### 2. BACKGROUND

At WARC 92, following proposals from European administrations, it was decided to allocate the frequency band 1710-1880 MHz to the mobile service for operation on a primary basis.

Within the CEPT, the European Table of Frequency Allocations and Utilisation expected beyond the year 2008 has allocated both the Fixed Service and the Mobile Service on a primary basis in the bands 1710 - 1785 MHz. It is also mentioned under the column "Major Utilisation" that DCS 1800 can be used "on a national basis" in accordance with CEPT Recommendation T/R 22-07.

CEPT Recommendation T/R 22-07 deals with the coordination of DCS 1800 frequencies in border areas (based on T/R 20-08 for GSM). The applicability of the recommendation was restricted to the coordination of DCS 1800 vis à vis DCS 1800, i.e. the coordination between DCS 1800 and radio-relay systems is not contained in the recommendation. The ERC adopted this recommendation in October 1993. CEPT Recommendation T/R 22-07 covers the following frequency range:

1710	1785	1805	1880 MHz
DCS 1800 (T/R 22-07)		DCS 1800 (T/R 22-07)	

The Recommendation has led to multilateral agreements among several CEPT countries through which preferential frequencies for DCS 1800 networks have been designated. Furthermore, bilateral agreements have been signed by several countries in order to coordinate DCS 1800 with radio relay applications.

### 3. REQUIREMENT FOR AN ERC DECISION

The allocation of radio frequencies in CEPT member countries is laid down by law, regulation or administrative action. The ERC recognises that for DCS 1800 systems to be introduced successfully throughout Europe, manufacturers and operators must be given the confidence to make the necessary investment in this new pan-European radiocommunications system and service. A commitment by CEPT member countries to implement an ERC Decision will provide a clear indication that the required frequency bands will be made available on time and on a Europe-wide basis. This was confirmed in the report by the European Radiocommunications Office (ERO) which was produced under the Framework Contract with the European Commission. The European Commission has also expressed the view that the results of market studies and consultations with the mobile communications sector justifies the Europe-wide allocation of frequencies for DCS 1800.

An ERC Decision on DCS 1800 should be embedded in a flexible approach that will allow some room to adapt to specific national situations and needs while giving firm guidelines to administrations, operators and manufacturers.

In order for Europe to keep up with the pace of cellular mobile and to strengthen its good position in the terrestrial mobile market, it is necessary to provide an adequate environment for further development of cellular mobile systems driven by market forces. With an ERC Decision on DCS 1800 a clear sign on the development of public mobile communications in Europe has been given and another step forward in European mobility has been taken.

### 4. CLARIFYING REMARKS ON THE ERC DECISION

The following central theme is contained in the ERC Decision on DCS 1800:

Within the bands 1710-1785 and 1805-1880 MHz administrations should designate at least 2 x 20 MHz of spectrum for the introduction of DCS 1800 by the beginning of 1998. More spectrum can be designated within these bands on a national basis. This approach leaves a certain amount of flexibility which will be needed in order for administrations to implement the Decision according to the specific needs of their country.

By making at least 2 x 20 MHz available throughout Europe for DCS 1800 in 1998, the Decision provides for a Europe wide service but leaves it to administrations:

- to place these 2 x 20 MHz within the bands 1710 - 1785 MHz and 1805 - 1880 MHz wherever it is best suited. It should however be noted that according to CEPT Recommendation T/R 22-07 administrations should start at the top of the respective DCS 1800 frequency bands if at all possible. Problems at national borders can be minimised through multilateral and bilateral agreements, which have already been established between several CEPT countries and by the use of computer aided coordination techniques which have already been demonstrated by the German administration.
- to decide whether or not the operator will be granted a nation-wide or regional licence, depending on the purpose intended for DCS 1800 usage, i.e. as an extension for GSM networks or as a network that will compete with the GSM network.
- to decide whether the frequencies may be shared with the fixed service (e.g. DCS 1800 in urban areas and fixed in rural areas) or whether they will be allocated exclusively to DCS 1800. This point could be interrelated to the type of licences mentioned above.

This flexibility is intended to facilitate commitments by administrations to this ERC Decision concerning frequencies for the introduction of DCS 1800.

It is recognised that the exclusive use of the frequency bands for DCS 1800 may be preferred in order not to place constraints on potential operators and such an approach is generally recommended, however, this is not considered to be mandatory.

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The European Conference of Postal and Telecommunications Administrations,

*considering:*

- a) that ETSI has developed standards for DCS 1800;
- b) that CEPT has identified appropriate frequency bands for DCS 1800 (1710-1785/1805-1880 MHz);
- c) that the complete bands for GSM (including extension bands) are not available in some countries;
- d) that the DCS 1800 standard is widely based on the GSM standard;
- e) that there is a large number of European countries where the introduction of DCS 1800 has commenced or is foreseen;
- f) that it is not possible to find a common DCS 1800 sub-band which is unused within CEPT countries;
- g) that roaming is possible even if there are different frequency sub-bands involved;
- h) that the type of licence (regional or nation-wide coverage) has an effect on the possibilities of sharing on a geographical basis with the fixed service;
- i) that ERC Report 25, the European Common Allocation Table, indicates allocations to the fixed and mobile services on a co-primary basis concerning the identified bands for DCS 1800;
- j) that the long term spectrum requirements in most countries do not exceed 2 x 50 MHz, but in other countries this may be the minimum longer term requirement;
- k) that CEPT Recommendation T/R 22-07 recommends the implementation of networks starting at the top of the bands, noting that compatibility between DCS 1800 and DECT in the adjacent band is to be taken account of;
- l) that ERC Report 25 and CEPT Recommendation T/R 22-07 recognise that DCS 1800 will be developed on a national basis;
- m) that many countries have 2 x 20 MHz of available spectrum in the identified bands;
- n) that in order to give manufacturers and operators the confidence to make the necessary investment in this new radiocommunication system and service, they need a clear indication that the required frequency bands will be made available on time in each CEPT country;
- o) that the total amount of spectrum required in each country depends upon market demands.

*recognising:*

that there are existing bilateral and multilateral coordination agreements covering the identified band, developed on the basis of CEPT recommendation T/R 22-07.

DECIDES

1. that for the purpose of this decision, DCS 1800 shall mean equipment complying with the European telecommunication standards for digital cellular telecommunications systems in the 1800 MHz band (GSM standards);
2. to designate the frequency bands 1710 - 1785 MHz and 1805 - 1880 MHz to DCS 1800;
3. that at least 2 x 15 MHz within the designated bands shall be made available for DCS 1800 by 1 March 1997 and an additional 2 x 5 MHz to meet market demand by 1 January 1998;
4. that CEPT Member Administrations shall communicate the national measures implementing this Decision to the ERC Chairman and the ERO when the Decision is nationally implemented.

Note:

Please check the ERO web site ( [www.ero.dk](http://www.ero.dk) ) under "Documentation / Implementation" for the up to date position on the implementation of this and other ERC Decisions.