SLOVENSKI STANDARD
SIST EN 300 761-2:2001

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Elektromagnetna združljivost in zadeve v zvezi z radijskim spektrom (ERM) - Naprave kratkega dosega (SRD) - Sistem za samodejno razpoznavanje vozil (AVI) na železnicah, ki deluje na frekvenčnem območju 2,45 GHz - 2. del: Harmonizirani evropski standard (EN), ki zajema bistvene zahteve člena 3.2 direktive o radijski in telekomunikacijski terminalski opremi (R&TTE)

Electromagnetic compatibility and Radio spectrum Matters (ERM); Short Range Devices (SRD); Automatic Vehicle Identification (AVI) for railways operating in the 2,45 GHz frequency range; Part 2: Harmonized standard covering essential requirements under article 3.2 of the R&TTE Directive

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33.100.01	Elektromagnetna združljivost na splošno	Electromagnetic compatibility in general
45.020	Železniška tehnika na splošno	Railway engineering in general

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Candidate Harmonized European Standard (Telecommunications series)

Electromagnetic compatibility and Radio spectrum Matters (ERM); Short Range Devices (SRD); Automatic Vehicle Identification (AVI) for railways operating in the 2,45 GHz frequency range; Part 2: Harmonized standard covering essential requirements under article 3.2 of the R&TTE Directive

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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 [5] 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 Directive 1999/5/EC [1] 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") [1].

The present document is part 2 of a multi-part deliverable covering the Short Range Devices (SRD); Automatic Vehicle Identification (AVI) for railways operating in the 2,45 GHz frequency range, as identified below:

Part 1: "Technical characteristics and methods of measurement";

Part 2: "Harmonized standard covering essential requirements under article 3.2 of the R&TTE Directive".

National transposition dates	
Date of adoption of this EN:	15 June 2001
Date of latest announcement of this EN (doa):	30 September 2001
Date of latest publication of new National Standard or endorsement of this EN (dop/e):	31 March 2002
Date of withdrawal of any conflicting National Standard (dow):	31 March 2003

Introduction

The present document is part of a set of standards designed to fit in a modular structure to cover all radio and telecommunications terminal equipment under the R&TTE Directive [1]. Each standard is a module in the structure. The modular structure is shown in figure 1.

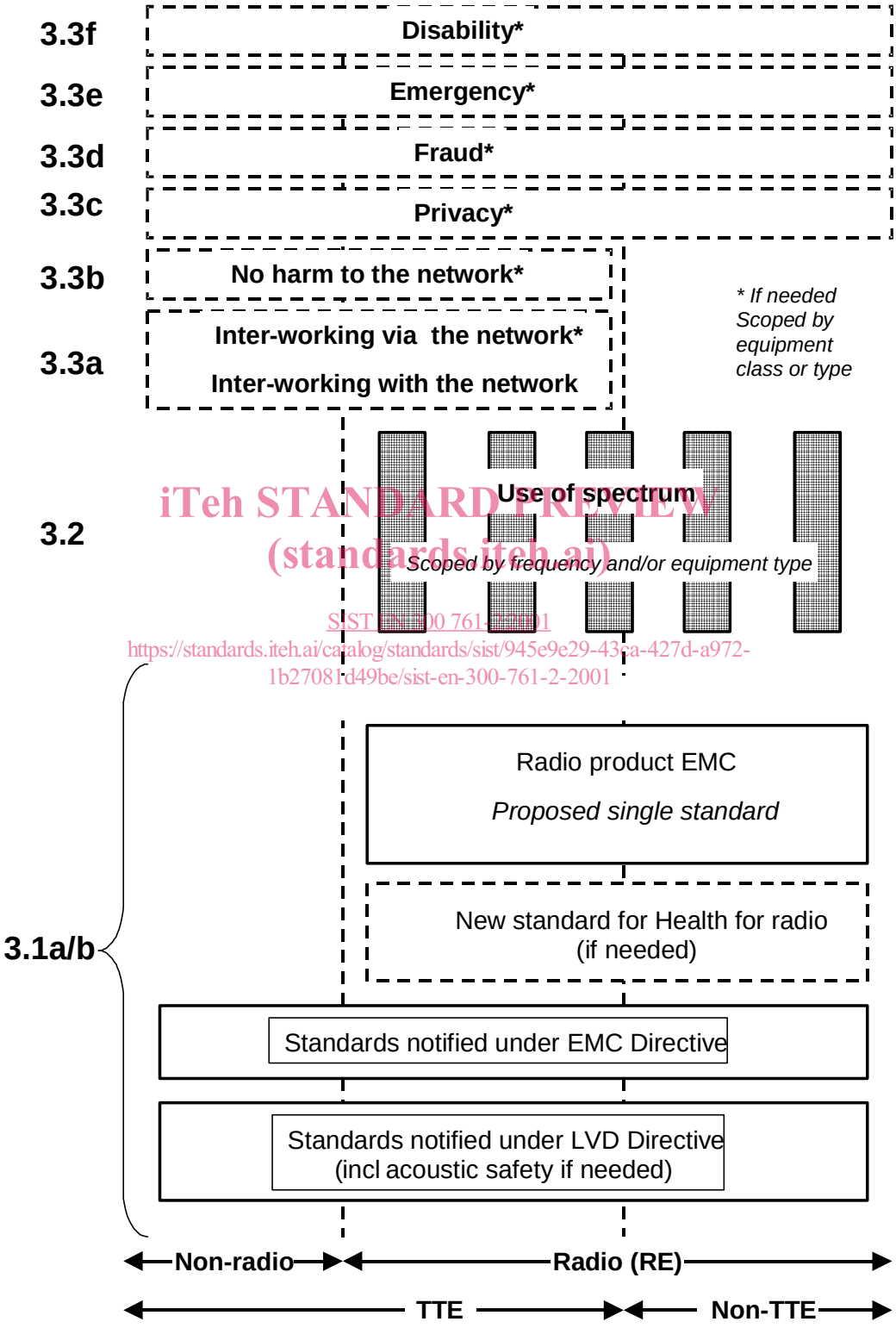

Figure 1: Modular structure for the various standards used under the R&TTE Directive

The left hand edge of the figure shows the different clauses of article 3 of the Directive.

The vertical boxes show the standards under article 3.2 for the use of the radio spectrum. The scopes of these standards are specified either by frequency (normally in the case where frequency bands are harmonized) or by radio equipment type.

For article 3.3 various horizontal boxes are shown. Their dotted lines indicate that essential requirements in these areas have to be adopted by the Commission. If such essential requirements are adopted, and as far and as long as they are applicable, they will justify individual standards whose scope is likely to be specified by function or interface type.

The bottom of the figure shows the relationship of the standards to radio equipment and telecommunications terminal equipment. A particular equipment may be radio equipment, telecommunications terminal equipment or both. The General Standard will always apply to it, and a radio spectrum standard will apply if it is radio equipment. An article 3.3 standard will apply as well only if the relevant essential requirement is adopted by the Commission and if the equipment in question lies within the scope of the corresponding standard. Thus, depending on the nature of the equipment, the essential requirements under the Directive may be covered in just the General Standard or in a set of standards that includes the General Standard.

The modularity principle has been taken because:

- it minimizes the number of standards needed. Because equipment may, in fact, have multiple interfaces and functions it is not practicable to produce a single standard for each possible combination of functions that may occur in an equipment;

- it provides scope for standards under articles 3.2 and 3.3 to be added when new frequency bands are agreed or when the Commission takes decisions under article 3 without requiring alteration of standards that are already published;

- it clarifies, simplifies and promotes the usage of Harmonized Standards as the relevant means of conformity assessment.

1 Scope

The present document applies to a dedicated 2,45 GHz Short Range Device (SRD) microwave link intended for a European wide data communication system for Railway applications, Automatic Vehicle Identification (AVI) which fulfil the Union Internationale des Chemins de fer (UIC) specifications and are interoperable with the current UIC system except for the interrogator (Track Units (TU)) bandwidth.

The present document contains the technical characteristics for radio equipment and is referencing by CEPT/ERC Recommendation T/R 70-03 [4].

The Interrogator bandwidth is limited to 8 MHz shared within five channels:

- with a Radio Frequency (RF) output connection and specified antenna or with an integral antenna;
- for data transmission only;
- operating on radio frequencies in the 2,446 GHz to 2,454 GHz Industrial, Scientific and Medical (ISM) band, with power levels up to 500 mW e.i.r.p.

The present document is a product standard covering various Railway applications where the data transmission of the system will be active only during the presence of the train.

The present document covers fixed installed interrogators (TUs) and transponders (mobile stations). For certain measurements the transponders are measured together with the whole interrogating system.

The in-track base station (interrogator) transmit and receive modulations are a combination of Amplitude Shift Keying (ASK) and Frequency Shift Keying (FSK) respectively.

The present document supports the necessary transmitter and receiver data rates between 192 kbit/s and 384 kbit/s according to the type of transaction.

It covers the minimum characteristics considered necessary in order to make the best use of the available frequencies. It does not necessarily include all the characteristics which may be required by a user, nor does it necessarily represent the optimum performance achievable.

The present document includes specifications for methods of measurement for equipment fitted with antenna sockets and/or integral antenna.

The technical requirements of the present document apply under the environmental profile for operation of the equipment, which shall be declared by the manufacturer. The equipment shall comply with all the technical requirements of the present document at all times when operating within the boundary limits of the declared operational environmental profile.

The present document is intended to cover the provisions of article 3.2 of Directive 1999/5/EC [1] (R&TTE Directive), which states that "… radio equipment shall be so constructed that it effectively uses the spectrum allocated to terrestrial/space radio communications and orbital resources so as to avoid harmful interference.".

In addition to the present document, other ENs that specify technical requirements in respect of essential requirements under other parts of article 3 of the R&TTE Directive [1] may apply to equipment within the scope of the present document.