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First edition  
2003-10

INTERNATIONAL SPECIAL COMMITTEE ON RADIO INTERFERENCE

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**Database on the characteristics  
of radio services**

*Base de données sur les caractéristiques  
des services de radiocommunications*



Reference number  
TR CISPR 31:2003(E)

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**DATABASE ON THE CHARACTERISTICS  
OF RADIO SERVICES**

FOREWORD

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CISPR 31, which is a technical report, has been prepared by CISPR subcommittee H: Limits for the protection of radio services.

The text of this technical report is based on the following documents:

|                |                  |
|----------------|------------------|
| FDIS           | Report on voting |
| CISPR/H/56/DTR | CISPR/H/66/RVC   |

Full information on the voting for the approval of this technical report can be found in the report on voting indicated in the above table.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

The committee has decided that the contents of this publication will remain unchanged until 2006. At this date, the publication will be

- reconfirmed;
- withdrawn;
- replaced by a revised edition, or
- amended.

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## DATABASE ON THE CHARACTERISTICS OF RADIO SERVICES

### 1 Scope and object

This Technical Report covers the rationale behind the actual database covering the characteristics of radio services. The database is a “living document” in the format of a spreadsheet file in the EMC Zone of the IEC web site (<http://www.iec.ch/zone/emc/>).

The objective of the database is to register those characteristics which are relevant for derivation and specification of limits for disturbance emissions from electric and/or electronic equipment, systems and installations. Committees responsible for generic and/or product emission EMC standards should use this information together with CISPR 23.

### 2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

CISPR 23:1987, *Determination of limits for industrial, scientific and medical equipment*

### 3 General

The database content is comprised of objective radio system characteristics and subjective information on typical intended usage.

### 4 Outline of database

The explanation of the columns in the spreadsheet is as follows:

| Characteristics                          | Explanation /purpose                                                                                                          |
|------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|
| Radio system (name)                      | Identification of the system                                                                                                  |
| Reference document (specification)       | Reference to the system specification                                                                                         |
| Receiving frequency band (MHz)           | Frequency band in MHz specified by the band edge frequencies                                                                  |
| Field strength to protect or sensitivity | Typically the lowest useable field strength or specified sensitivity in dB( $\mu$ V/m)                                        |
| Protection ratio R (dB)                  | Ratio of the minimum useable field strength for the wanted RF signal to the maximum acceptable level of an interfering signal |
| Receiving antenna gain Gr (dB)           | Typical gain in dB in the main lobe of an antenna intended for use with a system                                              |
| Receiving bandwidth Brec (kHz)           | Bandwidth in kHz between “-3 dB” points                                                                                       |
| Isolation distance d (m)                 | Typical distance in m between a receiver and a likely source of interference                                                  |
| Systematic isolation Is (dB)             | Typical extra isolation in dB because, for example, of typical installation practice                                          |
| Existing number of units                 | Estimated number of units (expressed as less than 100, or 100 up to 1 million or >1 million)                                  |
| Is it fixed or mobile?                   | Is the typical application mobile or is it fixed?<br>If both then state both                                                  |

(continued)

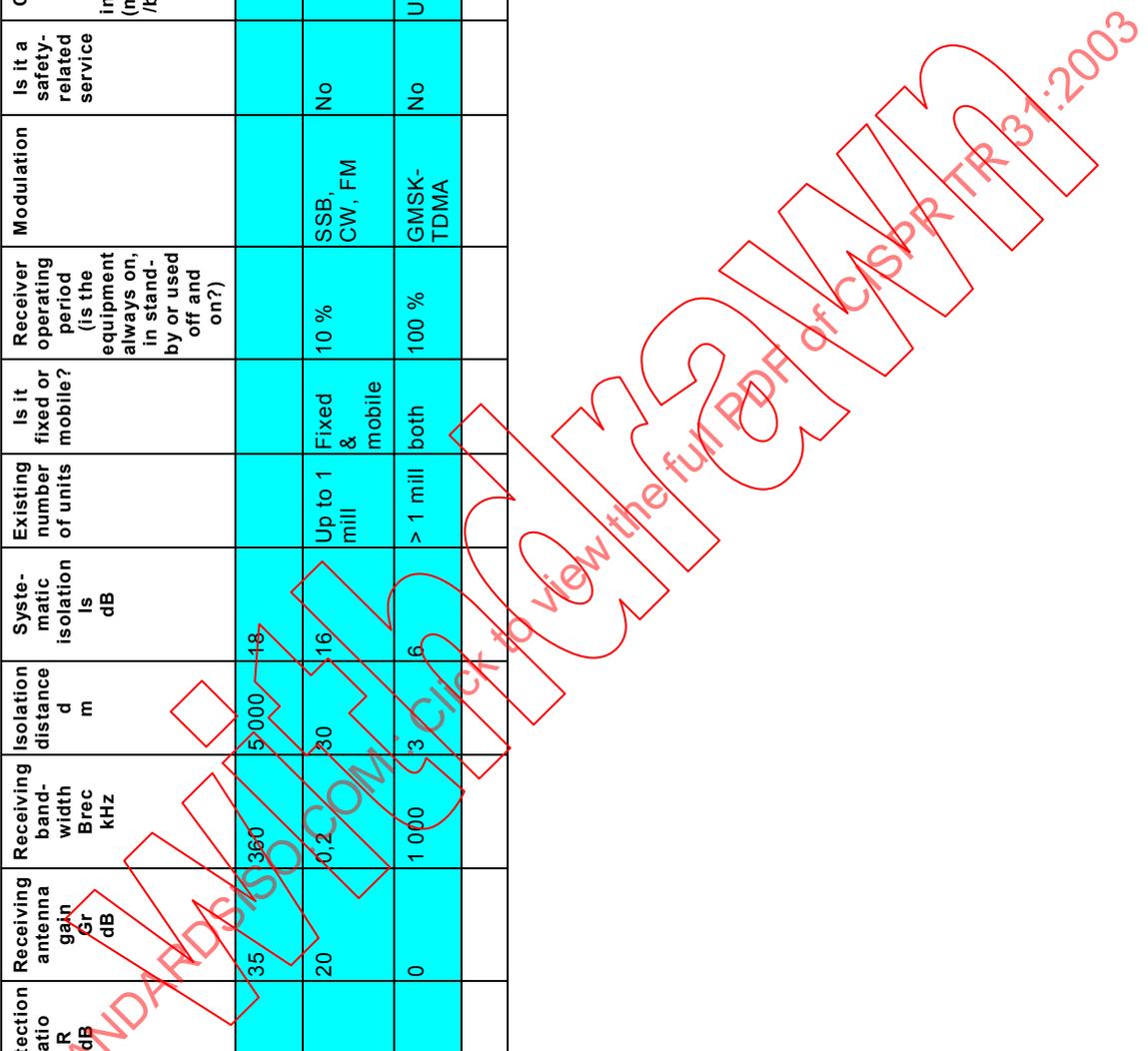
|                                                                          |                                                                                                             |
|--------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|
| Duty cycle (is the equipment always on, in stand-by or used off and on?) | Percentage of time where the receiver is active                                                             |
| Modulation                                                               | Modulation scheme and duplex/simplex system                                                                 |
| Is it a safety-related service?                                          | Is the service part of a security- or safety system?                                                        |
| Characteristics of most harmful interference (modulation/bandwidth)      | An indication of what type of interference is the most harmful, e.g. broadband, narrowband, pulsed, CW etc. |
| Output power & ERP (effective radiated power)                            | Transmitter output power or ERP from an integrated system in watts                                          |
| Antenna characteristics (max. gain) if different from the RX antenna     | Typical gain in dB in the main lobe of an antenna intended for use with the system                          |
| Usage area (country and/or region)                                       | Is the typical area of use restricted to one country, region or is it worldwide                             |

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Example of the table based on the above principles:

| Radio system (name) | Reference document (specification) | Receiving frequency band MHz | Field strength to protect or sensitivity $E_o$ dB $\mu$ V/m | Protection ratio R dB | Receiving antenna gain $G_r$ dB | Receiving bandwidth Brec kHz | Isolation distance d m | Systematic isolation Is dB | Existing number of units | Is it fixed or mobile? | Receiver operating period (is the equipment always on, in stand-by or used off and on?) | Modulation  | Is it a safety-related service | Characteristics of most harmful interference (modulation /bandwidth) | Output power & ERP (effective radiated power) in watts | Antenna characteristics (max. gain) if different from the RX antenna | Usage area (country and/or region) |
|---------------------|------------------------------------|------------------------------|-------------------------------------------------------------|-----------------------|---------------------------------|------------------------------|------------------------|----------------------------|--------------------------|------------------------|-----------------------------------------------------------------------------------------|-------------|--------------------------------|----------------------------------------------------------------------|--------------------------------------------------------|----------------------------------------------------------------------|------------------------------------|
| En route radar      |                                    | 1 215<br>1 350               | -7                                                          | 10                    | 35                              | 360                          | 5 000                  | 18                         |                          |                        |                                                                                         |             |                                |                                                                      |                                                        |                                                                      |                                    |
| Radio amateur       |                                    | 1 240<br>1 300               | -30                                                         | 10                    | 20                              | 0,2                          | 30                     | 16                         | Up to 1 mill             | Fixed & mobile         | 10 %                                                                                    | SSB, CW, FM | No                             |                                                                      | 250                                                    |                                                                      | World-wide                         |
| DECT                | ETSI EN 300175-2                   | 1 880<br>1 900               | 60                                                          | 10                    | 0                               | 1 000                        | 3                      | 6                          | > 1 mill                 | both                   | 100 %                                                                                   | GMSK-TDMA   | No                             | Unknown                                                              | 0,25                                                   |                                                                      | Europe                             |



## 5 Input to database

Input can be made by using the template (Annex A reporting form) and by forwarding the input to the CISPR H Secretariat.

See Annex A.

## 6 Usage of database

The database is placed in the EMC Zone of the IEC web site (<http://www.iec.ch/zone/emc/>) and is freely accessible. Product committees preparing EMC emission standards should consider at which frequency ranges their equipment are likely to generate emissions. The relevant frequency ranges in this database should be consulted in order to identify which radio services can be affected and which are the related levels of tolerable interference. See CISPR 23 for the principles of setting emission limits based on the information in the database.

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