

ETSI EN 302 500-2 V1.2.1 (2008-06)

Harmonized European Standard (Telecommunications series)

**Electromagnetic compatibility
and Radio spectrum Matters (ERM);
Short Range Devices (SRD) using
Ultra WideBand (UWB) technology;
Location Tracking equipment operating in
the frequency range from 6 GHz to 8,5 GHz;
Part 2: Harmonized EN covering essential requirements
of article 3.2 of the R&TTE Directive**



ReferenceREN/ERM-TG31C-257-2

Keywordsradio, regulation, SRD, testing, UWB

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Sous-Préfecture de Grasse (06) N° 7803/88

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Foreword

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

The present document is part 2 of a multi-part deliverable covering Short Range Devices (SRD) using Ultra WideBand (UWB) technology; Location Tracking equipment operating in the frequency range from 6 GHz to 8,5 GHz, as identified below:

Part 1: "Technical characteristics and test methods";

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

The present document has been produced by ETSI in response to a mandate from the European Commission issued under Council Directive 98/34/EC [i.1] (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 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") [i.2].

Technical specifications relevant to Directive 1999/5/EC [i.2] are given in annex A.

National transposition dates	
Date of adoption of this EN:	27 June 2008
Date of latest announcement of this EN (doa):	30 September 2008
Date of latest publication of new National Standard or endorsement of this EN (dop/e):	31 March 2009
Date of withdrawal of any conflicting National Standard (dow):	31 March 2010

1 Scope

The present document specifies the requirements for ultra-wideband Location Tracking equipment operating in all or part of the frequency range from 6 GHz to 8,5 GHz.

The present document applies for indoor as well as portable or mobile outdoor applications.

It covers ultra-wideband location tracking tags which are attached to people or objects and are tracked using a fixed receiver infrastructure to only receive the UWB emission by the tags. Equipment covered by the present document is fitted with an integral or dedicated antenna.

The present document is intended to cover the provisions of Article 3.2 of Directive 1999/5/EC (R&TTE Directive) [i.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".

2 References

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.
- Non-specific reference may be made only to a complete document or a part thereof and only in the following cases:
 - if it is accepted that it will be possible to use all future changes of the referenced document for the purposes of the referring document;
 - for informative references.

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

For online referenced documents, information sufficient to identify and locate the source shall be provided. Preferably, the primary source of the referenced document should be cited, in order to ensure traceability. Furthermore, the reference should, as far as possible, remain valid for the expected life of the document. The reference shall include the method of access to the referenced document and the full network address, with the same punctuation and use of upper case and lower case letters.

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 indispensable for the application of this document. For dated references, only the edition cited applies. For non-specific references, the latest edition of the referenced document (including any amendments) applies.

- [1] ETSI EN 302 500-1 (V1.2.1): "Electromagnetic compatibility and Radio spectrum Matters (ERM); Short Range Devices (SRD) using Ultra WideBand (UWB) technology; Location Tracking equipment operating in the frequency range from 6 GHz to 8,5 GHz; Part 1: Technical characteristics and test methods".

2.2 Informative references

The following referenced documents are not essential to the use of the ETSI deliverable but they assist the user with regard to a particular subject area. For non-specific references, the latest version of the referenced document (including any amendments) applies.

- [i.1] 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.2] Directive 1999/5/EC of the European Parliament and of the Council of 9 March 1999 on radio equipment and telecommunications terminal equipment and the mutual recognition of their conformity (R&TTE Directive).

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 [i.2] and EN 302 500-1 [1] apply.

3.2 Symbols

For the purposes of the present document, the symbols given in EN 302 500-1 [1] apply.

3.3 Abbreviations

For the purposes of the present document, the abbreviations given in EN 302 500-1 [1] apply.

4 Technical requirements specifications

4.1 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.

4.2 Conformance requirements

4.2.1 Transmitter requirements

4.2.1.1 Maximum mean equivalent isotropically radiated power spectral density

The maximum mean equivalent isotropically radiated power (e.i.r.p.) spectral density shall not exceed the limits specified in clause 8.2.3 of EN 302 500-1 [1].

4.2.1.2 Frequency of highest maximum mean e.i.r.p. spectral density

The frequency of the highest maximum mean equivalent isotropically radiated power (e.i.r.p.) spectral density shall not lie outside the limits specified in EN 302 500-1 [1], clause 8.3.3.

4.2.1.3 Maximum peak equivalent isotropically radiated power

The maximum peak equivalent isotropically radiated power (e.i.r.p.) shall not exceed the limits specified in clause 8.4.3 of EN 302 500-1 [1].

4.2.1.4 Minimum Pulse Repetition Frequency (PRF)

The minimum Pulse Repetition Frequency (PRF) shall comply with the limit specified in clause 8.5.3 of EN 302 500-1 [1].

This requirement applies to transmitters using impulsive UWB signals.

4.2.2 Receiver requirements

4.2.2.1 Maximum receiver spurious radiations

The receiver spurious radiations as defined in EN 302 500-1 [1], clause 9.1.1, shall not exceed the limit specified in EN 302 500-1 [1], clause 9.1.3.

4.3 Design requirements

The equipment shall comply with the additional design requirements as defined in annex C of EN 302 500-1 [1].

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 test suites

5.2.1.1 Maximum mean e.i.r.p. spectral density

The test defined in clause 8.2.2 of EN 302 500-1 [1] shall be carried out.

5.2.1.2 Frequency of highest maximum mean e.i.r.p. spectral density

The test defined in clause 8.3.2 of EN 302 500-1 [1] shall be carried out.

5.2.1.3 Maximum peak e.i.r.p.

The test defined in clause 8.4.2 of EN 302 500-1 [1] shall be carried out.

5.2.2 Receiver test suites

5.2.2.1 Receiver spurious radiations

The test defined in clause 9.1.2 of EN 302 500-1 [1], shall be carried out.

5.3 Interpretation of measurement results

Clause 7 of EN 302 500-1 [1] shall apply.

Annex A (normative): HS Requirements and conformance Test specifications Table (HS-RTT)

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 procedures 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 dependent 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 each test procedure 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 procedures;
 - Other: meaning that the test procedure is illustrative but other means of demonstrating compliance with the requirement are permitted.

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

Harmonized Standard EN 302 500-2						
The following requirements and test specifications are relevant to the presumption of conformity under article 3.2 of the R&TTE Directive						
Requirement			Requirement Conditionality		Test Specification	
No	Description	Reference: Clause No	U/C	Condition	E/O	Reference: Clause No
1	Maximum mean equivalent isotropically radiated power spectral density	4.2.1.1	U		E	5.2.1.1
2	Frequency of highest maximum mean e.i.r.p. spectral density	4.2.1.2	U		E	5.2.1.2
3	Maximum peak e.i.r.p.	4.2.1.3	U		E	5.2.1.3
4	Minimum Pulse Repetition Frequency	4.2.1.4	C	Applies to transmitters using impulsive UWB signals	X	
5	Maximum receiver spurious radiations	4.2.2.1	U		E	5.2.2.1
6	Design requirements	4.3	U		E	-

Key to columns:

Requirement:

No A unique identifier for one row of the table which may be used to identify a requirement or its test specification.

Description A textual reference to the requirement.

Clause Number Identification of clause(s) defining the essential requirement in the present document unless another document is referenced explicitly.

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".

Test Specification:

E/O 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).

NOTE: All tests whether "E" or "O" 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. Compliance with requirements associated with tests classified "O" or "X" is a necessary condition for presumption of conformity, although conformance with the requirement may be claimed by an equivalent test or by manufacturer's assertion supported by appropriate entries in the technical construction file.

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

Language	EN title
Bulgarian	Електромагнитна съвместимост и въпроси на радиоспектъра (ERM). Радиосъоръжения с малък обсег на действие (SRD), използващи свръхшироколентовата (UWB) технология. Съоръжения за локализиране и проследяване, работещи в честотния обхват от 6 GHz до 8,5 GHz. Част 2: Хармонизиран европейски стандарт (EN), покриващ съществените изисквания на член 3.2 от Директивата за радиосъоръжения и крайни далекосъобщителни устройства (R&TTEd)
Czech	Elektromagnetická kompatibilita a rádiové spektrum (ERM) - Zařízení krátkého dosahu používající technologii velmi širokého pásma (UWB) - Zařízení pro sledování polohy pracující v kmitočtovém rozsahu od 6 GHz do 8,5 GHz - Část 2: Harmonizovaná EN pokrývající základní požadavky článku 3.2. Směrnice R&TTE
Danish	Elektromagnetisk kompatibilitet og Radiospektrum Anliggender (ERM); Apparater med kort rækkevidde (SRD) som benytter Ultra Bredbånd (UWB) teknologi; Stedbestemmelsesudstyr der benytter frekvensbåndet 6 GHz til 8,5 GHz; Del 2: Harmoniseret EN som dækker de væsentlige krav i R&TTE direktivets artikel 3.2
Dutch	Elektromagnetische compatibiliteit en radiospectrumkwesties (ERM); Ap paratuur voor kort bereik (SRD) die gebruik maakt van ultra-breedband technologie; Positie volgsysteem apparatuur in het frequentiegebied van 6 GHz tot 8,5 GHz; Deel 2: Geharmoniseerde EN welke invulling geeft aan de essentiële eisen van artikel 3.2 van de R&TTE richtlijn
English	Electromagnetic compatibility and Radio spectrum Matters (ERM); Short Range Devices (SRD) using Ultra WideBand (UWB) technology; Location Tracking equipment operating in the frequency range from 6 GHz to 8,5 GHz; Part 2: Harmonized EN covering essential requirements of article 3.2 of the R&TTE Directive
Estonian	Elektromagnetilise ühilduvuse ja raadiospektri küsimused (ERM); Ultralairiba (UWB) tehnoloogiat kasutavad lähetoimeseadmed; Raadiosagedusalas 6 GHz kuni 8,5 GHz töötavad jälgimisseadmed; Osa 2: Harmoniseeritud EN R&TTE direktiivi artikli 3.2 põhinõuete alusel
Finnish	Sähkömagneettinen yhteensopivuus ja radiospektriasiat (ERM); UWB-teknologiaa käyttävät lyhyen kantaman laitteet (SRD); Taajuusalueella 6 - 8,5 GHz toimivat paikannuslaitteet; Osa 2: Yhdenmukaistettu standardi (EN), joka kattaa R&TTE-direktiivin artiklan 3.2 mukaiset olennaiset vaatimukset
French	Télécommunications -CEM et spectre radioélectrique (ERM) - Appareils à courte portée (SRD)- Appareils à courte portée (SRD) utilisant la technologie de bande ultra large (UWB) Equipements de géolocalisation opérant dans la bande de fréquence de 6GHz à 8,5 GHz. Partie 2: EN harmonisée sous couvert de l'article 3.2 de la Directive R&TTE
German	Elektromagnetische Verträglichkeit und Funkspektrumangelegenheiten (ERM) - Funkanlagen mit geringer Reichweite (SRD), die Ultraweitbandtechnik (UWB) verwenden - Geräte zur Ortsverfolgung, die im Frequenzbereich von 6 GHz bis 8,5 GHz arbeiten - Teil 2: Harmonisierte EN, die wesentliche Anforderungen nach Artikel 3.2 der R&TTE-Richtlinie enthält
Greek	Ηλεκτρομαγνητική Συμβατότητα και Θέματα Ραδιοφάσματος (ERM) – Συσκευές μικρής εμβέλειας (SRD) που χρησιμοποιούν υπερυπερζωνική τεχνολογία (UWB) – Εξοπλισμός ιχνλάτησης θέσης που λειτουργεί στην περιοχή συχνοτήτων από 6 GHz ως 8,5 GHz – Μέρος 2: Εναρμονισμένο EN για την κάλυψη των ουσιαστών απαιτήσεων του άρθρου 3.2 της Οδηγίας R&TTE
Hungarian	Elektromágneses összeferhetőségi és rádióspektrumügyek (ERM). Ultraszéles sávú (UWB) technológiát használó kis hatótávolságú eszközök (SRD). A 6 GHz-től 8,5 GHz-ig terjedő frekvenciatarományban működő helyzetkövető berendezések. 2. rész: Az R&TTE-irányelv 3. cikke (2) bekezdésének alapvető követelményeit tartalmazó, harmonizált európai szabvány
Icelandic	
Italian	
Latvian	Elektromagnētiskā saderība un radiofrekvenču spektra jautājumi (ERM). Maza darbības attāluma ierīces (SRD), kas izmanto ultraplātjoslas tehnoloģiju (UWB); Novietojuma izsekošanas iekārtas, kas strādā frekvenču joslā no 6 GHz līdz 8,5 GHz; 2.daļa: Harmonizēts Eiropas standarts (EN), kas atbilst R&TTE Direktīvas 3.2.punkta būtiskām prasībām
Lithuanian	Elektromagnetinio suderinamumo ir radijo dažnių spektro dalykai. Trumpojo nuotolio įtaisai, naudojanrys ultraplačios juostos technologiją. Vietos sekimo įrenginiai, veikiantys dažnių juostoje nuo 6 GHz iki 8,5 GHz. 2 dalis. Darnusis Europos standartas, apimantis esminius 1999/5/EC direktyvos 3.2 straipsnio reikalavimus
Maltese	Kompatibilità elettromanjetika u materji relatati ma' spettru radjofoniku (ERM); Apparati għal medda qasira (SRD) li juża teknoloġija Ultra Wide Band (UWB); tagħmir li jsib fejn qiegħda xi ħaġa li jopera fil-medda ta' frekwenzi 6 GHz sa 8,5 GHz; Parti 2: EN armonizzata li jkopri rekwiżiti essenzjali ta' l-artiklu 3.2 tad-Direttiva R&TTE

Language	EN title
Norwegian	Elektromagnetisk kompatibilitet og Radiospektrumspørsmål (ERM); Kortdistanseutstyr (SRD) som anvender ultrabredbåndsteknologi (UWB); Lokasjonsporingsutstyr som opererer i frekvensområdet fra 6 GHz til 8,5 GHz; Del 2: Harmonisert EN som dekker de vesentligste krav i R&TTE-direktivets artikkel 3.2
Polish	Kompatybilność elektromagnetyczna i zagadnienia widma radiowego (ERM) - Urządzenia bliskiego zasięgu (SRD) wykorzystujące technikę ultra szerokopasmową (UWB) - Trakingowe urządzenia lokalizacyjne pracujące w zakresie częstotliwości od 6 GHz do 8,5 GHz - Część 2: Zharmonizowana EN zapewniająca spełnianie zasadniczych wymagań zgodnie z artykułem 3.2 dyrektywy R&TTE
Portuguese	Assuntos de Espectro Radioelétrico e Compatibilidade Electromagnética (ERM); Equipamentos de curto alcance (SRD) que utilizam tecnologia de Banda Ultra Larga (UWB); Equipamento de localização que opere na faixa de frequências de 6 GHz a 8,5 GHz; Parte 2: EN Harmonizada cobrindo os requisitos essenciais no âmbito do artigo 3.º, n.º 2, da Directiva R&TTE
Romanian	
Slovak	Elektromagnetická kompatibilita a závislosti rádiového spektra (ERM). Zariadenia s krátkym dosahom (SRD) využívajúce technológie ultraširokého pásma (UWB). Zariadenia na sledovanie polohy pracujúce vo frekvenčnom rozsahu od 6 GHz do 8,5 GHz. Časť 2: Harmonizovaná EN vzťahujúca sa na základné požiadavky podľa článku 3.2 smernice R&TTE
Slovenian	Elektromagnetna združljivost in zadeve v zvezi z radijskim spektrom (ERM) – Naprave kratkega dosega (SRD), ki uporabljajo ultra širokopasovno (UWB) tehnologijo – Oprema za sledenje, ki deluje v frekvenčnem območju od 6 GHz do 8,5 GHz – 2. del: Harmonizirani EN, ki zajema bistvene zahteve člena 3.2 direktive R&TTE
Spanish	Cuestiones de compatibilidad electromagnética y espectro de radiofrecuencia (ERM); Dispositivos de Corto Alcance (SRD) que utilizan tecnología de banda ultra ancha (UWB), funcionando en la gama de frecuencias de 6 GHz a 8,5 GHz; Parte 2: Norma Europea (EN) armonizada cubriendo los requisitos esenciales según el artículo 3.2 de la Directiva R&TTE
Swedish	Elektromagnetisk kompatibilitet och radiospektrumfrågor (ERM); Kortdistansutrustning (SRD) som använder teknologi med extrem bandbredd (UWB); Utrustning för positionering arbetande i frekvensområdet från 6 GHz till 8,5 GHz; Del 2: Harmoniserad EN omfattande väsentliga krav enligt artikel 3.2 i R&TTE-direktivet

Annex C (informative): Bibliography

ECC/DEC/(06)04: "ECC Decision of 24 March 2006 on the harmonized conditions for devices using Ultra-Wideband (UWB) technology in bands below 10.6 GHz".

ETSI TR 102 495-3: "Electromagnetic compatibility and Radio spectrum Matters (ERM); Short Range Devices (SRD); Technical characteristics for SRD equipment using Ultra Wide Band Sensor technology (UWB); System Reference Document Part 3: Location tracking applications type 1 operating in the frequency band from 6 GHz to 9 GHz for indoor and outdoor usage".

History

Document history		
V1.1.1	February 2007	Publication
V1.2.1	July 2007	Public Enquiry PE 20071123: 2007-07-25 to 2007-11-23
V1.2.1	April 2008	Vote V 20080627: 2008-04-28 to 2008-06-27
V1.2.1	June 2008	Publication