



SLOVENSKI STANDARD
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Fixed Radio Systems; Conformance testing; Part 2-3: Point-to-Multipoint equipment; Test procedures for TDMA systems

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**Fixed Radio Systems;
Conformance testing;
Part 2-3: Point-to-Multipoint equipment;
Test procedures for TDMA systems**

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Foreword

This European Standard (Telecommunications series) has been produced by ETSI Technical Committee Transmission and Multiplexing (TM).

The present document is part 2-3 of a multi-part deliverable covering the Fixed Radio Systems; Conformance testing, as identified below:

- 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-SS-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".

This part 2-3 of EN 301 126 defines harmonized test methods for the conformity assessment testing of point-to-multipoint fixed radio systems applying time division multiple access method (TDMA). It should be noted that the present document can only be applied in conjunction with part one.

The part 2-1 of EN 301 126 defines the conformity assessment testing requirements (definitions and general requirements) for radio specific parameters required directly by the relevant EN/ETS for point-to-multipoint systems. Annex A of that part one contains the supplier's declaration, annex B contains the test report format.

It is recommended that where a clarification of a test procedure or an agreed test procedure is required, this should be described on the final page of the test report titled "Additional information supplementary to the test report".

National transposition dates	
Date of adoption of this EN:	12 November 2004
Date of latest announcement of this EN (doa):	28 February 2005
Date of latest publication of new National Standard or endorsement of this EN (dop/e):	31 August 2005
Date of withdrawal of any conflicting National Standard (dow):	31 August 2005

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1 Scope

The present document details standardized test procedures for conformance testing of equipment for Point-to-MultiPoint (P-MP) digital radio relay systems applying time division multiple access method (TDMA). Optionally, for certain of the system types defined in the present document, other access methods (e.g. Orthogonal Frequency Division Multiple Access (OFDMA)) may be used in conjunction with TDMA to provide another dimension of multiple access.

Standardized procedures are required in order to fulfil ECC/DEC/(04)04 [1] on the mutual recognition, within CEPT, of the results of conformance tests on equipment carried out in individual CEPT Countries. Furthermore the procedures described in the present document are relevant to be able to fulfil the conformance assessment procedure described in Chapter II of the Directive 1999/5/EC [3] in order to demonstrate the compliance of the DRRS with the relevant Essential Requirements identified in Article 3.2 of the Directive 1999/5/EC [3].

The present document is intended to be applied in conjunction with EN 301 126-2-1 [2] and in conjunction with the individual equipment ENs/ETSS describing TDMA methods and will enable commonality of test results, irrespective of the Supplier or the Notified Body carrying out the test.

The conformance tests described in the present document are those related to radio specific parameters required directly by the relevant radio relay ENs/ETSS. Conformance tests to other boundary EN/ETS (e.g. those for system input/output interfaces and related base band process) are outside the scope of the present document.

2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication and/or edition number or version number) or non-specific. [SIST EN 301 126-2-3 V1.2.1:2006](https://standards.iteh.ai/catalog/standards/sist/a03d0294-df80-4d1a-94df-3-v1-2-1-2006)
- For a specific reference, subsequent revisions do not apply. <https://standards.iteh.ai/catalog/standards/sist/a03d0294-df80-4d1a-94df-3-v1-2-1-2006>
- For a non-specific reference, the latest version applies.

Referenced documents which are not found to be publicly available in the expected location might be found at <http://docbox.etsi.org/Reference>.

- [1] ECC/DEC/(04)04: "ECC Decision of 19 March 2004 on the withdrawal of the ERC Decision (97)10 "ERC Decision of 30 June 1997 on the mutual recognition of conformity assessment procedures including marking of radio equipment and radio terminal equipment".
- [2] ETSI EN 301 126-2-1: "Fixed Radio Systems; Conformance testing; Part 2-1: Point-to-Multipoint equipment; Definitions and general requirements".
- [3] Directive 1999/5/EC of the European Parliament and of the Council of 9 March 1999 on radio equipment and telecommunications terminal equipment and the mutual recognition of their conformity (R&TTE Directive).
- [4] CEPT/ERC/REC 74-01: "Spurious emissions".
- [5] CENELEC EN 60835-1: "Methods of measurement for equipment used in digital microwave radio transmission systems - Part 1: Measurements common to terrestrial radio-relay systems and satellite earth stations".

3 Definitions, symbols and abbreviations

3.1 Definitions

For the purposes of the present document, the terms and definitions given in EN 301 126-2-1 [2] apply.

3.2 Symbols

For the purposes of the present document, the symbols given in EN 301 126-2-1 [2] apply.

3.3 Abbreviations

For the purposes of the present document, the abbreviations given in EN 301 126-2-1 [2] apply.

4 General characteristics

Where necessary, for better understanding of the application of test methods, reference is made to EN 60835-1 [5] (Test methods).

General remark:

Where systems transmitting more than one carrier over the same Tx (Multi carrier TDMA system) all carriers being modulated according to the relevant standard, have to be tested applying for each carrier the test procedures defined for a single carrier solution where not otherwise stated in the relevant EN/ETS.

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4.1 Equipment configuration

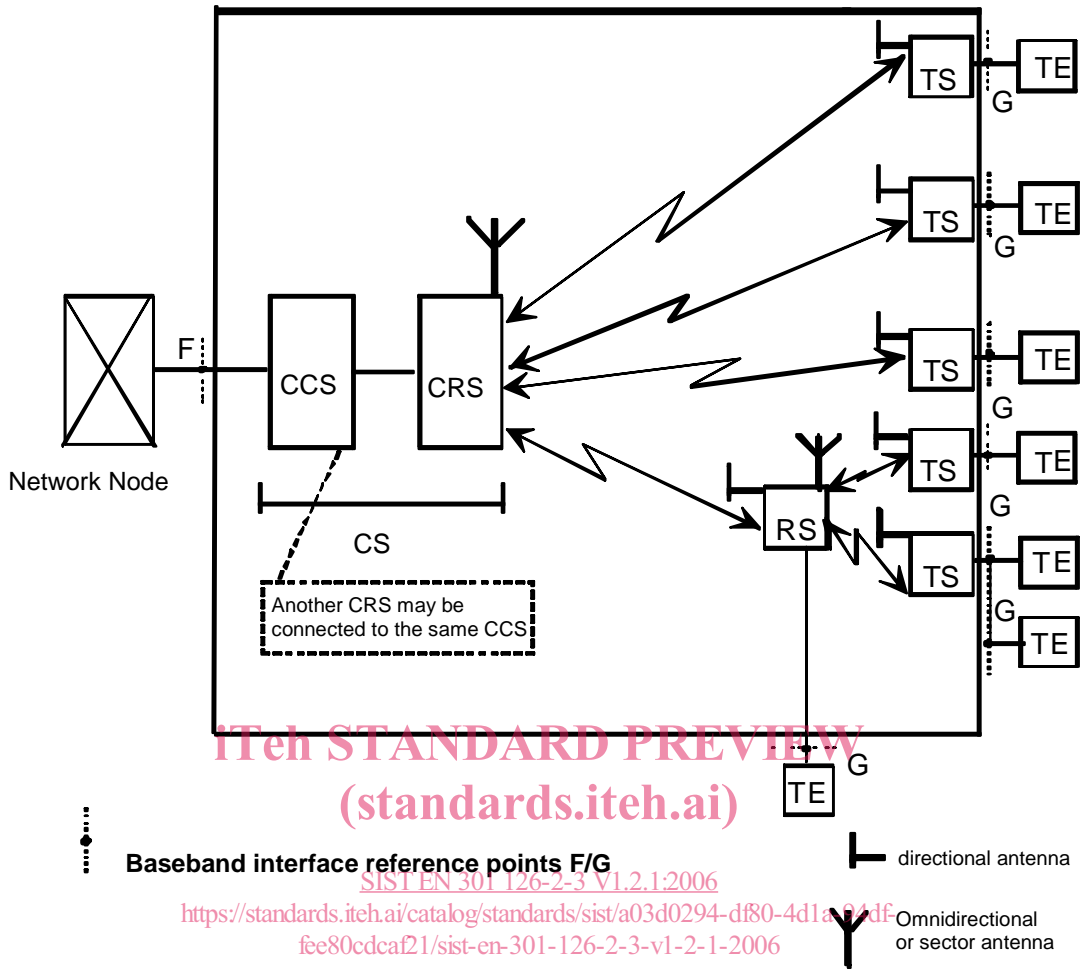
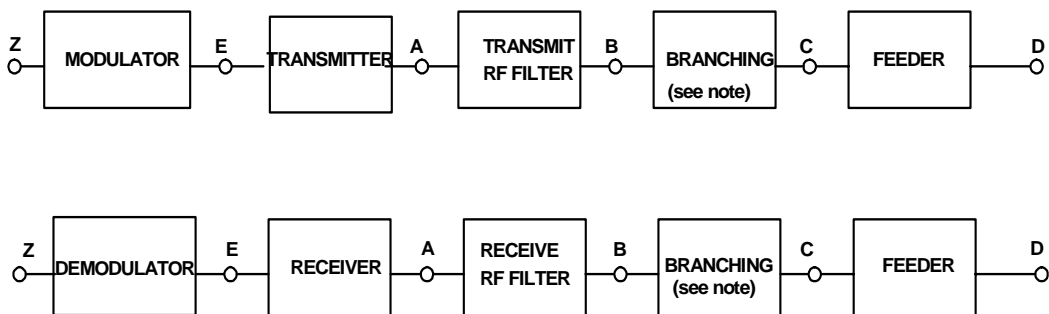


Figure 1: General system architecture



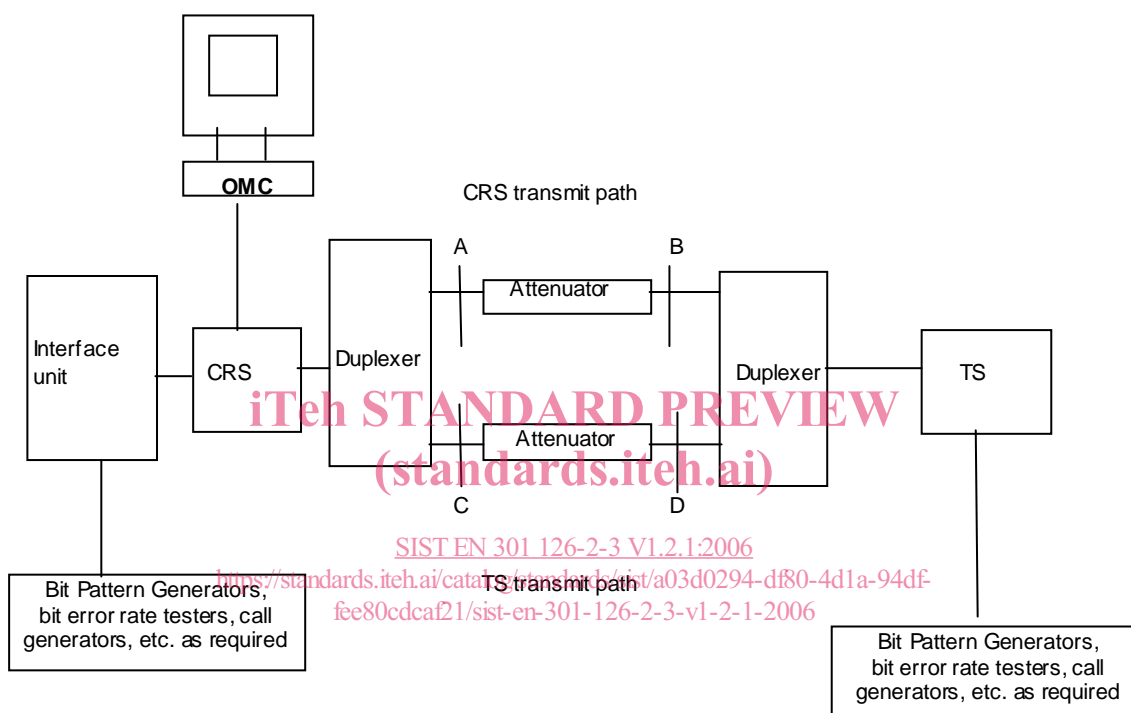
NOTE: No filtering included.

Figure 2: RF System Block diagram

4.1.1 System configuration

P-MP equipment is designed to operate as an access system connected to a network node (e.g. local switch) and user terminal equipment (figure 1). The individual conformance tests are made in a single link direction (figure 2) but for certain tests, e.g. for equipment to set up signalling, both forward and reverse links have to operate, the minimum equipment arrangement for tests with only one subscriber is shown in figure 3, where the forward and return RF paths are separated by a pair of duplexers and separate attenuators are inserted in each path. In the absence of any more specific instructions from the supplier it is suggested that the links are operated at threshold (RSL) + n dB where n is half of the link dynamic range except when the receiver is being tested. The other receiver(s) should continue to be operated at threshold (RSL) + n dB.

Calibrated splitters or directional couplers will be inserted at points A, B, C and D (figures 3 and 4) as required for the individual tests, either to provide test points or sources of interfering signals.



NOTE: TDD systems may only require a single path with one attenuator.

Figure 3: Test configuration for a single Terminal Station

NOTE 1: Calibrated splitters or directional couplers will be inserted at points A, B, C and D as required for the individual tests, either as test points or as sources of interfering signals.

NOTE 2: When measuring the TS transmitter to demonstrate that it meets the emission mask and spurious emissions limits, the splitter network will have only one TS connected and this network may be removed.

NOTE 3: The P-MP systems to be tested are duplex systems and features such as time/frequency synchronization and ATPC require both paths to be functioning correctly. To ensure that the results of measurements on either the forward or return paths, e.g. receiver RSL, are not influenced by conditions in the other path it may be necessary to provide lower attenuation, or raise the transmitter power, in this other path. In the absence of any more specific instructions from the supplier it is suggested that this other path is operated at threshold (RSL) + n dB.

All the test procedures, presented in the following clauses, shall apply to both CRS(s) and TS(s). Unless otherwise stated, all Essential Requirements (ER) tests shall be undertaken at the nominal and extremes of power supply and environmental parameters and at maximum output power. RF power, spectrum and frequency measurements shall be undertaken at low, medium and high frequencies within the declared range of frequencies. These RF frequencies may be selected by remote control or otherwise.