

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**

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Contents

| | |
|---|-----------|
| Intellectual Property Rights | 4 |
| Foreword..... | 4 |
| 1 Scope | 5 |
| 2 References | 5 |
| 2.1 Normative references | 5 |
| 2.2 Informative references..... | 6 |
| 3 Definitions, symbols and abbreviations | 6 |
| 3.1 Definitions..... | 6 |
| 3.2 Symbols..... | 6 |
| 3.3 Abbreviations | 6 |
| 4 Technical requirements specifications | 6 |
| 4.1 Environmental profile..... | 6 |
| 4.2 Conformance requirements | 6 |
| 4.2.1 Transmitter requirements..... | 6 |
| 4.2.1.1 Maximum mean equivalent isotropically radiated power spectral density..... | 6 |
| 4.2.1.2 Frequency of highest maximum mean e.i.r.p. spectral density | 6 |
| 4.2.1.3 Maximum peak equivalent isotropically radiated power | 7 |
| 4.2.1.4 Minimum Pulse Repetition Frequency (PRF)..... | 7 |
| 4.2.2 Receiver requirements | 7 |
| 4.2.2.1 Maximum receiver spurious radiations..... | 7 |
| 4.3 Design requirements..... | 7 |
| 5 Testing for compliance with technical requirements..... | 7 |
| 5.1 Environmental conditions for testing | 7 |
| 5.2 Essential radio test suites..... | 7 |
| 5.2.1 Transmitter test suites | 7 |
| 5.2.1.1 Maximum mean e.i.r.p. spectral density..... | 7 |
| 5.2.1.2 Frequency of highest maximum mean e.i.r.p. spectral density | 7 |
| 5.2.1.3 Maximum peak e.i.r.p. | 7 |
| 5.2.2 Receiver test suites..... | 8 |
| 5.2.2.1 Receiver spurious radiations | 8 |
| 5.3 Interpretation of measurement results | 8 |
| Annex A (normative): HS Requirements and conformance Test specifications Table (HS-RTT)..... | 9 |
| Annex B (informative): The EN title in the official languages | 11 |
| Annex C (informative): Bibliography..... | 13 |
| History | 14 |

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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.

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<https://standards.iteh.ai/catalog/standards/sist/383338b6-49b5-4ba8-8983-6c885441d137/etsi-en-302-500-2-v1.2.1-2008-06>

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 | | | | | | |
| No | Requirement | | Requirement Conditionality | | Test Specification | |
| | 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.