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TECHNICAL REPORT

**Digital cellular telecommunications system (Phase 2+);  
Background for Radio Frequency (RF) requirements  
(3GPP TR 45.050 version 13.0.0 Release 13)**



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## Foreword

This Technical Report has been produced by the 3<sup>rd</sup> Generation Partnership Project (3GPP).

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  - 1 presented to TSG for information;
  - 2 presented to TSG for approval;
  - 3 or greater indicates TSG approved document under change control.
- y the second digit is incremented for all changes of substance, i.e. technical enhancements, corrections, updates, etc.
- z the third digit is incremented when editorial only changes have been incorporated in the document.

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# 1 Scope

The present document gives background information on how the RF requirements of GSM400, GSM900 and DCS 1800 systems have been derived.

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# 2 Information available

The present document collects together temporary documents of ETSI SMG and STC SMG2 and 3GPP GERAN which can be seen as base line material for the RF requirements in GSM 05.05. The documents are divided into several clauses

In each clause there is a short description of the documents. The documents themselves are annexed to this report.

A list of phase 2 change requests to SMG2 related documents are annexed to the SMG meeting reports.

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# 3 DCS1800 system scenarios

There are two documents describing the basis of the DCS1800 RF requirements. They are:

- DCS1800 System scenarios (TDoc SMG 259/90, reproduced as TDoc SMG 60/91).
- Justifications for the DCS1800 05.05 (TDoc SMG 260/90, revised as TDoc SMG 60/91)).

These documents have been derived first by the UK PCN operators and later by GSM2 ad hoc group working on DCS 1800 requirements during 1990. The documents were presented to TC SMG in October 1990.

**DCS1800 System Scenarios** describes six scenarios which are considered to be the relevant cases for DCS1800. The six scenarios described are:

- Single MS - Single BTS.
- Multiple MSs - Multiple co-ordinated BTSs.
- Multiple MSs - Multiple uncoordinated BTSs.
- Co-located MSs, co-ordinated/uncoordinated.
- Co-located BTSs, co-ordinated/uncoordinated.
- Co-location with other systems.

On each of these scenarios the system constraints related to the scenario are described, the RF requirements affected by the scenario are identified and the input information needed to study the scenario in detail is listed.

**Justifications for the DCS1800 05.05** includes the analysis of the system scenarios to detailed RF requirements and presents and justifies the proposed changes to GSM 05.05 for DCS1800. In the analysis part the relevant scenario calculations are made for each RF requirement and the most critical scenario requirement identified. The justification part then looks at the identified scenario requirement, compares it to the corresponding existing GSM900 requirement and taking also into account the implementation issues and finally gives reasoning to the proposed change of the specific RF requirement.

These documents are in annex A.

The DCS1800 requirements were originally developed for Phase 1 as a separate set of specifications, called DCS-specifications. For Phase two the DCS1800 and GSM900 requirements are merged. The main Phase 2 change requests of SMG2 in which the requirements for the DCS1800 system were included into are listed below.

- CR 05.01-04      Combination of GSM900 and DCS1800 specifications.
- CR 05.05-37 rev1      Combination of 05.05 (GSM900) and 05.05-DCS (DCS1800) specifications.