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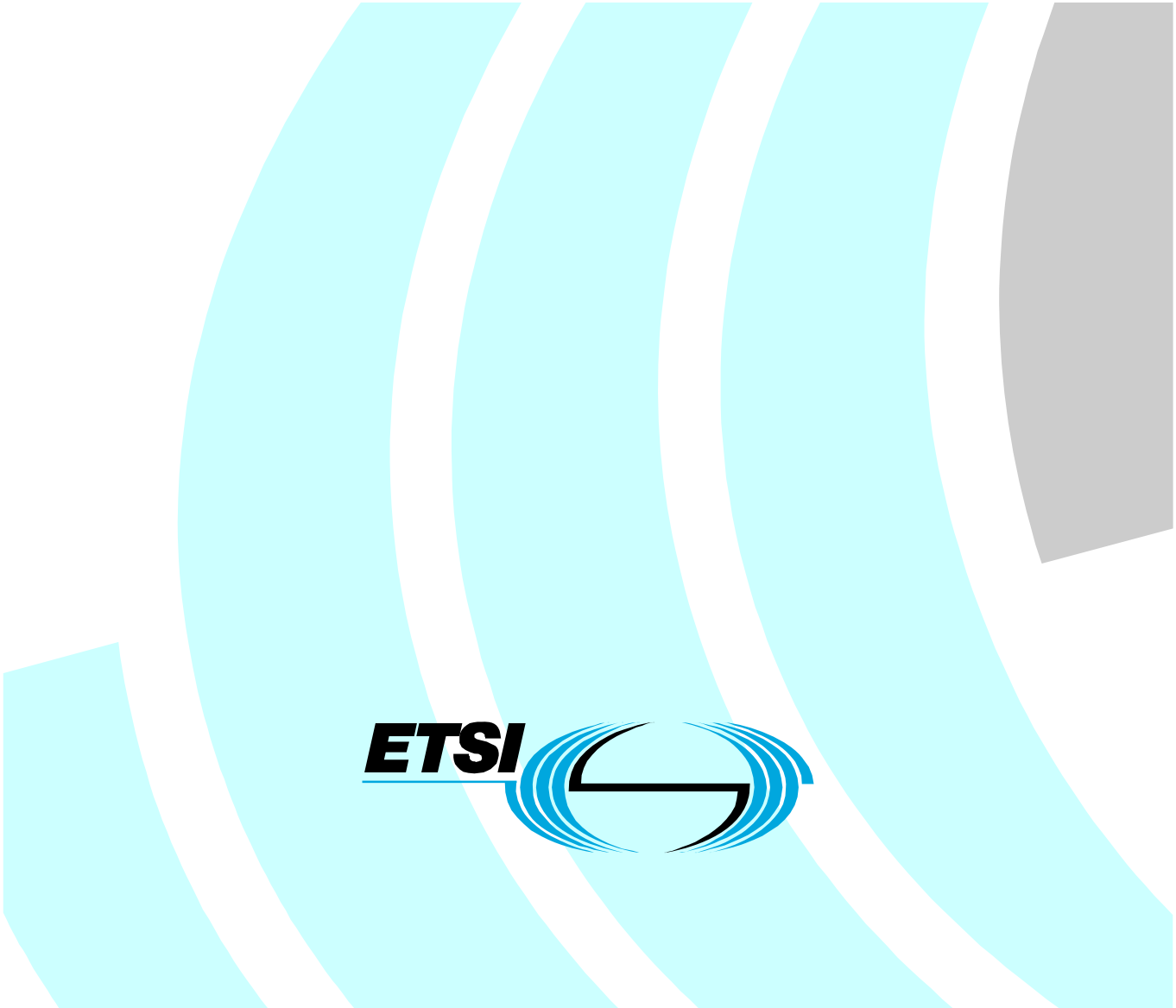
ETSI Guide

Electromagnetic compatibility and Radio spectrum Matters (ERM); A guide to the production of Harmonized Standards for application under the R&TTE Directive



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Contents

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Foreword

This ETSI Guide (EG) has been produced by ETSI Technical Committee Electromagnetic compatibility and Radio spectrum Matters (ERM).

The present version of the document (i.e. version 2.2.1) is a development of the previous version, in particular it has been brought up to date following recent events in TCAM, RSCom and in the OCG R&TTE Working Group of ETSI.

Some of the major developments appearing in version 2.2.1 with respect to version 2.1.1 are:

- the modification of the environmental profile to allow for the special case for the marine environment;
- the modification of the text of clause A.3 to correspond with the TCAM guidance and decision on antennas;
- the addition of guidance on the structure of clauses i.e. applicability, method of measurement, limit;
- enhanced guidance on definitions to be used in Harmonized Standards;
- replacement of a number of deliverables due to the production of EG 201 730 [i.13] to [i.16] and withdrawal of TR 101 845 [i.34];
- precision of the text in clause C.7 on "interface specifications" in order to align it with clause 4.2 of the R&TTE Directive [i.26].

During the revision, have also been:

- introduced changes consequential to the withdrawal of SR 001 470 [i.35] containing the pro-forma for the production of Harmonized Standards and replacement by the Harmonized Standard skeleton document [i.22];
- introduced changes consequential to the withdrawal of SR 001 262 [i.36] and the inclusion of the ETSI Drafting Rules in the ETSI Directives [i.6];
- avoided duplications of ETSI Drafting Rules text, by replacing text with a pointer to the ETSI Drafting Rules;
- deleted copyright release text;
- removed the occurrences of "candidate" in "candidate Harmonized Standard" since this terminology is no longer used by ETSI;
- made modifications concerning the title translation text in order to correspond with the current practices;
- made the alignment of requirements on normative references in Harmonized Standards with the requirements of the European Commission;
- clarified the wording in annexes A and F;
- made a split within the text of the "Scope", in order have both "Introduction" and "Scope";
- added a new annex E; the previous annexes E and F became therefore F and G;

- added a reference to EC Decision 2000/299/EC [i.25];
- performed a number of editorial enhancements of text.

Introduction

The present document has been prepared to assist ETSI technical bodies in the preparation of Harmonized Standards for application under the Radio Equipment and Telecommunications Terminal Equipment Directive (R&TTE Directive [i.26]); furthermore, it establishes a methodology to allow those technical bodies to have a consistent interpretation of the technical requirements needed to implement the essential requirements of the R&TTE Directive [i.1].

Annex C to the present document gives some background to the R&TTE Directive [i.1]. Reference is made to the framework of legal documents implementing the R&TTE Directive [i.1], but the present document should not be taken as an interpretation, amplification, or restatement of any other documents. More generally, the present document reminds the reader that there are a number of regulatory requirements that Members States and the various stakeholders have to comply with. As clarified above, a number of requirements originate from the legal framework in place and not from the present document.

A short list of Frequently Asked Questions (FAQs) relating to Harmonized Standards under the R&TTE Directive [i.1] and/or the present document as well as their answers is provided in annex G.

1 Scope

The present document addresses those HSs produced for application under the R&TTE Directive [i.1] (article 5) by ETSI (and only those; more specifically, it does not address all ETSI standards).

The present document is not applicable to documents produced by other standards bodies (i.e. CEN and CENELEC) even if some of the standards they produce have application under the R&TTE Directive [i.1].

2 References

References are either specific (identified by date of publication and/or edition number or version number) or non-specific. For specific references, only the cited version applies. For non-specific references, the latest version of the reference document (including any amendments) applies.

Referenced documents which are not found to be publicly available in the expected location might be found at http://docbox.etsi.org/Reference.

NOTE: While any hyperlinks included in this clause were valid at the time of publication ETSI cannot guarantee their long term validity.

2.1 Normative references

The following referenced documents are necessary for the application of the present document.

Not applicable.

2.2 Informative references

The following referenced documents are not necessary for the application of the present document but they assist the user with regard to a particular subject area.

[i.1] 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 (R&TTE Directive).

[i.2] Council Directive 73/23/EEC of 19 February 1973 on the harmonization of the laws of Member States relating to electrical equipment designed for use within certain voltage limits (LV Directive).

[i.3] Directive 2006/95/EC of the European Parliament and of the Council of 12 December 2006 on the harmonisation of the laws of Member States relating to electrical equipment designed for use within certain voltage limits.

[i.4] Directive 2004/108/EC of the European Parliament and of the Council of 15 December 2004 on the approximation of the laws of the Member States relating to electromagnetic compatibility and repealing Directive 89/336/EEC (EMC Directive).

[i.5] Directive 98/13/EC of the European Parliament and of the Council of 12 February 1998 relating to telecommunications terminal equipment and satellite earth station equipment, including the mutual recognition of their conformity.

[i.6] ETSI Directives: "ETSI drafting rules".

[i.7] Council Resolution of 7 May 1985 on a new approach to technical harmonization and standards.

[i.8] 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.

[i.9] ETSI TR 100 028 (V1.4.1): "Electromagnetic compatibility and Radio spectrum Matters (ERM); Uncertainties in the measurement of mobile radio equipment characteristics".

[i.10] CENELEC EN 60950 (all applicable parts): "Safety of information technology equipment".

[i.11] CENELEC TR 62102: "Electrical safety - Classification of interfaces for equipment to be connected to information and communications technology networks".

[i.12] ETSI EG 201 838: "ElectroMagnetic Compatibility and Radio Spectrum Matters (ERM); Publication of interface specifications under Directive 1999/5/EC; Guidelines for describing radio access interfaces".

[i.13] ETSI EG 201 730-1: "Terminals' access to Public Telecommunications Networks; Application of the Directive 1999/5/EC (R&TTE), article 4.2; Guidelines for the publication of interface specifications; Part 1: General and common aspects".

[i.14] ETSI EG 201 730-2: "Terminals' access to Public Telecommunications Networks; Application of the Directive 1999/5/EC (R&TTE), article 4.2; Guidelines for the publication of interface specifications; Part 2: Analogue narrow-band wireline interfaces".

[i.15] ETSI EG 201 730-3: "Terminals' access to Public Telecommunications Networks; Application of the Directive 1999/5/EC (R&TTE), article 4.2;Guidelines for the publication of interface specifications; Part 3: Digital wireline interfaces".

[i.16] ETSI EG 201 730-4: "Terminals' access to Public Telecommunications Networks;Application of the Directive 1999/5/EC (R&TTE), article 4.2;Guidelines for the publication of interface specifications; Part 4: Broadband multimedia cable network interfaces".

[i.17] ETSI EN 300 718-3: "Electromagnetic compatibility and Radio spectrum matters (ERM); Avalanche Beacons; Transmitter-receiver systems; Part 3: Harmonized EN covering essential requirements of article 3.3e of the R&TTE Directive".

[i.18] ETSI EN 301 025-3: "Electromagnetic compatibility and Radio spectrum Matters (ERM); VHF radiotelephone equipment for general communications and associated equipment for Class "D" Digital Selective Calling (DSC); Part 3: Harmonized EN under article 3.3 (e) of the R&TTE Directive".

[i.19] ETSI CEPT MoU.

NOTE: See http://webapp.etsi.org/agreementview.

[i.20] ERC/ECC Recommendation 70-03: "Relating to the use of Short Range Devices (SRD)".

[i.21] ETSI EN 301 489 (all parts): " Electromagnetic compatibility and Radio spectrum Matters (ERM); ElectroMagnetic Compatibility (EMC) standard for radio equipment and services".

[i.22] Harmonized Standard skeleton document.

NOTE: See http://portal.etsi.org/edithelp/Files/zip/ETSI_HS_EN_skeleton.zip.

[i.23] Radio Spectrum Policy Group Opinion on Streamlining the regulatory environment for the use of spectrum (RSPG08-246).

[i.24] ETSI TR 102 914: "Electromagnetic compatibility and Radio spectrum Matters (ERM); Aspects and implications of the inclusion of receiver parameters within ETSI standards".

[i.25] Commission Decision 2000/299/EC of 6 April 2000 "establishing the initial classification of radio equipment and telecommunications terminal equipment and associated identifiers ".

[i.26] Guide to the R&TTE Directive 1999/5/EC Version of 20 April 2009.

[i.27] ETSI EN 300 296-1: "Electromagnetic compatibility and Radio spectrum Matters (ERM); Land Mobile Service; Radio equipment using integral antennas intended primarily for analogue speech; Part 1: Technical characteristics and methods of measurement".

[i.28] Commission Decision 2004/71/EC of 4 September 2003 on essential requirements relating to marine radio communication equipment which is intended to be used on non-SOLAS vessels and to participate in the Global Maritime Distress and Safety System (GMDSS).

[i.29] ETSI TErms and Definitions Database Interactive (TEDDI).

NOTE: See http://webapp.etsi.org/Teddi/.

[i.30] ITU Radio Regulations.

[i.31] Decision No 676/2002/EC of the European Parliament and of the Coucil of 7 March 2002 on a regulatory framework for radio spectrum policy in the European Community (Radio Spectrum Decision).

[i.32] ETSI TR 102 579: "Electromagnetic compatibility and Radio spectrum Matters (ERM); Report providing guidance for the production of Community Specifications for application under the Single European Sky Interoperability Regulation EC 552/2004".

[i.33] Interoperability Regulation EC 552/2004: "Regulation on the interoperability of the European Air Traffic Management network".

[i.34] ETSI TR 101 845: "Fixed Radio Systems; Technical Information on RF Interfaces applied by Fixed Service Systems including Fixed Wireless Access (FWA) in the light of the R&TTE Directive (Article 4.2)".

[i.35] ETSI SR 001 470: "Guidance to the production of candidate Harmonized Standards for application under the R&TTE Directive (1999/5/EC); Pro-forma candidate Harmonized Standard".

[i.36] ETSI SR 001 262: "ETSI drafting rules".

[i.37] Guide to the implementation of directives based on the New Approach and the Global Approach, European Commission, 2000.

[i.38] Decision No 768/2008/EC of the European Parliament and of the Council of 9 July 2008 on a common framework for the marketing of products, and repealing Council Decision 93/465/EEC.

[i.39] ETSI Directives: "ETSI Technical Working Procedures", 28 Jan. 2010.

3 Definitions and abbreviations

3.1 Definitions

For the purposes of the present document, the terms and definitions given in R&TTE Directive [i.1] and the following apply:

equipment class: has the same meaning as *equipment class* in the R&TTE Directive [i.1], article 2f: "a class identifying particular types of apparatus which under this Directive are considered similar and those interfaces for which the apparatus is designed"

NOTE: Apparatus may belong to more than one equipment class.

See also Commission Decision 2000/299/EC of 6 April 2000 [i.25].

essential radio test suite: one or more test procedure(s), referred to in annex III of the R&TTE Directive [i.1]

essential requirement: has the same meaning as *essential requirement* in the R&TTE Directive [i.1]

harmful interference: has the same meaning as *harmful interference* as in the R&TTE Directive [i.1], article 2i: "interference which endangers the functioning of a radionavigation service or of other safety services or which otherwise seriously degrades, obstructs or repeatedly interrupts a radiocommunications service operating in accordance with the applicable Community or national regulations"

Harmonized Standard: has the same meaning as *harmonized standard* in the R&TTE Directive [i.1], article 2h: "a technical specification adopted by a recognized standards body under a mandate from the Commission in conformity with the procedures laid down in Directive 98/34/EC [i.8] for the purposes of establishing a European requirement, compliance with which is not compulsory"

NOTE: Unless the context indicates otherwise, this is restricted to those Harmonized Standards within the scope of the present document.

HS Requirements and conformance Test specifications Table (HS-RTT): table annexed to a Harmonized Standard concisely setting out explicit references to the specification of each technical requirement and, where appropriate, the corresponding test procedure which may be executed to demonstrate that a particular equipment conforms with that requirement

NOTE: It also indicates whether such test is a member of the *essential radio test suite* or of the *other test suite*.

interference: effect of unwanted energy due to one or a combination of emissions, radiation, or induction upon reception in a radiocommunication system, manifested by any performance degradation, misinterpretation, or loss of information which could be extracted in the absence of such unwanted energy

manufacturer: manufacturer or his authorized representative established in the Community (R&TTE Directive [i.1], annex II), or the person responsible for placing the apparatus on the market (R&TTE Directive [i.1], article 6.3)

other test suite: test procedure(s) not referred to in annex III of the R&TTE Directive [i.1]

Radio Equipment (RE): radio equipment as defined in R&TTE Directive [i.1], article 2(c), subject to the general exclusions within the R&TTE Directive [i.1] (see its annex I)

skeleton document: pre-built deliverable, already laid out as required and containing essential titles and text blocks

TB: unless the context indicates otherwise this refers to the ETSI TB responsible for the development of the HS being considered

Telecommunications Terminal Equipment (TTE): Telecommunications Terminal Equipment as defined in R&TTE Directive [i.1], article 2(b) subject to general exclusions within the R&TTE Directive [i.1] (see its annex I)

3.2 Abbreviations

For the purposes of the present document, the following abbreviations apply:

ATM	Air Traffic Management
CCF	Call Control reception Failure
CCR	Control Channel correctly Received
CEN	Comité Européen de Normalisation
CENELEC	European Committee for Electrotechnical Standardization
CEPT	Conference Européenne des Postes et Télécommunications
DOA	Date Of Announcement
DOW	Date Of Withdrawal
EC	European Commission (often refered to as "Commission" in the present document)
ECC	Electronic Communications Committee (a committee of CEPT)
ECI	Equipment Class Identifier

NOTE: See R&TTE Directive [i.1], articles 4.1 and 11.1 and COMMISSION DECISION 2000/299/EC of 6 April 2000 [i.25].

EEA	European Economic Area
EFTA	European Free Trade Association
EIRP	Equivalent Isotropic Radiated Power
EMC	ElectroMagnetic Compatibility

NOTE: See "new" EMC Directive 2004/108/EC [i.4].

EN	European Norm
ER	Essential Requirement

ERC	European Radiocommunications Committee

NOTE: This committee of CEPT led later to ECC.

ERP	Effective Radiated Power
ETSI TWP	ETSI Technical Working Procedures
FAQ	Frequently Asked Questions
HS	Harmonized Standard
HS-RTT	HS Requirements and conformance Test specifications Table
ISM	Industrial Scientific Medical
LVD	Low Voltage Directive

NOTE: See Directive 73/23/EEC [i.2], more recently replaced by 2006/95/EC [i.3].

MoU	Memorandum of Understanding
Nb	Number
OCG R&TTE	ETSI's Operational Co-ordination Group sub-group on Radio Equipment & Telecommunications Terminal Equipment
OJEU	Official Journal of the European Union
PMR	Private Mobile Radio
R&TTE	Radio Equipment and Telecommunications Terminal Equipment

NOTE: See Directive 1999/5/EC [i.1].

RE	Radio Equipment
RIS	Radio Interface Specification
RSCom	Radio Spectrum Committee
RSPG	Radio Spectrum Policy Group
SMF	System Monitoring Fail
SMP	System Monitoring Pass
TB	ETSI Technical Body
TCAM	Telecommunication Conformity Assessment and Market surveillance committee

NOTE: See R&TTE Directive [i.1], articles 13, 14 and 15.

TDD	Time Division Duplex
TDM	Time Division Multiplex
TTCN	Testing and Test Control Notation or (previously) Tree and Tabular Combined Notation

NOTE: Both are valid and have been used associated different version of TTCN.

TEDDI	TErms and Definitions Database Interactive
TTE	Telecommunications Terminal Equipment
TxD	Transmission Disable command
TxE	Transmission Enable command

4 Role and purpose of Harmonized Standards

4.1 Background to the R&TTE Directive

The R&TTE Directive [i.1] conforms to the EC Council Resolution of 7 May 1985 [i.7]. It introduced a market-led approach into the Radio and Telecommunications Terminal Equipment sector, and removed the regime of type approvals.

The R&TTE Directive [i.1] covers apparatus within its scope that is either TTE (Telecommunications Terminal Equipment) or RE (Radio Equipment), as defined in its articles 2(b) and 2(c), or that is both TTE and RE, but excludes equipment listed in its annex I (radio amateur kits, certain marine equipment, cabling and wiring, receive-only radio/TV, and at the time of the publication of the R&TTE Directive [i.1], certain civil aviation equipment and certain air-traffic-management equipment), and equipment used exclusively for activities of the State (article 1.5). It applies only to the communication aspects of certain medical devices (article 1.2) and vehicles (article 1.3). These limitations on the scope of the Directive apply to all TTE or RE.

4.2 Role of Harmonized Standard in Presumption of Conformity

The Directive identifies essential requirements that are to be met. Conformity with the Essential Requirements in article 3 of the R&TTE Directive [i.1] is declared by the manufacturer, and may be based on HSs (see R&TTE Directive [i.1], article 5.1) or using other means.

In principle, HSs relate to equipment when installed, operated as intended, and not under fault conditions nor when misused by the customer, deliberately or otherwise.

In certain circumstances, the Commission may also publish guidelines on the interpretation of HSs or the conditions under which compliance with that standard raises a presumption of conformity.

5 Procedure for generation of Harmonized Standards

5.1 Standardization mandate

"Harmonized standards are European standards, which are adopted by European standards organisations, prepared in accordance with the General Guidelines agreed between the Commission and the European standards organisations, and follow a mandate issued by the Commission after consultation with the Member States" [i.37].

"Harmonized standard" means "a standard adopted by one of the European standardisation bodies listed in Annex I to Directive 98/34/EC on the basis of a request made by the Commission in accordance with article 6 of that Directive" [i.38].

Reference [i.38] states, "Products which are in conformity with harmonized standards or parts thereof the references of which have been published in the Official Journal of the European Union shall be presumed to be in conformity with the requirements covered by those standards or parts thereof, set out in … [reference to the relevant part of the legislation]."

As a result, Harmonized Standards are distinct from other ENs, in particular, in that:

- they are produced under a formally issued standardization mandate through the European Commission's '98/34/EC procedure';
- when the standard has been adopted, a reference to it is placed in the Official Journal of the European Union with an indication of the Directive for which the presumption of conformity should apply.

With the advent of the R&TTE Directive [i.1], the European Commission requested ETSI to propose a programme of standardization work considered necessary under Directive. This programme of work provided the basis for a first standardization mandate.

ENs cannot be quoted in the OJEU as HSs unless they have been developed under an EC standardization mandate. Mandates under the R&TTE Directive [i.1] are proposed by the Commission, after consultation with TCAM, and approved by the Committee established under the terms of Directive 98/34/EC [i.8] before being presented to ETSI.

Where a standardization mandate exists and has been accepted by ETSI, a situation may occur where ETSI technical bodies consider that there is a need for a HS that is not covered by the mandate.

In such a situation, ETSI should adopt a work item under the ETSI TWP. The ETSI Secretariat will present the work item to TCAM with a justification covering why the HS is required. If regarded as justified, the EC may decide to modify the mandate or issue a new one. Such decisions require approval by the Committee established under the terms of Directive 98/34/EC [i.8].

5.2 The drafting process

Guidance of the drafting process is addressed separately in clause 7.

5.3 Adoption of Harmonized Standards

HSs are adopted according to specific procedures under the ETSI TWP.

Before a HS is submitted to the voting procedure, the standard should be finally examined to ascertain that the conditions imposed by the R&TTE Directive [i.1], the conditions of the standardization mandate, and the conditions stemming from the present document are met.

NOTE: ETSI may establish procedures to ensure that this is always the case.

5.4 Submission to EC and Publication in the OJEU

Once adopted by ETSI, HSs developed under a R&TTE Directive [i.1] mandate are presented to the Commission by the ETSI Secretariat. It has been agreed between the Commission and ETSI that the presentation will be accompanied by the translation of the ***title*** of the document into the official languages of the EU and EFTA.

The Commission will decide whether or not the HS is acceptable in whole or in part as suitable for establishing a presumption of conformity against the relevant essential requirements. The EC may decide whether or not to cite the HS or its revision (the whole or parts thereof) in the OJEU.

The ETSI Technical Working Procedures, clause 2.4 states, "*EN*s *shall be transposed by the National Standards Organizations (see article 13.7 of the Rules of Procedure).*" [i.39].

The ETSI Secretariat will set the Date Of Withdrawal (DOW) to eighteen months after Date Of Announcement (DOA) unless the relevant ETSI TB advises otherwise.

ETSI TBs may add a note in the OJEU listing of HS (e.g. for explaining the transfer of one (set of) standard(s) to another number). The note will appear across a whole row of the OJEU. The ETSI TB should provide this information to the ETSI Secretariat if this possibility is chosen.

5.5 Revision of Harmonized Standards

Revisions of HSs developed under R&TTE Directive [i.1] mandate do not require a specific modification to the standardization mandate. However, publication of the revised standard in the OJEU is necessary to amend the requirements which give a presumption of conformity with the R&TTE Directive [i.1].

The TB should consider the cost and other implications on industry and other parties before proposing revisions to HSs. If an ETSI TB considers that technical modifications to a HS are required, it should raise a work item according to the ETSI TWP.

According to the MoU [i.19] between CEPT-ECC and ETSI, any modification of the HS which would require a modification of ECC deliverables should lead to a coordination process between the two bodies. The same would apply if ECC envisages a change in its regulation which would require a modification of HSs.

Adoption and submission of revisions of HSs are as explained in clauses 5.1 to 5.4.

5.6 Withdrawal of Harmonized Standards

After consultation of TCAM, the Commission may withdraw the OJEU reference to HSs by publication of a notice to that effect in the OJEU. Presumption of conformity through that HS will then cease.

For the case where, following the Commission's action, the relevant ETSI TB considers that the HS should be withdrawn, the ETSI TWP provide the procedures to be followed. The ETSI Secretariat will ensure that the standard is archived so as to remain available if requested, including traceability that the standard had been published in the OJEU, with the relevant dates of publication and withdrawal.

6 Formulation of technical requirements

6.1 Guiding principles

6.1.1 General

This methodology is based on the evaluation of applicable technical parameters for equipment corresponding to specific attributes. The parameters and attributes are shown in annex A.

As a matter of principle, the decision of precisely how to demonstrate compliance with an essential requirement should remain the duty of the applicable TB. However, it is important that a common set of principles be made available to guide the TB when making decisions on content. Where a TB considers that deviation from the principles of annex A is desirable, OCG R&TTE should be advised who may develop a formal justification for onward transmission to the EC or other concerned parties.

6.1.2 Level of technological independence

ETSI technical bodies should take note, as a principal goal, that wherever possible, HSs which are technology independent are preferred. The level of technological independence should remain the responsibility of the appropriate TB. Means for judgement could be commonalities in equipment attributes and technical parameters as outlined below.

6.1.3 Equipment attributes

In producing HSs for application under the Directive, ETSI should ensure that the standards do not exceed the degree of regulation envisaged by the Commission, and should apply discernment in order not to inhibit technological innovation or the meeting of the needs of a free-market economy. To assist this objective, the present document defines groups of products sharing similar fundamental attributes.

Equipment attributes are defined in annex A.

A single equipment can have more than one attribute. The rules for specifying attributes are set out below, and are designed such that, if required, new attributes may be added in the future for as yet unknown applications.

There is not necessarily any fixed relationship between these equipment attributes and the Equipment Classes [i.1] assigned by the Commission.

The rules for establishing equipment attributes are:

1) Attributes should not exist to support a particular technology. They are technology independent.

2) Attributes should not by their nature provoke questions of intellectual property rights in any form.

3) Attributes are used to categorize fundamental technical differences.

4) Attributes may exist due to fundamental differences in the circumstances of the *environment* as related to the essential requirements of the R&TTE Directive [i.1].

5) Attributes may exist for the purpose of differentiating operational properties.

6) Products having the same attribute should have similar technical requirements in respect of that attribute.

Subject to the above constraints, the objective is to establish a small number of attributes which collectively cover all equipment falling under the R&TTE Directive [i.1].

6.1.4 Evaluation of parameters

HSs should be written to address only the technical parameters necessary to allow a presumption of conformity to the essential requirements of article 3 of the Directive. For each essential requirement under the R&TTE Directive [i.1], table A.2 shows the technical phenomena related to particular equipment attributes to be considered by ETSI technical bodies. These phenomena are capable of expression in terms of quantifiable technical parameters.

It has been noted by RSPG that radio receiver parameters are important for spectrum management and for facilitating the introduction of new applications in the spectrum and that they should be included in harmonized and/or product standards for all equipment [i.23]. Indeed it is essential to base compatibility studies on an agreed set of reference receiver parameters in order to identify receivers which can have the benefit of protection, to plan the spectrum, and to make sharing studies to introduce new services and applications in the spectrum. Moreover it should be noted that receiver parameters play a fundamental role in the policy framework aiming to make spectrum more flexible.

For receivers parameters included only in product standards, it may be the case that a receiver not fulfilling the receiver requirements set by the product standard suffers harmful interference by a transmitter compliant to the HS [i.24]. Therefore, it is expected that the relevant receiver parameters will be included in Harmonized Standards. However, ultimately the decision to include them in the HS should be left to the responsible TBs.

NOTE 1: In the past, radio receiver parameters (other than spurious emissions) have not always been specified in HSs addressed by the present document. The typical exceptions were when a receiver parameter directly affected the operation of a transmitter with a consequent risk of harmful interference and/or where an article 3.3 essential requirement required a receiver parameter to be specified to fulfil the obligations set out in the associated Commission Decision. TR 102 914 [i.24] shows the receiver parameters that have been included in HSs.

In view of the above it is recommended that receiver parameters also be specified in the HS when this is required to effectively use the spectrum and avoid harmful interference according to article 3.2 of the R&TTE Directive [i.1].

NOTE 2: For a given link budget good receiver parameters (including sensitivity) allow lower transmitter powers of the corresponding transmitters which, in turn, is supportive of European Green Agendas. As the level of transmitter spurious emissions is generally depending on the actual transmitted power, good receiver parameters also support the reduction of the "overall noise" (i.e. spurious emissions, etc.) created by transmitters.

Technical Committees should consider which requirements are necessary. A decision tree is also provided to assist this decision process. In applying the present document to producing a specific HS, the responsible ETSI TB should use the decision tree below to evaluate which technical parameters should be included in the standard.

The decision tree is:

1) For each phenomenon listed in table A.2, for the attributes relevant to the particular standard under consideration, is the phenomenon meaningful in this context? If the phenomenon is meaningful, continue.

2) In principle, is it necessary to include the phenomenon in order to meet the relevant essential requirement, or can the requirement be assured without addressing the phenomenon? If the phenomenon is in principle considered essential, continue.

3) Are there substantial, documented and well-grounded reasons for this assessment? If so, continue.

4) Can the phenomenon be expressed in terms of quantifiable technical parameters? If yes, continue.

5) For each technical parameter, is it necessary for this parameter to be included in the standard in order for the phenomenon to be adequately controlled, or can some technical parameters be omitted? If the parameter is in principle considered essential, continue.

6) Are there substantial, documented, and well-grounded reasons for this assessment? If yes, continue.

7) Is there a need for discernment over the inclusion of a value for this parameter in order not to inhibit technological innovation or the meeting of the needs of a free-market economy (in this context, future needs should also be considered)? If not, continue.

"THEN": a value for the parameter should be determined and included within the standard.

See also Question Q3 in clauses G.2 of annex G.

6.2 Article 3.1(a): Safety and protection of health

No requirements in the area of health and safety should be included in HSs covering article 3.2 of the R&TTE Directive [i.1], except under exceptional circumstances, and only with the express advice of ETSI TC Safety. Nevertheless, if a TB wishes to include statements related to health and safety then that TB should consult ETSI TC Safety.

There are several product safety standards already available from CENELEC that have been published in the OJEU in connection with the LVD [i.2]. Such HSs, either before or after the R&TTE Directive [i.1] is in force, can be used to demonstrate compliance with some or all of the essential requirements of article 3.1(a) of the R&TTE Directive [i.1] (see article 18).

NOTE: Relevant documents covering health and safety matters are produced by standards organizations, or other bodies (e.g. the World Health Organization) Some examples are:

- EN 60950 [i.10]: which contains requirements for information and communications technology equipment;
- TR 62102 [i.11]: which describes how to categorize electrical interfaces in terms of the safety characteristics specified in EN 60950 [i.10].

The voltage limits within the LVD [i.2] are not applied in the R&TTE Directive [i.1]. This may require new or amended standards to meet the R&TTE Directive [i.1].

The essential requirements for the protection of the health and the safety of the user and any other person under the R&TTE Directive [i.1] include but are not necessarily limited to the safety objectives published in the LVD [i.2].

6.3 Article 3.1(b): EMC

ETSI TC ERM should be consulted concerning EMC statements to be included in HSs.

The essential requirements for EMC under the R&TTE Directive [i.1] are the protection requirements published in the EMC Directive [i.4] and its successors.

There are several product EMC standards already available from ETSI and CENELEC that have been published in the OJEU in connection with the EMC Directive [i.4]. HSs published in the OJEU referencing the EMC Directive [i.4] either before or after the R&TTE Directive [i.1] is in force are allowed to be used under article 3.1(b) of the R&TTE Directive [i.1] (see article 18).

Resistibility requirements as defined in the ITU-T K series recommendations should not be included in HSs under R&TTE Directive [i.1] as essential requirements.

6.4 Article 3.2: "The effective use of the radio spectrum allocated to terrestrial/space radio communication and orbital resources so as to avoid harmful interference"

6.4.1 General

"*Where Community harmonisation legislation sets out essential requirements, it shall provide for recourse to be had to harmonized standards, adopted in accordance with Directive 98/34/EC, which shall express those requirements in technical terms and which shall, alone or in conjunction with other harmonized standards, provide for the presumption of conformity with those requirements, while maintaining the possibility of setting the level of protection by other means."* (article 3 of [i.38]).

The above text provides the requirements concerning how and which technical requirements have to be included in Harmonized Standards addressing article 3.2 of the R&TTE Directive.

Requirements necessary to provide a presumption of conformity to the Directive may be a subset of those used for spectrum management.

It is expected that the parameters that are not included in the HS are available or will be made available to the public in other documents. Technical Bodies writing HSs may consider it appropriate to make reference to these non-essential requirements for guidance, but only with a strict clarification that such reference forms no part of the essential requirements and thus it forms no part of the HS for the purposes of conformity assessment.

6.4.2 Co-operation with ECC and EC (regulatory environment) / usage of spectrum

ETSI develops standards for radiocommunications systems and equipment. Radio standards contain by their nature several requirements which relate to the efficient use of the spectrum, including compatibility between different radio services.

In order to ensure the planning of an effective use of the radio frequency spectrum, an MoU [i.19] has been agreed between ETSI and the CEPT Electronic Communications Committee (ECC), for co-operation in the development of radio technical specifications. In the development of HSs containing technical specifications for radio equipment, the provisions of the ETSI-CEPT MoU [i.19] will be applied.

The attention of those drafting Harmonized Standards is drawn to the fact that there may be both ECC and EC Decisions.

Harmonized Standards, CEPT/ECC deliverables and Commission Decisions are not expected to contain the same level of technical details.

For further information on ECC and EC deliverables (in particular those developed under Decision 676/2002/EC [i.31])

- www.ero.dk;
- http://ec.europa.eu/information_society/policy/ecomm/radio_spectrum/index_en.htm.

6.4.3 Parameters forming the basis of regulation

Certain types of radio equipment have previously been regulated under Directive 98/13/EC [i.5]. Article 5(e) of this Directive required terminal equipment (as defined under Directive 98/13/EC [i.5]) to satisfy essential requirement of "effective use of the radio frequency spectrum, where appropriate". For satellite earth station equipment, this was clarified to include "the effective use of orbital resources and the avoidance of harmful interference between space-based and terrestrial communications systems and other technical systems".

Although the R&TTE Directive [i.1], article 3.2 has slightly different wording from Directive 98/13/EC [i.5], the technical specifications elaborating the essential requirements for "effective use of the spectrum so as to avoid harmful interference" are essentially the same as those under Directive 98/13/EC [i.5] for equipment falling within the scope of that Directive.

As a matter of principle, the definition of technical specifications to demonstrate compliance with an essential requirement is the duty of the applicable TB. However, it is important that a common set of principles be made available to guide the technical bodies when making decisions on content. The inclusion of requirements is a sensitive issue and needs careful consideration on a case by case basis by the technical bodies.

In order to give guidance to ETSI, the relevant parts of tables A.1 to A.3 show:

1) Radio system phenomena which might have an influence on the effective use of the spectrum for certain types of RE. The applicability of individual phenomena will depend on the system concerned, and is to be determined by the relevant TB.

2) Initial classification of radio system types by equipment attributes.

3) Possible example of assignment of phenomena as essential for RE with certain attributes. This table shows the possible methodology, and should not be taken to show the specific applicable essential requirements, which should be determined by the relevant TB.

6.5 Article 3.3: Additional requirements

Article 3.3 includes the following:

- article 3.3(a) Interworking and portability;
- article 3.3(b) Harm to the network or its functioning;
- article 3.3(c) Personal data and privacy;
- article 3.3(d) Avoidance of fraud;
- article 3.3(e) Emergency services access;
- article 3.3(f) Features for disabled users.

If the Commission decides, after consulting TCAM, that there should be requirements under any of these headings, it will identify the class or type of equipment to be covered under the standardization mandate, and the specific features that the standard should cover. Therefore, an HS and a specific Commission mandate are needed for setting essential requirements under any of the parts of article 3.3.

7 Guidance for drafting Harmonized Standards

7.1 General drafting considerations

7.1.1 The HS skeleton

Each Harmonized Standard is developed in accordance with the ETSI TWP by the TB which is responsible for the document. The skeleton document is available on the ETSI Portal or from ***editHelp!*** (*edithelp@etsi.org*).

NOTE: At the time of publication of the present document, skeleton documents can be found in:

http://portal.etsi.org/edithelp/StandardsDevelopment/home.htm?page=skeletons

where the skeleton for the Harmonized Standards can be found as the third entry in the list.

The skeleton document includes a number of "guidance notes" to assist the drafting of the HS, but these are expected to be removed before publications. Optional text is enclosed in "<..>" symbols. Such text may be retained, modified or deleted as required but the symbols "<..>" are expected to be removed before publication.

7.1.2 Informative material in HSs

Informative text and illustrations in the main body of the HS or in annexes may be included at the discretion of the TB when it is felt that this improves understanding, and provided that such material is clearly indicated as being informative.

In particular, where the relationship between a requirement or test and the corresponding essential requirement of R&TTE Directive [i.1] is not self-evident, then an informative annex should be added presenting the rationale for inclusion of the requirement or test.

7.1.3 Material to be avoided in HSs

The TB drafting a HS should avoid including statements beyond ETSI area of competence and so the following should be avoided:

1) Statements referring to the role of national authorities in general, for example indicating that national authorities may relax the standards requirements, ignore them or make them more severe.

2) Statements concerning the legal responsibilities or legal roles of parties involved (manufacturers, operators, authorities etc.).

3) Statements referring to sales restrictions, legal sanctions, obligations for entering the market, ban of sales, contractual arrangements/ relations between parties.

4) Statements imposing obligations outside the scope of the standards, for example an obligation to perform tests in locations defined by non-technical parameters, such as manufacturers' premises or third party laboratories.

NOTE 1: Only technical requirements may be imposed.

5) Statements related to cases of dispute, such as "In case of dispute, the method used by the manufacturer shall be used".

NOTE 2: Where alternative test methods are provided, the principle should be that compliance with the requirements may be demonstrated by either or any of the methods described in the standard.

6) Statements including dates of regulatory application (when possible).

NOTE 3: If ETSI Technical Bodies find it useful to give advice in such matters, it should be done in separate documents and not included in the text of standards. This does not apply to information about national transposition of standards.

7) Statements introducing provisional, or interim, limits or requirements.

NOTE 4: It is within the rights of national licensing authorities to specify certain parameters such as maximum permitted radiated power, bandwidth, frequency etc. when putting equipment into service.

8) Statements related to normative information related to other directives beyond the scope of the HS. However, informative references to such other directives are permitted provided that no impression is given that compliance with the HS gives a presumption of conformity with anything other than the R&TTE Directive [i.1].

7.1.4 Difficulties with implementation of the present document

Where a TB considers deviation from the present document is necessary or desirable, this fact should be reported to the ETSI Secretariat and/or OCG R&TTE to establish a degree of traceability.

7.2 Contents of the Harmonized Standard document

7.2.1 The Title Page and "page 2"

The title should follow the format specified in the skeleton. The <Type of equipment> line should be replaced by text which is informative, but in practice this description does not restrict equipment not intuitively associated with that description from claiming presumption of conformity with the HS. (See "The "Scope" clause below.) The title should include the phrase "Harmonized EN covering essential requirements of article 3.<n> of the R&TTE Directive" where "<n>" is replaced by the specific article number addressed, typically "2".

NOTE: In accordance with the modularity principle, the HS should only address the essential requirements of one specific article of the R&TTE Directive [i.1].

7.2.2 The Contents List

Void.

7.2.3 The "Intellectual Property Rights" clause

The TB drafting the HS has no discretion to vary this clause.

7.2.4 The "Foreword" clause

The mandatory wording of the skeleton document should be adhered to so far as it is applicable. Where the HS is part of a multipart EN, text should be included to indicate the relationship between the present part and the other parts of the same document. The TB may include any other relevant non-normative information appropriate to a foreword.

The transposition table should be included as specified in the skeleton document, but the TB should advise the secretariat if the default transposition dates are inappropriate for the particular HS.

Major technical changes since previous versions of the deliverable may be highlighted at this stage.

7.2.5 The "Introduction" clause

The standard text in the skeleton document should be included. The TB may include any other appropriate information in the introduction.

7.2.6 The "Scope" clause

The Scope statement limits what equipments can claim presumption of conformity under the HS. The TB should exercise considerable judgement over the way the scope is defined. As noted elsewhere in the present document, the standard should remain as technology independent as possible, should be defined without undue limitation of application, should be as general in operating frequencies as possible, and should not address national or other regulatory restrictions.

In accordance with the spirit of the Directive, there should be the minimum number of HSs, each one having the widest possible product application. One HS is typically applicable to different types of equipment sharing similar attributes.

NOTE: It is only the "Scope" clause of a HS that may identify the equipment covered. The HS title, technical requirements and tests specified elsewhere in the HS should not be taken to imply any further qualification of the scope of the equipment covered by the HS. Any equipment which falls within the scope and satisfies all relevant technical requirements qualifies for the "presumption of conformity".

7.2.7 The " References" clause

See the ETSI Drafting Rules for the requirements on normative references in Harmonized Standards.

7.2.8 The "Definitions, Symbols and abbreviations" clause

The skeleton document includes a few standard definitions for phrases that are frequently used in HSs such as: Essential Radio Test Suite, Essential requirement, Technical requirement, Environmental Profile. For each such phrase used in the HS, the corresponding definition is expected to included in this clause.

The ITU Radio Regulations [i.30] provides many terms and definitions for the characteristics of emissions and radio equipment. There may be requirements in the ITU Radio Regulations [i.30] using these terms and definitions. It therefore could be necessary to use the same terms and definitions in the ETSI Harmonized Standards. Additionally, the users of the ETSI Harmonized Standard, e.g. market surveillance authorities, may already be familiar with the terms and definitions of the ITU Radio Regulations [i.30], therefore use of those terms and definitions can increase the ease of use of the standard.

Therefore, where possible, definitions from the ITU Radio Regulations [i.30] should be used. If there is not a definition in the ITU Radio Regulations [i.30], wherever possible, existing definitions in the ETSI TEDDI [i.29] (see Decision D-OCG 21/3) or those for receiver parameters in TR 102 914 [i.24] should be used rather than creating new ones.

Note that many radio definitions are currently not part of TEDDI since TEDDI only includes definitions from clause 3 of the ETSI deliverables, and the definitions in many ETSI Harmonized Standards are not in clause 3. Therefore it may also be necessary to consult Harmonized Standards for similar products to find the desired definitions.

A total harmonization of definitions may not be possible, for example, because the definition is specific to a certain group of equipment or because it is desired to keep the same definition as a base standard developed in another standardization development organization.

7.2.9 The "Technical requirements specifications" clause

For formulation of technical requirements see clause 6.

The preferred structure is shown in the skeleton document.

Every technical requirement in a HS for application under the R&TTE Directive [i.1] should relate to one or more essential requirements of the R&TTE Directive [i.1].

Every technical requirement should be expressed so as to be capable of objective verification. However, it is not mandatory that the method of verification be explicitly defined in the HS unless the outcome is considered dependent upon the method of verification or evaluation.

Manufacturers may choose not to apply parts of a HS. For the parts omitted, article 10.5 of Directive 1999/5/EC [i.1] applies. This does not preclude the possibility of a HS having within it alternative technical solutions for meeting an essential requirement. It is recommended that alternative technical solutions should be identified (by letters or numbers or by separation of the HS into parts) within HSs, to simplify conformity declaration, licensing and surveillance.

Harmonized Standards not for Marine Radio Communication Equipment covered by Commission Decision 2004/71/EC [i.28] should use the following guidance:

- A standard "Environmental Profile" clause should be included which indicates that technical requirements should be met throughout the environmental range indicate by the manufacturer. Explicit environment conditions should not be specified in the HS.

Harmonized Standards for Marine Radio Communication Equipment covered by Commission Decision 2004/71/EC [i.28] should use the following guidance:

- An "Environmental Profile" clause should be included which indicates that technical requirements should be met throughout the environmental range indicated by the manufacturer, but as a minimum, is expected to be that specified in the test conditions contained in the Harmonized Standard.

Air Traffic Management (ATM) radio equipment is presently under the R&TTE Directive [i.1] (and ETSI has been working on it under the Commission Mandate M/405); TR 102 579 [i.32] provides guidance for the production of Community Specifications for application of Interoperability Regulation EC 552/2004 [i.33].

This clause should define the "conformance requirements" - which is the set of individual technical requirements (including limiting values of parameters where applicable) which are necessary and sufficient to meet the essential requirements referred to in the Scope clause.

NOTE: The preferred method of clearly separating the technical requirements which have to be met from the method of testing for compliance with those requirements is to have separate top-level clauses entitled "Technical requirements specifications" and "Testing for compliance with technical requirements". Historically, some HSs have interleaved "requirements" and "test procedures". Where there is a strong argument to adopt or retain this approach, then it remains acceptable provided that a sharp and clear distinction between "requirement" and its "test procedure" is maintained.

The technical requirements (including any limiting values of parameters) may be specified in any of the following ways at the discretion of the TB:

a) Explicit stand-alone complete specification of the requirement.

b) Reference to one or more explicitly identified clauses in a normative reference, in which case the ETSI Drafting Rules for the use of normative references in Harmonized Standards apply.

c) A combination of a) and b) above. (For example, where the technical requirement is described elsewhere but the limiting values are defined explicitly in the HS.)

In all cases, clause numbering should be such that individual technical requirements may be unambiguously referenced as there is need for specific test specifications to be related to specific requirements both within the body of the HS and within the HS-RTT annex.

Annex E provides examples of structures for the technical requirements specifications clauses.

7.2.10 The "Testing for compliance with technical requirements" clause

The preferred structure is shown in the skeleton document.

Harmonized Standards for Marine Radio Communication Equipment covered by Commission Decision 2004/71/EC [i.28] should include the "Environmental conditions for testing" clause in the skeleton document which indicates that testing should be carried out at representative points within the boundary limits of the declared operational environmental profile which, as a minimum, is expected to be that specified in the test conditions contained in the Harmonized Standard. As technical performance varies subject to environmental conditions, tests are expected to be carried out under a sufficient variety of environmental conditions as specified in this HS to give confidence of compliance for the affected technical requirements. These environmental conditions represent those required by article 2 of EC Decision 2004/71/EC [i.28] (which should also be within the boundary limits of the declared operational environmental profile)".

For other Harmonized Standards, the standard "Environmental conditions for testing" clause as shown in the skeleton document should be included. This indicates that testing should be carried out at representative points within the boundary limits of the environmental profile but makes no reference to explicit environmental limits.

For HSs addressing article 3.2 of the R&TTE Directive [i.1], the test specification are expected to indicate whether it falls within the Essential Radio Test Suite (see annex III of the R&TTE Directive [i.1]). The preferred method of achieving this is to list all such test specifications under an "Essential Radio Test Suite(s)" clause heading with all other test specifications listed under an "Other test suite(s)" heading.

Where compliance with the specification requires the value of a parameter to be assessed, the responsible ETSI TB writing the HS should consider whether the value obtained may vary according to the method of measurement employed.

The measurement method should be defined in the minimum detail required to ensure reproducibility of results between different laboratories. This should preferably be by reference to other relevant standards. However it should be made very clear what requirements (or tests) are considered included in the HS. Tests and test methods should not be identified in themselves as technical requirements.

Where a test is needed to determine whether an equipment meets the technical requirement, that test should be specified unambiguously within the HS. This test may be specified in any of the following ways at the discretion of the TB:

a) Explicit stand-alone complete specification of the test method and procedure.

b) Reference to one or more explicitly identified clauses in a normative reference, in which case the ETSI Drafting Rules for the use of normative references in Harmonized Standards apply.

c) A combination of a) and b) above.

Test specifications may be described in non-harmonized standards. Such standards may be normatively referenced within a HS for the purpose of defining relevant test specifications.

Where testing for compliance requires measurement, the issue of interpretation of measurement results and maximum measurement uncertainty should be addressed. The preferred method of addressing this topic is shown in the skeleton document as a separate clause with appropriate text and with a table indicating the maximum measurement uncertainty for each relevant parameter. However, alternative means of addressing this may be adopted by the TB. For example, the matter can be addressed in a referenced document or the uncertainty may be addressed in the individual test suite clauses described below.

The acceptable level of measurement uncertainty is expected to be specified.

HSs should be written on the assumption that interpretation of the measurement results is in accordance with the principles contained in TR 100 028 [i.9].

7.2.11 The "Abstract Test Suite" clause

HSs may choose to define abstract test suites using TTCN notation. For those cases, the preferred method for introducing and presenting such test suites in TTCN Graphical or Machine processable forms is indicated in the skeleton document.

7.2.12 The "HS Requirements and conformance Test specifications (HS-RTT) Table" annex

The HS are expected to include an annex comprising an HS-RTT which lists all technical requirements and relates all test specifications to them.

The HS-RTT annex is a mandatory part of all HS under article 3.2 of the R&TTE Directive [i.1] for equipments which are capable of radio transmission. This annex should follow the skeleton document. The initial version of the HS-RTT table annex as included in the skeleton document is reproduced as annex F to the present document. The completed annex is expected to be included as the first normative annex of the HS.

The purpose of this annex is to provide a consistent, concise set of references to all technical requirements and to their corresponding test specifications. Where a technical requirement depends upon other factors (formerly called "optional technical requirements"), this should also be clarified in this annex.

NOTE 1: For HS users concerned with determining whether an equipment meets the conditions for a presumption of conformity under the HS, this annex may be a starting point as it directs them to specific clauses in the HS (or in other referenced documents) concisely to all technical requirements, their test specifications and indicates which of the test specifications form the Essential Radio Test Suite. The introduction of this annex as a mandatory feature (for those HSs addressing article 3.2 of the R&TTE Directive [i.1]) is ETSI's response to EC requests for more consistency in HSs and to present this critical information in a consistent, precise, and concise way.

The annex is made available to be used as a check list when considering the compliance of a particular equipment and therefore the copyright generally associated with ETSI deliverables is lifted for this annex of the HS.

The HS-RTT should be completed by the TB so that it provides a standard means of:

- identifying all the technical requirements in words and by cross reference to a specific clause in the present document or to a specific clause in a specific referenced document;
- identifying any test procedure corresponding to each technical requirement by cross reference to specific clause(s) in the HS itself or to specific clause(s) in specific referenced document(s);
- qualifying each technical requirement to be either "Unconditional" (meaning that the requirement applies in all circumstances) or "Conditional" (meaning that the requirement is dependent on the manufacturer having chosen to support optional functionality) and in the latter case, associating the requirement with the particular optional functionality;
- qualifying each test procedure to be either "Essential" (meaning that it is included with the Essential Radio Test Suite and therefore the requirement is expected to be demonstrated to be met in accordance with the referenced procedures) or "Other" (meaning that the test procedure is illustrative and that alternative means of demonstrating compliance with the technical requirement are permitted).

Where the scope of the HS includes different equipment types (for example a portable handset and a corresponding base station), it is preferred that separate HS-RTTs be included for each equipment type, although if the variations are few the different technical requirements may be indicated using the "conditionality" column in the table.

NOTE 2: In the case where the main body clauses of the HS dealing with "Technical Requirements" and "Testing for compliance" comprise nothing but references to other documents, it is possible that those references could appear in the HS-RTT and the clauses could be reduced to the environmental matters and a reference to the HS-RTT.

7.2.13 "The EN title in the official languages" annex

An annex is provided in the skeleton document with information related to the translations of the title of the Harmonized Standard into all languages of the member states of the European Union and of EFTA.

At some point in time TBs were expected to provide an annex with the translations of the titles into the various languages; at the time of publication of the present document, this is no longer the case: translations of the titles can be consulted using the "e-Approval Application".

Annex A:
Evaluation of technical parameters according to essential requirements applicable to equipment attributes

A.1 Equipment attributes

Rules for establishing equipment attributes are given in clause 6.1.3. A single equipment can have more than one attribute. Currently the following attributes are defined:

A) RE that is unable to transmit before receiving an appropriate enabling signal under any circumstances;

B) RE that is able to transmit without receiving an appropriate enabling signal;

C) RE capable of receive only;

D) apparatus intended for use in "Emergency applications";

E) short range radio transmitting devices;

F) RE intended for installation in sites which may be shared with other RE without co-ordination from a single operator;

G) RE sharing radio spectrum resources with or without operational co-ordination;

H) TTE using an electrical interface for communication;

I) TTE using an optical interface for communication;

J) RE using received signal (e.g. the receiver level) to control transmitter power level or channel access (automatically or manually).

The attributes are explained as follows.

Attribute A

Equipment having this attribute is unable to transmit prior to receiving an enabling signal from some other equipment which co-ordinates activity in the system. This service may or may not operate on shared spectrum resource. It is believed that this attribute applies to products such as GSM mobiles, trunked radios, satellite earth stations and two-way pagers, etc.

The reasoning for differentiation of this attribute is that the nature of the equipment implies the operation will be under the control of other apparatus and operating in a defined system.

Attribute B

Equipment having this attribute has the potential for uncontrolled interference to other users.

Examples of such equipment are some transportable relay station devices, simple PMR equipment, Base Stations of cellular networks, Radars, and most commercially-available amateur radio equipment, including high-power transmitters.

Attribute C

Equipment having this attribute cannot easily interfere with other users. This justifies the differentiation of this attribute.

Single-way pagers and Short-range receivers are examples of equipment with this attribute.

Attribute D

Equipment having this attribute requires a high assurance of performance when operating. Thus it is reasonable to suppose that such equipment may need to comply with additional requirements.

Equipment having this attribute will always have at least one other attribute.

Attribute E

Equipment having this attribute is generally accepted to be differentiated from other equipment. Short-range transmitting devices are defined in ERC Recommendation 70-03 [i.20], which broadly defines this attribute. However it is noted that this ERC Recommendation [i.20] also includes some devices with a power output of up to 500 mW ERP (or even higher) which is clearly not necessarily very short range. Much of the longer-range equipment operates on ISM frequencies.

Attribute F

For equipment having this attribute, there is a possibility of further phenomena acting. The justification for differentiation of this attribute is principally because the equipment is stationary, and thus if any problems do arise, the assumption may be that the problem is permanent and some deployment scenarios may require additional site engineering. Secondly, transmitters in close proximity should be designed to limit the transmitter intermodulation issues. Other receiver effects may become more important, but the traditional solutions of antenna filters, circulators etc. may be used. These are separate units and thus should not be included within the HS. Examples of such equipment are base stations of any type, broadcast transmitters (broadcast receivers are not covered by the Directive), fixed link stations and pager stations.

Equipment having this attribute will always have at least one other attribute.

Attribute G

Equipment having this attribute needs differentiation to allow for the difference caused by equipment such as the above (attribute F) being set to operate in shared spectrum without co-ordination. Moreover, Fixed Service systems need this attribute differentiation for coexistence with similar systems deployed in the same geographical area and using the same frequency band.

Attribute H

Equipment having this attribute may or may not have other attributes concerning radio equipment. This attribute is differentiated from attribute I because it is anticipated that there may be different essential requirements for equipment with electrical or optical interfaces. Attribute H includes all equipment with electrical interfaces because it is accepted that all such equipments will have similar essential requirements under the R&TTE Directive [i.1].

There are many such equipment types, so it is not necessary to provide examples.

Attribute I

Equipment having this attribute may or may not have other attributes concerning radio equipment. This attribute is differentiated from attribute H because it is anticipated that there may be different essential requirements for equipment with electrical or optical interfaces. Attribute I includes all equipment with optical interfaces because it is accepted that all such equipments will have similar essential requirements under the R&TTE Directive [i.1].

Attribute J

Equipment having this attribute includes a receiver and a transmitter, and the received signal (e.g. the receiver level) is used to control (automatically or manually) channel access by the transmitter or the power level of the transmitter. However, unlike equipment qualified with attribute A, equipment having attribute J does not necessarily need to receive an enabling signal from some other equipment prior to transmit.

Examples of equipment having this attribute are most of the land mobile applications (PMR, "Listen Before Talk" equipment, cellular networks, etc.) and some terminals for fixed wireless access.

In some systems corresponding to attribute J, transmitters may transmit without any enabling from a central control unit (e.g. PMR in Direct mode and Base Stations of cellular networks) (see also the definition of attribute A).

In equipment having this attribute power control may be implemented. Examples of such systems are satellite earth stations with uplink power control, fixed service stations, and cellular systems.

It is expected that when used under normal conditions, the power control will enhance the efficiency of the usage of radio spectrum by adjusting the power level of the transmitter to a level not significantly higher than what is really necessary and thereby limiting the out-of-band emissions towards others services or systems. Power control and good sensitivity of receivers can also be expected to reduce the overall power consumption of systems ("Green Agenda"). When used under abnormal conditions, equipment with attribute J and using power control may become excessive sources of interference. Specific requirements may be necessary for ensuring a normal operation of such equipment.

Equipment having this attribute will always have at least one other attribute.

A.2 Technical Phenomena

Tables A.1 to A.3 provide the phenomena associated with specific essential requirements that may need to be considered by ETSI technical bodies. Table A.2 contains a list of phenomena for consideration, and each parameter marked "Yes" should be evaluated according to the methodology of clause 6.1.

Table A.1

Essential Requirement	Phenomena
3.1 (a)	Requirements regarding the protection of the health and safety of the user and any other person are described in clause 6.2.
3.1 (b)	Requirements for EMC are already identified in a number of published EMC Harmonized Standards and are described in clause 6.3.
NOTE: Phenomena relevant to essential requirements under article 3.1 do not depend directly on equipment attributes.	

Table A.2

Essential Requirement	Phenomena	Equipment Attributes									
		A	B	C	D	E	F	G	H	I	J
3.2 (Transmitting)	Frequency error/stability, and designation of channels	Yes	Yes			Yes		Yes			
	Transmitter power	Yes	Yes			Yes		Yes			
	Adjacent channel power	Yes	Yes			Yes		Yes			
	Spurious emissions	Yes	Yes			Yes		Yes			
	Inter-modulation attenuation						Yes				
	Release time	Yes						Yes			
	Transient behaviour of the transmitter	Yes	Yes					Yes			
	Modulation Accuracy	Yes	Yes			Yes		Yes			
	Duty cycle					Yes		Yes			
3.2 (Directional)	Off-axis EIRP density	Yes	Yes					Yes			
	Antenna gain	Yes	Yes					Yes			
	Antenna X-polar discrimination	Yes	Yes					Yes			
	Antenna pointing accuracy/control	Yes	Yes					Yes			
	Active antenna spurious emissions (see guidance from TCAM below this table)										
3.2 (Receiving)	(Maximum usable) sensitivity (inc. duplex)				Yes						Yes
	Co-channel rejection				Yes						
	Adjacent channel selectivity	Yes	Yes	Note		Yes		Yes			
	Spurious response rejection (inc. duplex)	Yes	Yes	Note		Yes		Yes			
	Inter-modulation response rejection	Yes	Yes	Note		Yes	Yes	Yes			
	Blocking or desensitization (inc. duplex)	Yes	Yes	Note		Yes		Yes			
	Spurious emissions	Yes	Yes	Yes		Yes		Yes			
	Multipath sensitivity				Yes						

Essential Requirement	Phenomena	Equipment Attributes									
		A	B	C	D	E	F	G	H	I	J
3.2 (TDM: CDM: Control and Monitoring Functions for Terminal)	Enabling Signalling	Yes									
	Sharing Protocols	Yes	Yes					Yes			
	Network interface bit errors	Yes									
	Error control by coding and decoding of logical channels	Yes									
	Logical channel arrangement	Yes									
	Control of communication in logical channels	Yes									
	Correct interpretation of Network control information	Yes									
	Network interface addressing	Yes									
	Control of basic link communication	Yes									
	Control of random access	Yes									
	Control of radio resource allocation	Yes									
	Monitoring functions for cell selection	Yes									
	Control functions for usage of cells	Yes									
	Control of group attach/detach	Yes									
	Tx enable/disable control	Yes									
	Tx Call set up control	Yes									
	Control of call maintenance	Yes									
	Control of call disconnect	Yes									
	Authentication control	Yes									
	Encryption control procedures	Yes									
NOTE: See clause 6.1.4.											

Table A.3

Essential Requirement	Phenomena
3.3	Currently there are some essential requirements defined under article 3.3 (see clause 6.5) reported in harmonized ENs (see note 2). It is noted that the technical nature of the requirements may be different from requirements related to articles 3.1 and 3.2.
NOTE 1: Phenomena considered to be relevant to essential requirements under article 3.3 have not depended directly, so far, on equipment attributes. NOTE 2: E.g. EN 300 718-3 [i.17] and EN 301 025-3 [i.18] contain parameters relevant to article 3.3(e) essential requirements.	

A.3 Antennas, borderline of coverage of the Directive

The European Commission interpretation of the coverage of antennas by the R&TTE Directive [i.1] is available at http://ec.europa.eu/enterprise/sectors/rtte/documents/interpretation/
which contains two specific sub-links for guidance:

"21) Are antennas covered by the Directive?"

"22) Coverage of blinking antennas by the R&TTE Directive".

In the case that the equipment is intended to be operated with one or more integral or dedicated antenna(s), the RE HS should cover the relevant antenna characteristics.

Separately supplied active antenna systems (that is antennas with active electronic components) are regarded as RE components under the R&TTE Directive [i.1] and should be covered either by a specific HS or included within the HS of the equipment with which it is intended to be used.

Separately supplied passive antennas are not generally considered RE under the R&TTE Directive [i.1] but nevertheless may also be considered to be relevant components under article 2c of the R&TTE Directive [i.1], under certain circumstances.

If the TB considers that there is a reasonable risk of failure to meet the essential requirements if antenna characteristics are not specified, they may either:

1) include antenna requirements within the radio equipment HS; or

2) develop a separate HS for the antenna.

When the TB develops the first version of a separate HS for separately supplied passive antennas, the ETSI Secretariat should be alerted to report to TCAM accordingly. TCAM agreement would be assumed unless TCAM provides ETSI with a contrary decision following consideration of the ETSI report.

Annex B: Alternative formulations

To date, the alternative formulations addressed in this annex (and included in the first versions of the present document) do not seem to have been used by any of the ETSI TBs.

B.1 Alternative formulation of requirements under article 3.2

The following alternative formulation has been proposed and may be most valuable in relation to new systems.

Table B.1: Tests required for radio equipment to support the essential requirements of the R&TTE Directive [i.1]

Phenomena to test/for the state of TX	Start TX	Cont. TX	Change Power	Change Freq.	Stop TX	Justification 3.2 Interference
Allowed/requested to TX	X	X	X	X		X
Allowed/requested to change Power			X			X
Allowed/requested to change Frequency				X		X
Allowed/requested to stop TX				X	X	X
Inform about actions	X	X	X	X	X	X
Start TX within required time	X			X		
Stop TX within required time				X	X	X
Start at the assigned Frequency	X			X		X
Start at the assigned Power	X		X			X
Change Power within required time			X			X
Transient Frequency behaviour	X			X	X	X
Transient Power behaviour	X		X	X	X	X
Modulation accuracy		X				
Transmitter Mask		X				X

NOTE 1: Cont. TX covers continuous state of any transmitter also the conversation mode of a TDM or TDD techniques.
NOTE 2: All requirements are expected to be assessed at the transmitter output. Necessary stimuli are expected to be applied at the network interface and/or the Man Machine Interface.
NOTE 3: The tests to evaluate a specific phenomenon and the phenomena are selected by the product group as appropriate for the technology.
NOTE 4: Where access to the Emergency Services is a requirement; additionally the ability to understand the message (data or voice) is required, end-to-end in both directions.

B.2 Second alternative formulation of requirements for Attribute "A"

B.2.1 Control and monitoring functions of a Terminal

The following minimum set of Control and Monitoring Functions are expected to be implemented in a Terminal in order to minimize the probability that they originate unwanted transmissions that may give rise to harmful interference to other systems.

For the purpose of the present document, the states of the Terminal are:

- "non valid";
- "initial phase";
- "transmission disabled"; and
- "transmission enabled".

In the "Non-valid" state and in the "Transmission disable" state, the Terminal is expected to not transmit. In the "Transmission-enabled" state the Terminal is allowed to transmit. In the "Initial phase" state the Terminal is only allowed to transmit initial bursts.

Under any fault condition when the Terminal transmissions are being suppressed the harmful interference is expected to not exceed the limits for the "Transmission disabled" state specified.

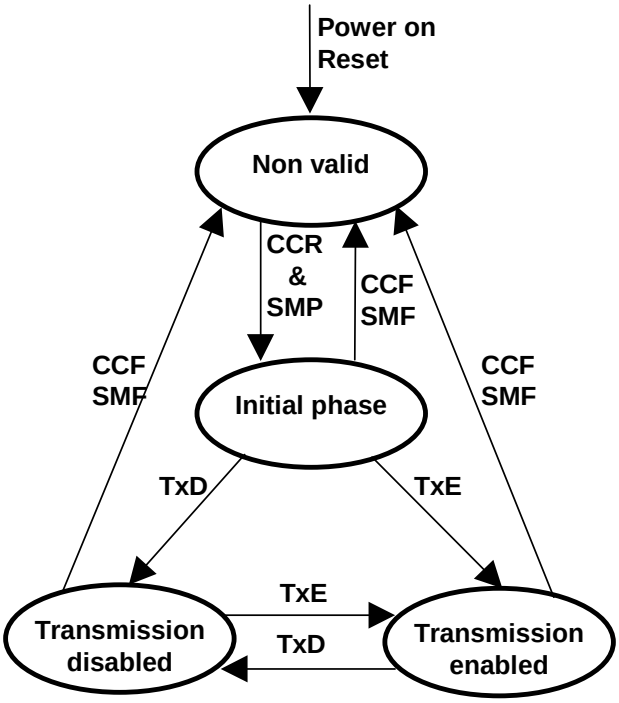

Figure B.1: State transition diagram of the control and monitoring function of a Terminal

When the Terminal transmits several carriers having different frequencies, a Terminal state machine as described above may be associated with each carrier or each set of carriers. The events then apply to the subsystem associated with the specific carrier or the specific set of carriers, rather than the whole Terminal.

Annex C: Background

C.1 The "New approach"

The most significant aspect of the introduction of the R&TTE Directive [i.1] was that it conformed originally to the EC Council Resolution of 7 May 1985 [i.7]. It was introduced in order to support a market-led approach into the Radio and Telecommunications Terminal Equipment sector, and removed the regime of type approvals. Conformity with the Essential Requirements in article 3 of the R&TTE Directive [i.1] became by manufacturer's declaration, and could be based on Harmonized Standards, or using other means. Essential requirements were expected to be substantially reduced compared with the requirements of the earlier regime.

C.2 Scope of the Directive

The R&TTE Directive [i.1] covers apparatus that is either TTE or RE, as defined in its articles 2(b) and 2(c), or that is both TTE and RE (for example, cellular phones).

TTE was previously covered by Directive 98/13/EC [i.5], although there are differences in the definition of "TTE" between the two Directives.

RE was not previously covered by a specific Directive, although there were provisions on RE included in the EMC Directive [i.4].

For the products within its scope, the R&TTE Directive [i.1] covers all aspects of placing on the market and putting into service, except for licensing of RE, which remains a national matter. The aspects of safety and EMC covered in other Directives are taken over into the R&TTE Directive [i.1], although the manufacturer has the option of using the procedures in these earlier Directives, for equipment which falls within their scope (R&TTE Directive [i.1], article 10.2), as a means to demonstrate conformity to the requirements of articles 3.1(a) and 3.1(b) in the R&TTE Directive [i.1].

Because of the separate backgrounds in the TTE and RE areas, they are occasionally treated separately in the present document, where this may have an effect on the production of Harmonized Standards.

C.3 Implications for Telecommunications Terminal Equipment (TTE)

The definition of TTE given in the R&TTE Directive [i.1] is "a product enabling communication or relevant component thereof which is intended to be connected directly or indirectly by any means whatsoever to interfaces of public telecommunications networks (that is to say, telecommunications networks used wholly or partly for the provision of publicly available telecommunications services)". In contrast to the earlier Directive 98/13/EC [i.5], article 1.2, interworking with the network is not part of the definition for indirectly connected terminals.

Under the R&TTE Directive [i.1], TTE is no longer subject to type approval. Products can be placed on the market under the responsibility of the manufacturer. The manufacturer makes a Declaration of Conformity to the essential requirements of the Directive, and is expected to keep this declaration, together with supportive product technical documentation, as outlined in R&TTE Directive [i.1] annex II, for at least ten years after the last product of that type has been manufactured.

For TTE which does not use radio transmission, it is not necessary for a Notified Body to be involved in placing the product on the market. However, R&TTE Directive [i.1], article 10.3 allows manufacturers of TTE which does not use radio transmission to voluntarily submit their technical files to a Notified Body for assessment under annex IV, in which case that body's identification number forms part of the CE marking.

Manufacturers are responsible for ensuring that each item of TTE produced meets the essential requirements. If a manufacturer has an accredited full quality assurance system, R&TTE Directive [i.1], article 10.3 allows annex V to be used, instead of annex II or IV, at the manufacturer's choice.

There is no simple relationship between the "new" essential requirements of the R&TTE Directive [i.1] and the "old" essential requirements applied to TTE under Directive 98/13/EC [i.5], except for satellite earth stations, for which the essential requirements are effectively the same.

Article 6.3 of the R&TTE Directive [i.1] addresses the information to be provided to the user of the equipment.

C.4 Implications for Radio Equipment (RE)

The definition of Radio Equipment (RE) given in the R&TTE Directive [i.1], article 2(c), is "a product, or relevant component thereof, capable of communication by means of the emission and/or reception of radio waves utilizing the spectrum allocated to terrestrial/space radiocommunications". This definition has no lower limit on the transmitted power.

"*Radio equipment shall be so constructed that it effectively uses the spectrum allocated to terrestrial/space radio communication and orbital resources so as to avoid harmful interference*" (article 3.2 of [i.1]), where harmful interference is defined as "interference which endangers the functioning of a radionavigation service or of other safety services or which otherwise seriously degrades, obstructs or repeatedly interrupts a radiocommunications service operating in accordance with the applicable Community or national regulations". RE using frequency bands whose use is not harmonized throughout the Community are required by article 6.4 of the R&TTE Directive [i.1] to be notified to national spectrum management authorities at least four weeks before it is placed on that national market.

For radio transmitters, including TTE which uses radio transmission, essential radio test suites are required by annex III of the R&TTE Directive [i.1] to be carried out for the product . If the test suites are not defined in Harmonized Standards, article 10.5 of the R&TTE Directive applies. The manufacturer's Declaration of Conformity to the essential requirements is expected to state that the essential radio transmitter tests have been carried out.

Article 6.3 of the R&TTE Directive [i.1] addresses the information to be provided to the user of the equipment.

C.5 Equipment classes and equipment class identifiers

The definition of Equipment Class given in the R&TTE Directive [i.1] is "a class identifying particular types of apparatus which under this Directive are considered similar and those interfaces for which the apparatus is designed. Apparatus may belong to more than one equipment class".

This is further elaborated in the guide to the R&TTE Directive [i.26], where section 4 covers "equipment classes".

(see http://ec.europa.eu/enterprise/sectors/rtte/files/guide2009-04-20_en.pdf).

Equipment Class Identifiers are assigned by the Commission after consultation of TCAM (R&TTE Directive [i.1], article 4.1). R&TTE Directive [i.1], article 12.1 states, "Radio equipment shall in addition be accompanied by the equipment class identifier where such indentifier has been assigned." The Directive does not preclude that the ECI may be a blank, i.e. no additional marking, for example for RE using harmonized frequencies.

Article 3.3 of the R&TTE Directive [i.1] states: "*In accordance with the procedure laid down in article 15, the Commission may decide that apparatus within certain equipment classes or apparatus of particular types shall be so constructed that*" it meets the additional essential requirements given in article 3.3. Such decisions are made according to TCAM's regulatory procedure (article 15). There is not necessarily any relationship between equipment classes and the need to meet additional essential requirements.

The concept of equipment classes has been further developed by TCAM. CEPT/ECC WG RR has also been involved in this work.

Commission decision 2000/299/EC of 6 April 2000 [i.25] further elaborates on this topic.

Further information on the various sub-classes may be found on the web site of ECO: www.ero.dk.

C.6 Notified interfaces

Where a Member State has regulated an interface, which may be a network termination point and/or an air interface specifying a radio path, the regulated interface is notified to the Commission (R&TTE Directive [i.1], article 4.1). Under Directive 98/34/EC [i.8] the Member State is obliged to provide details of its regulation. Although it might be helpful to Member States for this purpose if European standards were available for certain interfaces, such standards would not necessarily be published in the OJEU, would not relate necessarily to essential requirements under the R&TTE Directive [i.1], and hence would possibly not be Harmonized Standards within the meaning of the present document.

As a result of the TCAM-RSCom RIG II group, a template to describe such interfaces has been defined: it is the Radio Interface Specification (RIS) template.

C.7 Specification of interfaces offered by public telecommunications operators

Public Network Operators are expected to be obliged by their Member State's legislation to publish technical specifications of the interfaces that they offer to telecommunications terminal equipment before they provide the corresponding services (R&TTE Directive [i.1], article 4.2). "*The specifications shall be in sufficient detail to permit the design of telecommunications terminal equipment capable of utilising all services provided through the corresponding interface.*" Although it may be helpful to the operators if European standards were to be produced for certain interfaces, such standards would not necessarily be published in the OJEU under the R&TTE Directive [i.1], would not necessarily relate to essential requirements under the R&TTE Directive [i.1], and hence would possibly not be Harmonized Standards for application under the R&TTE Directive [i.1] within the meaning of the present document.

At present, ETSI has published:

- EG 201 730-1 [i.13] collecting technology independent clarifications on this subject;
- EG 201 730-2 [i.14] addressing analogue narrow-band wire-line interfaces;
- EG 201 730-3 [i.15] addressing digital wire-line interfaces;
- EG 201 730-4 [i.16] addressing broad-band multimedia cable network interfaces.

ETSI has also produced the following earlier guidance, which is technology specific. It is generally valid, but needs to be reviewed for update and consistency with the newly published EG 201 730 above on the specification of publicly offered interfaces:

- EG 201 838 [i.12] addressing radio interfaces.

Annex D:
The modular nature of ETSI's R&TTE Harmonized Standards

NOTE: The following text has been adapted (and brought up to date) from standard introductory text which appeared in early Harmonized Standards. Although it is no longer felt desirable to include this text in every such standard the principles are still valid.

ETSI HSs are designed to fit in a modular structure to cover all radio and telecommunications terminal equipment under the R&TTE Directive [i.1]. Each standard is a module in the structure. The modular structure is shown in figure D.1.

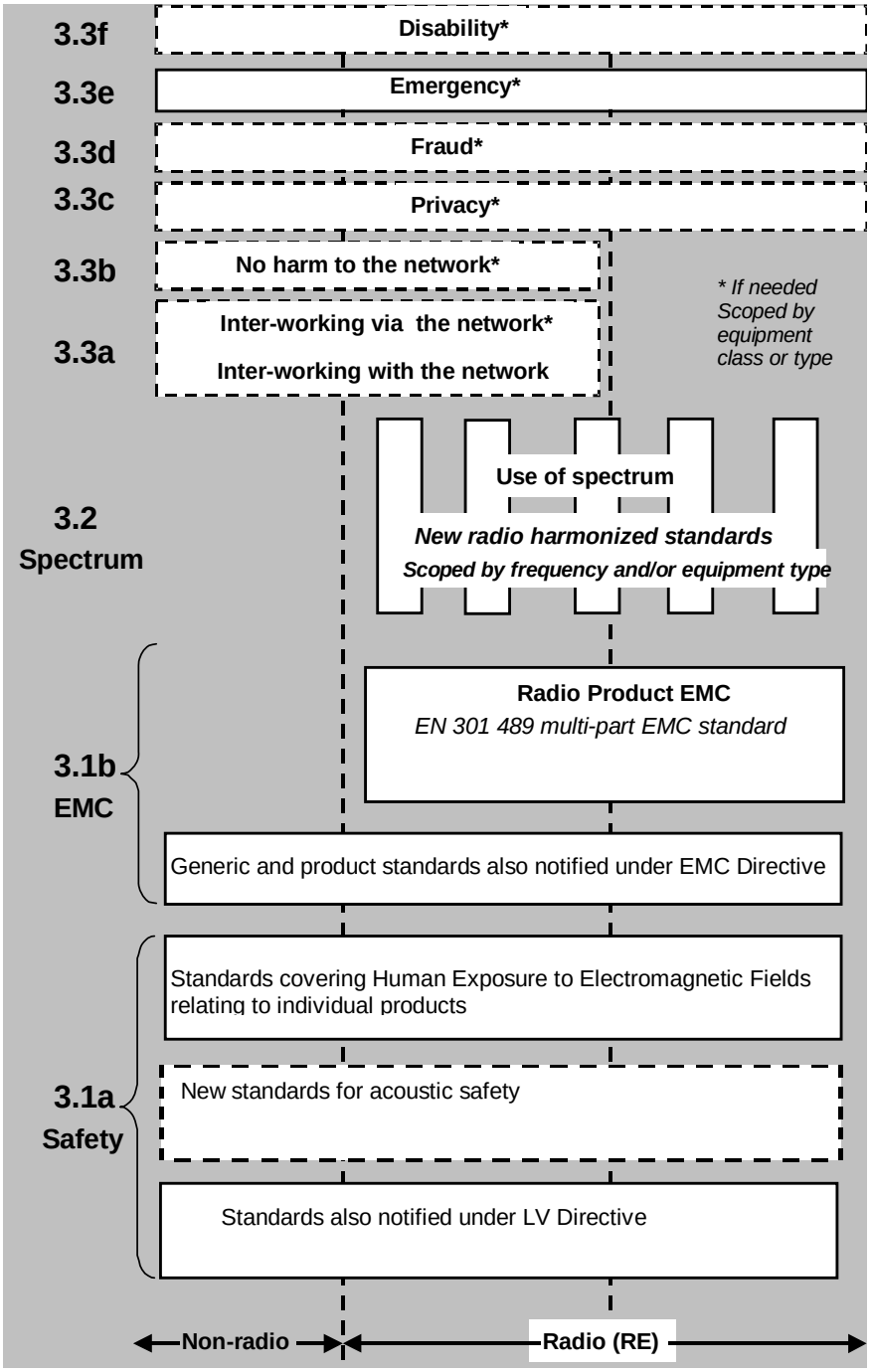

Figure D.1: Modular structure for the various standards used under the R&TTE Directive [i.1]

The left hand edge of the figure D.1 shows the different clauses of article 3 of the R&TTE Directive [i.1].

For article 3.3 various horizontal boxes are shown. Dotted lines indicate that at the time of publication of the present document, 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 vertical boxes show the standards under article 3.2 for the use of the radio spectrum by radio equipment. 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 3.1b the diagram shows EN 301 489 [i.21], the multi-part product EMC standard for radio used under the EMC Directive.

For article 3.1a the diagram shows the existing safety standards currently used under the LV Directive and new standards covering human exposure to electromagnetic fields. New standards covering acoustic safety may also be required.

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. 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 under the R&TTE Directive [i.1] is adopted by the Commission and if the equipment in question is covered by the scope of the corresponding standard. Thus, depending on the nature of the equipment, the essential requirements under the R&TTE Directive [i.1] may be covered in a set of standards.

The modularity principle has been taken because:

- it is expected that 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 to be added:
  - under article 3.2 when new frequency bands are agreed; or
  - under article 3.3 should the Commission take the necessary decisions;

  without requiring alteration of standards that are already published;
- it is expected that it clarifies, simplifies and promotes the usage of Harmonized Standards as the relevant means of conformity assessment.

Annex E:
Examples showing how to structure clauses addressing technical requirements

E.1 Example of structure

For a particular parameter P, addressed in section "Sp", the following structure in 3 clauses is often used:

Sp.1 Definition [and applicability (see note)

Sp.1.1 Definition

Sp.1.2 Applicability of the measurement (see note)]

Sp.2 Method of measurement

Sp.3 Limit

The structure above suggests, in particular, that the "conditions of applicability of a particular measurement" are expected to be located in a specific clause (i.e. in Sp.1.2), rather than in the "definition" (e.g. in Sp.1.1), as it may be found, to date, in some Harmonized Standards.

The contents of "Definitions, Symbols and abbreviations" are specifically addressed in clause 7.2.8.

NOTE: Table F.1 (the HS-RTT) shows the conditions under which requirements are applicable.

E.2 Example of structure for the description of a method of measurement

In a number of methods of measurements found in HSs already published, structures for the description of the methods of measurement correspond to the following pattern:

a) description of the test set up (e.g. details of test equipment to be used and of the corresponding interconnections);

b) initial set-up of the equipment for the test (e.g. initial signal levels);

c) sequence of switching on of the various devices(e.g. of the signal generators);

d) running of the test in steps;

e) evaluation of intermediate measurement values;

f) gathering of intermediate results;

g) details on the associated measurements (e.g. measurement on other frequencies);

h) evaluation of the final result of the measurement (i.e. how to consolidate the various intermediate results obtained in step f);

i) measurements under extreme test conditions, when applicable.

Table E.1 shows how this regular pattern has been implemented in a set of standards offered to meeting 31 of TC-ERM for approval.

Table E.1: Example of implementation of method of measurement pattern

In Clause	h) Begins by …
8.5.2.1	h) the co-channel rejection ratio of the equipment
8.5.2.2	h) the co-channel rejection of the equipment
8.6.2.1	h) the adjacent channel selectivity …/… shall be expressed as the lower …
8.6.2.2	h) the adjacent channel selectivity …
8.7.4	h) the spurious response rejection of the equipment
8.7.5	h) the spurious response rejection of the equipment
8.8.2.1	h) the intermodulation response rejection of the equipment
8.8.2.2	h) the intermodulation response rejection of the equipment …
8.9.2.1	h) the blocking or desensitization of …
8.9.2.2	h) the blocking or desensitization of the equipment …

This regular pattern is common to a number of standards; for example h) of clause 9.7.2 of EN 300 296-1 [i.27] (PMR 446 - analogue equipment having an Integral Antenna) reads:

"h) The blocking or desensitization of the equipment under test shall be expressed as the level in dBμV/m of the field strength of the unwanted signal, at the receiver location, corresponding to the lowest value recorded in step f)."

Annex F:
HS-RTT

The present document has been synchronized with the "skeleton" (prepared by the OCG R&TTE and available on the ETSI Server at the time when the present document was drafted).

Please use, when drafting a HS, the latest version of the "skeleton" as available on the ETSI Server.

"The HS Requirements and conformance Test specifications Table (HS-RTT) in table A.1 serves a number of purposes, as follows:

- it provides a statement of all the requirements in words and by cross reference to (a) specific clause(s) in the present document or to (a) specific clause(s) in (a) specific referenced document(s);
- it provides a statement of all the test specifications corresponding to those requirements by cross reference to (a) specific clause(s) in the present document or to (a) specific clause(s) in (a) specific referenced document(s);
- it qualifies each requirement to be either:
  - unconditional: meaning that the requirement applies in all circumstances; or
  - conditional: meaning that the requirement is dependant on the manufacturer having chosen to support optional functionality defined within the schedule.
- in the case of Conditional requirements, it associates the requirement with the particular optional service or functionality;
- it qualifies the corresponding test specification to be either:
  - essential: meaning that it is included with the Essential Radio Test Suite and therefore the requirement shall be demonstrated to be met in accordance with the referenced test specification;
  - other: meaning that the test specification is illustrative but other means of demonstrating compliance with the requirement are permitted;
  - not specified in the Harmonized Standard.

Table A.1: HS Requirements and conformance Test specifications Table (HS-RTT)

Harmonized Standard EN <number> The following requirements and test specifications are relevant to the presumption of conformity under the article <art> of the R&TTE Directive						
Requirement			**Requirement Conditionality**		**Test Specification**	
number	**Description**	**Reference: Clause number**	**U/C**	**Condition**	**E/O/X**	**Reference: Clause number**
1						
2						
(etc.)						

Key to columns:

Requirement:

Number A unique identifier for one row of the table which may be used to identify a requirement or its test specification.

The number of the requirement, is expected to be allocated sequentially.

Description A textual reference to the requirement.

Reference: Clause number Identification of clause(s) defining the requirement in the present document unless another document is referenced explicitly.

If reference is made to another document, this reference should be included in the list of references in the present document and that reference should either bear a specific date or a specific version number unless it is a reference to another ETSI-produced Harmonized Standard where non-specific references are exceptionally permitted at the discretion of the responsible TB.

Requirement Conditionality:

U/C	Indicates whether the requirement is to be *unconditionally* applicable (U) or is *conditional* upon the manufacturers claimed functionality of the equipment (C).
Condition	Explains the conditions when the requirement shall or shall not be applicable for a technical requirement which is classified "conditional".

Either use a short description such as "if power control implemented" or a note which is amplified at the foot of the table.

Test Specification:

E/O/X Indicates:

- whether the test specification forms part of the Essential Radio Test Suite (E) or whether it is one of the Other Test Suite (O);
- or that the test specification corresponding to the technical requirements has not been specified (X) in the Harmonized Standard.

All tests whether "E","O", or "X" are relevant to the requirements.

Rows designated "E" collectively make up the Essential Radio Test Suite; those designated "O" make up the Other Test Suite; for those designated "X" there is no test specified corresponding to the requirement.

The completion of all tests classified "E" as specified with satisfactory outcomes is a necessary condition for a presumption of conformity. Requirements associated with tests classified "O" or "X" shall be complied with as a necessary condition for presumption of conformity, although conformance with the requirement may be claimed by an equivalent test specification or by manufacturer's assertion supported by appropriate entries in the technical construction file.

Reference: Clause number Identification of clause(s) defining the test specification in the present document unless another document is referenced explicitly. Where no test is specified (that is, where the previous field is "X"), this field remains blank."

Annex G:
"Frequently Asked Questions (FAQ)" relating to Harmonized Standards under the R&TTE Directive and/or relating to the present document

G.1 Introduction

A number of questions about Harmonized Standards (HSs) drafted by ETSI, in particular in relation to the R&TTE Directive [i.1], have been asked.

The text included in the present set of "FAQs" (Frequently Asked Questions) has been drafted in an endeavour to answer some of these questions. It is intended to be made available on the ETSI website and/or as an annex to the present document.

More specifically, the present annex "FAQs" focuses on questions relating to HSs under one of the Directives having an impact on standards, which are in force, i.e. the R&TTE Directive [i.1].

Further information intended to support ETSI Technical Bodies, in order to support them when drafting Harmonized Standards, can be found in the main body of the present document.

It is hereby emphasized that the main body of the present document has been drafted in support of the ***ETSI TBs*** drafting harmonized standards, whereas the text "FAQs" is intended to support both the TBs and the ***users*** of harmonized standards.

G.2 FAQs relating to the R&TTE Directive and the corresponding HSs

Disclaimer

These FAQs and corresponding answers do not replace the text of the R&TTE Directive [i.1] and its Guide [i.26], nor the material included in the various HSs published by ETSI.

Q1 How have the drafts for HS under the R&TTE been prepared?

Draft HSs under the R&TTE Directive [i.1] have been drafted and approved for publication by ETSI under the responsibility of the ETSI TB in charge of that area (standards intended to be harmonized have to go through a public enquiry process).

In order to ensure that the formats (and contents) of HSs are as much uniform as possible, ETSI has:

- prepared the present document, for the production of HSs under the R&TTE Directive [i.1]; and
- set up the R&TTE sub-group (under the OCG).

See also:

- Q2 Why are there differences between HS under the R&TTE?
- Q4 What is meant by the term "modular approach"?

Q2 Why are there differences between the various HS under the R&TTE?

A number of reasons may explain differences in terms of structure and in terms of choice of parameters to be included in the HS, in particular:

- special needs (e.g. particular requirements corresponding to various technologies);
- differences in the context (e.g. structure of the related product standards);
- differences in the choices of which parameters have to be harmonized in the case of a particular product, in order to fulfil the R&TTE Directive [i.1] essential requirements (choices to be made by the ETSI TBs).

To support agreements between the EC and ETSI at a certain point in time, a number of HSs may also include or have included an annex with the title in the various Community languages.

See also:

- Q3 Can receiver requirements be essential?

Q3 Can receiver requirements be essential?

A number of receiver requirements have been considered essential under the R&TTE Directive [i.1], for a number of products.

Below are some of the various reasons taken in account:

- because receivers may generate interference "directly" (e.g. spurious emissions (see note));
- because receivers may generate interference via an associated transmitter (e.g. in the case of "listen before talk" applications).

NOTE: Receiver spurious emissions are always essential requirement although there are not always corresponding "Essential Radio Test Suites", by definition.

This was discussed in an ETSI task group (TG 18) and endorsed by TCAM.

Inclusion of receiver parameters in HSs has also been discussed by RSPG whose position is outlined in the RSPG opinion [i.23]. RSPG considers that the receiver parameters should be included in Harmonized and/or product standards for all equipment. In the past ETSI TBs, on a case-by-case basis, have included the receiver parameters they believed essential, under the R&TTE Directive [i.1], in the various HS.

More recently the technical report TR 102 914 [i.24] has shown that receiver parameters, in some cases, may need to be included to respect the essential requirements of article 3.2 of the R&TTE Directive [i.1].

It can also be noted that it is usually at the level of a receiver that interference may be observed.

Receiver parameters may also have to be included, in relation to essential requirements relating to Article 3.3 (e.g. Article 3.3 e).

This is also explained further in clause 6.1.4.

See also:

- Q4 What is meant by the term "modular approach"?

Q4 What is meant by the term "modular approach"?

Industry has often supported the view that HSs should not change too often.

It was felt that avoiding cross-references between various HSs could help to achieve this goal (it would allow for the evolution of one particular HS without any necessary effect on the others).

As a result, in order to comply with the various essential requirements of the R&TTE Directive [i.1], equipment has to comply with a number of HSs, each one focusing on one particular aspect (e.g. essential requirements of the R&TTE Directive [i.1]:

- article 3.1;
- article 3.2;
- possibly article 3.3 (when activated for a particular product), etc.

Hence the usage of a "modular approach" (see annex D).

According to the principles of the modular approach, each of the corresponding HSs deals with a set of parameters and other particular features to be harmonized for a particular product (as defined in the scope of the HS). The selection of these parameters and other particular features is performed by the appropriate TB. The present document contains tables in order to guide the TBs in their choices, and hopefully helps to avoid unnecessary differences between the various ETSI HSs.

See also:

- Q1 How have the drafts for HS under the R&TTE been prepared?
- Q2 Why are there differences between HS under the R&TTE?

Q5 What are the relations between "requirements" and "test suites" or "test specifications"?

According to the skeleton:

- Clause 4 of an HS contains the technical requirements (e.g. characteristics of the power in the adjacent channel).
- Clause 5 provides details concerning the way in which the technical requirement is assessed (e.g. environmental conditions, measurement uncertainties, test suites or specifications, etc.).

These normative clauses take precedence over any informative annex of the HS (they are in the main body of the HS).

History

Document history		
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