ÖVE/ÖNORM
EN 302 729 V2.1.1

Ausgabe: 2017-03-01

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; Harmonised Standard covering the essential requirements of article 3.2 of the Directive 2014/53/EU

(ETSI EN 302 729 V2.1.1 (2016-12))

Medieninhaber und Hersteller:
OVE Österreichischer Verband für Elektrotechnik
Austrian Standards Institute

Verkauf von in- und ausländischen Normen und technischen Regelwerken durch
Austrian Standards Institute
Heinestraße 38, 1020 Wien
E-Mail: sales@austrian-standards.at
Internet: www.austrian-standards.at
Webshop: www.austrian-standards.at/webshop
Tel.: +43 1 213 00-300
Fax: +43 1 213 00-818

Alle Regelwerke für die Elektrotechnik auch erhältlich bei
OVE Österreichischer Verband für Elektrotechnik
Eschenbachgasse 9, 1010 Wien
E-Mail: verkauf@ove.at
Internet: www.ove.at
Webshop: www.ove.at/webshop
Tel.: +43 1 587 63 73
Fax: +43 1 587 63 73 - 99

ICS	33.060.20
Ident (IDT) mit	ETSI EN 302 729 V2.1.1 (2016-12)
Ersatz für	siehe nationales Vorwort
zuständig	OVE/Komitee TK IT-EG Informationstechnologie, Telekommunikation und Elektronik

Nationales Vorwort

Diese Europäische Norm EN 302 729 V2.1.1:2016 hat sowohl den Status von ÖSTERREICHISCHEN BESTIMMUNGEN FÜR DIE ELEKTROTECHNIK gemäß ETG 1992 als auch den einer ÖNORM gemäß NG 1971. Bei ihrer Anwendung ist dieses Nationale Vorwort zu berücksichtigen.

Für den Fall einer undatierten normativen Verweisung (Verweisung auf einen Standard ohne Angabe des Ausgabedatums und ohne Hinweis auf eine Abschnittsnummer, eine Tabelle, ein Bild usw.) bezieht sich die Verweisung auf die jeweils neueste Ausgabe dieses Standards.
Für den Fall einer datierten normativen Verweisung bezieht sich die Verweisung immer auf die in Bezug genommene Ausgabe des Standards.

Der Rechtsstatus dieser ÖSTERREICHISCHEN BESTIMMUNGEN FÜR DIE ELEKTROTECHNIK/ÖNORM ist den jeweils geltenden Verordnungen zum Elektrotechnikgesetz zu entnehmen.

Bei mittels Verordnungen zum Elektrotechnikgesetz verbindlich erklärten ÖSTERREICHISCHEN BESTIMMUNGEN FÜR DIE ELEKTROTECHNIK/ÖNORMEN ist zu beachten:

- Hinweise auf Veröffentlichungen beziehen sich, sofern nicht anders angegeben, auf den Stand zum Zeitpunkt der Herausgabe dieser ÖSTERREICHISCHEN BESTIMMUNGEN FÜR DIE ELEKTROTECHNIK/ÖNORM. Zum Zeitpunkt der Anwendung dieser ÖSTERREICHISCHEN BESTIMMUNGEN FÜR DIE ELEKTROTECHNIK/ÖNORM ist der durch die Verordnungen zum Elektrotechnikgesetz oder gegebenenfalls auf andere Weise festgelegte aktuelle Stand zu berücksichtigen.
- Informative Anhänge und Fußnoten sowie normative Verweise und Hinweise auf Fundstellen in anderen, nicht verbindlichen Texten werden von der Verbindlicherklärung nicht erfasst.

Europäische Normen (EN) werden durch Veröffentlichung eines identen Titels und Textes in das Gesamtwerk der ÖSTERREICHISCHEN BESTIMMUNGEN FÜR DIE ELEKTROTECHNIK/ÖNORMEN übernommen, wobei der Nummerierung der Zusatz ÖVE/ÖNORM bzw. ÖNORM vorangestellt wird.

Der von ETSI übermittelte Normentext wird in englischer Sprache veröffentlicht, da davon ausgegangen werden kann, dass die Anwender der Norm über ausreichende englische Sprachkenntnisse verfügen.

Erläuterung zum Ersatzvermerk

Gemäß Vorwort zur EN wird das späteste Datum, zu dem nationale Normen, die der vorliegenden Norm entgegenstehen, zurückgezogen werden müssen, mit dow (date of withdrawal) festgelegt. Bis zum Zurückziehungsdatum (dow) 2018-09-30 ist somit die Anwendung folgender Norm(en) noch erlaubt:

ÖVE/ÖNORM EN 302 729-1 V1.1.2:2011-07-01,
ÖVE/ÖNORM EN 302 729-2 V1.1.2:2011-07-01.

ETSI EN 302 729 V2.1.1 (2016-12)

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;
Harmonised Standard covering the essential requirements of article 3.2 of the Directive 2014/53/EU

Reference
REN/ERM-TGUWB-136

Keywords
EHF, harmonised standard, radar, 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

Contents

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 (https://ipr.etsi.org/).

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 Harmonised European Standard (EN) has been produced by ETSI Technical Committee Electromagnetic compatibility and Radio spectrum Matters (ERM).

The present document has been prepared under the Commission's standardisation request C(2015) 5376 final [i.15] to provide one voluntary means of conforming to the essential requirements of Directive 2014/53/EU on the harmonisation of the laws of the Member States relating to the making available on the market of radio equipment and repealing Directive 1999/5/EC [i.12].

Once the present document is cited in the Official Journal of the European Union under that Directive, compliance with the normative clauses of the present document given in table A.1 confers, within the limits of the scope of the present document, a presumption of conformity with the corresponding essential requirements of that Directive, and associated EFTA regulations.

National transposition dates	
Date of adoption of this EN:	5 December 2016
Date of latest announcement of this EN (doa):	31 March 2017
Date of latest publication of new National Standard or endorsement of this EN (dop/e):	30 September 2017
Date of withdrawal of any conflicting National Standard (dow):	30 September 2018

Modal verbs terminology

In the present document "**shall**", "**shall not**", "**should**", "**should not**", "**may**", "**need not**", "**will**", "**will not**", "**can**" and "**cannot**" are to be interpreted as described in clause 3.2 of the ETSI Drafting Rules (Verbal forms for the expression of provisions).

"**must**" and "**must not**" are **NOT** allowed in ETSI deliverables except when used in direct citation.

Introduction

- The present document cancels and replaces previous versions of the whole series.
- There have been no significant technical changes incorporated from the previous version of the present document.

Clauses 1 and 3 provide a general description on the types of equipment covered by the present document and the definitions and abbreviations above.

Clause 2 provides the information on normative and informative reference documentation.

Clause 4 lists all technical requirements specifications. This includes transmitter and receiver conformance requirements as well as requirements for spectrum access, antennas and mitigation techniques.

Clause 5 addresses the conditions for testing. This includes the environmental conditions and product information of the equipment to be tested. It also gives advice on the interpretation of the measurement results and gives the maximum measurement uncertainty values.

Clause 6 provides the information on conformance test suites. This includes test suites for transmitter and receiver parameters as well as test suites for spectrum access, antenna requirements and others.

Annex A explains the relationship between the present document and the essential requirements of Directive 2014/53/EU [i.12].

Annex B provides an application form for facilitating the test preparation.

Annex C lists general requirements on radiated test setups.

Annex D provides information about the requirements of conducted measurements.

Annex E lists the exact locations of radio astronomy sites. The installation of LPR instruments is restricted in the vicinity of these sites.

Annex F gives recommendations on measurement antennas and preamplifiers.

Annex G deals with practically useful approximations of the far field conditions for radiated measurements.

Annex H describes the range of modulation parameters for LPR instruments.

Annex I gives information on the atmospheric absorption of electromagnetic waves as a function of frequency.

Annex J gives practical information on RF measurements, especially in higher frequency bands.

Annex K gives information on radar targets for radiated measurements.

Annex L describes the boundary conditions for the Radar equation.

Annex M (bibliography) lists further related documents.

Annex N contains the change history of the present document.

1 Scope

The present document applies to the following equipment types:

Level Probing Radar (LPR) applications are 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: Level Probing Radar (LPR) permitted frequency bands [i.13]

	LPR assigned frequency bands (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

The present document contains requirements to demonstrate that LPR equipment both effectively uses and supports the efficient use of radio spectrum in order to avoid harmful interference.

Table 1 shows a list of the frequency bands as assigned to Level Probing Radars in the European Commission Decision 2013/752/EU [i.13] on harmonised deployment conditions for industrial Level Probing Radars (LPR) as known at the date of publication of the present document.

Technical and regulatory requirements for LPR are provided in ECC Decision (11)02 [i.20], which are based on ECC Report 139 [i.8].

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.

LPRs always consist of a combined transmitter and receiver and are used with an integral or dedicated antenna. The LPR equipment is for professional applications where 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 (SRD).

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

2 References

2.1 Normative 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 referenced 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.