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Candidate Harmonized European Standard (Telecommunications series)

**Electromagnetic compatibility
and Radio spectrum Matters (ERM);
Short Range Devices;
Road Transport and Traffic Telematics (RTTT);
Radar equipment operating in the 76 GHz to 77 GHz range;
Part 2: Harmonized EN covering essential requirements
of article 3.2 of the R&TTE Directive**



Reference

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Foreword

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

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

The present document is intended to become a Harmonized Standard, the reference of which will be published in the Official Journal of the European Communities referencing the Directive 1999/5/EC [1] of the European Parliament and of the Council of 9 March 1999 on radio equipment and telecommunications terminal equipment and the mutual recognition of their conformity ("the R&TTE Directive").

Technical specifications relevant to Directive 1999/5/EC [1] are given in annex A.

The present document is part 2 of a multi-part deliverable covering Electromagnetic compatibility and Radio spectrum Matters (ERM); Short Range Devices; Road Transport and Traffic Telematics (RTTT); Radar equipment operating in the 76 GHz to 77 GHz range, as identified below:

Part 1: "Technical characteristics and test methods for radar equipment operating in the 76 GHz to 77 GHz range";

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

National transposition dates	
Date of adoption of this EN:	5 November 2004
Date of latest announcement of this EN (doa):	28 February 2005
Date of latest publication of new National Standard or endorsement of this EN (dop/e):	31 August 2005
Date of withdrawal of any conflicting National Standard (dow):	31 August 2006

Introduction

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

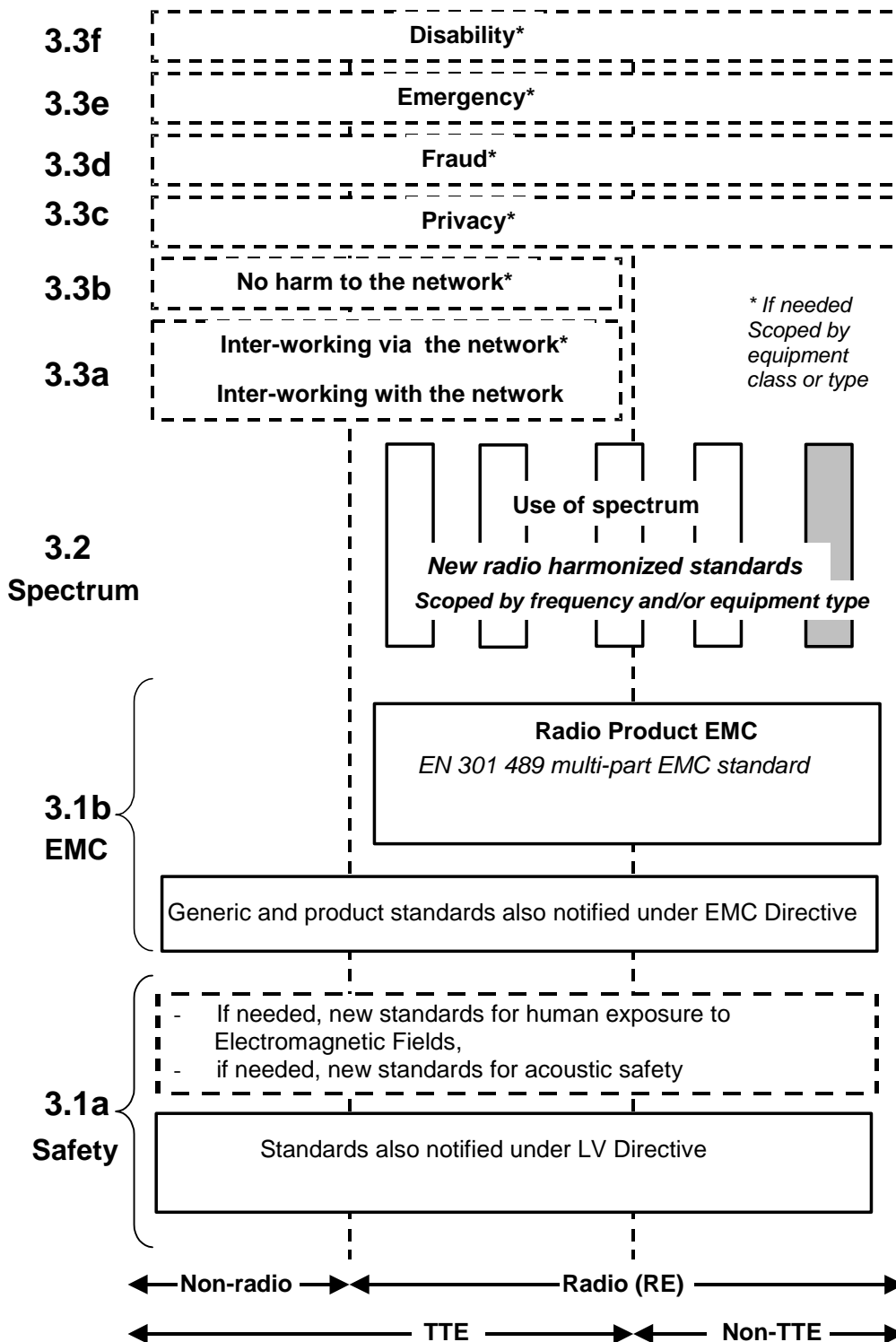


Figure 1: Modular structure for the various standards used under the R&TTE Directive

The left hand edge of the figure 1 shows the different clauses of article 3 of the R&TTE Directive [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 [6], the multi-part product EMC standard for radio used under the EMC Directive [2].

For article 3.1a the diagram shows the existing safety standards currently used under the LV Directive [3] 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 [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 [1] may be covered in a set of standards.

The modularity principle has been taken because:

- it minimizes the number of standards needed. Because equipment may, in fact, have multiple interfaces and functions it is not practicable to produce a single standard for each possible combination of functions that may occur in an equipment;
- it provides scope for standards 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 clarifies, simplifies and promotes the usage of Harmonized Standards as the relevant means of conformity assessment.

1 Scope

The present document applies to Road Transport Traffic and Telematics (RTTT) systems:

- with an integral antenna;
- for mobile applications only;
- operating in the frequency range from 76 GHz to 77 GHz.

The applicability of the present document covers only the 76 GHz to 77 GHz Radar equipment for road vehicles. The present document does not necessarily include all the characteristics which may be required by a user, nor does it necessarily represent the optimum performance achievable.

The present document applies to radio equipment intended to operate in a frequency designation as defined in CEPT/ECC/DEC (02)01 [7] and in CEPT/ERC/REC 70-03 [5] in all or in part of the service frequency band from 76 GHz to 77 GHz.

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

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

2 References

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

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

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

- [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).
- [2] Council Directive 89/336/EEC of 3 May 1989 on the approximation of the laws of the Member States relating to electromagnetic compatibility (EMC Directive).
- [3] 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).
- [4] ETSI EN 301 091-1: "ElectroMagnetic Compatibility and Radio Spectrum Matters (ERM); Short Range Devices; Road Transport and Traffic Telematics (RTTT); Radar equipment operating in the 76 GHz to 77 GHz range; Part 1: Technical characteristics and test methods for radar equipment operating in the 76 GHz to 77 GHz range".
- [5] CEPT/ERC Recommendation 70-03 (Latest edition): "Relating to the use of Short Range Devices (SRD)".

- [6] ETSI EN 301 489 (all parts): "Electromagnetic compatibility and Radio spectrum Matters (ERM); ElectroMagnetic Compatibility (EMC) standard for radio equipment and services".
- [7] CEPT/ECC/DEC(02)01: "ECC Decision of 15 March 2002 on the frequency bands to be designated for the co-ordinated introduction of Road Transport and Traffic Telematic Systems".

3 Definitions, symbols and abbreviations

3.1 Definitions

For the purposes of the present document, the terms and definitions given in the R&TTE Directive [1], EN 301 091-1 [4] and the following apply:

environmental profile: range of environmental conditions under which equipment within the scope of EN 301 091-2 is required to comply with the provisions of EN 301 091-2

3.2 Symbols

For the purposes of the present document, the symbols given in EN 301 091-1 [4] apply.

3.3 Abbreviations

For the purposes of the present document, the abbreviations given in EN 301 091-1 [4] apply.

4 Technical requirements specifications

4.1 Environmental conditions

4.1.1 Environmental profile

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

4.1.2 Power supply

All the characteristics and essential requirements applying to the equipment shall be fulfilled within the range of all declared operational conditions of the power supply.

Power supply may be e.g. an external battery or a stabilized power supply.

4.2 Conformance requirements

4.2.1 Transmitter

4.2.1.1 Permitted range of operating frequencies

The permitted range of operating frequencies shall not exceed the limits specified in clause 7.1.3 of EN 301 091-1 [4].

4.2.1.2 Radiated mean power (e.i.r.p.)

The radiated mean power (e.i.r.p.) shall not exceed the limits specified in clause 7.2.3 of EN 301 091-1 [4].

4.2.1.3 Radiated peak power (e.i.r.p.)

The radiated peak power (e.i.r.p.) shall not exceed the limits specified in clause 7.2.3 of EN 301 091-1 [4].

4.2.1.4 Out-of-band emissions

The transmitter out-of-band emissions shall not exceed the limits specified in clause 7.3.4 of EN 301 091-1 [4], table 4.

4.2.1.5 Spurious emissions

The transmitter spurious emissions, shall not exceed the limits specified in clause 7.4.4 of EN 301 091-1 [4], table 6.

4.2.2 Receiver spurious emissions

The receiver spurious emissions shall not exceed the limits specified in clause 8.1.3 of EN 301 091-1 [4].

NOTE: Not required on receivers co-located with transmitters.

5 Testing for compliance with technical requirements

5.1 Environmental conditions for testing

Tests defined in the present document shall be carried out at representative points within the boundary limits of the declared operational environmental profile.

Where technical performance varies subject to environmental conditions, tests shall be carried out under a sufficient variety of environmental conditions (within the boundary limits of the declared operational environmental profile) to give confidence of compliance for the affected technical requirements.

5.2 Essential radio test suites

5.2.1 Transmitter

5.2.1.1 Permitted range of operating frequencies

The test defined in clause 7.1.2 of EN 301 091-1 [4] shall be carried out.

5.2.1.2 Radiated mean power (e.i.r.p.)

The test defined in clause 7.2.2 of EN 301 091-1 [4] shall be carried out.

5.2.1.3 Radiated peak power (e.i.r.p.)

The test defined in clause 7.2.2 of EN 301 091-1 [4] shall be carried out.

5.2.1.4 Out-of-band emissions

The test defined in clause 7.3.2 of EN 301 091-1 [4] shall be carried out.

5.2.1.5 Spurious emissions

The test defined in clause 7.4.3 of EN 301 091-1 [4] shall be carried out.

5.2.2 Receiver spurious emissions

The test defined in clause 8.1.2 of EN 301 091-1 [4] shall be carried out.

5.3 Interpretation of results and measurement uncertainty

Clause 4.4 of EN 301 091-1 [4] shall apply.

Annex A (normative): The EN Requirements Table (EN-RT)

Notwithstanding the provisions of the copyright clause related to the text of the present document, ETSI grants that users of the present document may freely reproduce the EN-RT proforma in this annex so that it can be used for its intended purposes and may further publish the completed EN-RT.

The EN Requirements Table (EN-RT) serves a number of purposes, as follows:

- it provides a tabular summary of all the requirements;
- it shows the status of each EN-R, whether it is essential to implement in all circumstances (Mandatory), or whether the requirement is dependent on the provider having chosen to support a particular optional service or functionality (Optional). In particular it enables the EN-Rs associated with a particular optional service or functionality to be grouped and identified;
- when completed in respect of a particular equipment it provides a means to undertake the static assessment of conformity with the EN.

Table A.1: EN Requirements Table (EN-RT)

EN Reference		EN 301 091-2		Comment
No.	Reference	EN-R (see note 1)	Status	
Transmitter				
1	4.2.1.1	Permitted range of operating frequencies	M (see note 1)	
2	4.2.1.2	Radiated mean power (e.i.r.p.)	M (see note 1)	
3	4.2.1.3	Radiated peak power (e.i.r.p.)	M (see note 1)	
4	4.2.1.4	Out-of-band emissions	M (see note 1)	
5	4.2.1.5	Spurious emissions	M (see note 1)	
Receiver				
6	4.2.2	Receiver spurious emissions	O (see note 2)	See note in clause 4.2.2

NOTE 1: Mandatory for a transmitter.
NOTE 2: Optional for a receiver.

Key to columns:

No.	Table entry number;
Reference	Clause reference number of conformance requirement within the present document;
EN-R	Title of conformance requirement within the present document;
Status	Status of the entry as follows:
M	Mandatory, shall be implemented under all circumstances;
O	Optional, may be provided, but if provided shall be implemented in accordance with the requirements;
O.n	this status is used for mutually exclusive or selectable options among a set. The integer "n" shall refer to a unique group of options within the EN-RT. A footnote to the EN-RT shall explicitly state what the requirement is for each numbered group. For example, "It is mandatory to support at least one of these options", or, "It is mandatory to support exactly one of these options".
Comments	To be completed as required.

Annex B (informative): The EN title in the official languages

Language	EN title
Czech	Elektromagnetická kompatibilita a rádiové spektrum (ERM); Telematika v silniční dopravě a v silničním provozu (RTTT); Radarová zařízení pracující v rozsahu 76 GHz až 77 GHz; Část 2: Harmonizovaná EN pokrývající základní požadavky článku 3.2 Smernice R&TTE
Danish	Elektromagnetisk kompatibilitet og radiospektrumanliggende (ERM); Vejtransport og trafik telematik (RTTT); radarudstyr i 76 GHz til 77 GHz frekvensbåndet; Del 2: Harmoniseret EN, som dækker de væsentlige krav i R&TTE direktivets artikel 3.2
Dutch	Elektromagnetische compatibiliteit en radiospectrumzaken (ERM); Wegvervoer- en verkeerstelematica (RTTT); Radarapparatuur werkend in de frequentieband van 76 GHz tot 77 GHz; Deel 2: Geharmoniseerde EN welke invulling geeft aan de wezenlijke vereisten, neergelegd in artikel 3.2 van de R & TTE-richtlijn
English	Electromagnetic compatibility and Radio spectrum Matters (ERM); Short Range Devices; Road Transport and Traffic Telematics (RTTT); Radar equipment operating in the 76 GHz to 77 GHz range; Part 2: Harmonized EN under article 3.2 of the R&TTE Directive
Estonian	Elektromagnetilise ühilduvuse ja raadiospektri küsimused (ERM); Raadiosagedusvahemikus 76 GHz kuni 77 GHz töötavad maanteetranspordi ja liikluse telemaatika radarseadmed; Osa 2: Harmoneeritud EN R&TTE direktiivi artikli 3.2 alusel
Finnish	Sähkömagneettinen yhteensopivuus ja radiospektriasiat (ERM); Tiekuljetus ja liikenne telematikka (RTTT); 76 - 77 GHz:n taajuusalueilla toimivat tutkalaitteet; Osa 2: R&TTE direktiivin artiklan 3.2 mukainen yhdenmukaistettu standardi EN
French	Compatibilité électromagnétique et Radioélectrique (ERM); Appareils de Faible Portée; Télématique de la circulation et du transport routier: Equipement radar fonctionnant dans les bandes de 76 GHz à 77 GHz; Partie 2: EN harmonisée de l'article 3.2 de la Directive R&TTE
German	Elektromagnetische Verträglichkeit und Funkspektrumsangelegenheiten (ERM); Radargeräte für den Betrieb im Frequenzbereich von 76 GHz bis 77 GHz; Teil 2: Harmonisierte Europäische Norm (EN) mit wesentlichen Anforderungen nach R&TTE Richtlinie Artikel 3.2
Greek	Ηλεκτρομαγνητική συμβατότητα και Θέματα Ραδιοφάσματος (ERM) - Διατάξεις βραχείας εμβέλειας - Τηλεματική οδικών μεταφορών και οδικής κυκλοφορίας (RTTT) - Συσκευές ραντάρ που λειτουργούν στην περιοχή 76 GHz ως 77 GHz και 24 GHz - Μέρος 2: Εναρμονισμένο EN για την κάλυψη των ουσιαστών απαιτήσεων του άρθρου 3.2 της Οδηγίας R&TTE
Hungarian	Elektromágneses összeférhetőségi és rádióspektrumügyek (ERM). Közúti szállítási és forgalmi telematika (RTTT). A 76 GHz -77 GHz sávban működő radarberendezések. 2. rész: Az R&TTE-irányelv 3.2. cikkelyének alapvető követelményeit tartalmazó, harmonizált európai szabvány
Icelandic	
Italian	Compatibilità elettromagnetica e Questioni relative allo spettro delle radiofrequenze (ERM); Dispositivi a corto raggio; Trasporto stradale e telematica del traffico (RTTT); apparecchiature radar funzionanti nelle gamme da 76 GHz a 77 GHz; Parte 2: Norma Europea armonizzata relativa ai requisiti essenziali dell'articolo 3.2 della direttiva R&TTE
Latvian	Elektromagnetiska saderība un radiofrekvencu spektra jautājumi (ERM) - Autocelu transporta un satiksmes telematikas (ATST) radariekarta, kas darbojas 76 GHz līdz 77 GHz - 2.dala: Harmonizēts Eiropas standarts (EN), kas atbilst R&TTE direktīvas 3.2.punkta būtiskajam prasībam
Lithuanian	Elektromagnetinio suderinamumo ir radijo dažnių spektro dalykai. Trumpojo nuotolio įrenginiai. Duomenų apie kelių transportą ir eismą apdorojimo bei perdavimo priemonės. Radariniai įrenginiai veikiantys nuo 76 GHz iki 77 GHz dažnių juostoje. 2 dalis. Darnusis EN standartas, apimantis esminius reikalavimus pagal 1999/5/EC* direktyvos 3.2 straipsnį
Maltese	Kompatibilità elettromanjetika u materji relatati ma' spettru radjofoniku (ERM); Apparati ta' medda qasira; Telematika tat-Trasport u Traffiku bl-Art (RTTT); Taghmir tar-Radar li jopera fil-medda 76 GHz sa 77 GHz; Parti 2: EN armonizzata taht l-artiklu 3.2 tad-Direttiva R&TTE
Norwegian	Elektromagnetisk kompatibilitet og radiospektrums spørsmål (ERM); Radarutstyr for veittransport og trafikktelematikk (RTTT) som opererer i frekvensområdet 76 GHz til 77 GHz; Del 2: Harmonisert EN som dekker de grunnleggende krav i R&TTE-direktivets artikkel 3.2
Polish	Kompatybilność Elektromagnetyczna i Zagadnienia Widma Radiowego (ERM). Urządzenia radarowe transportu drogowego i telematyki trafik (RTTT) pracujące w zakresie od 76 GHz do 77 GHz. Część 2: Zharmonizowana EN zapewniająca spełnienie podstawowych wymagań artykułu 3.2 Dyrektywy R&TTE
Portuguese	Assuntos de Espectro Radioelétrico e Compatibilidade Electromagnética (ERM); Equipamentos de curto alcance; RTTT (Sistemas Telemáticos de Transportes Rodoviários); Radar operando nas faixas 76 GHz a 77 GHz; Parte 2: Norma harmonizada cobrindo os requisitos essenciais no âmbito do artigo 3.2 da Directiva R&TTE

Language	EN title
Slovak	Elektromagnetická kompatibilita a záležitosti rádiového spektra (ERM). Zariadenia s krátkym dosahom. Telematika v cestnej doprave a premávke (RTTT). Radarové zariadenia pracujúce v rozsahu od 76 GHz do 77 GHz. Cast 2: Harmonizovaná EN vzťahujúca sa na základné požiadavky podľa článku 3.2 smernice R&TTE
Slovenian	Elektromagnetna združljivost (EMC) in zadeve v zvezi z radijskim spektrom (ERM) – Naprave kratkega dosega – Cestna transportna in prometna telematika (RTTT) – Radarska oprema, ki deluje v frekvenčnem območju od 76 do 77 GHz – 2. del: Harmonizirani EN, ki zajema bistvene zahteve člena 3.2 direktive R&TTE
Spanish	Compatibilidad electromagnética y cuestiones de espectro de radiofrecuencia (ERM); equipos de corto alcance; tráfico telemático y transporte por carretera (RTTT) equipos de radar operando en los rangos de 76 GHz a 77 GHz; Parte 2 EN armonizada cubriendo los requisitos esenciales, según artículo 3.2 de la Directiva de R&TTE
Swedish	Elektromagnetisk kompatibilitet och radiospektrumfrågor (ERM); Kortdistansutrustningar; Vägtransport och trafiktelematik (RTTT); Radarutrustning som arbetar i 76 GHz till 77 GHz; Del 2 Harmoniserad EN omfattande väsentliga krav enligt artikel 3.2 i R&TTE-direktivet

History

Document history		
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