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

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

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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:

- 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".

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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 or national) *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.

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

- [5] [ETSI EN 300 019-2-0](#): "Environmental Engineering (EE); Environmental conditions and environmental tests for telecommunications equipment; Part 2: Specification of environmental tests; Sub-part 0: Introduction".
- [6] [ETSI EN 300 132-2](#): "Environmental Engineering (EE); Power supply interface at the input of Information and Communication Technology (ICT) equipment; Part 2: -48 V Direct Current (DC)".
- [7] [ETSI EN 300 132-1](#): "Environmental Engineering (EE); Power supply interface at the input to Information and Communication Technology (ICT) equipment; Part 1: Alternating Current (AC)".
- [8] [ETSI EN 302 217-1](#): "Fixed Radio Systems; Characteristics and requirements for point-to-point equipment and antennas; Part 1: Overview, common characteristics and requirements not related to access to radio spectrum".
- [9] [ETSI EN 302 217-2](#): "Fixed Radio Systems; Characteristics and requirements for point-to-point equipment and antennas; Part 2: Digital systems operating in frequency bands from 1 GHz to 174,8 GHz; Harmonised Standard for access to radio spectrum".
- [10] [ETSI EN 301 126-3-1](#): "Fixed Radio Systems; Conformance testing; Part 3-1: Point-to-Point antennas; Definitions, general requirements and test procedures".

2.2 Informative references

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The following referenced documents may be useful in implementing an ETSI deliverable or add to the reader's understanding, but are not required for conformance to the present document.

- [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] Recommendation ITU-R F.746: "Radio-frequency channel arrangements for radio-relay systems".
- [i.3] Recommendation ITU-R F.1191: "Bandwidths and unwanted emissions of digital radio-relay systems".
- [i.4] Recommendation ITU-R SM.1539: "Variation of the boundary between the out-of-band and spurious domains required for the application of Recommendations ITU-R SM.1541 and ITU-R SM.329".
- [i.5] ETSI EN 302 217-4: "Fixed Radio Systems; Characteristics and requirements for point-to-point equipment and antennas; Part 4: Antennas".
- [i.6] IEC 60835-1-2: "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; Section 2: Basic characteristics".
- [i.7] IEC 60835-1-4: "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; Section 4: Transmission performance".
- [i.8] IEC 60835-2-4: "Methods of measurement for equipment used in digital microwave radio transmission systems; Part 2-4: Measurements on terrestrial radio-relay systems – Transmitter/receiver including modulator/demodulator".

- [i.9] IEC 60835-2-7: "Methods of measurement for equipment used in digital microwave radio transmission systems; Part 2: Measurements on terrestrial radio-relay systems; Section 7: Diversity switching and combining equipment".
- [i.10] IEC 60835-2-8: "Methods of measurement for equipment used in digital microwave radio transmission systems; Part 2: Measurements on terrestrial radio-relay systems; Section 8: Adaptive equalizer".
- [i.11] IEC 60835-2-10: "Methods of measurement for equipment used in digital microwave radio transmission systems; Part 2: Measurements on terrestrial radio-relay systems; Section 10: Overall system performance".
- [i.12] IEC 60835-2-11: "Methods of measurement for equipment used in digital microwave radio transmission systems; Part 2: Measurements on terrestrial radio-relay systems; Section 11: Cross-polarization interference canceller".
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