

ETSI TR 103 100 V2.1.1 (2019-03)



TECHNICAL REPORT

**Operation of RFID in the UHF Band;
Proposed improvements to be incorporated into
future versions of ETSI EN 302 208**

Reference

RTR/ERM-TG34-266

Keywords

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Foreword

This Technical Report (TR) has been produced by ETSI Technical Committee Electromagnetic compatibility and Radio spectrum Matters (ERM).

Modal verbs terminology

In the present document "**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).

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1 Scope

The present document has been produced to provide details of proposed improvements that will be incorporated into future versions of ETSI EN 302 208 [i.1]. It is believed that this information will provide helpful guidance to test houses and other similar bodies on interpretation of the clauses in version 3.1.1 of ETSI EN 302 208 [i.1].

2 References

2.1 Normative references

Normative references are not applicable in the present document.

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] ETSI EN 302 208 (V3.1.1): "Radio Frequency Identification Equipment operating in the band 865 MHz to 868 MHz with power levels up to 2 W and in the band 915 MHz to 921 MHz with power levels up to 4 W; Harmonised Standard covering the essential requirements of article 3.2 of the Directive 2014/53/EU".
 - [i.2] EC RSCOM17-60rev3 - Radio Spectrum Committee Working Document: "Opinion of the RSC pursuant to the Examination Procedure under Article 5 of Regulation 182/2011/EU and Article 4.3 or Radio Spectrum Decision 676/2002/EC".
 - [i.3] CEPT ERC/REC 70-03: "Relating to the use of Short Range Devices (SRD)".
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3 Definition of terms, symbols and abbreviations

3.1 Terms

For the purposes of the present document, the terms given in ETSI EN 302 208 [i.1] apply.

3.2 Symbols

For the purposes of the present document, the symbols given in ETSI EN 302 208 [i.1] apply.

3.3 Abbreviations

For the purposes of the present document, the abbreviations given in ETSI EN 302 208 [i.1] apply.

4 Planned improvements to ETSI EN 302 208

4.1 Update of scope

In clause 1 "Scope" change the following text:

"The frequency usage conditions for RFIDs in the band 865 MHz to 868 MHz are EU wide harmonised according to 2006/804/EC [i.12]."

To the new text:

"The frequency usage conditions for RFID in the band 865 MHz to 868 MHz are EU wide harmonised according to 2006/804/EC [i.12] and the amendment 2017/1483 [i.13]."

4.2 Update of informative references clause

4.2.1 Add reference

In clause 2.2 "Informative references" add the following reference:

- [i.13] Commission implementing Decision (EU) 2017/1483 of 8 August 2017 amending Decision 2006/771/EC on harmonisation of the radio spectrum for use by short-range devices and repealing Decision 2006/804/EC.

4.2.2 Remove unnecessary references

Remove the following references as it is covered by table 4.

[i.5], [i.6] measurement uncertainty.

4.3 Update of measurement uncertainties

Replace table 4 in ETSI EN 302 208 [i.1] with table 1 according the input to the future update of ETSI EN 302 208.

Table 1: Measurement uncertainty

Radio frequency	$\pm 1 \times 10^{-7}$
RF power, conducted	$\pm 1,5$ dB
Conducted spurious emission of transmitter, valid up to 6 GHz	± 3 dB
Conducted emission of receivers	± 3 dB
Radiated emission of transmitter, valid up to 6 GHz	± 6 dB
Radiated emission of receiver, valid up to 6 GHz	± 6 dB
RF level uncertainty for a given BER	$\pm 1,5$ dB
Two-signal measurements	± 4 dB
Time	± 5 %
Temperature	± 1 °C
Humidity	± 10 %

4.4 Add missing trace mode

The trace mode is missing in clauses 5.7.1.2 und 5.7.1.3. Change the following text in both clauses 5.7.1.2 and 5.7.1.3:

f) Detection mode: Average."

To the new text:

e) Trace mode: Max. hold sufficient to capture all emissions.

f) Detection mode: Average."

4.5 Testing of tags with metal backplanes

The method of test in ETSI EN 302 208 [i.1] should be amended to permit emissions from tags fitted with metal backplanes to be measured. The configuration should be changed from that shown in figure 16 in ETSI EN 302 208 [i.1] to that specified in the diagram in figure 1 with an interrogator angle of 0° to 60° between the tag-interrogator to tag-receiver line, whereas the receiver antenna should be placed in the direction of maximum gain of the tag.

Metal backplanes used for testing should be at least 40 cm in diameter, whereas any edge should be at least 20 cm away from the tag.

NOTE: 40 cm has been selected as it is greater than the longest wavelength of the frequencies from 865 MHz to 921 MHz.

Changes should be added to the appropriate clause in ETSI EN 302 208 [i.1].

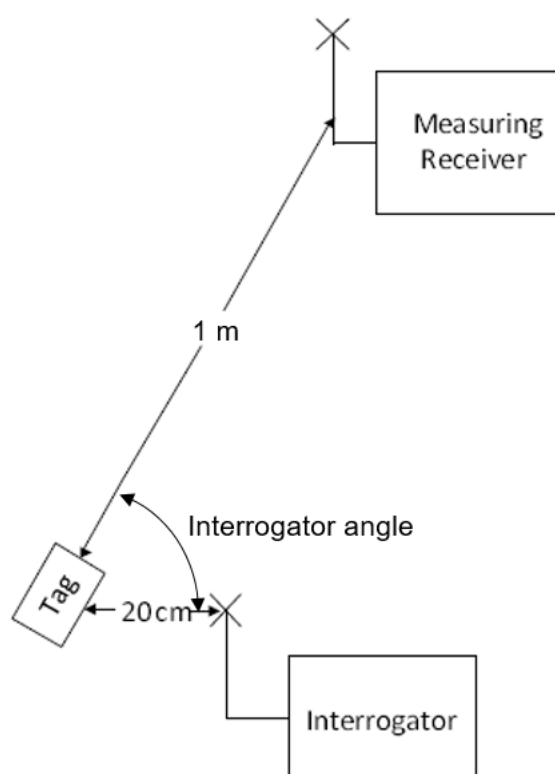


Figure 1: Measurement of tag emissions

The remainder of the test method remains unchanged.

4.6 Align with ITU definitions

Change as follows:

Clause 4.3.6.3 *Limits* of ETSI EN 302 208 [i.1] CURRENT:

"The level of any spurious emission, conducted or radiated, outside the relevant necessary bands shall not exceed the values given in table 2."

Clause 4.3.6.3 *Limits* of a future revision of ETSI EN 302 208 NEW:

"The level of any spurious emission, conducted or radiated, outside the frequency ranges covered in clause 4.3.5.3 shall not exceed the values given in table 2."

4.7 Align with EC decision

The next version of ETSI EN 302 208 should be aligned with EC document RSCOM17-60rev3 [i.2] in accordance with the planned respective EC decision.

Furthermore, it should address the related updates of CEPT ERC/REC 70-03 [i.3] as well.

History

Document history		
V1.1.1	July 2012	Publication
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