

STN	Pozemné rádiové vysielacie, prímače a zostavy vysieláč/prímač UHF pre leteckú pohyblivú službu UHF, používajúce amplitúdovú moduláciu Harmonizovaná norma vzťahujúca sa na základné požiadavky podľa článku 3.2 Smernice 2014/53/EU	STN EN 302 617 V2.2.1 87 2617
------------	--	---

Ground-based UHF radio transmitters, receivers and transceivers for the UHF aeronautical mobile service using amplitude modulation; Harmonised Standard covering the essential requirements of article 3.2 of Directive 2014/53/EU

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 09/18

Obsahuje: EN 302 617 V2.2.1:2017

127313

ETSI EN 302 617 V2.2.1 (2017-11)



**Ground-based UHF radio transmitters,
receivers and transceivers for the UHF
aeronautical mobile service using amplitude modulation;
Harmonised Standard covering the essential requirements
of article 3.2 of Directive 2014/53/EU**

Reference

REN/ERM-TGAERO-50

Keywordsaeronautical, AM, DSB, harmonised standard,
radio, testing, UHF**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.

© ETSI 2017.

All rights reserved.

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

3GPP™ and **LTE™** are trademarks of ETSI registered for the benefit of its Members and of the 3GPP Organizational Partners.

oneM2M logo is protected for the benefit of its Members.

GSM® and the GSM logo are trademarks registered and owned by the GSM Association.

Contents

Intellectual Property Rights	6
Foreword.....	6
Modal verbs terminology.....	6
1 Scope	7
2 References	7
2.1 Normative references	7
2.2 Informative references.....	7
3 Definitions and abbreviations.....	8
3.1 Definitions.....	8
3.2 Abbreviations	8
4 General requirements	8
4.1 Frequency control.....	8
4.2 Controls and indicators.....	9
4.3 Class of emission and modulation characteristics	9
4.4 Warm up.....	9
4.5 Protection of the transmitter	9
4.5.1 Definition.....	9
4.5.2 Method of measurement	9
4.5.3 Requirement.....	9
5 General conditions of measurement	9
5.1 Transmitter test signal arrangement	9
5.1.1 Coaxial termination.....	9
5.1.2 Signal sources	10
5.1.3 Normal test signal	10
5.2 Receiver test signal arrangement.....	10
5.2.1 Test signal sources	10
5.2.2 Nominal frequency	10
5.2.3 Normal test signal	10
5.2.4 Squelch	10
5.2.5 Normal audio output power	10
5.2.6 Audio AGC.....	10
5.3 Test channels	10
5.4 Environmental profile.....	11
5.5 Test power source.....	11
5.6 Normal test conditions.....	11
5.6.1 Normal temperature and humidity	11
5.6.2 Normal power sources	11
5.6.2.1 Mains voltage and frequency	11
5.6.2.2 Other power sources.....	11
5.7 Extreme test conditions	12
5.7.1 Extreme temperatures	12
5.7.2 Extreme values of test power sources	12
5.7.2.1 Mains voltage	12
5.7.2.2 Other power sources.....	12
5.8 Performance test.....	12
5.9 Environmental tests	12
5.9.1 General.....	12
5.9.2 Procedure for tests at extreme temperatures	13
5.9.3 Temperature tests.....	13
5.9.3.1 General	13
5.9.3.2 High temperature.....	13
5.9.3.3 Low temperature	13
6 Transmitter	13

6.1	General	13
6.2	Frequency error	14
6.2.1	Definition	14
6.2.2	Method of measurement	14
6.2.3	Limits	14
6.3	Carrier power	14
6.3.1	Definitions	14
6.3.2	Method of measurement	14
6.3.3	Tolerances	14
6.3.3.1	Normal test conditions	14
6.3.3.2	Extreme test conditions	14
6.4	Amplitude modulation characteristic	15
6.4.1	Modulation depth	15
6.4.1.1	Definitions	15
6.4.1.2	Method of measurement	15
6.4.1.3	Limits	15
6.4.2	Modulation compression	15
6.4.2.1	Definition	15
6.4.2.2	Method of measurement	15
6.4.2.3	Limits	16
6.4.3	Amplitude modulation distortion	16
6.4.3.1	Definition	16
6.4.3.2	Method of measurement	16
6.4.3.3	Limits	16
6.4.4	Audio frequency response	16
6.4.4.1	Definition	16
6.4.4.2	Method of measurement	16
6.4.4.3	Limits	16
6.5	Adjacent channel power	17
6.5.1	Definition	17
6.5.2	Measurement	17
6.5.3	Limits	17
6.6	Broadband noise	17
6.6.1	Definition	17
6.6.2	Method of measurement	18
6.6.3	Limit	18
6.7	Conducted spurious emissions (TX)	19
6.7.1	Definition	19
6.7.2	Method of measurement	19
6.7.3	Limits	19
6.8	Intermodulation attenuation	19
6.8.1	Definition	19
6.8.2	Method of measurement	20
6.8.3	Limits	20
6.9	RF power attack time and release time	21
6.9.1	Definitions	21
6.9.2	Method of measurement	21
6.9.2.1	Attack time	21
6.9.2.2	Release time	21
6.9.3	Limits	22
6.10	Keying Transient frequency behaviour of the transmitter	22
6.10.1	Definition	22
6.10.2	Method of measurement	22
6.10.3	Limits	23
6.11	Cabinet Radiation (TX)	23
7	Receiver	23
7.1	Sensitivity	23
7.1.1	Definition	23
7.1.2	Method of measurement	23
7.1.3	Limits	23
7.2	Effective acceptance bandwidth	23

7.2.1	Definition.....	23
7.2.2	Method of measurement	24
7.2.3	Limits.....	24
7.3	Adjacent channel rejection	24
7.3.1	Definition.....	24
7.3.2	Method of measurement	24
7.3.3	Limits.....	25
7.4	Spurious response rejection.....	25
7.4.1	Definition.....	25
7.4.2	Introduction to the method of measurement	25
7.4.3	Method of search of the limited frequency range	25
7.4.4	Method of measurement	26
7.4.5	Limit	26
7.5	Intermodulation response rejection	26
7.5.1	Definition.....	26
7.5.2	Method of measurement	26
7.5.3	Limit	27
7.6	Blocking or desensitization	27
7.6.1	Definition.....	27
7.6.2	Method of measurement	27
7.6.3	Limit	28
7.7	Conducted spurious emissions	28
7.7.1	Definition.....	28
7.7.2	Method of measuring the power level	28
7.7.3	Limits.....	28
7.8	Cross modulation rejection.....	28
7.8.1	Definition.....	28
7.8.2	Method of measurement	29
7.8.3	Limits.....	29
7.9	Receiver dynamic range	29
7.9.1	Definition.....	29
7.9.2	Method of measurement	29
7.9.3	Limit	29
7.10	Cabinet Radiation (RX).....	30
8	Testing for compliance with technical requirements.....	30
8.1	Environmental conditions for testing	30
8.2	Interpretation of the measurement results	30
Annex A (informative):	Relationship between the present document and the essential requirements of Directive 2014/53/EU	32
Annex B (normative):	Specification for adjacent channel power measurement arrangements.....	34
B.1	Power measuring receiver specification.....	34
B.1.1	General.....	34
B.1.2	IF filter	34
B.1.3	Attenuation indicator	35
B.1.4	RMS value indicator	35
B.1.5	Oscillator and amplifier	35
Annex C (informative):	Auxiliary cables.....	36
Annex D (informative):	Change history	37
History		38

Intellectual Property Rights

Essential patents

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.

Trademarks

The present document may include trademarks and/or tradenames which are asserted and/or registered by their owners. ETSI claims no ownership of these except for any which are indicated as being the property of ETSI, and conveys no right to use or reproduce any trademark and/or tradename. Mention of those trademarks in the present document does not constitute an endorsement by ETSI of products, services or organizations associated with those trademarks.

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.7] 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.

National transposition dates	
Date of adoption of this EN:	21 August 2017
Date of latest announcement of this EN (doa):	30 November 2017
Date of latest publication of new National Standard or endorsement of this EN (dop/e):	31 May 2018
Date of withdrawal of any conflicting National Standard (dow):	31 May 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.

1 Scope

The present document specifies technical characteristics and methods of measurements for DSB AM ground based transmitters, receivers and transceivers operating in all or any part of the aeronautical frequency band between 225 MHz and 399,975 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.

In addition to the present document, other ENs that specify technical requirements in respect of essential requirements under other parts of article 3 of the Directive 2014/53/EU [i.1] as well as essential requirements under the Single European Sky (SES) Interoperability Regulation No 552/2004 [i.3] and related implementing rules and/or essential requirements under the EASA basic Regulation No 216/2008 [i.5] as amended by Regulation No 1108/2009 [i.6] may apply to equipment within the scope of the present document.

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 300 113-1 (V1.7.1) (11-2011): "Electromagnetic compatibility and Radio spectrum Matters (ERM); Land mobile service; Radio equipment intended for the transmission of data (and/or speech) using constant or non-constant envelope modulation and having an antenna connector; Part 1: Technical characteristics and methods of measurement".
- [2] Recommendation ITU-T O.41 (10/1994): "Psophometer for use on telephone-type circuits".

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.
- [i.2] ETSI TR 100 028 (all parts) (V1.4.1): "Electromagnetic compatibility and Radio spectrum Matters (ERM); Uncertainties in the measurement of mobile radio equipment characteristics".
- [i.3] Regulation (EC) 552/2004 of the European Parliament and Council of 10 March 2004 on the interoperability of the European Air Traffic Management network (the interoperability Regulation), OJEU L96, 31.03.2004, p. 26-42 as amended by Regulation (EC) 1070/2009 of the European Parliament and of the Council of 21 October 2009, OJEU L300/34, 14/11/2009.

- [i.4] ETSI TR 100 028-2 (V1.4.1): "Electromagnetic compatibility and Radio spectrum Matters (ERM); Uncertainties in the measurement of mobile radio equipment characteristics; Part 2".
- [i.5] Regulation (EC) 216/2008 of the European Parliament and of the Council of 20 February 2008 on common rules in the field of civil aviation and establishing a European Aviation Safety Agency, and repealing Council Directive 91/670/EEC, Regulation (EC) No 1592/2002 and Directive 2004/36/EC.
- [i.6] Regulation (EC) No 1108/2009 of the European Parliament and of the Council of 21 October 2009 amending Regulation (EC) No 216/2008 in the field of aerodromes, air traffic management and air navigation services and repealing Directive 2006/23/EC.
- [i.7] 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.

koniec náhľadu – text ďalej pokračuje v platenej verzii STN