
Elektromagnetna združljivost in zadeve v zvezi z radijskim spektrom (ERM) - Naprave kratkega dosega (SRD) - Oprema radarjev za ugotavljanje ravni tekočine (LPR), ki delujejo v frekvenčnih območjih od 6 GHz do 8,5 GHz, 24,05 GHz do 26,5 GHz, 57 GHz do 64 GHz in od 75 GHz do 85 GHz - 2. del: Harmonizirani EN, ki zajema bistvene zahteve člena 3.2 direktive R&TTE

Electromagnetic compatibility and Radio spectrum Matters (ERM) - Short Range Devices (SRD) - Level Probing Radar (LPR) equipment operating in the frequency ranges 6 GHz to 8,5 GHz, 24,05 GHz to 26,5 GHz, 57 GHz to 64 GHz, 75 GHz to 85 GHz - Part 2: Harmonized EN covering the essential requirements of article 3.2 of the R&TTE Directive

[SIST EN 302 729-2 V1.1.2:2011](https://standards.iteh.ai/catalog/standards/sist/e6ee7da2-4e85-4f00-b91c-15be3a831a30/sist-en-302-729-2-v1-1-2-2011)

<https://standards.iteh.ai/catalog/standards/sist/e6ee7da2-4e85-4f00-b91c-15be3a831a30/sist-en-302-729-2-v1-1-2-2011>

Ta slovenski standard je istoveten z: EN 302 729-2 Version 1.1.2

ICS:

33.060.01	Radijske komunikacije na splošno	Radiocommunications in general
33.100.01	Elektromagnetna združljivost na splošno	Electromagnetic compatibility in general

SIST EN 302 729-2 V1.1.2:2011 **en**

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[SIST EN 302 729-2 V1.1.2:2011](https://standards.iteh.ai/catalog/standards/sist/e6ee7da2-4e85-4f00-b91c-15be3a831a30/sist-en-302-729-2-v1-1-2-2011)

<https://standards.iteh.ai/catalog/standards/sist/e6ee7da2-4e85-4f00-b91c-15be3a831a30/sist-en-302-729-2-v1-1-2-2011>

ETSI EN 302 729-2 V1.1.2 (2011-05)

Harmonized European Standard

**Electromagnetic compatibility
and Radio spectrum Matters (ERM);
Short Range Devices (SRD);
Level Probing Radar (LPR) equipment operating in the
frequency ranges 6 GHz to 8,5 GHz, 24,05 GHz to 26,5 GHz,
57 GHz to 64 GHz, 75 GHz to 85 GHz;
Part 2: Harmonized EN covering the essential requirements
of article 3.2 of the R&TTE Directive**

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[SIST EN 302 729-2 V1.1.2:2011](https://standards.iteh.ai/catalog/standards/sist/e6ee7da2-4e85-4f00-b91c-15be3a831a30/sist-en-302-729-2-v1-1-2-2011)

<https://standards.iteh.ai/catalog/standards/sist/e6ee7da2-4e85-4f00-b91c-15be3a831a30/sist-en-302-729-2-v1-1-2-2011>



Reference

DEN/ERM-TGTLPR-0114-2

Keywords

EHF, radar, regulation, SHF, short range, SRD,
testing, UWB

ETSI

650 Route des Lucioles
F-06921 Sophia Antipolis Cedex - FRANCE

Tel.: +33 4 92 94 42 00 Fax: +33 4 93 65 47 16

Siret N° 348 623 562 00017 - NAF 742 C
Association à but non lucratif enregistrée à la
Sous-Préfecture de Grasse (06) N° 7803/88

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN 302 729-2 V1.1.2:2011

<https://standards.iteh.ai/catalog/standards/sist/e6ee7da2-4e85-4f00-b91c-15be3a831a1d/etsi-en-302-729-v1-1-2-2011>
Important notice

Individual copies of the present document can be downloaded from:

<http://www.etsi.org>

The present document may be made available in more than one electronic version or in print. In any case of existing or perceived difference in contents between such versions, the reference version is the Portable Document Format (PDF). In case of dispute, the reference shall be the printing on ETSI printers of the PDF version kept on a specific network drive within ETSI Secretariat.

Users of the present document should be aware that the document may be subject to revision or change of status. Information on the current status of this and other ETSI documents is available at

<http://portal.etsi.org/tb/status/status.asp>

If you find errors in the present document, please send your comment to one of the following services:

http://portal.etsi.org/chaicor/ETSI_support.asp

Copyright Notification

No part may be reproduced except as authorized by written permission.
The copyright and the foregoing restriction extend to reproduction in all media.

© European Telecommunications Standards Institute 2011.
All rights reserved.

DECT™, **PLUGTESTS™**, **UMTS™**, **TIPHON™**, the TIPHON logo and the ETSI logo are Trade Marks of ETSI registered for the benefit of its Members.

3GPP™ is a Trade Mark of ETSI registered for the benefit of its Members and of the 3GPP Organizational Partners.

LTE™ is a Trade Mark of ETSI currently being registered

for the benefit of its Members and of the 3GPP Organizational Partners.

GSM® and the GSM logo are Trade Marks registered and owned by the GSM Association.

Contents

Intellectual Property Rights	4
Foreword.....	4
Introduction	4
1 Scope	5
2 References	5
2.1 Normative references	6
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	7
4.2.1 Transmitter requirements.....	7
4.2.1.1 Frequency band of operation.....	7
4.2.1.2 Maximum value of mean power spectral density (within main beam)	7
4.2.1.3 Maximum value of peak power.....	7
4.2.1.4 LPR antenna characteristics	7
4.2.1.5 Range of modulation parameters.....	7
4.2.1.6 Other emissions.....	7
4.2.1.7 Mitigation techniques.....	7
5 Testing for compliance with technical requirements.....	7
5.1 Environmental conditions for testing.....	7
5.2 Interpretation of measurement results.....	7
5.3 Conformance radio test suites	8
5.3.1 Normal and extreme test-conditions	8
5.3.2 Test power source	8
5.3.3 Choice of samples for test suites.....	8
5.3.4 Transmitter test suites	8
5.3.4.1 Frequency band of operation.....	8
5.3.4.2 Maximum value of mean power spectral density (within main beam)	8
5.3.4.3 Maximum value of peak power.....	8
5.3.4.4 LPR antenna characteristics	8
5.3.4.5 Other emissions.....	8
5.3.4.6 Mitigation techniques.....	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
History	12

Intellectual Property Rights

IPRs essential or potentially essential to the present document may have been declared to ETSI. The information pertaining to these essential IPRs, if any, is publicly available for **ETSI members and non-members**, and can be found in ETSI SR 000 314: "*Intellectual Property Rights (IPRs); Essential, or potentially Essential, IPRs notified to ETSI in respect of ETSI standards*", which is available from the ETSI Secretariat. Latest updates are available on the ETSI Web server (<http://webapp.etsi.org/IPR/home.asp>).

Pursuant to the ETSI IPR Policy, no investigation, including IPR searches, has been carried out by ETSI. No guarantee can be given as to the existence of other IPRs not referenced in ETSI SR 000 314 (or the updates on the ETSI Web server) which are, or may be, or may become, essential to the present document.

Foreword

This Harmonized European Standard (EN) 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) [i.1] laying down a procedure for the provision of information in the field of technical standards and regulations.

The title and reference to the present document are intended to be included in the publication in the Official Journal of the European Union of titles and references of Harmonized Standard under the Directive 1999/5/EC [i.2].

See article 5.1 of Directive 1999/5/EC [i.2] for information on presumption of conformity and Harmonised Standards or parts thereof the references of which have been published in the Official Journal of the European Union.

The requirements relevant to Directive 1999/5/EC [i.2] are summarised in annex A.

For non EEA countries the present document may be used for regulatory (type approval) purposes.

The present document is part 2 of a multi-part deliverable covering Electromagnetic compatibility and Radio spectrum Matters (ERM); Short Range Devices (SRD); Level Probing Radar (LPR) equipment operating in the frequency ranges 6 GHz to 8,5 GHz, 24,05 GHz to 26,5 GHz, 57 GHz to 64 GHz, 75 GHz to 85 GHz, as identified below:

Part 1: "Technical characteristics and test methods";

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

National transposition dates	
Date of adoption of this EN:	9 May 2011
Date of latest announcement of this EN (doa):	31 August 2011
Date of latest publication of new National Standard or endorsement of this EN (dop/e):	29 February 2012
Date of withdrawal of any conflicting National Standard (dow):	28 February 2013

Introduction

The present document is part of a set of standards developed by ETSI and is designed to fit in a modular structure to cover all radio and telecommunications terminal equipment within the scope of the R&TTE Directive [i.2]. The modular structure is shown in EG 201 399 [i.4].

1 Scope

The present document specifies the requirements for Level Probing Radar (LPR) applications based on pulse RF, FMCW, or similar wideband techniques.

LPR radio equipment types are capable of operating in all or part of the frequency bands as specified in table 1.

Table 1: Frequency bands designated to Level Probing Radars (LPR)

	Frequency Bands/frequencies (GHz)
Transmit and Receive	6 to 8,5
Transmit and Receive	24,05 to 26,5
Transmit and Receive	57 to 64
Transmit and Receive	75 to 85

Table 1 shows a list of the frequency bands as designated to Level Probing Radars in the draft CEPT ECC Decision on harmonised deployment conditions for industrial Level Probing Radars (LPR) [i.3] as known at the date of publication of the present document.

LPRs are used in many industries concerned with process control to measure the amount of various substances (mostly liquids or granulates). LPRs are used for a wide range of applications such as process control, custody transfer measurement (government legal measurements), water and other liquid monitoring, spilling prevention and other industrial applications. The main purposes of using LPRs are:

- to increase reliability by preventing accidents;
- to increase industrial efficiency, quality and process control;
- to improve environmental conditions in production processes.

LPR always consist of a combined transmitter and receiver and are used with an integral or dedicated antenna. The LPR equipment is for professional applications to which installation and maintenance are performed by professionally trained individuals only.

NOTE: LPR antennas are always specific directive antennas and no LPR omnidirectional antennas are used. This is also important in order to limit the illuminated surface area as well as to control and limit the scattering caused by the edges of the surface.

The scope is limited to LPRs operating as Short Range Devices.

The LPR applications in the present document are not intended for communications purposes.

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.

- [1] ETSI EN 302 729-1 (V1.1.2): "Electromagnetic compatibility and Radio spectrum Matters (ERM); Short Range Devices (SRD); Level Probing Radar (LPR) equipment operating in the frequency ranges 6 GHz to 8,5 GHz, 24,05 GHz to 26,5 GHz, 57 GHz to 64 GHz, 75 GHz to 85 GHz; Part 1: Technical characteristics and test methods".

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 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).
- [i.3] Draft CEPT ECC Decision of [Day Month Year] on industrial Level Probing Radars (LPR) in frequency bands 6-8.5 GHz, 24.05-26.5 GHz, 57-64 GHz and 75-85 GHz (ECC/DEC/(11)BB).
- [i.4] ETSI EG 201 399 (V2.1.1): "Electromagnetic compatibility and Radio spectrum Matters (ERM); A guide to the production of candidate Harmonized Standards for application under the R&TTE Directive".

ITeh STANDARD PREVIEW
(standards.iteh.ai)

3 Definitions, symbols and abbreviations

SIST EN 302 729-2 V1.1.2:2011

<https://standards.iteh.ai/catalog/standards/sist/e6ee7da2-4e85-4f00-b91c-15be3a831a30/sist-en-302-729-2-v1-1-2-2011>

3.1 Definitions

For the purposes of the present document, the terms and definitions given in the R&TTE Directive [i.2] and EN 302 729-1 [1] apply.

3.2 Symbols

For the purposes of the present document, the symbols given in EN 302 729-1 [1] apply.

3.3 Abbreviations

For the purposes of the present document, the abbreviations given in EN 302 729-1 [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 supplier. 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 Frequency band of operation

The frequency band of operation, as defined in EN 302 729-1 [1], clause 7.1.1, shall not exceed the limits in EN 302 729-1 [1], clause 7.1.3.

4.2.1.2 Maximum value of mean power spectral density (within main beam)

The maximum value of mean power spectral density as defined in 302 729-1 [1], clause 7.2.1, shall not exceed the limits in EN 302 729-1 [1], clause 7.2.3.

4.2.1.3 Maximum value of peak power

The maximum value of peak power as defined in 302 729-1 [1], clause 7.3.1, shall not exceed the limits in EN 302 729-1 [1], clause 7.3.3.

4.2.1.4 LPR antenna characteristics

The LPR antenna characteristics as defined in 302 729-1 [1], clause 7.4.1, shall not exceed the limits and restrictions in EN 302 729-1 [1], clause 7.4.3.

4.2.1.5 Range of modulation parameters

The range of modulation parameters as defined in EN 302 729-1 [1], clause 7.5 and its normative annex F shall apply and be declared by the provider.

4.2.1.6 Other emissions

The other emissions as defined in 302 729-1 [1], clause 7.6.1, shall not exceed the limits in EN 302 729-1 [1], clause 7.6.3.

4.2.1.7 Mitigation techniques

One or more mitigation techniques as defined in 302 729-1 [1], clause 7.7, shall be used. The manufacturer shall provide sufficient information for determining compliance with the LPR emission limits in clauses 7.2.3 and 7.3.3 of EN 302 729-1 [1] when using these mitigation techniques.

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 Interpretation of measurement results

The interpretation of the measurement results specified in EN 302 729-1 [1], clause 4.9, shall apply.