



# SLOVENSKI STANDARD

## SIST EN 301 489-18:2002

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**Elektromagnetna združljivost (EMC) in zadeve v zvezi z radijskim spektrom (ERM) - Standard elektromagnetne združljivosti (EMC) za radijsko opremo in storitve - 18. del: Posebni pogoji za opremo prizemnega snopovnega radia (TETRA)**

Electromagnetic compatibility and Radio spectrum Matters (ERM); ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 18: Specific conditions for Terrestrial Trunked Radio (TETRA) equipment

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*Candidate Harmonized European Standard (Telecommunications series)*

**Electromagnetic compatibility  
and Radio spectrum Matters (ERM);  
ElectroMagnetic Compatibility (EMC)  
standard for radio equipment and services;  
Part 18: Specific conditions for  
Terrestrial Trunked Radio (TETRA) equipment**

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## Foreword

This Candidate Harmonized European Standard (Telecommunications series) has been produced by ETSI Technical Committee Electromagnetic compatibility and Radio spectrum Matters (ERM).

The present document has been produced by ETSI in response to a mandate from the European Commission issued under Council Directive 98/34/EC [10] (as amended) laying down a procedure for the provision of information in the field of technical standards and regulations.

The present document is intended to become a Harmonized Standard, the reference of which will be published in the Official Journal of the European Communities referencing the Council Directive on the approximation of the laws of the Member States relating to electromagnetic compatibility ("the EMC Directive") (89/336/EEC [3] as amended) and Directive 1999/5/EC of the European Parliament and of the Council of 9 March 1999 on radio equipment and telecommunications terminal equipment and the mutual recognition of their conformity ("the R&TTE Directive" [2]).

The present document is part 18 of a multi-part deliverable covering the ElectroMagnetic Compatibility (EMC) standard for radio equipment and services, as identified below:

- Part 1: "Common technical requirements";
- Part 2: "Specific conditions for radio paging equipment";
- Part 3: "Specific conditions for Short-Range Devices (SRD) operating on frequencies between 9 kHz and 40 GHz";
- Part 4: "Specific conditions for fixed radio links and ancillary equipment and services";
- Part 5: "Specific conditions for Private land Mobile Radio (PMR) and ancillary equipment (speech and non-speech)";
- Part 6: "Specific conditions for Digital Enhanced Cordless Telecommunications (DECT) equipment";
- Part 7: "Specific conditions for mobile and portable radio and ancillary equipment of digital cellular radio telecommunications systems (GSM and DCS)";
- Part 8: "Specific conditions for GSM base stations";
- Part 9: "Specific conditions for wireless microphones and similar Radio Frequency (RF) audio link equipment, cordless audio and in-ear monitoring devices";
- Part 10: "Specific conditions for First (CT1 and CT1+) and Second Generation Cordless Telephone (CT2) equipment";
- Part 11: "Specific conditions for analogue terrestrial sound broadcasting (Amplitude Modulation (AM) and Frequency Modulation (FM)) service transmitters";
- Part 12: "Specific conditions for Very Small Aperture Terminal, Satellite Interactive Earth Stations operated in the frequency ranges between 4 GHz and 30 GHz in the Fixed Satellite Service (FSS)";
- Part 13: "Specific conditions for Citizens' Band (CB) radio and ancillary equipment (speech and non-speech)";

- Part 14: "Specific conditions for terrestrial television broadcasting transmitters";
- Part 15: "Specific conditions for commercially available amateur radio equipment";
- Part 16: "Specific conditions for analogue cellular radio communications equipment, mobile and portable";
- Part 17: "Specific conditions for Wideband data and HIPERLAN equipment";
- Part 18: "Specific conditions for Terrestrial Trunked Radio (TETRA) equipment";**
- Part 19: "Specific conditions for Receive Only Mobile Earth Stations (ROMES) operating in the 1,5 GHz band providing data communications";
- Part 20: "Specific conditions for Mobile Earth Stations (MES) used in the Mobile Satellite Services (MSS)";
- Part 22: "Specific conditions for ground based VHF aeronautical mobile and fixed radio equipment";
- Part 23: "Specific conditions for IMT-2000 CDMA Direct Spread (UTRA) Base Station (BS) radio, repeater and ancillary equipment";
- Part 24: "Specific conditions for IMT-2000 CDMA Direct Spread (UTRA) for Mobile and portable (UE) radio and ancillary equipment";
- Part 25: "Specific conditions for IMT-2000 CDMA Multi-carrier Mobile Stations and ancillary equipment";
- Part 26: "Specific conditions for IMT-2000 CDMA Multi-carrier Base Stations and ancillary equipment".

<b>National transposition dates</b>	
Date of adoption of this EN:	23 November 2001
Date of latest announcement of this EN (doa):	28 February 2002
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Date of withdrawal of any conflicting National Standard (dow):	31 August 2003



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## 1 Scope

The present document, together with EN 301 489-1 [1], covers the assessment of Terrestrial Trunked Radio (TETRA) radiocommunications and ancillary equipment in respect of ElectroMagnetic Compatibility (EMC).

Technical specifications related to the antenna port and emissions from the enclosure port of radio equipment are not included in the present document. Such technical specifications are found in the relevant product standards for the effective use of the radio spectrum.

The present document specifies the applicable test conditions, performance assessment and performance criteria for TETRA equipment, and associated ancillary equipment.

Examples of equipment covered by the present document are given in annex A.

In case of differences (for instance concerning special conditions, definitions, abbreviations) between the present document and EN 301 489-1 [1], the provisions of the present document take precedence.

The environmental classification and the emission and immunity requirements used in the present document are as stated in EN 301 489-1 [1], except for any special conditions included in the present document.

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## 2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- iTeh STANDARD PREVIEW**  
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- References are either specific (identified by date of publication and/or edition number or version number) or non-specific.
  - For a specific reference, subsequent revisions do not apply.
  - For a non-specific reference, the latest version applies.

- <https://standards.iteh.ai/catalog/standards/sist/aaaf4aa5-c9dc-47ab-8211-80ac624dd482/sist-en-301-489-18-2002>
- SIST EN 301 489-18:2002
- [1] ETSI EN 301 489-1 (V1.3.1): "Electromagnetic compatibility and Radio spectrum Matters (ERM); ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 1: Common technical requirements".
- [2] Directive 1999/5/EC of the European Parliament and of the Council of 9 March 1999 on radio equipment and telecommunications terminal equipment and the mutual recognition of their conformity.
- [3] Council Directive 89/336/EEC of 3 May 1989 on the approximation of the laws of the Member States relating to electromagnetic compatibility.
- [4] ETSI ETS 300 394-1: "Terrestrial Trunked Radio (TETRA); Conformance testing specification; Part 1: Radio".
- [5] ITU-T Recommendation 0.153: "Basic parameters for the measurement of error performance at bit rates below the primary rate".
- [6] ETSI ETS 300 395-2 (1996): "Terrestrial Trunked Radio (TETRA); Speech codec for full-rate traffic channel; Part 2: TETRA codec".
- [7] ETSI ETS 300 392-2: "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 2: Air Interface (AI)".
- [8] ETSI ETS 300 396-2: "Terrestrial Trunked Radio (TETRA); Technical requirements for Direct Mode Operation (DMO); Part 2: Radio aspects".
- [9] ETSI ETS 300 393-2: "Terrestrial Trunked Radio (TETRA); Packet Data Optimized (PDO); Part 2: Air Interface (AI)".

- [10] Directive 98/34/EC of the European Parliament and of the Council of 22 June 1998 laying down a procedure for the provision of information in the field of technical standards and regulations.

## 3 Definitions and abbreviations

### 3.1 Definitions

For the purposes of the present document, the terms and definitions given in EN 301 489-1 [1] and the following apply:

**ancillary equipment:** equipment (apparatus), used in connection with a receiver or transmitter

NOTE: It is considered as an ancillary equipment (apparatus) if:

- the equipment is intended for use in conjunction with a receiver or transmitter to provide additional operational and/or control features to the radio equipment, (e.g. to extend control to another position or location); and
- the equipment cannot be used on a stand alone basis to provide user functions independently of a receiver or transmitter; and
- the receiver or transmitter to which it is connected, is capable of providing some intended operation such as transmitting and/or receiving without the ancillary equipment (i.e. it is not a sub-unit of the main equipment essential to the main equipment basic functions).

Infrastructure and control equipment intended to provide the required data and communication link establishment shall also be considered as ancillary equipment for the purposes of the present document.

**equipment which is capable of speech operation:** equipment that contains, or can be directly connected to a microphone and/or loudspeaker or earpiece, or which includes analogue audio signal interfaces

**non-speech equipment:** equipment that does not have an audio input or output capability either built in or via audio signal interfaces

NOTE: This category includes data only equipment, both base stations and terminals, and also (for example) V+D and PDO base stations and DMO repeaters which do not include any direct analogue audio capability.

### 3.2 Abbreviations

For the purposes of the present document, the abbreviations given in ETS 300 392-2 [7] and the following apply:

BER	Bit Error Ratio
DMO	Direct Mode Operation
EMC	ElectroMagnetic Compatibility
ERP	Ear Reference Point
EUT	Equipment Under Test
MER	Message Error Ratio
MRP	Mouth Reference Point
PDO	Packet Data Optimized
SPL	Sound Pressure Level
TETRA	TErrestrial TRunked RAdio
V+D	Voice plus Data

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## 4 Test conditions

### 4.1 General

For the purposes of the present document, the test conditions of EN 301 489-1 [1], clause 4, shall apply as appropriate. Further product related test conditions for radio equipment are specified in the present document.

The equipment shall be tested under normal test conditions as specified in ETS 300 394-1 [4].

### 4.2 Arrangements for test signals

The provisions of EN 301 489-1 [1], clause 4.2 shall apply.

#### 4.2.1 Arrangements for wanted signals at the input of the transmitter

The provisions of EN 301 489-1 [1], clause 4.2.1 shall apply.

#### 4.2.2 Arrangements for wanted signals at the output of the transmitter

The provisions of EN 301 489-1 [1], clause 4.2.2 shall apply with the following modification.

For equipment under test which can support Direct Mode Operation (DMO), a TETRA transceiver may form part of the measuring system. For V+D and PDO equipment a base station or a mobile/portable may form part of the measuring system.

#### 4.2.3 Arrangements for wanted signals at the input of the receiver

The provisions of EN 301 489-1 [1], clause 4.2.3 shall apply with the following modification.

For equipment under test which can support Direct Mode Operation (DMO), a TETRA transceiver may form part of the measuring system. For V+D and PDO equipment a base station or a mobile/portable may form part of the measuring system.

#### 4.2.4 Arrangements for wanted signals at the output of the receiver

The provisions of EN 301 489-1 [1], clause 4.2.4 shall apply with the following modification.

The TTCI interface defined in ETS 300 394-1 [4] annex C or the RF loopback method defined in ETS 300 394-1 [4] annex D may be applied, it shall be agreed with the test house and the manufacturer which method to apply.

#### 4.2.5 Arrangements for testing a transmitter and a receiver together (as a system)

The provisions of EN 301 489-1 [1], clause 4.2.5 shall apply.

### 4.3 RF exclusion band of radio communications equipment

The provisions of EN 301 489-1 [1], clause 4.3 shall apply with the following modification.

For transceivers and equipment operated in a duplex mode both exclusions bands detailed in clauses 4.3.1 and 4.3.2 apply simultaneously.