ETSI EN 301 126-1 V2.1.1 (2025-07)



Fixed Radio Systems;
Conformance testing;
Part 1: Point-to-point equipment Definitions, general requirements and test procedures

ETSLEN 301 126-1 V2.1.1 (2025-07)

https://standards.iteh.ai/catalog/standards/etsi/1b80f111-dfbc-4b9c-b25d-119a3f0444ab/etsi-en-301-126-1-v2-1-1-2025-07

Reference REN/ATTM-0462 Keywords FWS, point-to-point, 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 - APE 7112B Association à but non lucratif enregistrée à la Sous-Préfecture de Grasse (06) N° w061004871

Important notice

The present document can be downloaded from the ETSI Search & Browse Standards application.

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 prevailing version of an ETSI deliverable is the one made publicly available in PDF format on ETSI deliver repository.

Users should be aware that the present document may be revised or have its status changed, this information is available in the Milestones listing.

If you find errors in the present document, please send your comments to the relevant service listed under Committee Support Staff.

If you find a security vulnerability in the present document, please report it through our Coordinated Vulnerability Disclosure (CVD) program.

ttps://standards.iteh.ai/catalog/standards/et

Notice of disclaimer & limitation of liability

The information provided in the present deliverable is directed solely to professionals who have the appropriate degree of experience to understand and interpret its content in accordance with generally accepted engineering or other professional standard and applicable regulations.

No recommendation as to products and services or vendors is made or should be implied. In no event shall ETSI be held liable for loss of profits or any other incidental or consequential damages.

Any software contained in this deliverable is provided "AS IS" with no warranties, express or implied, including but not limited to, the warranties of merchantability, fitness for a particular purpose and non-infringement of intellectual property rights and ETSI shall not be held liable in any event for any damages whatsoever (including, without limitation, damages for loss of profits, business interruption, loss of information, or any other pecuniary loss) arising out of or related to the use of or inability to use the software.

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 2025. All rights reserved.

Contents

Intellectual Property Rights			
Foreword			
Moda	6		
Introduction			
1	Scope	7	
2	References	7	
2.1	Normative references	7	
2.2	Informative references	8	
	Definition of terms, symbols and abbreviations		
3.1	Terms		
3.2	Symbols		
3.3	Abbreviations	10	
4	Requirements related to DFRS equipment conformance test	11	
4.0	Test procedure summary		
4.1	General requirements		
4.2	Requirements classification		
4.2.1	DFRS classification		
4.3	EUT test arrangement for conformance test	18	
4.4	EUT environmental characteristics for <i>conformance test</i>		
4.4.1	Test in the reference conditions		
4.4.2	Test in the extreme conditions		
4.5	DFRS test report	20	
5	Test procedures for DFRS characteristics requirements	21	
5.0	IEC standards reference	21	
5.1	General characteristics		
5.1.1	Equipment Configuration		
5.2	Transmitter characteristics ETSI EN 301 126-1 V2.1.1 (2025-07)		
	Maximum output power and power environmental variation		
5.2.2	Minimum output power		
5.2.3	Automatic Transmit Power Control (ATPC)		
5.2.4	Remote Transmit Power Control (RTPC)		
5.2.5	Radio frequency stability		
5.2.6	RF spectrum mask		
5.2.7	Remote frequency control		
5.2.8	Tx discrete CW components exceeding the Transmitter RF spectrum masks limits		
5.2.9	Unwanted emissions in the Spurious domain (external)		
5.3	Receiver characteristics		
5.3.1	Input level range		
5.3.2	Receiver unwanted emissions in the spurious domain		
5.3.3	System performance without diversity		
5.3.3.1	· · · · · · · · · · · · · · · · · · ·		
5.3.3.2			
5.3.3.2	· · · · · · · · · · · · · · · · · · ·		
5.3.3.2	.1 Method 1	28	
5.3.3.2			
5.3.3.3			
5.3.3.3	· · · · · · · · · · · · · · · · · · ·		
5.3.3.3			
5.3.3.3			
5.3.3.4			
5.3.3.5			
5.3.4	System characteristics with diversity		
5.3.4.1			

5.3.4.2	Interference	sensitivity	37
5.3.4.3	Distortion se	nsitivity	37
Anne	x A (informative):	Example of Test report template	38
A.1	Test results		38
A.1.1			
A.1.2		about the tests	
A.1.3			
A.1.3.1		acteristics	
A.1.3.1		oower range	
A.1.3.1		y	
A.1.3.1		n output power and power environmental variation	
A.1.3.1	1.1.2 Minimum	output power	40
A.1.3.	1.2 Automatic tra	ansmit power control (ATPC)	41
A.1.3.	1.3 Remote Tran	smit Power Control (RTPC)	41
A.1.3.1	1.4 Remote Freq	uency Control (RFC)	41
A.1.3.		mask	
A.1.3.1		s at the symbol rate	
A.1.3.		ssions (Tx) - external	
A.1.3.		uency stability (short term)	
A.1.3.2		eristics	
A.1.3.2		nge	
A.1.3.2	*	ssions (Rx) - external	
A.1.3.3		nnce without diversity	
A.1.3.3		signal level	
A.1.3.3		sensitivity	
A.1.3.3		el interference sensitivity - external and adjacent channel interference sensitivity	
A.1.3.3		ous interference	
A.1.3.3		nsitivity	
A.1.3.4		nnce with diversity	
A.1.3.4		signal level	
A.1.3.4 A.1.3.4		sensitivity	
A.1.3.4 A.1.3.4		el interference sensitivity	
A.1.3.4 A.1.3.4		channel interference sensitivitynsitivity	
A.2	Photographs of EUT.	ards/etsi/1b80f111-dfbc-4b9c-b25d-119a3f0444ab/etsi-en-301-126-1	53
A.3	Test equipment used	for tests	53
A.4	Additional information	on supplementary to the test report	54
Anne	x B (informative):	Distortion sensitivity for diversity receivers	55
	x C (informative):	Bibliography	
Anne	x D (informative):	Change history	57
Histor	v		58

Intellectual Property Rights

Essential patents

IPRs essential or potentially essential to normative deliverables may have been declared to ETSI. The declarations pertaining to these essential IPRs, if any, are 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 IPR online database.

Pursuant to the ETSI Directives including the ETSI IPR Policy, no investigation regarding the essentiality of IPRs, 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.

DECTTM, **PLUGTESTS**TM, **UMTS**TM and the ETSI logo are trademarks of ETSI registered for the benefit of its Members. **3GPP**TM, **LTE**TM and **5G**TM logo are trademarks of ETSI registered for the benefit of its Members and of the 3GPP Organizational Partners. **oneM2M**TM logo is a trademark of ETSI registered for the benefit of its Members and of the oneM2M Partners. **GSM**[®] and the GSM logo are trademarks registered and owned by the GSM Association.

Foreword

This European Standard (EN) has been produced by ETSI Technical Committee Access, Terminals, Transmission and Multiplexing (ATTM).

The present document is part 1 of a multi-part EN covering the Fixed Radio System; Conformance testing, as identified below: teh.ai/catalog/standards/etsi/1b80f111-dfbc-4b9c-b25d-119a3f0444ab/etsi-en-301-126-1-v2-1-1-202

- Part 1: "Point-to-point equipment Definitions, general requirements and test procedures";
- Part 2-1: "Point-to-Multipoint equipment Definitions and general requirements";
- Part 2-2: "Point-to-Multipoint equipment Test procedures for FDMA systems";
- Part 2-3: "Point-to-Multipoint equipment Test procedures for TDMA systems";
- Part 2-4: "Point-to-Multipoint equipment Test procedures for FH-CDMA systems";
- Part 2-5: "Point-to-Multipoint equipment Test procedures for DS-CDMA systems";
- Part 2-6: "Point-to-Multipoint equipment; Test procedures for Multi Carrier Time Division Multiple Access (MC-TDMA) systems";
- Part 3-1: "Point-to-Point antennas Definitions, general requirements and test procedures";
- Part 3-2: "Point-to-Multipoint antennas Definitions, general requirements and test procedures".

National transposition dates				
Date of adoption of this EN:	2 July 2025			
Date of latest announcement of this EN (doa):	31 October 2025			
Date of latest publication of new National Standard or endorsement of this EN (dop/e):	30 April 2026			
Date of withdrawal of any conflicting National Standard (dow):	30 April 2026			

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 <u>ETSI Drafting Rules</u> (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 defines the *conformance test* requirements for radio specific parameters required directly by the radio equipment relevant standards ETSI EN 302 217-1 [8] and ETSI EN 302 217-2 [9]. Test methods, and test report format, for these parameters are also contained herein. It may be applied also for *conformance test* according other (international) *relevant standards* that might contain a number of similar requirements.

The main body of the present document contains definitions, general requirements and test procedures (see note) for *conformance test* of Digital Fixed Radio Systems (DFRS).

NOTE: It is assumed that where a clarification of a test procedure is needed, this should be described on the final page of the test report titled "Additional information supplementary to the test report".

1 Scope

The present document details standardized procedures for *conformance test* of radio interface parameters for Point to Point (PP) equipment used for Digital Fixed Radio Systems (DFRS). Three sets of procedures (for ER, OR and CP) are considered in the scope of the present document:

- Procedures for radio parameters relevant to *Essential Requirements* (ER) and *Optional Requirements* (OR), relevant to article 3.2 of Directive 2014/53/EU [i.1]. Requirements for these parameters are detailed in ETSI EN 302 217-2 [9].
- Procedures for *Complementary Requirements* (CP) that, even if not considered "essential" in the light of article 3.2 of Directive 2014/53/EU [i.1], are considered important for the operations of PP equipment. These parameters are detailed in clause 8 of ETSI EN 302 217-1 [8].

The present document is mainly intended to be applied in conjunction with the above equipment *relevant standards* and will enable commonality of test results, irrespective of the body carrying out the test.

However, the present document can be used also in conjunction with other DFRS *relevant standards* that would refer to the parameters and test methods hereby described.

The *conformance tests* described in the present document are those related to radio specific parameters required directly by the radio equipment *relevant standards* at antenna ports in conducted test methods. Conformance tests to other boundary standards (e.g. those for system input/output interfaces (i.e. set at X/X' interface, shown in figure 2, and related baseband process) are outside the scope of the present document.

Also, tests described in the present document are not applicable to radio equipment with *integral antenna* of *undetachable antenna* type requiring radiated test methods.

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 in the ETSI docbox.

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 300 019-1-3: "Environmental Engineering (EE); Environmental conditions and
	environmental tests for telecommunications equipment; Part 1-3: Classification of environmental
	conditions; Stationary use at weatherprotected locations".

- [2] <u>ETSI EN 300 019-1-4</u>: "Environmental Engineering (EE); Environmental conditions and environmental tests for telecommunications equipment; Part 1-4: Classification of environmental conditions; Stationary use at non-weatherprotected locations".
- [3] <u>ETSI EN 300 019-2-3</u>: "Environmental Engineering (EE); Environmental conditions and environmental tests for telecommunications equipment; Part 2-3: Specification of environmental tests; Stationary use at weatherprotected locations".
- [4] <u>ETSI EN 300 019-2-4</u>: "Environmental Engineering (EE); Environmental conditions and environmental tests for telecommunications equipment; Part 2-4: Specification of environmental tests; Stationary use at non-weatherprotected locations".