

ETSI EN 300 220-4 V1.1.1 (2017-02)



**Short Range Devices (SRD) operating
in the frequency range 25 MHz to 1 000 MHz;
Part 4: Harmonised Standard covering the essential
requirements of article 3.2 of Directive 2014/53/EU;
Metering devices operating in
designated band 169,400 MHz to 169,475 MHz**

PREVIEW
https://standards.etsi.org/standards-search/et300220-4-v1-1-1-17-02
40b0-92c1-e3cb30

Reference

DEN/ERM-TG28-538

Keywords

harmonised standard, radio, SRD, testing

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

Important notice

The present document can be downloaded from:

<http://www.etsi.org/standards-search>

The present document may be made available in electronic versions and/or in print. The content of any electronic and/or print versions of the present document shall not be modified without the prior written authorization of ETSI. In case of any existing or perceived difference in contents between such versions and/or in print, the only prevailing document is the print of the Portable Document Format (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

<https://portal.etsi.org/TB/ETSIDeliverableStatus.aspx>

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

<https://portal.etsi.org/People/CommiteeSupportStaff.aspx>

Copyright Notification

No part may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm except as authorized by written permission of ETSI.

The content of the PDF version shall not be modified without the written authorization of ETSI.

The copyright and the foregoing restriction extend to reproduction in all media.

© European Telecommunications Standards Institute 2017.

All rights reserved.

DECT™, **PLUGTESTS™**, **UMTS™** and the ETSI logo are Trade Marks of ETSI registered for the benefit of its Members. **3GPP™** and **LTE™** are Trade Marks of ETSI 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	5
Foreword.....	5
Modal verbs terminology.....	5
Introduction	6
1 Scope	7
2 References	7
2.1 Normative references	7
2.2 Informative references.....	7
3 Definitions, symbols and abbreviations	8
3.1 Definitions	8
3.2 Symbols.....	8
3.3 Abbreviations	8
4 Technical requirements specifications	8
4.1 Environmental profile.....	8
4.2 All equipment conformance requirements	8
4.2.0 Compliance	8
4.2.1 Operating frequency	9
4.2.1.0 Applicability.....	9
4.2.1.1 Description.....	9
4.2.1.2 Limits	9
4.2.1.3 Conformance.....	9
4.2.2 Unwanted emissions in the spurious domain	9
4.2.2.0 Applicability.....	9
4.2.2.1 Description	9
4.2.2.2 Limits	9
4.2.2.3 Conformance.....	9
4.3 Transmitters conformance requirements	9
4.3.1 Effective Radiated Power	9
4.3.1.0 Applicability.....	9
4.3.1.1 Description.....	9
4.3.1.2 Limits	9
4.3.1.3 Conformance.....	10
4.3.2 Duty Cycle	10
4.3.2.0 Applicability.....	10
4.3.2.1 Description	10
4.3.2.2 Limits	10
4.3.2.3 Conformance.....	10
4.3.3 Occupied Bandwidth.....	10
4.3.3.0 Applicability.....	10
4.3.3.1 Description	10
4.3.3.2 Limits	10
4.3.3.3 Conformance.....	10
4.3.4 TX Out Of Band Emissions	10
4.3.4.0 Applicability.....	10
4.3.4.1 Description	10
4.3.4.2 Limits	11
4.3.4.3 Conformance.....	11
4.3.5 Transient power	11
4.3.5.0 Applicability.....	11
4.3.5.1 Description	11
4.3.5.2 Limits	11
4.3.5.3 Conformance.....	11
4.3.6 Adjacent Channel Power	11
4.3.6.0 Applicability.....	11

4.3.6.1	Description	11
4.3.6.2	Limits	11
4.3.6.3	Conformance	12
4.3.7	TX behaviour under Low Voltage Conditions	12
4.3.7.0	Applicability	12
4.3.7.1	Description	12
4.3.7.2	Limits	12
4.3.7.3	Conformance	12
4.4	Receivers conformance requirements	12
4.4.1	RX sensitivity	12
4.4.1.0	Applicability	12
4.4.1.1	Description	12
4.4.1.2	Limits	12
4.4.1.3	Conformance	12
4.4.2	Blocking	12
4.4.2.0	Applicability	12
4.4.2.1	Description	13
4.4.2.2	Limits	13
4.4.2.3	Conformance	13
4.4.3	Clear Channel Assessment threshold	13
4.4.3.0	Applicability	13
4.4.3.1	Description	13
4.4.3.2	Limits	13
4.4.3.3	Conformance	13
4.4.4	Polite spectrum access timing parameters	13
4.4.4.0	Applicability	13
4.4.4.1	Description	13
4.4.4.2	Limits	13
4.4.4.3	Conformance	13
Annex A (informative):	Relationship between the present document and the essential requirements of Directive 2014/53/EU	14
Annex B (normative):	EU designated frequency bands for metering equipment	15
Annex C (informative):	Application form for testing	16
C.0	Introduction	16
C.1	Information as required by ETSI EN 300 220-4	16
Annex D (informative):	Selection of technical parameters	18
D.1	Introduction	18
D.2	Receiver parameters	18
Annex E (informative):	Bibliography	19
Annex F (informative):	Change History	20
History		21

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.4] 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.1].

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.

The present document is part 4 of a multi-part deliverable. Full details of the entire series can be found in part 1 [1].

For non EU countries the present document may be used for regulatory (Type Approval) purposes.

National transposition dates	
Date of adoption of this EN:	27 January 2017
Date of latest announcement of this EN (doa):	30 April 2017
Date of latest publication of new National Standard or endorsement of this EN (dop/e):	31 October 2017
Date of withdrawal of any conflicting National Standard (dow):	31 October 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 is part 4 of a multi-part deliverable covering Metering devices in the designated frequency range 169,400 MHz to 169,475 MHz.

The present document is structured as follows:

Clause 2 provides references.

Clause 3 provides definitions of terms and abbreviations used.

Clause 4 provides technical requirements.

Annex A (informative): provides relationship between the present document and essential requirements of Directive 2014/53/EU [i.1].

Annex B (normative): EU designated frequency bands for metering equipment.

Annex C (informative): Application form for testing.

Annex D (informative): Selection of parameters.

Annex E (informative): Bibliography.

Annex F (informative): Change History.

ITeH STANDARD PREVIEW
(standards.iteh.ai)

Full standard:
<https://standards.iteh.ai/catalog/standards/sist/8d78e880-3e42-40b0-92c1-c3cb3df74449/etsi-en-300-220-4-v1.1.1-2017-02>

1 Scope

The present document specifies technical characteristics and methods of measurements for Metering Devices category equipment types:

- Metering devices category is defined by the EU Commission Decision 2013/752/EU [i.2] as:

"The metering device category covers radio devices that are part of bidirectional radio communications systems which allow remote monitoring, measuring and transmission of data in smart grid infrastructures, such as electricity, gas and water".

The present document covers equipment intended for fixed, mobile or nomadic use, e.g.:

- stand-alone radio equipment;
- plug-in radio devices intended for use with or within a variety of host systems;
- plug-in radio devices intended for use within combined equipment.

These radio equipment types are capable of operating in the metering designated frequency band given in table 1.

Table 1: Metering SRDs frequency band

Metering Short Range Devices frequency range	
Transmit and receive	169,400 MHz to 169,475 MHz

The present document covers the essential requirements of article 3.2 of Directive 2014/53/EU [i.1] under the conditions identified in annex A.

2 References

2.1 Normative references

References are specific, identified by date of publication and/or edition number or version number. Only the cited version applies.

Referenced documents which are not found to be publicly available in the expected location might be found at <https://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.

The following referenced documents are necessary for the application of the present document.

- [1] ETSI EN 300 220-1 (V3.1.1) (02-2017): "Short Range Devices (SRD) operating in the frequency range 25 MHz to 1 000 MHz; Part 1: Technical characteristics and methods of measurement".

2.2 Informative 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.

NOTE: While any hyperlinks included in this clause were valid at the time of publication, ETSI cannot guarantee their long term validity.

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 2014/53/EU of the European Parliament and of the Council of 16 April 2014 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 (RED Directive).
- [i.2] Commission Decision 2013/752/EU on harmonisation of the radio spectrum for use by short-range devices as amended by subsequent Commission Decisions.
- [i.3] ETSI EG 203 336: "Electromagnetic compatibility and Radio spectrum Matters (ERM); Guide for the selection of technical parameters for the production of Harmonised Standards covering article 3.1(b) and article 3.2 of Directive 2014/53/EU".
- [i.4] Commission Implementing Decision C(2015) 5376 final of 4.8.2015 on a standardisation request to the European Committee for Electrotechnical Standardisation and to the European Telecommunications Standards Institute as regards radio equipment in support of Directive 2014/53/EU of the European Parliament and of the Council.
- [i.5] Commission Decision 2000/299/EU on harmonisation of the radio spectrum for use by short-range devices as amended by subsequent Commission Decisions.

3 Definitions, symbols and abbreviations

3.1 Definitions

For the purposes of the present document, the terms and definitions given in the RE-Directive [i.1] and ETSI EN 300 220-1 [1] apply.

3.2 Symbols

For the purposes of the present document, the symbols given in ETSI EN 300 220-1 [1] apply.

3.3 Abbreviations

For the purposes of the present document, the abbreviations given in ETSI EN 300 220-1 [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 manufacturer. The equipment shall comply with all the technical requirements of the present document which are identified as applicable in annex A at all times when operating within the boundary limits of the declared operational environmental profile. Normal and extreme tests conditions are defined in ETSI EN 300 220-1 [1], clauses 4.3.3 and 4.3.4.

4.2 All equipment conformance requirements

4.2.0 Compliance

When an operational frequency band is selected from annex B for the equipment under test, the equipment shall comply with all parameters, exclusions and notes from the row in annex B unless a different National Radio Interface applies.

4.2.1 Operating frequency

4.2.1.0 Applicability

Clause 4.2.1 applies to all equipment.

4.2.1.1 Description

For the purpose of the present document, the description in ETSI EN 300 220-1 [1], clause 5.1.1 applies.

4.2.1.2 Limits

The manufacturer may declare either one or more operating frequencies and operating channels.

Operating channel(s) shall be entirely within operational frequency bands allowed by annex B.

4.2.1.3 Conformance

The conformance for this requirement shall be as defined in ETSI EN 300 220-1 [1], clause 5.1.2.

4.2.2 Unwanted emissions in the spurious domain

4.2.2.0 Applicability

Clause 4.2.2 applies to all equipment.

4.2.2.1 Description

For the purpose of the present document, the description in ETSI EN 300 220-1 [1], clauses 5.9.1.1 and 5.9.1.2 apply.

4.2.2.2 Limits

The EUT shall comply with reference limits defined in ETSI EN 300 220-1 [1], clause 5.9.2.

4.2.2.3 Conformance

The conformance tests for this requirement shall be as defined in ETSI EN 300 220-1 [1], clause 5.9.3.

Conformance shall be established under normal test conditions.

4.3 Transmitters conformance requirements

4.3.1 Effective Radiated Power

4.3.1.0 Applicability

Clause 4.3.1 applies to all transmitters.

4.3.1.1 Description

For the purpose of the present document, the description in ETSI EN 300 220-1 [1], clause 5.2.1 applies.

4.3.1.2 Limits

The effective radiated power shall not be greater than the value allowed in annex B, table B.1 for the chosen operational frequency band(s). The signal shall be located within the operational frequency band.

4.3.1.3 Conformance

The conformance tests for this requirement shall be as defined in ETSI EN 300 220-1 [1], clause 5.2.2.

Conformance shall be established under normal and extreme test conditions.

4.3.2 Duty Cycle

4.3.2.0 Applicability

Clause 4.3.2 applies to all transmitters.

4.3.2.1 Description

For the purpose of the present document, the description in ETSI EN 300 220-1 [1], clause 5.4.1 applies.

4.3.2.2 Limits

The Duty Cycle at the operating frequency shall not be greater than values in annex B for the chosen operational frequency band.

4.3.2.3 Conformance

The conformance for this requirement shall be as defined in ETSI EN 300 220-1 [1], clause 5.4.2.

4.3.3 Occupied Bandwidth

4.3.3.0 Applicability

Clause 4.3.3 applies to all transmitters.

4.3.3.1 Description

For the purpose of the present document, the description in ETSI EN 300 220-1 [1], clause 5.6.1 applies.

4.3.3.2 Limits

Limits apply under normal and extreme conditions.

The EUT shall comply with reference limits defined in ETSI EN 300 220-1 [1], clause 5.6.2.

4.3.3.3 Conformance

The conformance tests for this requirement shall be as defined in ETSI EN 300 220-1 [1], clause 5.6.3.

Conformance shall be established under normal and extreme test conditions.

4.3.4 TX Out Of Band Emissions

4.3.4.0 Applicability

Clause 4.3.4 applies to all transmitters with OCW > 25 kHz.

4.3.4.1 Description

For the purpose of the present document, the description in ETSI EN 300 220-1 [1], clause 5.8.1 applies.